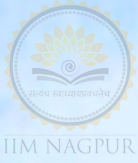




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A Conceptual Study of How Gender Mainstreaming can Enhance Retention of Women Employees through Organisational Embeddedness

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Abstract

To address the concern of women exiting the workforce despite organisations' claims to providing equal opportunities, gender mainstreaming strategy is endorsed which shifts the focus towards rectifying the 'gendered' structures and procedures of an organisation. Through its three key tools viz. gender situational analysis, gender-segregated data, and gender budgeting, gender mainstreaming is proposed to enhance retention of women employees by strengthening their organisational embeddedness characterized by the three dimensions viz. links, fit, and sacrifice. A model for the relationship is suggested and contributions to the practice of gender mainstreaming and organisational embeddedness are suggested.

Keywords: Women employees, organisational embeddedness, gender mainstreaming, employee retention.

Introduction

The global 'gender gap in labour force participation remains above 35%' (WorldEconomicForum, 2021, p. 13). In India, this gap stands at a colossal 72%, with only 22.3% of women involved in labour market (WorldEconomicForum, 2021, p. 14). Lack of promotional opportunities to leadership roles, pay gap, and difficulty in job re-entry post-childbirth are some of the many barriers women employees continue to face (ILO, n.d.), even as companies promote equal opportunity practices at workplace. This raises a question if there underlie structural issues within organisations which hamper gender parity at workplace, resulting in women employees exiting the workforce. The potential of adding \$700 billion to India's GDP by bringing 68 million women into non-farm workforce by 2025 (McKinsey, 2015) makes for a robust case to address such systemic challenges faced by women at workplace which directly impact their turnover intentions.

In the arena of turnover research, job embeddedness (also 'organisational embeddedness' (Ng & Feldman, 2010, p. 697)), has emerged as a 'relatively new' approach to study employee retention (Mitchell, Holtom, & Lee Thomas, 2001). Organisations' gender equality initiatives are usually rooted in the idea of either gender similarity or difference, wherein the 'male norms [of work] are still accepted as the gold standard' (Rees, 2005, p. 559). An alternative to this is gender mainstreaming, a contemporary strategy to achieve gender equality (Daly, 2005), whereby the focus of an organisation is to remove the hurdles caused by its '*gendered structures*' (Acker, 1990, p. 139). To understand how gender mainstreaming would lead to enhanced women employee retention in the organisation, this paper examines the scope for the three dimensions of job embeddedness, viz. link, fit, and sacrifice, within an organisation from the perspective of three key tools of gender mainstreaming, viz. gender situational analysis, gender segregated data, and gender budgeting. A model to that effect is proposed.

The paper makes two important contributions: First, given the work on gender mainstreaming has been gaining ground due to its potential to ensure gender equality in the true sense (Sainsbury & Bergqvist, 2009; Walby, 2005), it contributes to the *practice* of gender mainstreaming by proposing its relationship with organisational processes and outcomes such as embeddedness and retention. Second, it contributes to the literature of organisational embeddedness by exploring it from a gender perspective, given that men and women differ in terms of their overall organisational embeddedness (Ryan & Harden, 2014).

Organisational Embeddedness

Organisational embeddedness emphasizes contextual factors operational in making employees stay with the organisation (Mitchell, Holtom, & Lee Thomas, 2001; Mitchell, Holtom, Lee, et al., 2001). It is characterized by three dimensions: the *links* or network an individual has within the organisation; perceived *fit* or compatibility with requirements, rewards, values; and the *sacrifice* or loss – material or psychological - incurred in the case of quitting the organisation (Mitchell, Holtom, Lee, et al., 2001, p. 1104 and 1105).

The embeddedness of the personnel depends considerably upon their workplace experiences (Mitchell, Holtom, Lee, et al., 2001; Ng & Feldman, 2013). From a gender perspective, it can be inferred that women employees' retention significantly depend upon the organisational culture and policies promoting gender inclusivity and parity at the workplace (Annabi & Lebovitz, 2018). Such practices adopted by the organisations draw their rationale from the feminist arguments pertaining the 'sameness' or 'difference' between men and women. The 'sameness' approach to gender equality promotes treating 'like as like' i.e. equal treatment of all genders (Liff & Wajcman, 1996, p. 81). The 'difference' approach, on the other hand, focuses on 'group disadvantages [and call for] special projects and measures' (Rees, 2005, p. 557) to address gender inequality. However, the sameness-difference reasoning makes organisations strive for gender equality at workplace even as the masculine norms of work remain intact (Rees, 2005, p. 558 and 559). It is no surprise, then, even after the adoption of several gender-friendly practices, instances of disparity at workplace remain pervasive. Thus, a shift of spotlight is warranted towards organisational structures whose 'gendered' nature tends to reinforce at workplaces the established (and often discriminatory) norms of gender.

Inequality due to Gendered Organisational Structures

From being perceived as 'poor fit' for certain roles given the gender stereotypes (Heilman, 2012), to 'being obstructed by harsh, in some respects, and in other ways patronizing, workplace cultures' (Corcoran-Nantes & Roberts, 1995), women employees' routinely encounter discriminatory organisational structures. For instance, even as organisations proclaim equal treatment on paper, training them is considered futile and a lost opportunity for a man, given the assumption she may leave the firm after marriage or childbirth (Corcoran-Nantes & Roberts, 1995). Long working hours becoming the benchmark for managerial success put the onus on women 'to make a stark choice between their careers and their families' (Coyle, 1995, p. 60). Sociologist Joan Acker challenged the prevalent assumption of gender-neutrality of organisational structures in feminist theories (Acker, 1990). Marginalization of women in organisations is attributed to the masculine norms of work permeating organisational processes. This feminist scholarship primarily focused on examining the gendered nature of organisational structures and provided foundational ideas for what is now popularly known as *Gender Mainstreaming*, or 'transforming' (Rees, 2005, p. 557) the very structures that give rise to gender inequality.

Gender Mainstreaming: Equality through Organisational Transformation

Gender mainstreaming has garnered widespread attention as the 'most modern approach to gender equality' (Daly, 2005, p. 433). It is a 'strategy for making gender perspectives an integral part of the design, implementation, monitoring and evaluation of policies and programmes' (Winslow, 2009, p. 539). Theoretically, gender mainstreaming has been examined from an organisational change perspective (Bibbings, 2012). It is because the very structures of organisations are 'gendered' (Acker, 1990; Benschop & Verloo, 2006), i.e. subscribing to masculine norms of body and work. By 'embedding gender equality in systems, processes, policies and institutions' (Rees, 2005, p. 558), gender mainstreaming aims to 'transform' the

institutional unequal structures (Rees, 2005, p. 557). In practice, gender mainstreaming involves a commitment to procedures such as gender situational analysis (to determine current organisational status regarding gender), compilation and use of gender segregated data to make policy decisions and interventions, and gender budgeting or aligning financial resource allocation with the organisation's gender equality goals (EIGE, n.d.; UNWomen, 2017). The ensuing positive organisational outcomes of gender mainstreaming efforts include, but are not limited to, 'meeting challenges of demographic change, contributing to sustainable growth, bigger pool of talent, employee satisfaction, employer attractiveness and public reputation' (EIGE, 2016, p. 9).

Gender Mainstreaming and Retention of Women Employees: Through the Lens of Organisational Embeddedness

This section presents a discussion on the main proposition of the paper: the key tools used in gender mainstreaming – gender situational analysis, gender segregated data and gender budgeting – guide organisational practices which strengthen the link, perceived fit and perceived sacrifice of women employees, thus enabling their embeddedness and retention. The proposed model for this relationship is as follows:

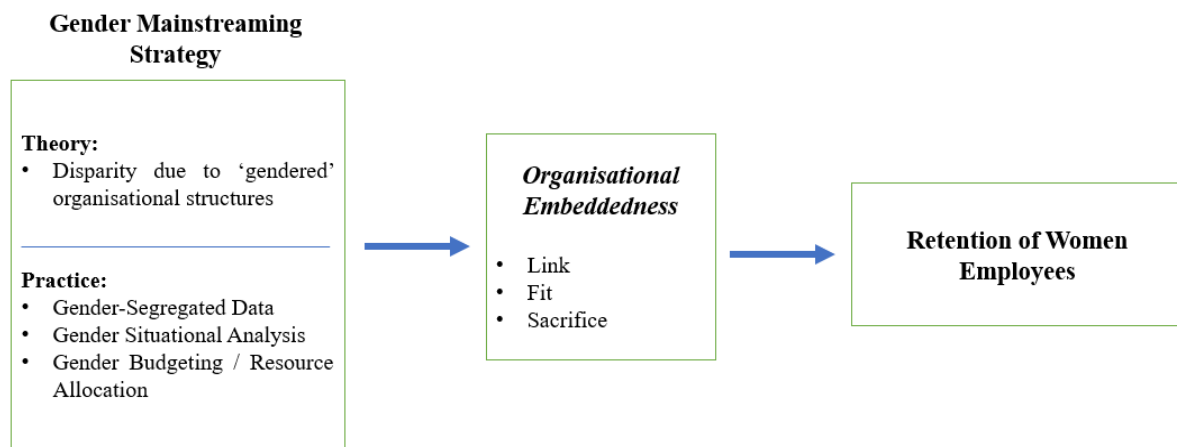


Figure 1: Proposed Model for Gender Mainstreaming resulting in female employee retention through organisational embeddedness.

Gender Mainstreaming and the 'Link' Dimension of Embeddedness

An employee can be retained in an organization when involved in a long-term project (Mitchell & Lee, 2001). In an organisation with an instituted strategy of gender mainstreaming, while gender segregated data (GSD) shall help it assess the degree of participation by women employees in its projects, gender situational analysis (GSA) shall enable it to identify staffing gaps in its projects and whether women can fill them. Participating in a varied range of projects and engaging with multiple teams shall enable women employees build 'crucial social networks' (Ohlott et al., 1994, p. 49) and enhance their 'internal social capital' within the organisation (Zhang et al., 2012, p. 226), thus encouraging their embeddedness. Through gender budgeting (GB), organisations can even reserve resources for dedicated forums where women employees can interact and strengthen their internal networks.

An employee's link to an organisation can also be reinforced through mentorship programs (Mitchell & Lee, 2001), which help establish a more personalized and harmonious senior-subordinate relationship that can encourage the employee's confidence, growth, and thus, her retention. Gender mainstreaming, through GSA based on GSD, shall enable an organisation to

gauge the circumstantially-suited and role-specific assignment of a mentor to a woman employee. To monetarily incentivize the senior's mentorship, if needed, GB can ensure the advanced allocation of funds.

Gender Mainstreaming and the 'Fit' Dimension of Embeddedness

While gender-biased job segregation is quite prevalent, especially in male-dominated industries (Corcoran-Nantes & Roberts, 1995; Jordan, 2012), the strategy of gender mainstreaming thus promises utility for both organisations and its women employees. The use of gender segregated data (GSD) reflecting the skill set of a woman employee to conduct gender situational analysis (GSA) can help an organisation accurately assess the projects or roles where her skills could be optimally utilized. Further, for roles which generally do not see adequate participation by women (say, those requiring technical knowhow or experience), investments by an organisation in the training and upskilling of women employees with high potential is crucial to help them gain suitability for such jobs (Tsusaka, 2020). Based on GSD and GSA, gender budgeting (GB) drives organisations to anticipate and earmark resources for the skill-building of promising women employees, augmenting their fit with job profiles and thus, improving retention.

Gender Mainstreaming and the 'Sacrifice' Dimension of Embeddedness

Career development and promotional opportunities are considered vital by women employees in making their decision on whether to leave or stay in an organisation (Stroh et al., 1996). Formal organisational policies guided by gender situational analysis (GSA) can help determine predictable trajectories for women employees, serving as a significant deterrent against her decision to quit the organisation.

Fairness in organisational procedures plays a vital part in woman employees' perception of agency, or their capacity to act and exercise choice independently, given their 'reliance on formal procedures and systems' (Sweeney & McFarlin, 1997, p. 4). By mandating the inclusion of the interests of women employees in organisational processes, gender mainstreaming 'expands their agency in being able to negotiate with power structures' (CSRJournal, 2019). Using gender segregated data (GSD) and gender situational analysis (GSA), an organisation can consciously undo systemic and procedural lapses which marginalize women employees' interests by requiring each of its offices to be more receptive towards their concerns and voice. This enhanced agency is itself a key advantage and motivation for a woman employee, which she may have to sacrifice upon leaving the organisation that avails it to her through its gender mainstreaming strategy.

Conclusion

Goal 5 of the UN Sustainable Development Goals (SDGs) specifically points towards the need to promote gender equality and mainstream women's concerns into programmes and policy design (UNSDGs, n.d.). With India being one of the signatories of SDGs, organisations of all hues – public, private, NGOs – have a major role to play in enabling retention and meaningful participation of women in the labour market. A credible way to do it is to mainstream gender into organisational processes and systems to remove structural barriers, thereby strengthening women employees' attachment to the organisation.

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Does Employees' Attitude towards Women as Managers changed in the UAE?

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Abstract

This study aims to understand the relationship between demographic variables and the attitudes toward women as managers in the UAE context. This research paper is exploratory and we have taken into consideration a basic framework to understand the relationship that exists among different factors responsible for different perceptions and attitudes towards women as managers. The literature review has focused on the various overarching perspective of women as managers and the attitudes formed by different actors in society. A sample of 213 employees was drawn to understand the relationship. The respondents were administered well established WAMS questionnaire to get responses on various dimensions.

The findings of the study are parallel to the previous works as such that age, work experience, and educational level found support to the hypothesized relationship whereas gender and marital status did not find support. Limitations and future direction along with practical implications and recommendations are also given to draw suitable inferences.

Keywords: Women Manager, Employee Attitude, Gender, Workplace and, UAE

1. INTRODUCTION

In the last 30 years countries have made significant progress in bridging the gap between genders. Multi-national companies to local companies have also tried their level best to enhance their employee diversity to a large extent owing to many socio-political, economic, and business uncertainties. Many companies have declared 'equal opportunity' organizations to promote the inclusion of women in the workplace. The attempts by many of the progressive companies led to a decrease in the glass ceiling and discrimination that exists within the organizations against women. The research area on the glass ceiling attracted researchers to explore the antecedents and consequences and bridge the gap between genders. There are models to understand the phenomenon more precisely but these models have not yielded the requisite results (Babic and Hansez, 2021).

There has been tremendous progress in women's participation in managerial fields, in almost all sectors across the world. Though it is insufficient in terms of men occupying the managerial positions women have made significant progress in this direction. While there are many reasons for women were not allowed to occupy managerial positions, a couple of them being glass ceiling and stereotyping. Women do make it at the lower level/entry-level and middle-level positions but despite having higher educational qualifications and requisite experience they are not given the higher managerial portfolios, this could be because of lack of mentoring and right networking skills which men naturally possess due to socialization (Singh, 2003; Lathabhavan, R., and Balasubramanian, 2017; Jackson, 2001).

The purpose of this study is to explore and find the attitudes and perceptions of employees towards women as effective managers and how do they consider the performance of women at the managerial level. The study aims to capture primary data and through survey questionnaires to ascertain the various aspects of women as managers and how the employees feel about their roles. The findings from the study would pave way for further research in the area of women, managerial positions, and leadership in the UAE. There will be many managerial implications that will help bridge the gap between genders and create equitable and healthy organizations.

Research Question & Objectives

The purpose of the study is to explore and find the various perceptual dimensions and attitudes of employees about women as managers. the study has the following Research Question

RQ: How do employees perceive the effectiveness and performance of women managers in the UAE?

Objectives

Corresponding with the research question the following objectives are.

- To know the perceptions and attitudes of employees about women as managers in both private and public organizations in the UAE
- To design various strategies to dispel myths and misconceptions about women as managers versus men as managers

Context of the study

The study aims to explore how women as managers at the workplace are perceived by the employees. This study also recognizes the importance of other factors like religion, culture, economics, play an important part in the context of women as managers. The context of picking UAE is appropriate because a lot of women educated in the country are entering into the work. The demographics of the country especially more and more women are coming out of the universities are women. 90% of the population in the UAE is an expat and any development in the policies of the companies to promote women as managers will have an impact on the country. UAE has changed too rapidly and some have a global impact too. It would be interesting to study how economic changes have a direct impact on the social and cultural aspects of the country in treating women at the decision-making levels in both governments as well as private organizations. The unemployment rate of women has increased to almost 25% when compared to men which are less than 10%. Interestingly the overall contribution by Emirati women in the last two decades has gone up drastically. Government policies to promote women's higher education and women in the workforce are also paying dividends. At this juncture, it is equally important to know how employees perceive women as managers.

2. LITERATURE REVIEW

Of late there is a good amount of literature available on women as managers. These studies have been conducted largely in the western context. Although attempts are made to replicate similar studies in the Asian context especially with emerging and growing economies to the know and explore the reasons for the rise of women leadership, if not in big number but better than the previous few years.

Glass ceiling for women

Education and training have a lot to do with the employment of women. Despite progress in the educational field by women subtle glass ceiling continues to stop the progress and growth of women in the employment arena. A part of the social roles of women and men are chiefly responsible for such treatment meted out to women at the workplace. Stereotyping to discrimination based on gender is an intangible but evident phenomenon seen even in modern-day organizations. A few policy decisions were drawn to increase female employment through affirmative action and special drives. Although these efforts did yield the results but not sufficient to break the silos that exist in the organizations and the society. the Glass ceiling leads to vertical discrimination of women from reaching higher positions. It is a conscious and unconscious practice that stopped the upward mobility of qualified women to reach their highest potential despite having all the requisite educational qualifications and experience.

According to Babic and Hansez (2021) glass ceiling exists in organizations knowingly and unknowingly. In their study, the authors have studied the antecedents and consequences of the glass ceiling. They considered several factors responsible for this vertical discrimination against women including interpersonal, situational factors to organizational culture. As far as the consequences of these factors are concerned the study highlighted women manager's organizational attitudes and well-being at the workplace. The study also focused on the work and family life conflict in a relationship with a glass ceiling. The findings from the study revealed that women who do not get organizational support and lack mentors handicap their prospects climbing the ladder in the organizational higher positions. Women tend to receive less or no communication about the opportunities due to absence from the social network of the organizations. It is in these networks the growth and promotional activities are discussed and implemented. This study did try to fill the gap that exists in modern organizations about the glass ceiling by bringing work and family conflict and well-being variables into the discussion. In often the bad consequences of the glass ceiling would also lead to job dissatisfaction or intention to quit the job.

There is a change in the perception of others towards the female workforce but the subtleties and challenges faced by women at the workplace are plenty. Orser (1994) reviewed the growing nature and extent of sex role in the Western context, particularly in the USA. There is a great amount of increase in sex roles due to the legislation banning sex discrimination in employment practices. The sample for the study was drawn from the American business and non-business background students to examine the extent to which sex-role stereotyping occurs in the selection and socialization information of attitudes towards women. Findings from the study reflect on the similarities and differences in the USA compared with the UK and West Germany. Some interesting revelations have come to the notice of the decision-makers through this study. Sex roles form the attitudinal construct for many students whereas male business students tend to believe they possess the necessary managerial skills to become successful while female business students believe both men and women are likely to possess the requisite characteristics to be successful at managerial jobs. The study did not find support for attitudinal reflection with the selection process.

Complementing the earlier studies, Kemp, Madsen, and El-Saidi (2013) researched the female leadership in the United Arab Emirates to know the state of affairs in top-level management particularly women in boards, as CEOs, as Vice presidents, unit heads, etc. The investigation by the authors is done through quantitative gender analysis of 954 organizations from the public database and the sample was drawn from the Middle East and North African region. Findings from this research indicated that women are not represented fully as with the case with male counterparts in the senior positions in the company but women were found to be heads in the departmental leadership, hospitality industry, and small public sector companies. The study has given lots of implications for the policymakers to devise and design programs to empower women's leadership in the country (Omair, 2008).

Attitude towards women as managers

Women as managers are seen differently by different actors in society. The males perspective, although changing due to education and awareness but it is entirely different than that of females. Lewis (2010) reported the results from a longitudinal study comparing the attitudes of business undergraduate students towards women as managers. The study compared the results drawn from the years 1981, 2000, and 2010. During all these years of investigation, women have shown positive and significant attitudes towards women as managers than their male counterparts. Further, the study also probed into the females' attitudes in different years of their

attitudes. Compare to 1981 women 2000 year women shown more positive attitudes towards women as managers. On the other hand, there is a difference found in 2010 with 2000 women's attitudes towards women as managers. Interestingly, there was a change in the attitude of men from 1981 to 2000. However, there is a shift from 2000 to 2010 in the attitude of men towards women as managers. This research has triggered the changing views of men towards women as managers on a positive side.

In another study, Liu, and Wilson (2001) studied the perception of women as managers and the challenges they face at the workplace. The study also identifies various issues and problems faced by women on day to day basis in multinational corporations and the impact across the country. The major issues identified are age, gender, and family responsibility. Interviews and focus group discussions with the respondents revealed that women undergo various problems at the workplace. This revelation has brought about significant changes in the policy and implementation of women empowerment at the multi-national corporations and the perception of women at the workplace so far.

Terborg, Peters, Ilgen, and Smith (1977) discussed the measurement issues related to women as managers at the workplace. In their study, the authors have used a sample of 280 employees, 180 males, and 100 females. The data also examined the relationship between age, sex, salary, promotion to know about the stereotyping behavior in the workplace. Findings from the study indicated that personal data like age and sex are related consistently to the attitudes toward women as managers whereas the organizational data like salary and promotion did not relate. This is one of the foremost studies to validate the scale and measurement issues related to women as managers.

The situation is no different in the UAE. Mostafa (2005) investigated the attitudes toward women as managers held by 186 Emirati samples. They were given a well-established scale on the aversion to women who work. Results from the study revealed that the younger generation has a different attitude towards women as managers compare to older generations. Apart from that, there are also significant differences in men's and women's perceptions about the perceptions of women's role in the UAE society. The study predicted that modernity might diminish the patriarchal mindset towards women as managers soon. This is one of the important studies to probe the attitudes of men and women, old and new generations toward women as managers in the UAE.

3. FORMULATION OF HYPOTHESES

After a systematic and comprehensive literature review, some clear gaps emerged in the research on women as managers in organizations using different constructs and variables. Past studies have examined women as managers in terms of patriarchy, sex-role stereotypes, job satisfaction, and scale development. In this, we have studied perceptions and attitudes of employees toward women as managers using demographic variables (Mostafa, 2005).

Relationship between Gender and Attitudes toward Women as Managers

Previous studies suggested that gender does play an important role in determining the attitudes toward women as managers. These studies were empirically tested on gender differences in attitudes toward women as managers. It is believed that women tend to give a favorable response to women as managers than their counterparts, men. In many studies, it was found the females tend to be more liberal towards women managers because traditionally males tend to believe more negative views of female managers than males. This attitude of 'think manager, think male' prevailed across the countries and industries for several decades. Furthermore,

research has shown that individuals maintain and promote attitudes that reflect in their economic status, class, and position they belong to. The extent to which females and males are positioned differently in organizational roles, such that females are thought to be incompetent managers whereas males are considered to be effective managers (Mostafa, 2005; Singh, 2003; Stevens, 1980; Gulhati, 1990). Therefore, we believe that females show more favorable attitudes toward women as managers when compared to males:

H1: There is a significant relationship between Gender and attitude towards women as managers, such that females will have more favorable attitudes toward women as managers than males will have

Relationship between Age and Attitudes toward Women as Managers

The younger generation tends to accept women as managers. Previous has shown findings in this direction. Young males and females in the age group of 21-35 shown a preference in accepting women as managers. The difference in generations in terms of preference can be attributed to the socialization process these young kids have gone through and that in turn have affected the image and development of women's role in society at large. Older employees tend to believe women as weak when it comes to a managerial positions. This is because it is difficult to change the beliefs, values, and attitudes of the old. The longer the attitude is held, the harder it becomes to change them (Mostafa, 2005; Elamin & Omair, 2010; Bowen, Wu, Hwang, and Scherer, 2007; Gulhati, 1990). Thus, we postulate the following hypothesis:

H2: There is a significant relationship between age and attitude towards women as managers

Relationship between Marital Status and Attitudes toward Women as Managers

There are limited studies that have dwelt upon the marital status and positive and negative response towards women as managers. We expect marital status to play an important role in determining the attitudes of the respondents. We believe that people who are married tend to accept women as managers more favorably than those who are unmarried or single (Mostafa, 2005; Singh, 2003; Ali, Khan and Munaf, 2013; Stevens, 1980; Gulhati, 1990). Hence, we believe that married show more favorable attitudes toward women as managers when compared to unmarried people:

H3: There is a significant relationship between Marital Status and attitude towards women as managers

Relationship between Work Experience and Attitudes toward Women as Managers

Evidence from the previously revealed that work experience plays a crucial role in determining the attitudes toward women as managers. Those who have work experience understand and know the work culture and come across different situations in which they interact with women managers too and hence tend to believe that women as managers are effective and accept them. On the other hand freshers with no experience tend to carry the same old belief system that they adopted as part of their childhood socialization (Kemp, 2013; Mostafa, 2005; Singh, 2003; Ali, Khan and Munaf, 2013; Stevens, 1980; Liu, and Wilson, 2001) Therefore, in the light of the above argument we formulated the below hypothesis:

H4: There is a significant relationship between Work Experience and attitude towards women as managers

Relationship between Educational Level and Attitudes toward Women as Managers

Education is another factor that plays an important role in knowing the attitudes toward women as managers. People who are highly educated tend to hold this view that women as managers are effective and efficient and give a favorable response when asked. On the other hand, people who have got no education or less education believe that women as managers are not effective and inefficient. This shred of evidence in the literature show education is an important variable to predict the attitude towards women as managers.(Mostafa, 2005; Singh, 2003; Stevens, 1980; Gulhati, 1990). Thus, we expect a significant relationship between education and attitudes such the more educated a person is the more he/she will have favorable attitudes toward women as managers:

H5: There is a significant relationship between Educational level and attitude towards women as managers

4. RESEARCH METHODOLOGY

The study used quantitative data techniques to find answers to the proposed research question and hypotheses formulated.

Research Design

Through the formulation of hypotheses from the literature, the study gathered data from the employees of public and private organizations in the UAE which is the population for the study. A simple random sampling was used to get the representation from the target population where women managers are working in the organizations.

Sample & Data Collection

The data were collected from different parts of the UAE, representing an overall outlook of the country and is considered to be progressive towards women, and many women managers both local and ex-pats are working for quite some time. The study followed a cross-sectional approach to gather the data from the employees whose manager is a woman. The data were collected from 213 respondents having 0 to 21 years of experience comprising 79% females and 21% males. The respondents are single, married, and divorced. The details of the data are presented in the Results Analysis section.

The study aimed to collect the questionnaire response through an established scale with no modifications to suit the context of the study. As many as 10 times the number of items of the scale is used as a parameter to get the sample. A structured questionnaire with 21 attitudinal items including the demographic variables was administered to the respondents through online and offline modes. Each item was measured on a 7 point Likert type scale where '7' indicates strongly agree and '1' indicates strongly disagree '4' indicates neither agree nor disagree positions.

Measures

The well-established measure of the Women as Managers Scale (WAMS) developed by Peters, Terborg, and Taynor (1974) is used. This scale is validated by several researchers time and again. The scale has 21 items. Of these 21 items, 11 items were negatively worded and hence reverse coded them.

Table 4.1: Women as Managers Scale items

| Item code used in the study | Item/Statement |
|------------------------------------|---|
| WAMS1RC | It is less desirable for women than for men to have a job that requires responsibility. (R) |
| WAMS2 | Women have the objectivity required to evaluate business situations properly. |
| WAMS3RC | Challenging work is more important to men than it is to women. (R) |
| WAMS4 | Men and Women should be given equal opportunity for participation in management training programs. |
| WAMS5 | Women can acquire the necessary skills to be successful managers |
| WAMS6RC | On average, women managers are less capable of contributing to an organization's overall goals than are men. (R) |
| WAMS7RC | It is not acceptable for women to assume leadership roles as often as men. (R) |
| WAMS8 | The development community should someday accept women in key managerial positions. |
| WAMS9 | Society should regard work by female managers as valuable as work by male managers. |
| WAMS10 | It is acceptable for women to compete with men for top executive positions. |
| WAMS11 | The possibility of pregnancy does not make women less desirable employees than men. |
| WAMS12 | Women would no more allow their emotions to influence their managerial behavior than would men. |
| WAMS13 | Problems associated with menstruation should not make women less desirable than men as employees. |
| WAMS14 | To be a successful executive, a woman does not have to sacrifice some of her femininity. |
| WAMS15RC | On average, a woman who stays at home all the time with her children is a better mother than a woman who works outside the home at least half the time. (R) |
| WAMS16RC | Women are less capable of learning mathematical and mechanical skills than are men. (R) |
| WAMS17RC | Women are not ambitious enough to be successful in the working world. (R) |
| WAMS18RC | Women cannot be assertive in business situations that demand it. (R) |
| WAMS19 | Women possess the self-confidence required of a good leader. |
| WAMS20RC | Women are not competitive enough to be successful in the working world. (R) |
| WAMS21RC | Women cannot be aggressive in business situations that demand it. (R) |

5. RESULTS ANALYSIS

For the analysis of the data, the study used Microsoft Excel for initial filtering of the data and SPSS software 26.0 version for further inferential statistics.

Descriptive statistics displaying all the variables used in the study with several samples, minimum, maximum, mean, standard deviation, skewness, and kurtosis were presented in Table 5.1.

Table 5.1: Descriptive Statistics

Descriptive Statistics

| | N | Minimum | Maximum | Mean | Std. Deviation | Skewness | | Kurtosis | |
|---------------------|-----------|-----------|-----------|-----------|----------------|-----------|------------|-----------|------------|
| | Statistic | Statistic | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| Gender | 213 | 1 | 2 | 1.21 | .409 | 1.425 | .167 | .030 | .332 |
| Age | 213 | 1 | 5 | 2.80 | .818 | .379 | .167 | .159 | .332 |
| Marital Status | 213 | 1 | 3 | 1.58 | .523 | -.015 | .167 | -1.333 | .332 |
| Experience | 213 | 1 | 5 | 2.20 | .835 | .941 | .167 | 1.220 | .332 |
| Educational Level | 213 | 1 | 4 | 2.44 | .667 | .956 | .167 | .167 | .332 |
| WAMS1RC | 213 | 1 | 7 | 5.10 | 1.882 | -.632 | .167 | -.740 | .332 |
| WAMS2 | 213 | 2 | 7 | 5.92 | 1.289 | -.961 | .167 | -.051 | .332 |
| WAMS3RC | 213 | 1 | 7 | 5.20 | 1.893 | -.805 | .167 | -.560 | .332 |
| WAMS4 | 213 | 2 | 7 | 6.54 | 1.048 | -2.475 | .167 | 5.803 | .332 |
| WAMS5 | 213 | 2 | 7 | 6.39 | 1.083 | -2.387 | .167 | 6.106 | .332 |
| WAMS6RC | 213 | 1 | 7 | 5.25 | 1.909 | -.762 | .167 | -.636 | .332 |
| WAMS7RC | 213 | 1 | 7 | 5.42 | 2.106 | -1.121 | .167 | -.198 | .332 |
| WAMS8 | 213 | 1 | 7 | 6.31 | 1.232 | -1.986 | .167 | 4.029 | .332 |
| WAMS9 | 213 | 1 | 7 | 6.24 | 1.286 | -2.268 | .167 | 5.806 | .332 |
| WAMS10 | 213 | 3 | 7 | 6.48 | .964 | -1.851 | .167 | 2.519 | .332 |
| WAMS11 | 213 | 1 | 7 | 5.55 | 1.621 | -.895 | .167 | -.015 | .332 |
| WAMS12 | 213 | 1 | 7 | 5.30 | 1.626 | -.786 | .167 | -.038 | .332 |
| WAMS13 | 213 | 2 | 7 | 5.76 | 1.392 | -.771 | .167 | -.615 | .332 |
| WAMS14 | 213 | 1 | 7 | 5.72 | 1.684 | -1.074 | .167 | .053 | .332 |
| WAMS15RC | 213 | 1 | 7 | 4.75 | 2.133 | -.486 | .167 | -1.085 | .332 |
| WAMS16RC | 213 | 1 | 7 | 5.82 | 1.718 | -1.402 | .167 | .960 | .332 |
| WAMS17RC | 213 | 1 | 7 | 5.94 | 1.656 | -1.627 | .167 | 1.723 | .332 |
| WAMS18RC | 213 | 1 | 7 | 5.58 | 1.705 | -1.051 | .167 | .233 | .332 |
| WAMS19 | 213 | 1 | 7 | 5.63 | 1.806 | -1.274 | .167 | .575 | .332 |
| WAMS20RC | 213 | 1 | 7 | 5.75 | 1.730 | -1.275 | .167 | .570 | .332 |
| WAMS21RC | 213 | 1 | 7 | 5.27 | 1.715 | -.813 | .167 | -.159 | .332 |
| Valid N (list wise) | 213 | | | | | | | | |

The demographic variables of respondents are displayed in Table 5.2. The five demographic variables used in this study were Gender, Age, Marital Status, Work Experience, and Educational Level of the respondents.

Table 5.2: Demographic Variables Statistics

| | | <i>Statistics</i> | | | | |
|----------------|---------|-------------------|------|----------------|------------|-------------------|
| | | Gender | Age | Marital Status | Experience | Educational Level |
| N | Valid | 213 | 213 | 213 | 213 | 213 |
| | Missing | 0 | 0 | 0 | 0 | 0 |
| Mean | | 1.21 | 2.80 | 1.58 | 2.20 | 2.44 |
| Std. Deviation | | .409 | .818 | .523 | .835 | .667 |
| Variance | | .167 | .668 | .273 | .697 | .445 |
| Range | | 1 | 4 | 2 | 4 | 3 |
| Minimum | | 1 | 1 | 1 | 1 | 1 |
| Maximum | | 2 | 5 | 3 | 5 | 4 |

The frequency distribution of respondents concerning gender is displayed in Table 5.3 & Fig. 5.1. It was observed that 21% of the respondents were males and 79% of the respondents were females.

Table 5.3: Frequency Distribution of Respondents as per Gender

| | | Frequency | Percent | Cumulative Percent |
|-------|--------|-----------|---------|--------------------|
| Valid | Female | 168 | 78.9 | 78.9 |
| | Male | 45 | 21.1 | 100.0 |
| | Total | 213 | 100.0 | |

The frequency distribution of respondents concerning gender is displayed in Table 5.3 & Fig. 5.1. It was observed that 21% of the respondents were males and 79% of the respondents were females.

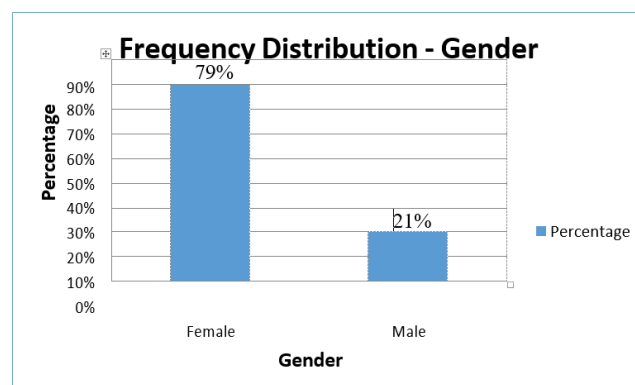


Fig 5.1: Frequency Distribution of Respondents as per their Gender

The frequency distribution of respondents concerning age is displayed in Table 5.4 & Fig. It

was observed that 3% of the respondents were in the category of 21-25 years of age, 34% of the respondents were in the category of 26-30 years of age, 46.5% of the respondents were in the category of 31-35 years of age, 14% of the respondents were in the category of 36-40 years of age and 3% of the respondents were in the category of 41 years and above.

Table 5.4: Frequency Distribution of Respondents as per their Age

| | | Frequency | Percent | Cumulative Percent |
|-------|------------|-----------|---------|-----------------------|
| Valid | 21-25 | 6 | 2.8 | 2.8 |
| | 26-30 | 72 | 33.8 | 36.6 |
| | 31-35 | 99 | 46.5 | 83.1 |
| | 36-40 | 30 | 14.1 | 97.2 |
| | 41 & Above | 6 | 2.8 | 100.0 |
| | Total | 213 | 100.0 | |

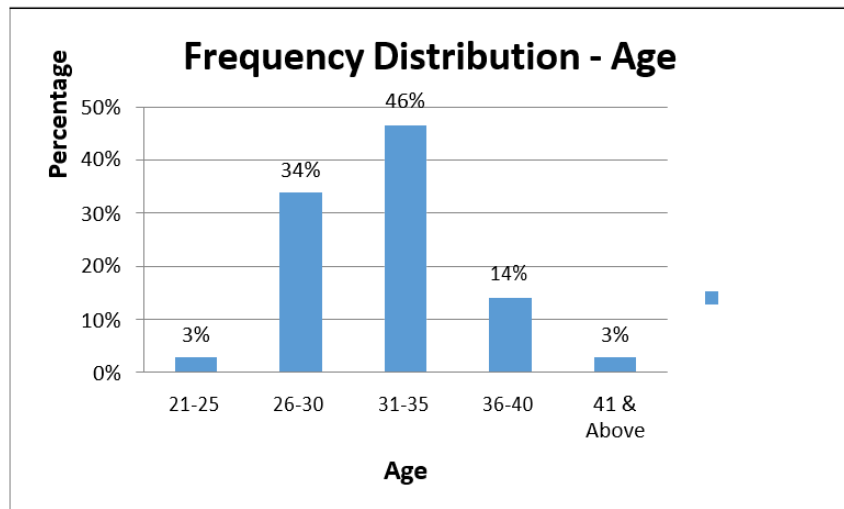
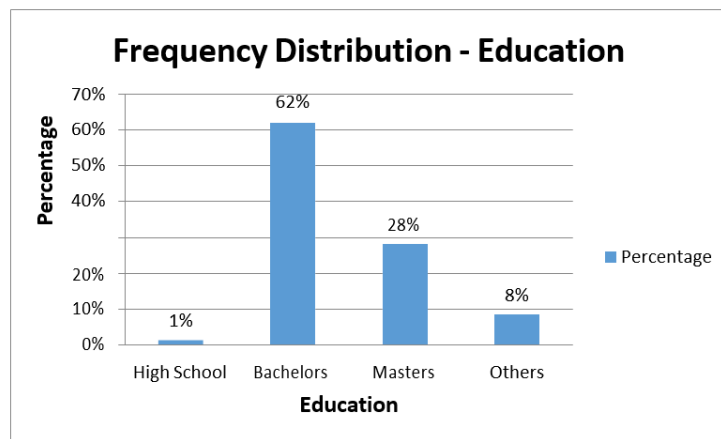


Fig. 5.2: Frequency Distribution of Respondents as per their Age

The frequency distribution of respondents concerning Educational level is displayed in Table 5.5 & Fig. 5.3. It was observed that 1.4% of the respondents were in the category of High school, 62% of the respondents were in the category of Bachelors, 28.2% of the respondents were in the category of Masters, and 8.5% of the respondents were in the category of Other professional qualifications like Diploma and MBA.

Table 5.5: Frequency Distribution of Respondents as per their Educational Level

| | | Frequency | Percent | Cumulative Percent |
|-------|-------------|-----------|---------|-----------------------|
| Valid | High School | 3 | 1.4 | 1.4 |
| | Bachelors | 132 | 62.0 | 63.4 |
| | Masters | 60 | 28.2 | 91.5 |
| | Others | 18 | 8.5 | 100.0 |
| | Total | 213 | 100.0 | |

**Fig 5.3: Frequency Distribution of Respondents as per their Educational Level**

The frequency distribution of respondents concerning Marital Status is displayed in Table 5.6 & Fig. 5.4. It was observed that 43.7% of the respondents were in the category of Single or Never Married, 55% of the respondents were in the category of Married, and 1.4% of the respondents were in the category of Divorced.

Table 5.6: Frequency Distribution of Respondents as per their Marital Status

| | | Frequency | Percent | Cumulative Percent |
|-------|----------|-----------|---------|-----------------------|
| Valid | Single | 93 | 43.7 | 43.7 |
| | Married | 117 | 54.9 | 98.6 |
| | Divorced | 3 | 1.4 | 100.0 |
| | Total | 213 | 100.0 | |

The frequency distribution of respondents concerning their marital status is presented in Table 5.4. It was observed that 76.8% of the respondents were married and 21.9% of the respondents were unmarried.

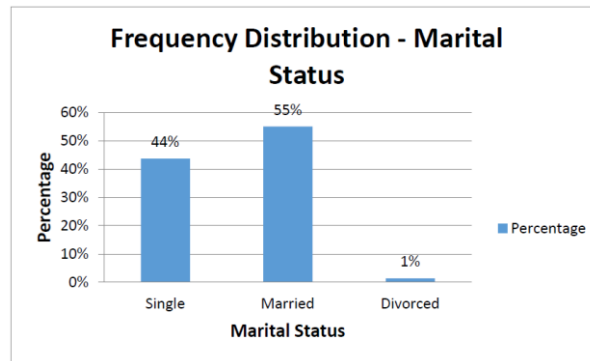


Fig 5.4: Frequency Distribution of Respondents as per their Marital Status

The frequency distribution of respondents concerning Work Experience is displayed in Table 5.7 & Fig. 5.5. It was observed that 15.5% of the respondents were in the category of 0-3 years of experience, 59.2% of the respondents were in the category of 4-10 years of experience, 16.9% of the respondents were in the category of 11-15 years of experience, 7% of the respondents were in the category of 16-20 years of experience and 1.4% of the respondents were in the category of 21 years and above experience.

Table 5.7: Frequency Distribution of Respondents as per their Work Experience

| | Frequency | Percent | Cumulative Percent |
|----------------|-----------|---------|--------------------|
| Valid 0-3 Yrs | 33 | 15.5 | 15.5 |
| 4-10 Yrs | 126 | 59.2 | 74.6 |
| 11-15 Yrs | 36 | 16.9 | 91.5 |
| 16-20 Yrs | 15 | 7.0 | 98.6 |
| 21 Yrs & Above | 3 | 1.4 | 100.0 |
| Total | 213 | 100.0 | |

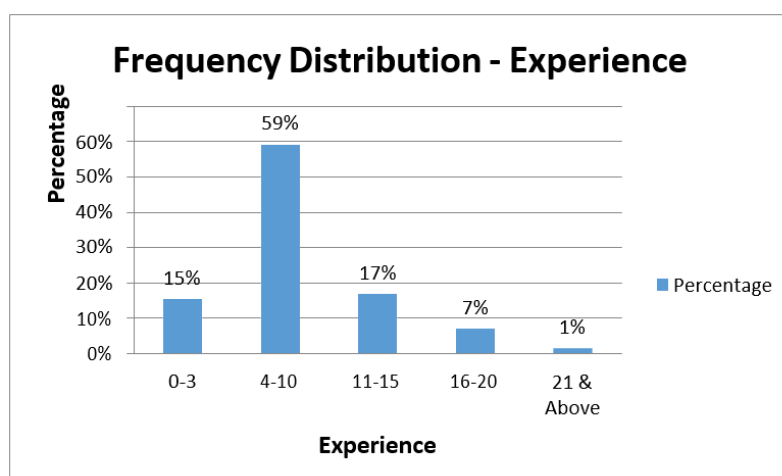


Fig. 5.5: Frequency Distribution of Respondents as per their Employment Experience

Reliability of the items showed the scale to be consistent with Alpha value = .860 which is above the convention of .60 (see Table 5.8). Exploratory Factor Analysis was also conducted to check any difference in loading of the items as in the study. Factor analysis identifies the underlying factor structure and thus provides initial unidimensionality (convergent validity) among the items in the factors. Principal Component Analysis was used as the method in with the varimax rotation. The items loaded in the same factors they were intended to load. The KMO and Bartlett's Test, Communalities, total variance explained & loading plot of the factors are shown in Tables 5.8 to 5.11. Six organic factors were achieved namely: Factor 1: Effect of Women's Employment on Family and Women's Work-Related Attributes, Factor 2: Prospect of Women's Advancement in Business Life, Factor 3: Women in Leadership Roles, Factor 4: Women's Self Confidence, Factor 5: Challenging Roles, and Factor 6: Business Acumen.

Table 5.8: Reliability

| <i>Reliability Statistics</i> | |
|-------------------------------|------------|
| Cronbach's Alpha | N of Items |
| .860 | 21 |

Table 5.9: KMO and Bartlett's Test & Communalities

| <i>KMO and Bartlett's Test</i> | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .739 |
| Bartlett's Test of | Approx. Chi-Square | 2545.628 |
| Sphericity | df | 210 |
| | Sig. | .000 |

Communalities

| | Initial | Extraction |
|---------|---------|------------|
| WAMS1RC | 1.000 | .565 |
| WAMS2 | 1.000 | .573 |
| WAMS3RC | 1.000 | .630 |
| WAMS4 | 1.000 | .795 |
| WAMS5 | 1.000 | .701 |
| WAMS6RC | 1.000 | .639 |

| | | |
|----------|-------|------|
| WAMS7RC | 1.000 | .574 |
| WAMS8 | 1.000 | .602 |
| WAMS9 | 1.000 | .696 |
| WAMS10 | 1.000 | .799 |
| WAMS11 | 1.000 | .687 |
| WAMS12 | 1.000 | .786 |
| WAMS13 | 1.000 | .780 |
| WAMS14 | 1.000 | .641 |
| WAMS15RC | 1.000 | .753 |
| WAMS16RC | 1.000 | .801 |
| WAMS17RC | 1.000 | .862 |
| WAMS18RC | 1.000 | .848 |
| WAMS19 | 1.000 | .717 |
| WAMS20RC | 1.000 | .601 |
| WAMS21RC | 1.000 | .703 |

Extraction Method: Principal Component
Analysis.

Table 5.10: Total Variance Explained

Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
|-----------|---------------------|--------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| | % of Total Variance | | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 6.060 | 28.856 | 28.856 | 6.060 | 28.856 | 28.856 | 3.972 | 18.913 | 18.913 |
| 2 | 3.200 | 15.240 | 44.097 | 3.200 | 15.240 | 44.097 | 3.218 | 15.322 | 34.235 |
| 3 | 1.726 | 8.220 | 52.316 | 1.726 | 8.220 | 52.316 | 2.213 | 10.536 | 44.771 |
| 4 | 1.372 | 6.533 | 58.850 | 1.372 | 6.533 | 58.850 | 1.947 | 9.270 | 54.041 |
| 5 | 1.285 | 6.121 | 64.971 | 1.285 | 6.121 | 64.971 | 1.826 | 8.694 | 62.735 |
| 6 | 1.109 | 5.282 | 70.253 | 1.109 | 5.282 | 70.253 | 1.579 | 7.518 | 70.253 |
| 7 | .934 | 4.447 | 74.699 | | | | | | |
| 8 | .806 | 3.840 | 78.539 | | | | | | |
| 9 | .682 | 3.249 | 81.788 | | | | | | |
| 10 | .606 | 2.885 | 84.673 | | | | | | |
| 11 | .581 | 2.764 | 87.437 | | | | | | |
| 12 | .479 | 2.280 | 89.717 | | | | | | |

| | | | |
|----|------|-------|---------|
| 13 | .458 | 2.180 | 91.897 |
| 14 | .411 | 1.958 | 93.855 |
| 15 | .296 | 1.412 | 95.267 |
| 16 | .270 | 1.287 | 96.554 |
| 17 | .227 | 1.079 | 97.634 |
| 18 | .182 | .868 | 98.502 |
| 19 | .132 | .628 | 99.131 |
| 20 | .100 | .478 | 99.609 |
| 21 | .082 | .391 | 100.000 |

Extraction Method: Principal Component Analysis.

Table 5.11: Factor Analysis – Rotated Component Matrix

Rotated Component Matrix^a

| | Component | | | | | |
|---------|-----------|------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| WAMS1RC | | | | .620 | | |
| WAMS2 | | | | | | .559 |
| WAMS3RC | | | | | .598 | |
| WAMS4 | | .725 | | .508 | | |
| WAMS5 | | .723 | | | | |
| WAMS6RC | | | | | .522 | |
| WAMS7RC | | | | | .518 | |
| WAMS8 | | .687 | | | | |
| WAMS9 | | .755 | | | | |
| WAMS10 | | .767 | | | | |
| WAMS11 | | | .633 | | | |
| WAMS12 | | | .879 | | | |
| WAMS13 | | | .810 | | | |
| WAMS14 | | | | .704 | | |

| | | |
|----------|------|------|
| WAMS15RC | | .766 |
| WAMS16RC | .868 | |
| WAMS17RC | .874 | |
| WAMS18RC | .820 | |
| WAMS19 | | .834 |
| WAMS20RC | .719 | |
| WAMS21RC | .736 | |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Tests of Normality were also applied to the dependent variable, attitudes toward women as managers and it is evident from the data (see Table 5.12) that it is significantly different from the expected normal distribution ($p < 0.05$).

Table 5.12: Tests of Normality for Dependent Variable

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|------------------|---------------------------------|-----|------|--------------|-----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| FactorScore_WAMS | .121 | 213 | .000 | .930 | 213 | .000 |

a. Lilliefors Significance Correction

Testing of Hypotheses

Since the data were significantly different from an expected normal distribution, we have used non-parametric alternatives to test the hypothesized relationships. For Hypothesis 1, we have used Mann Whitney Test to compare differences between two independent groups. The Mann Whitney U test revealed that Attitude scores were significantly lower in the males group (Md =5.47, n=213) compared to females groups (Md=5.92 , n=213), $U=3366$, $z= -1.128$, $p > 0.05$ (two-tailed) (see Table 5.13). Hence H1 is not supported.

Table 5.13: Mann Whitney Test for Gender*Ranks*

| | Gender | N | Mean Rank | Sum of Ranks |
|------------------|--------|-----|-----------|--------------|
| FactorScore_WAMS | Female | 168 | 109.46 | 18390.00 |
| | Male | 45 | 97.80 | 4401.00 |
| | Total | 213 | | |

Report

Median

| Gender | FactorScore_WAMS |
|--------|------------------|
| Female | 5.9286 |
| Male | 5.4762 |
| Total | 5.9048 |

Test Statistics

| FactorScore_WAMS | |
|------------------------|----------|
| Mann-Whitney U | 3366.000 |
| Wilcoxon W | 4401.000 |
| Z | -1.128 |
| Asymp. Sig. (2-tailed) | .259 |

a. Grouping Variable: Gender

Similarly, hypotheses testing was carried out to other relationships using the Kruskal Wallis test which is equivalent to ANOVA analog (one-way) for non-parametric data. For Hypothesis 2, the Kruskal Wallis test revealed that a statistically significant difference in age across 5 groups, $H(4, N=213) = 20.16, p < 0.01$. Attitudes were lower in the 21-25 years ($Md=5.04$) when compared to 36-40 years ($Md = 5.34$), 31-35 years ($Md = 5.90$), 26-30 years ($Md =$ and 41 years and above (6.28)) (see Table 5.14). Therefore, Hypothesis 2 is supported.

Table 5.14: Kruskal Wallis Test for Age

Ranks

| | Age | N | Mean Rank |
|------------------|----------------|-----|-----------|
| FactorScore_WAMS | 21-25 Yrs | 6 | 52.25 |
| | 26-30 Yrs | 72 | 116.50 |
| | 31-35 Yrs | 99 | 111.36 |
| | 36-40 Yrs | 30 | 71.60 |
| | 41 Yrs & Above | 6 | 152.75 |
| | Total | 213 | |

Test Statistics^b

| FactorScore_ WAMS | |
|----------------------|--------|
| Kruskal-Wallis H | 20.164 |
| df | 4 |
| Asymp. Sig. | .000 |

a. Kruskal Wallis Test

b. Grouping Variable: Age

Report

Median

| FactorScore_ WAMS | |
|----------------------|--------|
| Age | WAMS |
| 21-25 Yrs | 5.0476 |
| 26-30 Yrs | 6.1429 |
| 31-35 Yrs | 5.9048 |
| 36-40 Yrs | 5.3571 |
| 41 Yrs & Above | 6.2857 |
| Total | 5.9048 |

Hypothesis 3 was also tested using the Kruskal Wallis test and the results revealed that a statistically significant difference in Marital status across 3 groups, $H(2, N=213) = 2.09$, $p > 0.05$. Attitudes were lower in the Divorced ($Md = 5.71$) when compared to Married ($Md = 5.85$), and Single ($Md = 5.95$) (see Table 5.15). Therefore, Hypothesis 3 did not get enough support.

Table 5.15: Kruskal Wallis Test for Marital Status

Ranks

| | Marital Status | N | Mean Rank |
|------------------|----------------|-----|-----------|
| FactorScore_WAMS | Single | 93 | 113.87 |
| | Married | 117 | 101.85 |
| | Divorced | 3 | 95.00 |
| | Total | 213 | |

Test Statistics^b

| FactorScore_ WAMS | |
|-------------------|-------|
| Kruskal-Wallis H | 2.090 |
| df | 2 |
| Asymp. Sig. | .352 |

a. Kruskal Wallis Test

b. Grouping Variable: Marital Status

Report

Median

| FactorScore_ WAMS | |
|-------------------|--------|
| Marital Status | |
| Single | 5.9524 |
| Married | 5.8571 |
| Divorced | 5.7143 |
| Total | 5.9048 |

The Kruskal Wallis test was used for testing For Hypothesis 4, the results of the test revealed that a statistically significant difference in work experience 5 groups, $H(4, N=213) = 15.41, p < 0.05$. Attitudes were lower in the 21 years and above (Md =4.14) when compared to 0 -3 years (Md = 5.34), 16-20 years (Md = 5.38), 4-10 years (Md = 6.00) and 11-15 years (6.04) (see Table 5.16). Therefore, Hypothesis 4 is supported.

Table 5.16: Kruskal Wallis Test for Experience

Ranks

| | Experience | N | Mean Rank |
|-------------------|----------------|-----|-----------|
| FactorScore_ WAMS | 0-3 Yrs | 33 | 89.14 |
| | 4-10 Yrs | 126 | 112.36 |
| | 11-15 Yrs | 36 | 122.13 |
| | 16-20 Yrs | 15 | 84.50 |
| | 21 Yrs & Above | 3 | 9.50 |
| | Total | 213 | |

Test Statistics^{a,b}

FactorScore_ WAMS

Kruskal-Wallis H 15.414

df 4

Asymp. Sig. .004

- a. Kruskal Wallis Test
b. Grouping Variable: Experience

Report

Median

| Experience | FactorScore_ WAMS |
|----------------|-------------------|
| 0-3 Yrs | 5.3333 |
| 4-10 Yrs | 6.0000 |
| 11-15 Yrs | 6.0476 |
| 16-20 Yrs | 5.3810 |
| 21 Yrs & Above | 4.1429 |
| Total | 5.9048 |

The Kruskal Wallis test was used for testing For Hypothesis 5, the results of the test

revealed that a statistically significant difference in education 4 groups, $H(3, N=213) = 6.79$, $p < 0.10$. Attitudes were lower in the High School ($Md = 4.76$) when compared to Others ($Md = 5.28$), Bachelors ($Md = 5.88$), and Masters (6.14) (see Table 5.17). Therefore, Hypothesis 5 is supported.

Table 5.17: Kruskal Wallis Test for Education

Ranks

| | Educational Level | N | Mean Rank |
|------------------|-------------------|-----|-----------|
| FactorScore_WAMS | High School | 3 | 36.50 |
| | Bachelors | 132 | 106.90 |
| | Masters | 60 | 116.15 |
| | Others | 18 | 89.00 |
| | Total | 213 | |

Test Statistics^{a,b}

| FactorScore_ WAMS | |
|-------------------|-------|
| Kruskal-Wallis H | 6.790 |
| df | 3 |
| Asymp. Sig. | .079 |

a. Kruskal Wallis Test

b. Grouping Variable: Educational

Level

Report

Median

| FactorScore_ | |
|-------------------|--------|
| Educational Level | WAMS |
| High School | 4.7619 |
| Bachelors | 5.8810 |
| Masters | 6.1429 |
| Others | 5.2857 |
| Total | 5.9048 |

6. DISCUSSION

The purpose of this study was to understand the relationship between demographic variables and the attitudes toward women as managers in the context of the UAE work environment. The study found some significant revelations about the attitudes toward women as managers, particularly with age, work experience, and educational level. Out of 5 Hypothesized relationships, the study found support for 3 (H2, H4 & H5; Age, Work Experience and Educational levels respectively). The study did not find support for H1 and H3 (Gender & Marital status).

The study found support for Hypothesis 2, there is a significant relationship between age and attitude towards women as managers. It is found that 26-30 years and 41 & above age groups do accept women as managers because of their orientation and work exposure. Whereas the age group 21-25 years still have some dilemma about the attitude towards women as managers. Support was found for Hypothesis 4, there is a significant relationship between Work Experience and attitude towards women as managers. Employees having 4 to 15 years of work experience do accept women as managers whereas freshers and more experienced employees' attitudes toward women are less favorable. The study also found support for Hypothesis 5, there is a significant relationship between educational level and attitude towards women as managers. Bachelors and Masters degree holders believe that women as managers are ok with them on the other hand those who have completed high school tend to believe less favorable when they see women as managers. Some of these results were contradicted and corroborated with the previous studies (Mostafa, 2005; Elamin & Omair, 2010; Bowen, Wu, Hwang, and Scherer, 2007; Gulhati, 1990).

The study did not support Hypothesis 1, there is a significant relationship between Gender and attitude towards women as managers, such that females will have more favorable attitudes toward women as managers than males will have. In the earlier studies gender played an important role in determining the attitudes toward women as managers. Our understanding from the results is that it does not matter to modern men and women who their manager is but the Median score revealed that women have a more favorable attitude towards women than men. Our study did not find support for marital status too, Hypothesis 3, there is a significant relationship between Marital Status and attitude towards women as managers. One of the reasons why our study did not find support for this relationship is it does not matter whether the employees are unmarried or married or divorced, they tend to keep their professional life separate from their personal life. Marital status does not play an important role in determining the attitude towards women as managers.

Implications/Recommendations

Based on the findings there are several implications/recommendations based on this study that will be helpful to both government and private sector organizations in devising a gender just policy. First, the attitudes towards women as managers between genders are changing fast. It appears from the study that there is growing support for support as managers but females overall have more favorable attitudes towards women as managers than males. There can be advertently or inadvertently stereotyping of women in managerial positions. Affirmative policies can be devised to increase the overall number of women managers in organizations.

Women managers can play an active role in reducing discrimination by having a cordial and work-related relationship with male colleagues. Frequent feedback and interaction can also help to change the male employees' perceptions about women as managers. Something applies to the new entrants. A robust organizational and HR policy for selection and promotion can reduce gender stereotyping. In a globalized environment, the participation of both genders is crucial for the overall development of the organizations and the country.

Limitations & Future Research

From data to sample size, there are few limitations in the study. Since the data is cross-sectional, it would be interesting to check the change in the attitude of the employees over some time through longitudinal studies in the future. The sample size can be extended to other Arab countries to check for some commonalities among the countries. Future research can look into other variables like job satisfaction, organizational commitment of these women as managers. There are many other established scales to measure the attitudes toward women as managers, a more robust and well-established, and validated scale can be administered to get more consistent results that can be used across populations. Further studies can explore the companies based on industrial sectors and make inferences about the different industries.

Conclusion

The purpose of the study was to understand the attitudes toward women as managers using demographic variables in the UAE context. The sample for the present study consisted of 213 participants. The data were collected through 21 items scale (WAMS) validated from time to time across different cultures. From the research findings, we can infer that gender and marital status do not play an important role in determining the attitudes toward women as managers whereas age, work experience, and educational levels do so. These findings should not be overlooked in the context of equal opportunity organizations that exist in the UAE. Females tend to show more favorable attitudes toward women as managers than their male counterparts. The practical implications if implemented at the organizational level will yield better results and they can achieve gender-just status but also a healthy work environment.

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Organizational Healing: Examining the Impact of Yoga Based Intervention – A Qualitative Study

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Abstract

Organizational healing refers to the process of repairing and restoring the social relationships of an organization after any trauma. In this article, we examine the impact of Yoga Based Practices in facilitating organizational healing. A qualitative study was conducted at a commercial port called Dhamra, situated on the east coast of India. Based on the insights in handling the crisis at Dhamra, we put forward propositions that showcase how Yoga interventions facilitate healing at the individual and collective levels. Finally, we identify the theoretical and managerial implications of this study and discuss future research implications.

Keywords: Organizational Healing, Qualitative, Yoga based Interventions

Workplace Spirituality Enhances Well-being: Reconceptualised Commitment Mediates the Relationship

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Abstract

This study examines impact of workplace spirituality on employees' well-being, commitment, neglect behaviour and perception of politics. Following advancements in field of Organisation Behaviour, and heightening interest on workplace and organisational commitment, we have studied dynamics of relationships between dimensions of workplace spirituality viz., meaningful work and purpose and value and outcome variables through commitment reconceptualised as a volitional bond as mediator. Hypothesized relationships are examined using Structural Equation Modeling (SEM) with the help of a dataset collected from 245 academics in India. Study fills gaps in literature and empirically confirms the newer perspectives, proposed by the field. It concludes by suggesting practical implications.

Echoes of Workplace Incivility: A Moderated Mediation Model of Employee Burnout and Turnover Intentions

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Abstract

The objective of this paper is (i) to examine the mediating role of personal and work related burnout in the relationship between workplace incivility and turnover intentions and (ii) to find the moderating role of inter-generational differences between workplace incivility and turnover intentions. In order to achieve these objectives, the data is collected from IT professionals in India. Data analysis is done using multiple regression analysis and structural equation model. The results augment Hobfoll's COR theory. The results benefit all organizations in general and IT Industry in particular.

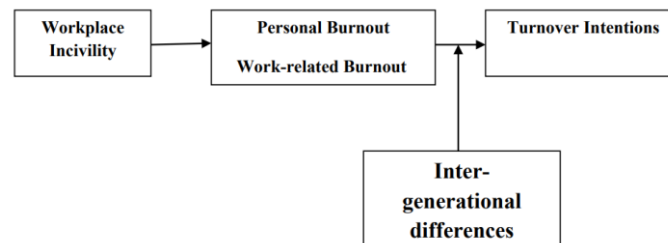
Keywords: Workplace Incivility, Turnover Intentions, Personal burnout, Work-related burnout, inter-general differences.

Introduction

Workplace incivility is defined as "low-intensity deviant behavior with ambiguous intent to harm the target, in violation of workplace norms for mutual respect. Uncivil behaviors are characteristically rude and discourteous, displaying a lack of regard for others (Andersson, 1999). Uncivil behaviors include talking rudely to others, making remarks, showing disrespect and ostracizing others (Lim S. C., 2008).

Intention to leave or turnover intentions are considered "to be conscious and deliberate willfulness to leave the organization" (Tett and Meyer, 1993). Though there has been enough research on workplace incivility and its impact on turnover intentions (Yu Shi, 2018), the present study aims to fill the gap in the research by examining workplace incivility, personal burnout, work related burnout and turnover intention connection. The study is built on the conservation of resources (COR) theory (Hobfoll S., Conservation of resources: a new attempt at conceptualizing stress, 1989) and postulates that workplace incivility results in loss of resources and employee may remain silent to protect and conserve resources or resort to outcomes such as employee burnout and intention to leave.

The study examines the inter generation differences to moderate the relationship between workplace incivility and turnover intentions. A generation may be explained as an age cohort that carves events and years during member's seminal years. Research on generational differences found historical, political and social factors to influence each generation's values, attitudes and beliefs (Hu J. H., 2004) (Kupperschmidt, 2000). The present study examines three generational cohorts, baby boomers, X and Y generations. Individuals who were born between the years 1943 and 1960 are baby boomers (Carver, 2008). Those individuals born between 1961 and 1981 are covered under generation X and those who are born after 1982 are millennial or Y generations (Duchscher, 2004) (Zemke, 2008). Past research found significant differences in how these generations experienced incivility in the workplace.

Figure 1**Research Gap**

1. Research on workplace incivility focused on the food and health sector pointing out at stress, emotional exhaustion and anxiety of service employees (Yu shi et al 2018).
2. Past research focused on employee outcomes such as avoidance, emotional labour, family-to-work conflict, positive and negative affect, organizational commitment, physical illness etc (Miner et al, 2012) (Miner-Rubino and Reed 2010).
3. Very few studies focused on relation between workplace incivility and inter generational differences (Leither et al. 2010).

Objectives

1. To examine the mediating role of personal and work-related burnout in the relationship between workplace incivility and turnover intentions
2. To find the moderating role of inter-generational differences between workplace incivility and turnover intentions

Theoretical Framework

1. The study proposes to use the conservation of resources model (COR) (Hobfoll 1989) to provide theoretical explanation as to why workplace incivility might affect turnover intentions
2. The COR model suggests that individuals strive to retain, protect and build resources. However, these resources are limited, and stressors in the environment can deplete these resources
3. Consequently, individuals seek to avoid these stressors in order to conserve resources

Hypotheses

Hypothesis 1: Personal burnout and work related burnout mediate the relationship between workplace incivility and turnover intentions

Hypothesis 2: Inter-generational differences between baby boomers, X and Y generations moderate the mediated relationship between workplace incivility and turnover intentions through personal and work related burnout such that the relationship is weak for baby boomers compared to X and Y generations.

Scales**Workplace Incivility**

Workplace incivility to be assessed using 12 items developed by Cortina et al, 2001 which were selected to represent workplace incivility on a 5-point Likert scale. The scale included items “In the past year, how often has someone at work, made demeaning, rude, or derogatory remarks about you?”

Turnover Intentions

Turnover intentions scale (TIS-6) developed by Gert Roodt, 2004 is to be used for ascertaining the turnover intentions. The scale is 5-point scale which aims at ascertaining the extent to which you intend to stay at the organization. Items include “How often have you considered leaving your job?”

Personal Burnout

The Copenhagen Burnout Inventory (2005) is used in the study which intends to compare individuals regardless of occupational status. The scale consists of six items.

Work related Burnout

The Copenhagen burnout inventory (2005) for work-related burnout consists of seven items. Questions include “do you feel that every working hour is tiring for you”

By comparing the scale for personal burnout with the scale for work-related burnout we will be able to identify persons who are tired but who attribute the fatigue to non-work factors such as, e.g. health problems or family demands.

Employees of Three Information and Technology companies in India participated in the survey. The data was collected through self-reported survey using a three wave questionnaire. Questionnaires were mailed to the respondents in a gap of 5-week interval between each wave to reduce the common method variance. The respondents were briefed about purpose of the survey and informed to participate voluntarily in the survey. The employees who consented to participate forwarded their responses.

To begin the survey, 455 full-time employees in three organizations were sent questionnaires and 398 completed questionnaires were completed and received (87 percent response rate). Of the 398 questionnaires 365 were usable without any missing data. Demographic information and data related to workplace incivility were gathered in the first wave. The second wave aimed to collect data about personal burnout and work related burnout. In the second wave, questionnaires were sent to 365 respondents of which 311 (85 percent response rate) were completed and returned. 292 questionnaires out of 311 were usable. The third wave questionnaires collected the data about turnover intentions. Questionnaires were sent to 292 respondents of which 233 (80 percent response) respondents completed and returned. Out of 233 questionnaires, 222 were complete and usable for further analysis.

Table 1. Mean, standard deviation and zero order correlations

| | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------------------------------|-------|------|-------|-------|-------|-------|------|------|-------|-------|------|----|
| 1. Gender | 0.41 | 0.50 | 1 | | | | | | | | | |
| 2. Age | 24.96 | 6.17 | -0.22 | 1 | | | | | | | | |
| 3. Education | 2.66 | 0.53 | -0.09 | 0.13 | 1 | | | | | | | |
| 4. Position | 2.96 | 1.62 | -0.17 | 0.80 | -0.07 | 1 | | | | | | |
| 5. Tenure | 7.20 | 6.93 | -0.69 | 0.69 | -0.14 | -0.49 | 1 | | | | | |
| 6. Workplace incivility | 1.47 | 0.88 | -0.03 | 0.14 | 0.02 | 0.13 | 0.14 | 1 | | | | |
| 7. Personal Burnout | 3.41 | 0.83 | 0.10 | -0.18 | 0.08 | -0.08 | 0.04 | 0.16 | 1 | | | |
| 8. Work related Burnout | 3.49 | 0.79 | 0.09 | -0.17 | 0.07 | -0.07 | 0.03 | 0.15 | 0.14 | 1 | | |
| 9. Inter-generational differences | 4.86 | 1.19 | -0.18 | 0.29 | -0.12 | 0.25 | 0.27 | 0.11 | -0.13 | -0.59 | 1 | |
| 10. Turnover Intentions | 5.28 | 0.89 | -0.14 | 0.22 | 0.09 | 0.17 | 0.20 | 0.17 | -0.52 | 0.65 | 0.62 | 1 |

Results and Discussion

Hypothesis 1 predicted that personal and work related burnout mediate the relationship between workplace incivility and turnover intentions. Results of the study clearly reveal that

workplace incivility had an indirect effect on turnover intentions (-.06). Bootstrapped results at 95% CI were more than zero for turnover intentions (-.14 and -.01). Therefore, the first hypothesis is supported (Table 2).

Hypothesis 2 proposed that the inter-generational differences between baby boomers, X and Y generations moderate the mediated relationship between workplace incivility and turnover intentions through personal and work related burnout such that the relationship is weak for baby boomers compared to X and Y generations. The conditional indirect effect of workplace incivility on turnover intentions through personal and work related burnout the inter-generational gap is less. In order to test the moderated mediation, regression was used to estimate the moderators' conditional indirect effects (Preacher K. J., 2007). As per the recommendations of Preacher, Rucker and Hayes (2007), at a particular level of standard deviation, high and low levels of the moderator were operationalized above and below the mean.

Table-3 revealed the conditional indirect effect for workplace incivility on turnover intentions was significant when inter-generational gap for baby boomers was low (workplace incivility=-.078, $p < .05$) and not significant when inter-generational gap for baby boomers was high (workplace incivility=-.018; ns). Further, the effect for workplace incivility on turnover intentions was significant when inter-generational differences for X generation was low (workplace incivility=-.066, $p < .05$) and not significant when inter-generational differences for X generation was high (workplace incivility=-.027; ns). For inter-generational differences in Y generation, the conditional indirect effect for workplace incivility and turnover intentions was significant when inter-generational differences in Y generation was low (workplace incivility = -.070, $p < .05$) but insignificant when inter-generational differences was high (workplace incivility=-.020; ns) therefore, supporting hypothesis 2.

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Leveraging SDGs to increase global competitiveness in the motor vehicle industry

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Abstract

The motor vehicle industry is likely to extensively benefit from meeting the United Nations Sustainable Development Goals. While governmental policies and regulations keep organizations in check and ensure they commit to saving the earth, it is eventually Adam Smith's invisible hand that can pursue organizations to go above and beyond their responsibilities. This paper attempts to analyze the impact of national policies, regulatory mechanisms, competition, and market demand as factors that can influence organizational priority towards SDGs. We propose a model that can help organizations pursue SDGs sustainably over the long term, such that the private benefits of SDG adherence outweigh the costs. Eventually, this shall provide a strategic competitive advantage in the global landscape.

Keywords: ESG, SDG, automobile industry, regulations, institutional voids, policy, technology

Introduction

In the year 2000, the U.N. espoused its Millennium Development Goals (MDG). Born out of U.N.'s Millennium Development Summit in 2000 and signed by 189 member states, eight areas of focus and their targets were set for 2015. MDG committed world leaders to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women. By 2010 many of MDGs social goals were met: Globally, the number of deaths of children under five years of age fell from 12.7 million in 1990 to 6.3 million in 2013; In developing countries, the percentage of underweight children under five years old dropped from 28% in 1990 to 17% in 2013; Globally, new HIV infections declined by 38% between 2001 and 2013. In 2010, the world met the United Nations MDG target on access to safe drinking water. (World Health Organisation, 2018).

Interestingly the term 'sustainability' was not at the center stage. MDGs were seen as a way of promoting clean and cheap energy or recycling wastes. Though MDGs were enterprising and progressive for their time, they missed the required focus on environmental and climate aspects of development that did not follow geographical boundaries and needed initiative and cooperation across developed and developing nations.

More than 200 countries decided to prioritize sustainable development and climate change. SDGs supersede the MDGs with 17 integrated and indivisible goals that build on the achievements of the MDGs but are broader, deeper, and far more ambitious in scope with targets set for the year 2030. The SDGs substituted the MDG and expanded to include 17 goals with stringent targets to be achieved by 2030. SDG saw increased stress on environment protection and climate change issues while including all nations rich, middle income, and poor. (World Health Organisation. n.d.). Hence both developed and developing countries had to equally focus on issues of environment and climate in lieu of developing countries improving their social conditions with funding by the rich nations in MDG, including a successful private partnership to achieve this. While MDG brought a considerable amount of objective measurement in its goal, what was hoped to be achieved through the SDG was inter-sectoral and inter-institutional coordination. (UNDP and The World Bank Group). Two hundred forty-four indicators are defined to measure the progress of 17 SDGs.

It has already been six years since we entered an age where sustainability is at the center of all development especially given the climate crisis. However, the Intergovernmental Panel on Climate Change (IPCC) declared a code red for humanity on 9th August 2021, suggesting that deep cuts in emissions are the only way to halt the irreversible damage.

Motor Vehicle Industry

The US DOJ definition of motor vehicles includes passenger vehicles (like cars, station wagons, vans, pick-up trucks, SUVs), motorcycles, and commercial vehicles (buses, trailers, and heavy equipment used in farming and construction). As the middle-class population booms, the sales of motor vehicles are rising and is expected to rise further in the future. The industry chosen for this study of SDG is the motor vehicle industry because it has a major impact on the global expectations of sustainability.

In collaboration with Green Cross Switzerland, Blacksmith Institute issued a Top Ten list of the world's most dangerous pollution problems in 2008, listing urban air pollution and indoor air quality as major concerns (World's Worst Pollution Problems, 2016). While other pollutions such as groundwater contamination or nuclear radiation are equally harmful, they can be attributed to the point of production. However, air pollution is caused not only at the time of production but also at the time of consumption, thus impacting the majority of the human population. The World Bank states that in 2017, more than 90 percent of the world population was exposed to unhealthy air (an annual average PM_{2.5} concentration above 10 µg/m³), and around 4 billion people live in places where the mean annual concentrations of PM_{2.5} are greater than IT-1 (35 µg/m³), which is the least stringent WHO target for air quality. (The World Bank, 2019). Half of the world's air pollution comes from passenger vehicles. 5% of all vehicles are heavy-duty vehicles, which contribute to 25% of global warming. (Conserve Energy Future, n.d.). According to the U.S. Environmental Protection Agency (EPA), motor vehicles collectively contribute to over 75% of carbon monoxide pollution & 55% of total nitrogen oxides (NO_x) emissions, and approximately 10% VOCs (Volatile Organic Compounds) and PM_{2.5} & PM₁₀ (particulate matter) emissions. The first-ever comprehensive assessment of health impacts of global transport emissions, released by the United States-based International Council of Clean Transportation (ICCT), has exposed the lethal health effects of vehicular fumes across major vehicle markets of the world. Exhaust from on-road diesel vehicles is responsible for nearly half of the impacts —181,000 premature deaths worldwide, and two-thirds in India, France, Germany, and Italy. Among the 100 major urban centers assessed for transport sector-related deaths globally, New Delhi ranks sixth. Together, PM_{2.5} and ozone concentrations from transportation emissions resulted in 7.8 million years of life lost and \$1 trillion in health damages globally in 2015. In 2015, 84 percent of global transportation-attributable deaths occurred in G20 countries, and 70 percent occurred in the four largest vehicle markets of China, India, the European Union (E.U.), and the United States. (Anenberg et al., 2019).

With this knowledge, aggressive measures have been planned to control emissions from on-road motor vehicles in the past few years. This includes ultra-low-sulfur fuel and filter-forcing Bharat Stage/Euro VI emission standards, ensuring that all new on-road diesel engines are equipped with the latest emission control technologies, including diesel particulate filters (DPFs), to reduce tailpipe emissions. However, limited attention has been paid to non-road mobile sources, even though the majority of them are powered by diesel engines. Due to less stringent regulation and enforcement, these engines usually emit much higher unit pollutants than on-road engines. Both agricultural tractors and construction equipment fall under the category (Zhenying S., 2016).

Research from both industry and academia highlights critical SDG goals related to the automobile industry, which can be generalized to the motor vehicle industry. These include SDG3 - Good Health and Well-Being; SDG7 - Affordable And Clean Energy; and SDG12 - Responsible Consumption and Production. Additionally, there is an emphasis on SDG4 - Quality Education, SDG8 - Decent Work and Economic Growth, SDG9 - Industry, Innovation, and Infrastructure besides SDG11 - Sustainable Cities and Communities, SDG13 - Climate Action, and SDG17- Partnerships for the Goals.

We intend to identify the SDG focus areas of vehicle manufacturers as they stand today and explore how policies, regulations, competition, and market demand may shape the priorities in years to come.

SDG focus areas of vehicle manufacturers

We have studied the SDG priorities of eight global vehicle manufacturers based out on the E.U., the US, India, and Japan. Their strategies to deal with various SDGs are listed in Exhibit 1, and it is up to the companies to choose the goals that they want to focus upon. The observation here confirms the findings from the many independent studies. In all sectors, European companies performed exceptionally, with 97% demonstrating a commitment to the SDGs. Companies like Valeo have introduced sustainability criteria as part of the variable compensation of more than 1,500 top managers since 2021. In contrast, 66% of North American companies demonstrated commitment to the SDGs through either explicit statements about the goals or implicit actions that support them. (Schatz, R., 2017). Companies such as Volkswagen and Ford operating in the U.S. have been advocating for strict regulations and have resisted the U.S. government's efforts to eliminate greenhouse gas regulations for mobile sources, primarily with an aim to appeal to the climate-conscious millennial U.S. consumer while maintaining a competitive advantage over companies with less fuel-efficient vehicles. (Levy, M., 2020). Japan's strides are seen in the annual list of Greener Cars issued by the American Council for Energy-Efficient Economy (ACEEE), in which six of the top twelve cars are from Toyota and Honda. (Gorzelay J., 2020). A report mentions that most Indian organizations are doing exceptionally well in due diligence but poorly in promoting a circular economy, product sustainability, and sustainable power procurement. (Capgemini Research Institute). Of the 35 automobile companies in the SDG2000 (which identifies the 2,000 most influential companies leading the global sustainability trends), there are nine from the E.U. and U.K., five from the U.S., seven from Japan, and two headquartered in India (World Benchmarking Alliance). Even with ten companies from China and Hongkong in the SDG2000 list, the automotive industry in China does not face institutions like the rest of the democratic societies with prominent automotive sectors - E.U., U.S., Japan, and India. Chinese SDG efforts depended on the government's top-down approach where state-backed companies are supported by policymakers or depended on bottom-up citizen initiatives not requiring automobile firms to take comparable risks when concentrating on SDG. For these reasons, the present paper keeps these regions and companies out of the discussion. (Jiang, X., 2021).

The limited progress on SDGs by Indian firms is captured by the S&P Corporate Sustainability Assessment (CSA) in Sustainability Yearbook 2021 rankings that list eight sustainability leaders in the automobile and auto components sector from E.U., the U.S., and Japan, but none from India. (S&P Global). The United Nations Global Compact, a voluntary initiative based on CEO commitments to implement universal sustainability principles, has 248 signatories in the Automobiles & Parts sector, of which 7 are from India, 11 from Japan, 12 from the U.S. via-a-via a 100 in the E.U. (United National Global Compact.)

Today, the regional policies and regulatory mechanisms differentiate best-performing organizations from others in the motor vehicle industry. The regional government policies impact how organizations priorities SDGs, and the existence of regulatory mechanisms ensure stringent adherence.

Government policies

The most significant tailwinds or headwinds start at the national and local policy formulation stages.

The U.N. does not specify high-level guidelines for any particular industry. It is left to the respective countries to frame regulatory policies to empower and enable the industries to achieve the nation's targets cooperatively. The execution is expected to be taken care of by the corporations in the country that have the requisite skills, resources, and the know-how of implementation.

At an aggregate level, it is observed that all the regions focus on similar policies, measure and track approximately the same number of indicators. The EU SDG indicator set consists of maximum 6 indicators per goal to prioritize and attach equal importance to all goals by limiting the indicator set to around 100 different indicators, which is recognised as the upper limit for effective and harmonised reporting by experts from National Statistical Offices, Organisation for Economic Co-operation and Development (OECD) and Eurostat. (European Commission Eurostat, 2021). Japan reports around 40% of the indicators. (Japan's Voluntary National Review, 2017). The U.S. and India track 40.6% (99 indicators) and 47.1% (115 indicators) respectively. (SDG India Index & Dashboard 2020-21, 2021). The primary differences between these regions lie in the target expectations set for each SDG.

Exhibit 2 summarizes the measures in SDG-3, 7, 9, and 12 monitored at the national level in E.U., U.S., Japan, and India. As can be observed, the most exhaustive target expectations are set in the E.U., with extensive focus on technology, renewable energy, electric vehicles, and R&D expenditure to reduce overall emissions. Japan follows the E.U. with its prioritized focus on specific SDGs. There is a certain level of clarity in the expectation set by the U.S. too. The E.U., Japan, and the U.S. have a higher focus on research and specify international financial exchanges supporting clean energy research and development. In India, most target expectations focus on basic infrastructure development like electricity, healthcare, roads, 'pukka' homes, and drainage facilities rather than forward-looking technology trends. Some goals that are essentially critical for the automotive sector are not emphasized enough in India. For example, SDG7 – renewable energy research and technology transfer is not explicitly underscored.

The impact of regional policies on the organization's priorities can be seen in how India's Paris Agreement has been implemented. India's outstanding performance on SDG13 is because of its relevance to the Indian government's extensive focus on the legally binding Paris Agreement as a signatory. It intends to limit global warming to well below 2 degrees Celsius, compared to pre-industrial levels. (The Print, 2021). The Paris Agreement, also adopted in 2015, goes hand-in-hand with the SDGs and the UN SDG website mentions that countries must fulfill Paris Agreement obligations to demonstrate progress on SDG13.

Regulatory mechanisms

The second factor impacting organizations' priorities towards SDGs is the regulatory means, as described by the existence of institutions or, on the contrary, institutional voids. Tarun Khanna and Krishna Palepu, in their 2010 book 'Winning in Emerging Markets', define institutional voids as the absence of market infrastructure like enforceable regulatory standards, dispute redressal mechanisms, and others, which increase the transaction cost and decrease incentives.

European countries have well-defined structures in place for the implementation, monitoring, and reporting of SDGs. The majority of the countries have their sustainable development strategy implemented through internal coordination between ministries and regulators. At the E.U. level, there is a defined sustainable growth strategy that initiates the semester surveillance cycle. The E.U. has kicked off multiple initiatives like the European Green Deal Investment Plan, a method for private-public financing to address climate issues. It has stringent guidelines around publishing sustainability reports. The E.U. Directive on Non-financial and Diversity Information (Directive 2014/95/E.U.) makes it compulsory for large undertakings and groups to report environmental impact and GHG emission, social and employee-related matters, human rights issues, anti-corruption, and bribery concerns. Member countries can modify these directives as per their priorities. Not adhering to these directives may attract fines ranging from \$1650 to \$12 million. The 2021 edition of the EU SDG report does a gap analysis to identify new indicators and remove indicators that no longer seem to serve the purpose. The right indicators are selected through a Quality Assessment System managed by Eurostat.

In the Anglo-Saxon sphere, the U.K. has designed its strategy and made the respective ministries responsible for achieving the set target, e.g., poverty reduction, climate action. Each department has added goals in its Single Departmental Plan – a process to focus government efforts on issues of importance. The Office for National Statistics, an independent institution, collects data and reports the progress.

The U.S. ranked 35th in terms of sustainable development out of 162 countries in 2019, probably indicating higher diffusion of focus during the last Republican government. It is the only OECD and G-20 country that has not volunteered to report on its SDG progress while also threatening to withdraw from the Paris Agreement.

The only Asian country featuring in the top 20 of SDG Index, Japan has a dedicated Ministry of Environment (MoE) committed to SDGs. The ministry is responsible for coordination between government departments and private stakeholders. To promote awareness and on-ground implementation, the ministry runs "Japan SDG Awards," which recognizes leading companies and organizations to achieve the goals. The percentage of local governments working on the SDGs rose from 1% in 2017 to 39.7% in 2020, and the intent is to reach 60% by the end of FY2024.

India has shown commitment towards SDGs by aligning its development priorities and through various government-run schemes like Sashakt Bharat-Sabal Bharat (Empowered and Resilient India), Swachh Bharat-Swasth Bharat (Clean and Healthy India), Satat Bharat–Sanatan Bharat (Sustainable India) but in terms of on-ground implementation the data is not so encouraging. India does not yet have a defined framework in place for SDG implementation. There is more to be done in institutionalizing practices as existing departments are tasked with the responsibility of achieving the SDGs. National Institution for Transforming India (NITI Ayog) coordinates, collates, and reports on the progress.

From the perspective of the Indian motor vehicle industry, institutional void prevents strict monitoring, either by way of fines like in the E.U. or encouragement by way of awards as in Japan. As a result, automotive industry firms are not challenged to prioritize SDG-contributing capabilities.

Discussion

A model suitably capturing the present status of SDG in relation to the motor vehicle industry is represented by Figure 1.

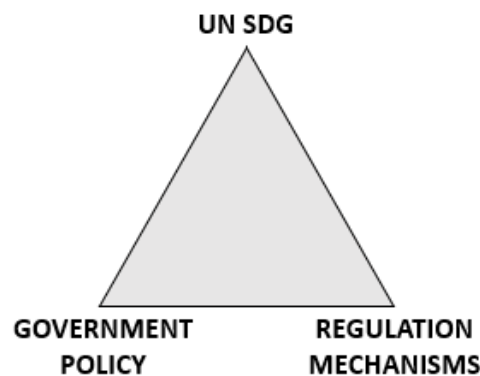


Figure 1: Present Model showing drivers of SDG in organizations.

National policies and regulatory mechanisms drive an organization's focus on U.N. SDGs. These could also vary depending on the political priorities of successive governments as for the U.S. This approach would not allow companies to go above & beyond the prescribed duties since neither policies nor regulations appeal to the organization's notion of profitability.

But SDGs do affect both the present and future competitiveness of the auto industry by influencing the development of environment-friendly technologies. In the short run, ignoring the most important SDGs, like renewable energy, circular economy, and electric vehicles, could maintain market position. Still, in the long run, it may be less profitable for firms to ignore such SDGs.

For the future, it may be postulated that with the maturity of the industry and greater understanding of the need and benefits of SDG adherence, the organizational priorities would be subsumed entirely and embodied in the demand of consumers, with little focus on policies or regulations. When consumer demand forms the basis, the modified model is depicted in Figure 2.

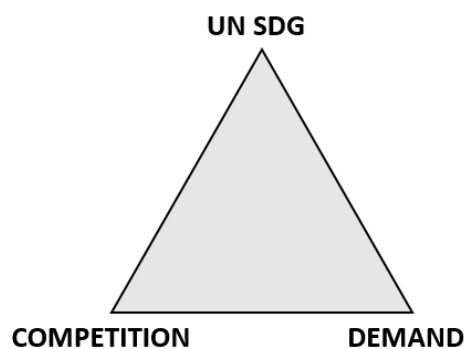


Figure 2: Revised model depicting new drivers of SDG.

This is what can allow organizations to go above & beyond. Such a trajectory, as research shows, highlights shareholder preference for sustainability that helps improve financial performance over the long term (Cioca et al., 2019). The effects of competition being a significant influencer can already be seen. The European automotive industry invests >EUR 50 billion in R&D annually. Representing 27 percent of the region's total R&D investments, the automotive industry is Europe's largest R&D investor. In the U.S., increasing competition from manufacturers in the E.U. and Japan is driving auto majors to ask for stricter regulations in a truly global auto market irrespective of existing regulations. Exports to 60+ markets comprise more than 3% of the total commercial and passenger vehicles sales for Tata Motors (Annual Report 2019-2020), a pioneer in sustainability in India. Reports support such conclusions as "Businesses that do not make ESG a priority can find themselves tackling disruptive consumer responses such as boycotts.", McKinsey (Cremers et al., 2021). The weforum mentions that automotive participants well-positioned in areas with battery-powered electric vehicles (BEVs), components for BEVs and autonomous vehicles (A.V.), data and connectivity services, and on-demand mobility offerings would account for 40% of industry profits in 2035. (Lang et al., 2019). EY describes how all companies stand to benefit from SDGs, and U.N. conferences mention for-profit business models as an effective path to sustainable development. (EY Global, 2017; UNCTAD, 2017).

However, consumer awareness is vital. People in the U.S. and Europe are more concerned about the planet and society as a whole. Therefore, they buy from companies transparent about their sustainability initiatives and are following sustainable manufacturing practices. In the U.K., most residents (63% of those surveyed) supported banning vehicles by 2030. As millennials become the dominant U.S. consumer, maintaining a green corporate brand will be increasingly crucial to the success of consumer products. Dentsu Inc.'s third Consumer Survey on the Sustainable Development Goals in 2020 show that awareness is only rising (Dentsu Inc, 2020). Similar purchasing patterns and behaviors can be seen in India (Glynda A., 2020). The national policies and regulations have already created an awareness. However, turning the awareness into consideration (in the marketing funnel) isn't so easy. HBR's The Elusive Green Consumer (hbr.org) states a frustrating paradox that remains at the heart of the green business: Few consumers who report positive attitudes toward eco-friendly products and services follow through with their wallets. (White K. et al., 2019). Price and value-conscious customers are the forefront buyers.

HBR advises organizations that wish to nudge consumers toward sustainable purchasing and behavior to consider five actions: use social influence, shape good habits, leverage the domino effect, decide whether to talk to the heart or the brain, and favor experiences over ownership. This would bring in more competition, increasing the size of the consumer pie for all.

Conclusion

The area of sustainability opens new doors for the motor vehicle industry that seems to have stagnated in the past few years. Organizations that proactively prioritize SDGs rather than just responding to the policies and regulatory requirements shall have a head start in the domain. Though organizations have little power to change the policies or regulatory requirements, they have complete influence over nudging consumer purchase behaviors in existing and new markets. A porter's analysis of the new market shows its inherent attractiveness with high growth, low buyer power, few substitutes, no or very few incumbents, low entry barriers by virtue of policies and regulations that act as a tailwind. As the ecosystem moves to the second

model sooner, it would not only help with the sustainability agenda but would also satisfy the primary interests of an organization – profitability and competitiveness.

Exhibit 1 – SDG priorities for motor vehicle manufacturers

| SDG | Description | Bosch (E.U.) | Stellantis Fiat (E.U.) | Ford (U.S.) | G.M. (U.S.) | Toyota (Japan) | Nissan - Japan | Tata Motors (India) | Ashok Leyland (India) |
|-----|---|---|--|---|---|--|--|--|--|
| 3 | Good Health and Well-Being | Accident rates, Materials data management, Air quality, Driver safety, ADAS | Vehicle, Employee safety | Safety - crash test, Assisted drive, Auto brake, Traffic analysis, Rear occupant alert, Air quality | Vehicle and Road Safety | Traffic safety technology, auto-driving, Safe routes in disaster | Zero-emission vehicles, Traffic fatalities | Workplace Safety & health | Rural Community development - Health, Nutrition & Wellness programs (eye testing, dental screening, surgeries) |
| 7 | Affordable and Clean Energy | Renewable generation, Purchase of green electricity, Energy efficiency | Alternate fuels, R&D, E.V. | Carbon footprint reduction, Renewable energy | Operational Emissions | Environmental Challenge 2050 - zero CO2 emission, energy diversification | Renewable energy usage, Reduced energy consumption | 100% renewable energy by 2030 - wind, solar | Reduced energy, water consumption & CO2 emissions, Reuse & Recycle water |
| 9 | Industry, Innovation, and Infrastructure | Value balancing alliance (internal & supply chain) | Cybersecurity and data protection, Vehicle fuel economy and emissions, Mobility services and solutions, Autonomous driving, and connected vehicles | EV, Self-driving, Data sharing & privacy | E.V., zero-emissions vehicle, innovation, Designing for the environment | Humanoid Robots, THUMS Virtual Human Body Model Software | Environmental conservation | Low emission electric vehicles, Forecast for upcoming regulations, Applicability, Implementation | NA |

| | | | | | | | | | |
|----|---|--|---|---|--|--|--|--|--|
| 12 | Responsible Consumption and Production | Circular Economy, Responsible digitization | Operational emissions, Waste & Water Management, Sustainable design | True zero waste in landfill, eliminate single-use plastics, recycled/renewable plastics | Designing for the Environment, Waste Reduction | Environmental Challenge 2050 - zero CO2 emission | Emissions, Recycling, End of Life vehicle recovery, Compliance | Low emission electric vehicles, Product Lifecycle Assessment, BS6/CA FÉ/CMV R compliance | Reduce/recycle raw material, engage with suppliers |
|----|---|--|---|---|--|--|--|--|--|

(Source: Compiled)

Exhibit 2 - SDG measures monitored in E.U., U.S., Japan and India

| SDG | Description | E.U. policy | USA policy | Japan policy | India policy |
|-----|-------------------------------------|--|---|--|---|
| 3 | Good Health, and Well-Being | Share of people with good or very good perceived health, smoking prevalence, diseases, standardized avoidable mortality | Mortality rates for various diseases, suicides, neonatal, road traffic death, substance use disorder, alcoholism, health worker density & distribution | lifestyle-related deaths, smoking, progress in epidemiological studies on pathogens, R&D, deaths due to diseases, public-private contributions to international infectious disease countermeasures, education, and practical training on Japanese-style long-term care in the Asian region | Mortality rates for various diseases, Tobacco consumption, Universal Health coverage, R&D spend, financing, vaccine initiatives |
| 7 | Affordable, and Clean Energy | Share of renewable energy in gross final energy consumption (New target: 32 % by 2030, in line with "Energy Union 2030 targets"), Primary and final energy consumption in households per capita, | Household Electricity, renewable energy consumption as a percentage of total final energy consumption, International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems | renewable energy, GHG, Energy consumption efficiency(Final energy consumption/Real GDP), innovative technologies for the creation, storage, and conservation of energy, projects implemented in agriculture, forestry, and fisheries by renewable energy power generation, | Household electricity, LPG + PNG connection |

| | | | | | |
|----|---|--|--|---|---|
| | | Energy productivity | | support to ASEAN countries | |
| 9 | Industry, Innovation, and Infrastructure | R&D expenditure, R&D personnel, patents, public transport, waterways, Air emission intensity from industry | All-season road, manufacturing value add, passenger & freight volume, SSI, R&D expenditure & personnel, Total Energy CO2 Emissions per Real Dollar of GDP, mobile network, and telephony reach | Researchers, ICT on construction sites, Tourism Strategy, rural-urban exchanges, develop industrial and skilled human resources | All-season road, manufacturing value add, India innovation Index, logistics, mobile, and internet reach |
| 12 | Responsible Consumption, and Production | Toxic chemical discharge, Domestic material consumption, Average CO2 emissions per km from new passenger cars, share of zero-emission vehicles, Circular material use rate, GVA in env and services sector | 2/13 - DMC, env agreements for chemicals and hazard waste, Number of companies publishing sustainability reports, Amount of support to developing countries on research and development for sustainable consumption and production and environmentally sound technologies, recycling rate, fossil fuel subsidy/GDP | Implementation of the E12Basic Plan for Consumers (Safety, fair transactions, labelling, etc.), the establishment of food value chains, generation of waste, recycling rate, companies reporting on sustainability, procurement rates, food recycling, ethical consumption, international cooperation | 7 - Per capita fossil fuel consumption, NPK, plastic waste, biomedical waste, bio-power, Quantity of hazardous waste recycled/utilized to total hazardous waste generated (%) |

(Source: Compiled)

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Labels and ideals: Decoding the implications of 'Impact' Investing for Indian Social Startups

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Abstract

Impact investments focusing on the dual objectives of financial and social returns (GIIN, 2013) are seen as an effective way of directing private capital for inclusionary businesses catering to the un(der) served societal segments and aiming at generating social impact. However, the entry of commercial players has raised questions about their intentions and practices in impact investing and its effect on social enterprises. This study enquires into the concerns mentioned above. Results of our exploratory qualitative study of 8 leading organizations that provide incubator, accelerator, and funding support to social startups suggest an increasing conceptual obfuscation of impact investing as various actors operate with various meanings and philosophies attached to 'impact,' and a wariness around the potential undesirable effects it may have on social entrepreneurship sector.

Keywords: Impact investing, social startups, India

Introduction

Impact investments – focusing equally on financial and social returns (GIIN, 2013)-effectively direct private capital to attain social development and environmental goals (Rajan *et al.*, 2014). Impact investments are anticipated to bridge the considerable resource gaps that could hamper India's progress on the Sustainable Development Goals (SDGs) (Ravi *et al.*, 2019). It has been suggested that the presence of a thriving social startup ecosystem makes India a fertile ground for impact investing (Ravi *et al.*, 2019). Recent decades have witnessed the entry of social entrepreneurs (i.e., entrepreneurs who set up businesses that pursue financial and social goals simultaneously) in flocks into agriculture, health, and education that have traditionally relied on government funding and action. Therefore, there has been a rapid rise in incubators, accelerators, and other support systems for handholding social startups. It is anticipated that the thriving Indian social entrepreneurship sector would act as the vehicle for converting impact investments to impact utilizing the inclusionary business models and innovations they have created to cater to the un(der) served societal segments and needs.

Despite the enthusiasm around the concept and the sector, doubts have also been raised about its efficacy. A core question has been whether impact investment is genuinely aimed at generating social impact. Furthermore, especially the entry of commercial players has raised questions about the intentions and practices in the impact investing sector and its effect on social enterprises. This paper aims at bringing out the various aspects of the concerns mentioned above. Our insights are based on an exploratory qualitative study, wherein we did in-depth interviews of the Heads/Senior leaders of 8 leading organizations that provide incubator, accelerator, and funding support to social startups. The findings suggest an increasing conceptual obfuscation such that various actors operate with various meanings and philosophies attached to 'impact' and wariness around the potential undesirable effects it may have on the social entrepreneurship sector. In the following sections, we present the relevant background literature, followed by our methodology and findings. Then we discuss the implications of the findings for research, practice, and policy and offer our conclusions.

Background Literature

Defining Impact Investing

Impact Investing is generally understood as 'dual-purpose financing: the pursuit of social

benefit together with financial profit' (Tekula and Shah, 2016) through 'capital placed outside of the public equities market. Global Impact Investment Network defines impact investments as 'investments made to generate measurable social and environmental impact alongside a financial return' (GIIN Website). Therefore, it could be argued that impact investing combines 'philanthropic objectives with mainstream financial decision making' (Hochstadter and Scheck, 2015).

Weber (2016) emphasizes two core principles as the basis for understanding impact investment: the blended value principle and sustainable financial return. While the blended value principle stresses that social businesses that impact investors can and should achieve both financial and social returns, the principle of sustainable financial returns stresses that the financial returns should be sufficient to ensure the long-term viability of the impact investor. Jackson (2013), on the other hand, identifies the critical components of the definitions of impact investing as the intent of the impact investor (to achieve social impact), the evidence of impact, and a theory of change (on how the investment generates impact). Here, Weber's (2016) focus is more on the financial returns and Jackson's (2013) on the social. It would seem that the relative importance that different authors (and potentially impact investors as well) place on financial and social goals vary. However, it is unanimously agreed that both goals have to be pursued by impact investors (even if in varying degrees). Roundy *et al.* (2017) conclude that impact investors seek financial and social ROI simultaneously, and those who pursue only one of these goals do not qualify to be called an impact investor.

Impact investing resembles other investment philosophies similarly guided by social considerations, such as socially responsible investing (SRI) or ethical investing, yet distinct from them (Ormiston *et al.*, 2015). For example, some view impact investing as a subset of socially responsible (SRI) (Hebb, 2013). However, both are different in how they contribute to societal wellbeing: the latter relies on 'negative screening' to preempt investible funds going into businesses that deal in products and services that are damaging to the society, such as alcohol, tobacco, and firearms; the former takes a 'positive screening' approach that seeks to ensure capital flow into businesses that aim to generate social and environmental impact (Quinn and Munir, 2017).

The emergence of Impact Investing

Impact investing precedes several prior attempts among various investor circles to be mindful of the social implications of investing activity. Heese (2005) traces it back to Quakers who practiced the earlier versions of 'negative screening' by desisting from investments in gambling and alcohol and later to the peace and green movements in the 1960s. A similar approach underlined the Global Sullivan Principles formulated in 1985, serving as a guideline for dealing with companies in apartheid South Africa (Heese, 2005). These approaches were primarily rooted in practices of negative screening that aimed at curtailing investments into businesses that dealt in socially harmful products and services.

'Impact investing' is said to have emerged as an umbrella term to cover the varied approaches originating from the above mindset in a 2007 conference organized by the Rockefeller Foundation in Italy (Harji and Jackson, 2012; Quinn and Munir, 2017). Even under the new umbrella identity, the approaches of different actors continue to be varied. Though all agree on the fundamental premise that investors could gain financial returns while investing in social ventures and initiatives, there seems to be little agreement on the kind of returns to seek and the type of sectors to invest in (Quinn and Munir, 2017). On one end, there are venture philanthropists who take an 'impact first' approach and expect only the return of the capital (i.e.,

0% return), and on the other end are venture capitalists who prioritize their fiduciary responsibility to the investors and seek financial returns at competitive market rates (Hebb, 2013; Rangan *et al.*, 2011; Petrick and Weber 2013). In addition, impact investments are not a homogeneous asset class; the investors vary widely in the financial instruments that they employ, ranging from returnable grants to debt and equity instruments and impact bonds, as well as varied combinations of them, which come with varied risk, return and impact profiles (Castellas *et al.*, 2018; Rangan *et al.*, 2011). The investors also vary in their sectoral preferences and focus. While some prefer under-invested sectors with futuristic prospects, others are open to sectors and businesses with less robust revenue generation potentials (Arif *et al.*, 2020). ESG criteria guide some (Environmental, Social, and Governance) in vetting the investees, whereas others look for the potential for more grassroots impact (Arif *et al.*, 2020).

Similarly, their involvement with the investees takes different shapes. For example, some investors do not want to get involved in the management of the investee organizations. At the same time, others maintain close relationships with them in a formal or informal capacity, investing financial resources and time and expertise to help them build their businesses (Pepin, 2005).

Realizing the promise of Impact

However, it must be recognized that investment cannot generate impact on its own; organizational actors can receive the investments and use them to engage in activities that create impact (and financial returns). The critical category of actors doing this in several countries is social enterprises (Arif *et al.*, 2020; Castellas *et al.*, 2018; Ravi *et al.*, 2019). Social enterprises are businesses that pursue financial and social goals simultaneously (Battilana and Dorado, 2010). As this mirrors the goals of impact investors themselves, it would appear that they are the best match for each other, and by working together, they can help each other achieve their respective goals. We find that the presence of a mature social entrepreneurship sector makes it easier for impact investing to deliver its promise (Glänzel and Scheuerle, 2016). However, a highly critical issue from the research and policy and practices perspectives, the interrelationships between impact investing and social entrepreneurship have not been explored much in academic literature (Short *et al.*, 2009). As cautioned by several scholars (Clarkin and Cangioni, 2016; Moore *et al.*, 2012; Nicholls, 2010), impact investment may prove to be not the best financing solution for social enterprises after all, but at the moment, we lack academic research on what comes in the way of their working together to make an informed judgment.

We seek to address the above research gap in this paper. By engaging in in-depth interviews with the heads and senior leaders of 8 leading organizations that work with investors and social startups, we highlight areas where expectations are mismatched and their implications for these two impact-oriented sectors. We believe explicit articulation of the issues will generate productive conversations that would enable us to collectively find solutions for at least some of them and help these sectors indeed generate impact, albeit in distinct ways.

Research Setting: Impact Investing in India

Our research is set in India, which some identify as the 'global epicenter of impact investing' (Rajan *et al.*, 2014) and 'impact lab of the world' (IIC, 2020). Until the 1990s, in India, the responsibility for funding programs and initiatives that were social or environmental was primarily vested with the government and developmental financial institutions, sometimes with aid from international agencies. Though NGOs and charities were engaged in grassroots work, they relied primarily on donations, while the government spending was routed through the public sector or government agencies. The micro-finance boom around 2000 set the stage for

the entry of private capital to BOP-oriented industries. Avishkar, the first for-profit Indian Impact Fund, and the entry of Acumen, the global impact investment player, into India, both in 2001, perhaps mark the official beginnings of impact investing in India (Ravi *et al.* 2019). Since then, many domestic, as well as foreign players have entered the Indian markets. The Impact Investors Council (IIC) was formed in 2014 as an industry body to strengthen the industry (IIC Website).

Methodology

To understand meanings constructed by actors on the field, we followed an inductive approach (Eisenhardt, Graebner & Sonenshein, 2016) to data gathering. The key source of our findings are founders or senior leaders of eight highly reputed organizations that work in the impact investing and social entrepreneurship space in India. Specifically, they are involved in providing incubation, acceleration, and funding support to social enterprises. The interview data is supplemented with field immersion that enables a better understanding of the context and phenomenon.

Findings

Our findings reveal five significant themes - how the investors label themselves, the focal sectors, geographies and beneficiaries they invest in, their investment approaches, investee selection, and monitoring - all of which were areas where the impact investors varied from each other in their orientations and practices.

Impact investor: how do they self-label?

With commercial funders of all hues entering the impact investing space, there was an increasing sense of ambivalence about the fundamental nature and true intentions of the varied actors who now called themselves 'impact investors'. Though several professed to seek a blended value of financial and social returns while creating a sustainable growth model of their investee social startups, they appeared indistinguishable from mainstream venture capitalists as the impact was secondary to many and often traded off for financial returns. An interviewee observed: "*When asked if they (those posing as impact investors) are willing to take impact as the proxy for financial return, they said no. I said, if you cannot trade it off, why are you calling yourself impact investors?* Few social venture funders described themselves as 'patient capital providers,' an "impact first" investor. In contrast, others presented themselves as 'facilitators who create an environment for creating an environment for social and sustainable business' or 'solution providers who take a holistic system-based approach.' Thus, there is an ambivalence around impact investor identity, with the more socially-oriented among them embracing differentiated identities that reflect their philosophies and approaches.

Where do they invest?

Impact investors vary in their preferences for industry sectors, geographies, beneficiaries, and their rationales.

Sectors: Several impact investors are sector agnostic, investing in social ventures that are most promising from an impact and return perspective. The currently popular sectors included: agriculture, education, and healthcare. In addition, there was also a trend favoring investments in technology-based ventures in all sectors as they could scale rapidly and fetch early or higher returns.

Geographies: Variations are seen in the geographic concentrations of the investments made. Although the trend was beginning to shift in favor of tier 1 and 2 towns, most investments

were still made in metros, predominantly in Southern, Northern, and Western India. As a result, many were reluctant to bet on entrepreneurs from smaller towns and villages, and some worked exclusively with entrepreneurs who developed solutions for rural India.

Beneficiaries: We found a hesitation to invest in specific sectors and geographies where it was difficult to create sustainable business models. Investors found it pragmatic to focus on social enterprises catering to the next rung above the BOP and thus have a more diversified beneficiary group that can pay for services. An interviewee clarified: *"These people have relatively higher savings. So, it becomes easier to get some fee from them. They are the lower middle class or the upper lower class if I can say. They also have aspirations"*. Revenue pressure led to the inclusion of middle-class or even the upper-middle-class segment of consumers, with higher purchasing power and rarely the poorest of the poor (BoP).

Investment approaches

The investment approaches similarly varied, especially in terms of the preferred deal sizes and exit periods. Transactional costs and regulatory hurdles led many impact investors to do fewer deals but of larger ticket sizes. Many had short investment windows, with some having exit periods comparable to the mainstream VCs. For most, patient capital translated into staying invested for a maximum of seven years. An interviewee said: *"We intend to exit between five to seven years. That is a return expectation. However, in reality, we see more – seven, nine, ten. Five is very difficult, even for the impact investment industry in general. It is still challenging for funds invested in India as an IPO is only for some."* The exit was often decided early on the social startup's exhibited potential even if the company is profitable. Venture funds exited if they could not achieve growth.

Investee selection criteria

The *raison d'être* of the investors reflected on the criteria they used to fund and incubate social enterprises. The criteria employed by our interviewees included the following:

1. *Problem & Beneficiary characteristics:* several of them strictly focused on economically marginalized beneficiaries/BOP population. Some addressed problems related to general societal challenges in sectors where the return on investment was not high, and therefore, access to capital was difficult. In these cases, the investors looked for the social enterprise's alignment with their strategic orientations.

2. *Impact type:* While the nature of the solutions that the social enterprises (product innovations, service or business-model innovations, technology as a core or enabler) were considered, what mattered most was the type of impact created, as one of the interviewees expressed, *"we are very clearly focused on the solutions which will improve incomes and assets and livelihood for the poor."* A few went on to sieve the applicants based on the impact type making it clear: *"On the impact side, our focus mainly is on direct livelihood impact. So, if there is a company which only has an environmental impact, we might not be looking at it."*

3. *Firm stage:* The impact investors differed in their preferred venture stage to step in with investments. Those focusing on product innovation accepted seed-stage companies even at the idea or proof-of-concept stage, while those focusing on livelihood-generating business models preferred later-stage companies.

4. *Financial sustainability:* The viability of the business models, financial sustainability, and scalability were imperative, though minimal to modest returns were accepted as the primary goal was impact rather than profit. One of the interviewees justified: *"The final consideration is the*

financial sustainability. However, we are also an 'investor right,' and we will have to see to the exit part of investing."

5. *Entrepreneur characteristics:* most wanted to engage with local entrepreneurs to build trust faster. Intangible assets such as team dynamics and sectoral knowledge were deemed a significant parameter for selecting entrepreneurs.

Monitoring the investees

Impact investors monitored the investee enterprises on two dimensions: social impact and financials. *Social impact:* Most impact investors relied on their in-house tools to track impact and emphasizescale. In several cases, the tendency was to report the number of beneficiaries rather than use complex measures.

Financials: Monitoring of venture financials, in comparison, was essentially a routine matter. Instead of looking for success indicators typical to mainstream startups, most of those we interviewed chose to look at venture sustainability as an indicator for venture financial health. This, they did, primarily focusing on the cash flows of the business. They expected businesses to be profitable enough to self-sustain but were not expecting high returns.

Discussion and conclusions

Several of our findings are pointers for more profound exploration to have a more nuanced understanding of the potential issues in impact investing and devise solutions that protect all stakeholders' interests. Firstly, contrary to the widespread perception that impact investors take higher risks while investing in social ventures, in reality, many were more risk-averse than mainstream venture capitalists. Secondly, the definitional confusion as to whom an impact investor is starkest in the Indian context, making impact investors an umbrella term that players with distinct objectives and practices find shelter under. While the social orientation of investing in rural enterprises and the avowed objective of supporting rural entrepreneurs was evident, some continue to find it safer to bet on urban businesses. Further, impact investors had expanded the target population - now moving on to the 'missing middle. Their focus was a growing under-served group of beneficiaries, who had graduated from the BOP level, yet could not access affordable finance, good education, or quality healthcare. Finally, financial viability often takes precedence over the social impact that is slower to come by. There is ample scope for work in developing impact measurement models that can go a long way in bringing the social returns of investment in the reckoning.

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Evidences of Sustainable Management Practices from Ancient Indian Literature: A Thematic Analysis

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Abstract

The paper attempts to explore evidences of sustainable management practices from ancient Indian literature: Bhagwad Gita. 700 verses across 18 chapters of Gita, have been analyzed using Thematic Analysis. This process was streamlined using Deductive codes referenced from existing sustainable business practice literature. Descriptive numerical analysis of identified themes was conducted using NVivo Software. Theme validation was achieved by 3 independent coders and inter-coder reliability established. The study provides conclusive evidence of references to sustainable management practices in Gita. The overarching themes of sustainable business practices identified in this process are Continuous Improvement, Accept Responsibility, Creating Long-term Value, and Right to Co-exist. The study also lists, other sub-themes extracted during the exhaustive text mining of the Gita Verses.

Keywords: Thematic Analysis, Sustainable Business Practices, Bhagwad Gita

Do Firms' Social Practices Reveal Strategic Intent?

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Abstract

Research in corporate sustainability reveals a significant focus on phenomenological inquiry on sustainability outcomes and behaviour that are diverse but discrete, and often confined to dimensional silos with a bias towards the environmental. Furthermore, attempts to understand the significant diversity evident in sustainability practices have been largely conceptual rather than empirical. To partly address this gap and focusing on firms' social practices, this research explores an empirically grounded approach to identifying patterns that might reveal strategic orientations. Through a content analysis of 1200 sustainability reports of the 160 largest MNCs, and thereafter applying factor analysis, I identify four orientations that potentially point to underlying strategic intent.

Keywords: Corporate Sustainability, CSR, Strategic Intent, Social Sustainability, Diversity

A Review of Environmental Management and Firm Performance

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Abstract

The difference in traditional and modern views on business objectives gave rise to the question “Do investment in environment management activities provide returns to corporate houses?” The purpose and approaches for environmental management adoption may differ among business firms and across countries. We have selected 49 studies to explore environmental management and firm performance variables and their linkage. The major categories of corporate environmental management variables, identified from the selected studies, are environmental management, environmental performance, and environmental information disclosure variables. Market-based and accounting-based are the most used firm performance measures. The majority of studies exhibit a positive relationship between environmental management and firm performance, except a few studies showing negative and no relation. Further, the unexplored areas are underlined for future research in this domain, and various measures to motivate EM adoption are proposed.

Keywords: Environmental Management, Environmental Performance, Sustainability, Firm Performance

Introduction and Background of the study

In traditional times, profit-earning was the main objective of the business. With time academics, policymakers, and governments of different countries realized the need for sustainable business practices. But Friedman doctrine stated, “Business main objective is to earn profit and it has no responsibility to the society”. The difference in views gave rise to the question “Do investment in environment management activities provide returns to corporate houses?”

Environmental Management (EM) is the total of all the activities undertaken by business firms to mitigate the negative impact of their activities on the environment. EM adoption depends on three types of institutional pressures known as antecedents of EM adoption. These are coercive pressure, mimetic pressure, and normative pressure.

Different corporate houses manage their environmental activities for different purposes: regulatory purpose, cost savings, differentiation, social image, and competitor advantage (Bowen, 1953, p.79; Parker *et al.*, 2009). EM provides a competitive advantage to corporations in two forms: cost advantage and differentiation. Different kind of frameworks is in place all over the world for corporate EM. The developed countries have the framework for voluntary schemes with a win-win situation whereas developing countries are forced to implement strict laws (Mungai *et al.*, 2020). As per ISO 14001, the number of voluntary Environment Management System (EMS) certifications has reached over 307,000 from the 1990s to 2018 (Kristensen *et al.*, 2021).

Methodology

For finding the relevant papers, establishing the linkage between environmental management and firm performance we searched various keywords on EBSCO and Google Scholar database. The main keyword combination used: environmental management, green management, sustainability, green innovation, environmental proactivity, environmental orientation, firm performance, operational performance, etc. This search resulted in a total of 2164 studies from

the year 1985 to 2021. From these 564 studies were relevant to the topic. An inclusion criteria was followed for the selection of relevant papers. It had three conditions: a) Paper should be related to management discipline, b) Paper should directly address the domain of EM and FP variables or analyze the relationship between EM and FP variables c) Methodology used for analysis should be clear. In all, 224 studies out of a total of 564 were read and finally, 49 research studies were selected for this paper.

Findings

Measurement of Environmental Management

Corporate Environment Management (CEM) activities can be broadly classified into three types: EM, Environmental Performance (EP), and Environmental Disclosure/Information Disclosure (EID) (Albertini, 2013). EM is a broader concept and is the sum of strategic actions taken by an organization to protect the environment. EP is the output of the EM activities undertaken and EDI is the communication of environmental activities undertaken and their results to various stakeholders. Different types of EM variables were used in selected studies. The commonly used measures were environmental awards announcement (Klassen and Mclaughlin, 1996), environmental disclosures (Ngwakwe, 2009; Taylor *et al.*, 2018), environmental investment, efficiency ratios (Rao *et al.*, 2009), eco-efficiency index (Boakye *et al.*, 2021), environmental index scores (García Martín and Herrero, 2019), environmental cost savings (Al-Sheyadi *et al.*, 2019), ISO 14001 implementation (Christine *et al.*, 2019; Wen and Lee, 2020), reuse or re-manufacturing activities (Vincent *et al.*, 2015), and environmental strategies (Shrivastava and Tamvada, 2019).

Measurement of Firm Performance

The predominant measures used for measuring FP can be categorized in three dimensions: operational-based, market-based, and accounting-based (Bu *et al.*, 2020; Ho *et al.*, 2016; Jawaad and Zafar, 2019). The market-based performance measures include market share, competitive advantage, customer satisfaction and loyalty, brand value or brand equity, etc. Operation-based performance measures emphasize the operational efficiency of the firm and include speed, quality, costs cutting, and flexibility. Accounting-based measures take into account the profitability of concern and include return ratios and earnings. Earnings per share (EPS), return on equity (ROE), Tobin's *q*, return on investments (ROI), profitability ratios, and return on assets (ROA) were the most used FP measures in the context of the EM-FP relationship (Agu & Okegbe, 2019; Boakye *et al.*, 2021; Bu *et al.*, 2019; Buallay, 2019; Ho *et al.*, 2016; Johari & Komathy, 2019). The usages of either accounting-based or market-based measures have their limitations, but a combination of both can overcome those limitations. (Jayarathna and Lasantha, 2018; Riaz *et al.*, 2019).

Relationship between Environmental Management and Firm Performance

A strong and positive association was found between EM and FP. However, we can see from table no. 1 that some studies had shown negative relation and only one study had shown no relationship. Period of study, board characteristics, number of measures, industry-specific and country-specific characteristics were responsible for variation in results (Bai, 2013; Russo and Fouts, 1997). This relationship was solidified through the inclusion of two or more measures of CEM and FP. Studies using Tobin's *q* as FP and environmental output, environmental index as EP measure yielded positive results. Usage of only one measure of CEM or FP provided inverse results.

Table 1 Relation of Environmental Management and Firm Performance

| Relation | Studies |
|-------------|--|
| Positive | Agu and Okegbe (2019); Aupperle <i>et al.</i> , (1985); Boakye <i>et al.</i> (2021); Bu <i>et al.</i> (2020); Buallay, (2019); Christine (2019); Chukwuka and Eboh (2018); Fadly (2020); Ho <i>et al.</i> (2016); Han <i>et al.</i> (2019); Johari and Komathy (2019); Jo <i>et al.</i> (2015); Khan and Johl (2019); Klassen and Mclaughlin (1996); Lundgren and Zhou (2017); Latan <i>et al.</i> , (2018); Montabon <i>et al.</i> (2009); Melnyk <i>et al.</i> (2003); Oprean-Stan <i>et al.</i> (2020); Russo and Fouts, (1997); Parker <i>et al.</i> (2009); Pagell <i>et al.</i> (2004); Schabek (2020); Taylor <i>et al.</i> , (2018); Wen and Lee, (2020); Yu and Huo, (2018) |
| Negative | Horváthová (2010); Rashid and Aslam (2018); Sharma <i>et al.</i> (2020) |
| No Relation | Malarvizhi and Matta, (2016) |

Control Variables

The selected studies have used firm size, the number of years, leverage ratio, research and development, geographic region, CEO education, CEO age, ISO 14001, and green patent as control factors (Al-Sheyadi *et al.*, 2019; Melnyk *et al.*, 2003, Nakamura, 2011, Marín-Vinuesa *et al.*, 2020). Firm size referred to total assets, the number of employees, total market share as per the purpose of the study.

Sector and Region Specificity

The efficiency varies across the different sectors from EM implementation. The relationship between EP and FP was positive for the manufacturing sector and negative for the banking sector (Buallay, 2019; Tzouvanas *et al.*, 2020). Further, the relationship was positive for Kenyan and Korean firms (Wakulele *et al.*, 2016; Choi and Hwang, 2015) and not significant for Indian firms (Malarvizhi and Matta, 2016; Kumar and Prakash, 2018). This relationship was more strong in developed countries as compared to developing countries (Laskar and Maji, 2018; Jo *et al.*, 2015).

Future Research Directions

Firstly, there is a difference in the selection, measurement, and analysis of EM variables across the various studies. The development of a general framework for the same is an unexplored area of research in this field. Secondly, EP is the output of EM, so mediating role of EP needs to be explored in the context of the EM-FP relationship. Thirdly, we suggest multi-country analyses in developing countries as a potential area for future research.

Conclusion

The voluntary adoption of EM practices is on large scale in developed countries as compared to developing countries. Legislation and regulations are the main motivators in developing countries. The carrot and stick approach needs to be followed as the environment should be the priority of all. Merely the implementation of the environmental practices and adoption of ISO 14001 standards does not result in competitive advantage or better performance to firms. It is the continuous efforts of the firms in the long run which will help in fetching long-term benefits to the firms.

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Temperature shocks and rural labour markets: Evidence from India

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Abstract

The present study contributes to the literature on labour reallocation and adaptation in response to weather anomalies. Existing literature on labour mobility and weather shocks primarily focus on migration to the neglect of worker commuting as a potential adaptation strategy. Utilising individual-level panel data from the Village Dynamics in South Asia (VDSA) dataset for the year 2010-2014, the present study explores the impact of weather anomalies on migration, commuting as well as participation and earnings in the non-agricultural sector. The fixed-effects regression results show that negative temperature shocks induce a flow of labour outside the village through labour out-migration and longer-distance commutes. Temperature stress also negatively impacts non-agricultural earnings. The effects of temperature shocks are heterogeneous across the baseline climate of the villages suggesting evidence of adaptation to weather shocks. The study emphasizes the crucial role of labour mobility and adaptation in coping with weather shocks. The paper concludes with some policy suggestions.

Keywords: climate change; weather; migration; commuting; non-agriculture; adaptation

Natural Calamity and Partisan Politics: Politics matters, Evidence from the Indian States

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Abstract

The distribution of funds for ecological concerns should be based on ecological needs in order to fulfil the development goals. Given that the States must finance the efforts needed in order to deal with environmental concerns, the gap between the funds sought and granted by the center should be minimized and the political alignment should not impact it. Partisan politics always inefficiently distribute the funds as it works on favoritism. Unfair allocation of funds to the population affected by natural calamities such as drought can damage the process of development. Such unfair allocation can further damage the development process in poor states. This panel study finds that the political alignment between States and the Centre has an influence on the allotment of the fund in natural disasters such as drought. The political alignment between states and the center, members of parliament, nature of political parties ruling at center and states have an influence on the distribution of funds for droughts.

Keywords: Political Concentration, Partisan Politics, Fund Transfers, Natural Calamities

Introduction

India, the world's biggest democracy, has seen tremendous economic growth as well. India, being the world's biggest democracy, has a varied social and political landscape. In India's democracy, the quasi-federal system adds to the complexity. The Indian Constitution, although creating the federal system by proclaiming the Union of States, also emphasizes the separation of legislative, administrative, and executive responsibilities between Indian states and the central government. The power between the states and the center is split into three lists: Union, State, and Concurrent, while Article 282 of the Indian constitution protects the states' financial autonomy for public expenditure of available resources. The revenue allocation is decided by India's Financial Commission. State Disaster Response Fund (SDRF) and National Disaster Response Fund (NDRF) give financial support in the event of a natural disaster (NDRF). In comparison to other established federal structures such as the United States, the European Union, Australia, and Canada, there are enormous differences across Indian states under this federal system (Kelkar, 2019). This regional imbalance across states, which is linked to revenue generation capacity and spending, violates the concept of equitable treatment of equals. However, political factors have a significant impact in regional disparities. But it is also argued that a remedial adjustment to decrease the regional disparity is not politically feasible (Rao, 2017). As a result, political organizations play a crucial role in correcting the imbalance, especially in fiscal transfers in emergency situation like natural disasters. Natural disasters are not limited to human suffering and infrastructure devastation, they have a detrimental influence on economic growth, which may persist for a long time and leave a lasting imprint (Von Peter, Von Dahlen, and Saxena, 2012). As a result, in times of crisis, like as natural disasters where the state alone cannot tackle such a catastrophe like drought, the political collaboration between states and the center becomes critical. However, the important question is does centre play a fair role in providing the assistance?

Partisan Politics: Natural Disaster, Drought and Financial Assistant.

According to normative theories of fiscal federalism, transfers between governments should be based on justice and efficiency to assure the supply of basic services as well as differentiated public goods (Musgrave, 1959; Musgrave, 1983; Oates, 1972). The central government may encourage state growth through central transfers and tax sharing, which comes from political concentration and communication (Blanchard and Shleifer, 2000). The literature is divided on

whether or not party politics influences this sharing. The political identity of the governors Soares and Neiva (2011) indicates that in Brazil the distribution of the resources for the particular state plays a significant influence. Brollo and Nannicini (2012) also finds similar result that in Brazil local governments where the mayor is part of the president's or coalition received a greater federated transfer while other municipal governments faced penalties. Gordin (2004) sees political identity as important for determining the allocation of power in federalism. Wright (1974) suggests political involvement in fund allocations in the USA. Political considerations have been identified as crucial to the allocation of the federal cash. Grossman (1994) suggests that the grants are decided by the political of the people making decision at states. The party affiliation, political identities have positive impact on the per capita grants to the states. However, Khemani (2003) shows that the constitutional provisions for the allocation of the funds placed a monetary constraint on political policy activity. Dahlberg and Johansson (2002) also find that that the grants can be used as tool to win the vote hence grants are allocated to attract the swing voters but not transferred to the politically aligned people. While for emergency management, Garrett and Sobel (2003) finds that the allocation for disaster management is politically motivated. It is found that the Federal Emergency Management Agency (FEMA) fund allocation is decided not according to the need but according to the political motivation. Parida (2016) finds similar result for India. It is found that the damage cause by the flood is associated with the political alignment. This loss is minimized in the state which are favored by the center. Pattanayak and Kumar (2019) also support the argument in Indian context where the fund allocation is influenced by the political alignment. The role of political favoritism in fund allocation is widely debated. Bastos and Miller (2013) find that political alignment does have impact on drought declaration. Tarquinio (2020) finds similar results for Southern India. As far as drought relief programs are concerned, the incumbent insecurities of losing the power have the significant impact on the relief programs (Munemo, 2008). This work makes a new effort to revisit the discussion over political favoritism in fund allocation for drought in context of India.

Drought and Fund allocation for Indian states.

In India, the risk of drought is increased due to global warming (Mishra and Liu, 2014). The meteorologist defines drought as the absence of rain where agriculturist defines drought as the lack of soil moisture which harm the crop's productivity. Both factors are taken into consideration while declaring the drought. If total rainfall received during the months of June and July is less than 50% compared to the normal rainfall and it has an adverse impact on sowing area, vegetation and soil moisture then state declare the drought¹. In recent years, it is observed that the states which never witness this natural calamity are now experiencing the mild to acute drought (Gautam and Bana, 2014). Therefore, the distribution of funds that is provided to such natural calamity becomes very important. This study tries to understand the mechanism of fund allocation for drought through new lenses. This study tries to address the fundamental questions of fund allocation for natural calamities and takes effort to understand the role political alignment in the fund allocations.

Data and Methodology

This paper extends and modifies the approach used by Pattanayak and Kumar (2019). To understand the favouritism, gap between fund allocated and fund released is used. Adding to that, alongwith co-partisan variable, other political variable indicators are included to reflect the nature of centre-state political partnership.

To analyse the political association between state and center, the co-partisanship variable i.e. dummy for the government who's CM belongs to the party or alliance which is at Centre can

¹Refer to <https://agricoop.nic.in/sites/default/files/Manual%20Drought%202016.pdf>

be used (Parida, 2016; Pattanayak and Kumar, 2019). Pattanayak and Kumar (2019) The Member of Parliament belongs to party or alliance ruling at center also plays very important role as far as bargain power with center is concerned. The ratio of Member of Parliament in state belongs to the ruling party or alliance at center to the total number of the Member of Parliament in given state is used for center-state association. The stability of state governments is also an important factor. The coalition government ruling states and single party with majority in house ruling the state can have different association with center. Therefore, to identify the stability and degree of coalition i.e. how much power the party ruling the state has in the state assembly, the HHI index is used.

$$HHI = \sum_{k=0}^n (S_k)^2$$

S_k = Seat share of party k in power

HHI = Herfindahl– Hirschman Index²

Higher the HHI, higher will be political concentration which means lesser number of political parties are forming the government. To analyse the financial assistance to the state, the gap between the fund demanded by the states for drought (natural calamity) and the actual amount provided by the center is used as dependent variable. Other variables like per capita GSDP, political instability can affect the analysis. Therefore per capita GSDP, the dummy for change in CM as proxy for political instability are also included in the model. The fund requested for drought and approved by center government can be influenced by the drought persists in given state. Therefore, to control that the ratio of districts declared to be drought affect to the total number of droughts is used. The panel data analysis is done. Based on the Hausman test, joint testing and BP-LM test, the preferable model is selected.

$$\text{Gap}_{it} = \beta_0 + \beta_1 * (\text{HHI})_{it} + \beta_2 * (\text{MPshare})_{it} + \beta_3 * (\text{MPshare})_{it} * \text{CI}_{it} + \beta_4 * \text{CI}_{it} + \beta_5 * \text{DI}_{it} + \beta_6 * X_{it} + u_{it} + \varepsilon_{it}$$

Gap= Gap between fund demanded for drought and actual fund provided by center

HHI= Political Concentration Index

CI= Copartisan index, 1 if CM of state belongs to the either party or alliance governing at center otherwise 0

MP share = $\frac{\text{Number of Member of Parliament from given state belongs to party or alliance ruling at centre}}{\text{Total number of Member of Parliament in given states}}$

Vector X represents the control variables - per capita GSDP, political instability (number of CM in year, change in CM).

The data required for the HHI and Mps share calculation is taken from election commission of India³. Loksabha questions-answer⁴, Minister of Agriculture and Farmers Welfare⁵, Department of Agriculture, Cooperation and Farmers Welfare, Government of India provide the information related to the fund demanded and fund provided for drought. The data related

²Measures the market concentration to identify the market competitiveness, here to measure the political competitiveness

³<https://eci.gov.in/files/category/64-statistical-report/>

⁴<http://164.100.47.194/Loksabha/Questions/Qtextsearch.aspx>

⁵<https://agricoop.nic.in/en>

to GSDP, per capita GSDP is extracted from Reserve Bank of India⁶ (Handbook of Statistics on Indian States).

Findings

Table 1. Descriptive Statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|----------------------|-----|----------|-----------|----------|----------|
| Gap | 64 | 4132.756 | 6178.558 | -1978.88 | 37816.72 |
| HHI | 323 | 0.304511 | 0.146371 | 0.066149 | 1 |
| mpshare | 320 | 0.482713 | 0.337959 | 0 | 1 |
| CI | 323 | 0.452012 | 0.498464 | 0 | 1 |
| DI | 229 | 0.250363 | 0.223701 | 0 | 1 |
| number of CM in year | 323 | 1.303406 | 0.499274 | 1 | 3 |
| change in CM | 323 | 0.26935 | 0.44431 | 0 | 1 |
| Per capita GSDP | 279 | 40669.04 | 23885.83 | 7148.54 | 154025 |
| Ln(GSDP) | 279 | 10.45942 | 0.56052 | 8.874663 | 11.94487 |

Table 2. Result

| Gap | Model one | Model two | Model three | Model four |
|------------------------------|-------------------------------------|-------------------------------------|------------------------------------|-------------------------------------|
| Mpshare*CI | 13163.54*** (4801.3) (0.006) | 13502.9*** (4886.67) (0.006) | 10441.94*** (4017.1) (0.009) | 10651.64*** (4077.29) (0.009) |
| Mpshare | -11049.7*** (3328.38) (0.001) | -11169.7*** (3355.59) (0.001) | -10226.4*** (2879.65) (0.00) | -10329.7*** (2896.75) (0.00) |
| CI | -7195.7*** (2691.47) (0.008) | -7046.05 (4050.48) (0.083) | -5651.81** (2504.17) (0.024) | -5337.89 (3572.76) (0.135) |
| HHI | -3187.42 (4546.27) (0.48) | -2601.09 (11253.21) (0.817) | -1605.41 (4146.28) (0.699) | -470.831 (9802.80) (0.962) |
| HHI*CI | - | -950.17 (12541.05) (0.94) | - | -1459.29 (10679.52) (0.891) |
| DI | 5523.98*** (2031.46) (0.007) | 5562.59*** (2050.32) (0.007) | 5215.53*** (1741.75) (0.003) | 5226.784*** (1755.07) (0.003) |
| Constant | 7408.07** (3568.96) (0.038) | 7216.08 (4790.02) (0.132) | 8442.96*** (2648.34) (0.001) | 8130.33** (3691.68) (0.028) |
| Wald chi2 | 26.28 (0.00) | 26.64 (0.00) | 23.60 (0.00) | 23.81 (0.00) |
| Hausman Test | 4.12 (0.66) | 3.27 (0.85) | 3.61 (0.61) | 2.90 (0.82) |
| BP LM test for Random Effect | 6.34 (0.00) | 6.30 (0.00) | 7.47 (0.00) | 7.46 (0.00) |
| Control Variable | Yes | Yes | No | No |

⁶<https://rbi.org.in/Scripts/AnnualPublications.aspx%3Fhead%3DHandbook%20of%20Statistics%20on%20Indian%20States>

Table no. 4 shows the result of panel data analysis. The Hausman test shows that random effect is preferable over fixed effect model while BP-LM test shows the random effect in all models. In the models without the interaction between HHI and CI, all variables except HHI are statistically significant. While in the models with interaction between HHI and CI, except HHI and CI, all other variables are statistically significant. The sign of Mps share is negative while CI index also has negative sign. This represents that there exist the partisan politics. The gap for CM belongs to same alliance or party is on an average less compared to the other states. The MP share has negative impact on the gap. If the number of MPs belongs to party ruling at center is increased the gap is declining. Interesting the Mps share*CI has positive sign. The benefits of having more MP of the party or alliance ruling at centre is neutralized in the state where CM belongs to same party. This shows two possible ways of bargaining for the funds. First from state to center and second from MP to center.

Table 3. Centre's Preferences

| Centre's preference | Same Party at State and Centre | High number of MPs |
|-------------------------|--------------------------------|--------------------|
| Most Preferable State | Yes | Yes |
| Preferable States | Yes | No |
| Preferable States | No | Yes |
| Least Preferable States | No | No |

Conclusion

To achieve the development goals, the fund allocation for ecological issues should be allocated according to the ecological need. Considering the States needs on the line of needs required to tackle the ecological issues, the gap between funds demanded by the states and approved by center should be minimized and should not be affected by the political alignment. The partisan politics always allocate the funds inefficiently as it works on the principles of favoritism. The inefficient fund allocation in the time of natural disaster is injustice against the people affected this work finds that the political association between States and Centre do have an impact on the fund allocation in natural disaster like drought. The central allocation is influenced by partisan politics. The co-party variable has strong influence on the differences between funds requested by states and approved by center. The member of parliaments influences the fund allocation. The states without centers favor might get less funds which might not able to handle the disaster. The role of partisan politics must be investigated in natural disaster fund management to understand India's battle against natural calamities.

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Informality, Consumption Expenditure and Asset Accumulation of Migrants: Evidence from India Human Development Survey

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Abstract

The paper examines the effect of consumption expenditure, asset accumulation and other individual characteristics on informal migrants in India, drawing on the India Human Development Survey (IHDS) panel data from the years 2005 (IHDS-I) and 2012 (IHDS-II). To mitigate the possibility of endogeneity problem, we applied a Two-stage Least Square Probit model. The paper concludes that the consumption expenditure of the informally employed migrants has decreased from 2005 to 2012. The asset accumulation among the informal migrants also does not seem to have changed significantly from 2005-2012. The results also account that most informal employment is in the constructions sector and has increased from 2005 to 2012. In addition, the paper highlights the other characteristics of migrant labour, e.g., gender, marital status, age, caste, which are significant determinants of informal migration as per the model. At the same time, education and place of origin do not play any significant role. Finally, the paper also suggests some policies on migration and informal employment.

Keywords: Migrants, Informal labour, Consumption expenditure, Assets accumulation, 2SLS Probit

Political Competition, Luminosity Measures and Public Goods

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Abstract

In this paper we study the impact of political competition on the provision of public goods. The differences in the allocation of public goods across towns in India as a result of the political competition is highlighted in this study. We elucidate on the role of political processes in determining the provision of public goods and the intensity of economic activity measured by nighttime lights. We use different measures of political competition and how it affects urban and rural areas differently.

Role of Social Networks on Farmers' Adoption of Smartphones

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Abstract

Adoption of smartphones is one of the most viable solutions for addressing some major challenges facing agriculture. Several studies have explored the role of various farm related and farmer related variables in influencing smartphone adoption decisions. However, the influence of village level informal networks have been largely neglected. In this study, we examine the role of farmers' village level social networks in smartphones adoption decision. We use primary data from 939 farmers across 14 villages in Andhra Pradesh, India. Results reveal that higher average network effect of a farmer reduces his/her chances of adoption. Further, centrality and homophily measures indicate that farmers who are less central to the village network and part of heterogeneous network have higher chances of smartphone adoption. Findings of this study could be used to target technology adoption, complement government extension officers and design government policies to promote technology adoption in agriculture.

Keywords: Technology Adoption, Smartphones, Social Network, India

Introduction

Farmers in India face multiple challenges and do not find agriculture viable. Low productivity, lack of remunerative prices, improper tenure arrangements, climate change, low technology adoption, inadequate credit access are few of the pressing issues India farmers currently face (Banik, 2018; Nadkarni, 2018; NITI Aayog, 2015). Farmers have further reported issues like lack of access to credit, and input availability. Many solutions have been proposed to improve the state of agriculture such as improving industry linkages, improving marketing infrastructure, use of technology, providing remunerative prices, implementing contract farming, encouraging crop diversification etc. (Banik, 2018; Nadkarni, 2018; Ranade, 2018). Among these, use/adoption of technology for conducting agricultural operations is one of the most viable and effective solution for solving various problems facing Indian agriculture (Chand, 2016; Feder & Umali, 1993; Oladeji & Oyesola, 2011). Among various technologies, Information and Communication Technology (ICT) can play a crucial role in addressing the concerns facing Indian agriculture.

The key variants of ICT that is focus of this study is the smartphone. Smartphones are “phones that performs many functions of computer, typically having a touchscreen interface, internet access and an operating system capable of running downloaded applications” (Oxford, 2019). The major difference we consider between mobile phones and smartphones in this study is that smartphones are internet enabled and can be used for several functions other than making calls and dealing with text messages. The focus on smartphones in agriculture is more prominent because of two main reasons. First, the recent increase in the uptake of smartphones among farmers. Second, rising popularity and relevance of smartphones in agriculture due to introduction of many mobile phone applications and content. (Stephane, 2017). Several studies have explored a host of factors that affect the various stages of farmers' technology adoption process. However most of the studies have not recognised the importance social network that affect the adoption process. Although economists have repeatedly highlighted the need to consider the impact of social network on technology adoption, the studies have been very limited.

In spite of the recent increase in interest in Social Network Analysis (SNA), the studies in Indian context have been very less. (Matuschke & Qaim, 2009; Munshi, 2004) are the only two studies in Indian context which have considered the impacts of social networks on technology adoption.

However, these studies suffer from econometric and data related drawbacks. On the other hand (Banerjee et al., 2013; Johny et al., 2017) are the two notable works using SNA in Indian context to study diffusion of microfinance and income diversification respectively. They have used SNA approach which draws from the graph theory. This latest technique helps form a comprehensive village network and get very advanced knowledge of each farmer's network variables. Given the India's unique rural setting, bridled with deep rooted hierarchy, high incidence of informal communication and strong presence of village networks, advanced techniques are needed to understand the effect of social networks on technology adoption. The robust SNA methodology designed by (Banerjee et al., 2013) has not yet been applied to understand the technology adoption in Indian agriculture and hence we find a gap in literature. In this background, this study attempts to examine the role of social networks in adoption of smartphone among the Indian farmers for agricultural purposes.

Social Network Analysis

The methods to measure, capture and test the effects of social network effect were very rudimentary in agriculture technology adoption literature (Manski, 1993; Matuschke & Qaim, 2009). However recently, (Beaman et al., 2018; Ramirez, 2013) and studies from other field such as (Alatas et al., 2012; Banerjee et al., 2013; Banerjee et al. 2014) have made outstanding contributions into understanding this phenomenon. We follow the approach used by (Banerjee et al., 2013; Johny et al., 2017) due to its comprehensive approach. Other studies usually restrict the size of network that an individual can reveal in survey which leads to a smaller network under study. Broad network information obtained by (Banerjee et al., 2013) leads to a more comprehensive and holistic understanding of the phenomenon and hence we use this approach. Individuals in the network are referred to as nodes and each connection they have in a network is referred to as a link. Hence in the social network terminology, when a farmer is connected with another farmer we refer to it as "one node being linked to another". To assess the composition of farmers social networks, we follow the questionnaire by Johny et al., (2017). Consider the following example where there are 3 farmers (A, B and C) in a village/network. Farmer A is connected to farmer B. Farmer B is connected to farmer A & C. Farmer C is connected to only farmer B.

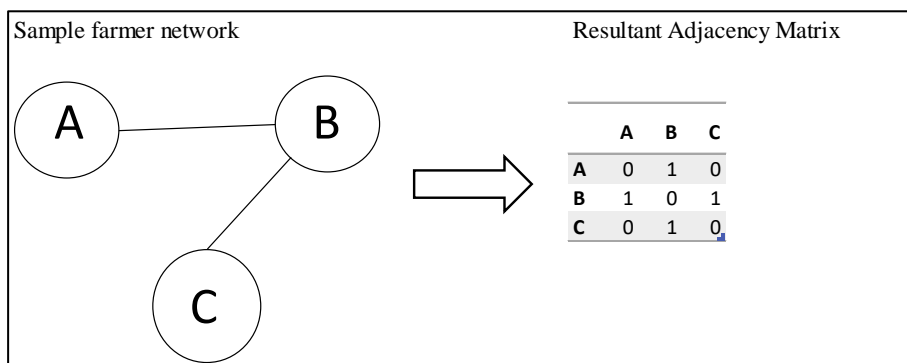


Figure 1: Social network and Adjacency matrix

This network can be represented by an adjacency matrix which captures all the relations in a binary form. Once we obtain the network adjacency matrix, we compute average network effect, network centrality and network homophily. Average network effect captures the average diversification of a household's social network. This captures number of connections a node has in a given network. This measure is generally normalised to be between 0 and 1. We first construct a matrix A that is a row normalization of the adjacent matrix W that represents the network. Therefore, a_{ij} can be interpreted as the fraction of network weight that farmer i

attributes to farmer j . For example, in the above, farmers A, B and C had 1, 2 and 1 links respectively. This converts into a score of 0.5, 1 and 0.5 respectively.

$$a_{ij} = w_{ij} / \sum_j w_{ij},$$

Network centrality is captured with degree centrality (DC). Degree centrality indicates how well a person is connected in terms of direct connections with other person (Butts, 2008). It ranges from 0 (at the boundary of the network) to 1 (being at the centre of network). Degree centrality is the proportion of connections of a person, i.e. the degree divided by $(n-1)$, where n is the number of persons in the network (hence, $n-1$ is the maximum number of connections a node may have).

$$C_d(i, A) = N(i) / (n - 1)$$

The third social network variable is the network homophily. This variable ranges from -1 to 1 and depicts the homogeneity of farmers' network. A score of -1 implies that farmers' network is highly heterogeneous while 1 implies utmost homogeneity. This study analyses the impact of average network effect, network centrality and network homophily in the decision to adopt smartphones among farmers in Andhra Pradesh, India.

Methodology

Several econometric methods have been used to analyse technology adoption among which the Tobit and Probit models are the most popular ones and suited to our context. Tobit models used by Adesina & Baidu-Forson (1995) have explored the role of demographic and socio economic indicators in agriculture technology adoption. Probit models have been used for studies in countries of Ethiopia, Netherlands, and Philippines etc. These models have been used in studies to understand the structural, behavioural factors and their role in determining technology adoption among farmers (Abebe et al., 2013; Diederer et al., 2003; Mariano et al., 2012). One major difference between these models is that Tobit is used when the dependant variable is censored and probit is used when the dependant variable is binary. In line with this, we proceed to use probit regression for the analysis. We consider the following estimation equation for the analysis.

$$O = \beta_0 + \beta_1 C + \beta_2 AN + \beta_3 NH + \beta_4 X + \varepsilon$$

In addition to the social network variables, we control for various farm and farmer level variables in accordance to the literature. These include variables such as age, experience, irrigation type, access to non-farming income, gender, source of irrigation, education, acreage and caste. There are two issues in the standard econometric probit model with the given data. First is the problem of reflection/simultaneity. To address this issue, we have used Instrumental Variable (IV) approach. The main variable is the ANE for which we have used the instrument of "membership in association". Membership in association is a good candidate for IV because of the three reasons viz. econometrically makes sense (it is correlated to ANE but not to smartphone adoption), it has literature support and data availability. Second is the problem of omitted variable bias. This problem is generally addressed by using fixed effects model. In our case, we used village fixed effects under the assumption that each village has some unobserved effect on the adoption behaviour of the farmers.

Data

The region under study are the villages located in the Kadapa district of Andhra Pradesh. We conducted this study over 14 villages across Kadapa. We collected the survey data from households in all the villages based on variables that are used in literature for adoption (Adesina & Baidu-Forson, 1995; Diederer et al., 2003; Martin & Hall, 2011; Matuschke & Qaim, 2009; Minten & Barrett, 2008; Mittal & Mehar, 2016; Munshi, 2004). We mainly obtained information from farmers on three broad categories viz. farmers' demographics, agriculture production details, and adoption of smartphone. These questions were finalized after

conducting an exploratory study which consisted of focus group discussions and a pre-pilot survey. The finalized questionnaire was inserted into the “Survey CTO” application and administered through trained enumerators. With several back checks such as in-built validation checks, and skip patterns, we ensured high quality data collected on the ground. The questionnaire was in Telugu (vernacular language). The final sample was comprised of 939 respondents from farmers located in Andhra Pradesh.

Results and Discussion

The following figures depict the social networks of two sample villages. One can observe how the graphs represent the social networks within the village. The villages with higher ANE and DC i.e. Kothapalle have visibly different graphs compared to social network in Putrayanapeta.

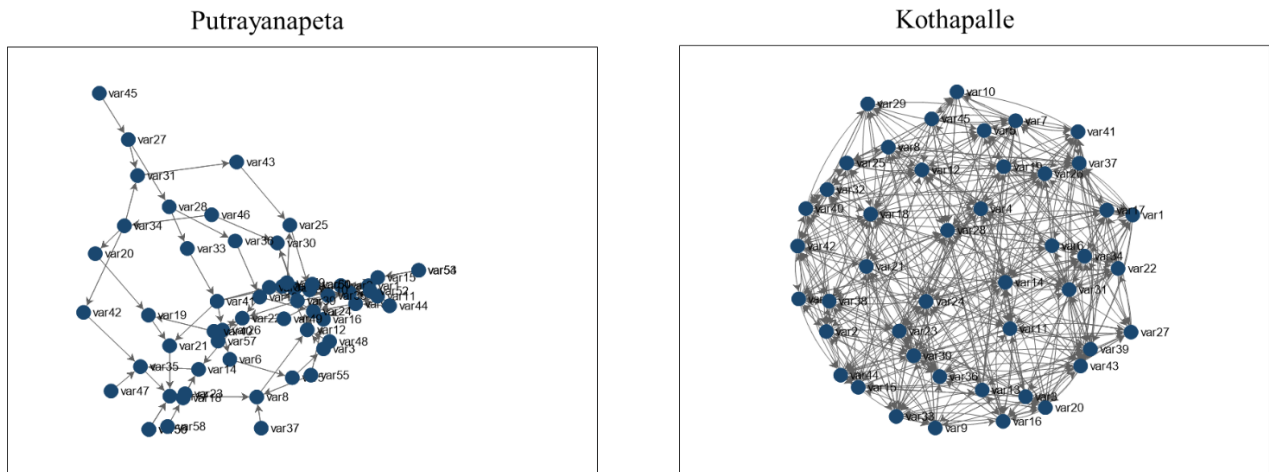


Figure 2: Social network graphs of two sample villages

| Variables | Adopters | | Non Adopters | | Total sample | |
|----------------------------------|----------|-------|--------------|-------|--------------|-------|
| | Mean | SD | Mean | SD | Mean | SD |
| <i>Dependant variables</i> | | | | | | |
| Average Network Effect | 0.40 | 0.37 | 0.55 | 0.35 | 0.49 | 0.37 |
| Degree centrality | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 |
| Network Homophily | 3.45 | 2.95 | 4.91 | 3.16 | 4.29 | 3.15 |
| <i>Farmer specific variables</i> | | | | | | |
| Other Income | 1.48 | 0.50 | 1.25 | 0.43 | 1.35 | 0.48 |
| Experience in farming (in years) | 18.13 | 33.56 | 23.04 | 33.88 | 18.09 | 12.49 |
| Farmers Education (in years) | 7.92 | 5.27 | 3.82 | 4.75 | 5.57 | 5.38 |
| Age of farmer | 40.09 | 10.05 | 49.66 | 18.43 | 45.26 | 13.12 |
| Gender of farmer | 1.91 | 0.28 | 1.78 | 0.42 | 1.83 | 0.37 |
| <i>Farm specific variables</i> | | | | | | |
| Irrigation | 1.44 | 0.50 | 0.45 | 0.50 | 1.56 | 0.50 |
| Total Acreage | 6.98 | 6.28 | 3.55 | 2.99 | 5.02 | 4.99 |
| <i>Household variables</i> | | | | | | |
| Number of people in household | 4.11 | 2.41 | 3.48 | 3.67 | 3.75 | 3.21 |
| Membership In association | 1.67 | 0.47 | 1.39 | 0.49 | 1.51 | 0.50 |

Table 1: Descriptive statistics of sample respondents used in the study

Table 1 summarizes the descriptive statistics of the variables used in the study. The below table 2 depicts the results of incremental models of IV probit. While table 3 depicts the results of incremental models of IV probit in addition to village level fixed effects.

| Dependant variable: Smartphone Adoption | IV Probit estimates | Marginal e |
|--|----------------------------|-----------------------|
| Average Network Effect | -6.460*** (-7.94) | -4.1130*** (-8.29) |
| Network Centrality | 23.31*** (6.96) | 23.31*** (6.96) |
| Network Homophily | 0.00551 (0.25) | 0.00551 (0.25) |
| Number in household | -0.0669* (-1.88) | -0.0669* (-1.88) |
| Religion | | |
| <i>Hindu</i> | 0.0187 (0.10) | 0.0187 (0.918) |
| <i>Islam</i> | -0.169 (-0.71) | -0.169 (-0.71) |
| DMC Score | -0.0822 (-1.30) | -0.1034 (-1.30) |
| Farmers Age (squared) | -0.000569* (-1.84) | -0.00056* (-1.84) |
| Owned land | 0.0637** (3.29) | 0.0368* (1.85) |
| Farmers Age | 0.0430* (1.85) | 0.0430* (1.64) |
| Farmers Education (in years) | 0.00402 (0.17) | 0.0389 (0.17) |

| | | |
|---|----------------------|----------------------|
| Sex: Female | -0.260 (-1.11) | -0.0801 (-1.11) |
| Social Groups | | |
| <i>Backward Castes</i> | -1.957*** (-5.64) | -0.0839** (-5.64) |
| <i>Scheduled Tribes</i> | -1.228** (-2.22) | -0.0335* (-2.22) |
| <i>Scheduled Castes</i> | -3.072*** (-4.52) | -0.2583** (-4.52) |
| Social Groups## Average Network Effect | | |
| <i>Backward Castes</i> | 3.554*** (5.93) | |
| <i>Scheduled Castes</i> | 3.346*** (5.18) | |
| <i>Scheduled Tribes</i> | 4.097*** (7.20) | |
| Sex: Female## DMC | -0.125 (-0.86) | |
| Sex: Female## Farmers education (in years) | 0.0640 (1.60) | |
| Social Groups## Farmers education (in years) | | |
| <i>Backward Castes</i> | 0.0342** (2.01) | |
| <i>Scheduled Castes</i> | -0.0213 (-0.72) | |
| <i>Scheduled Tribes</i> | 0.123* (1.84) | |
| Social Groups## Owned land | | |
| <i>Backward Castes</i> | -0.0371 (-1.45) | |
| <i>Scheduled Castes</i> | -0.127 (-1.59) | |
| <i>Scheduled Tribes</i> | 0.0234 (0.26) | |
| Constant | 2.045* (2.21) | |
| N | 941 | |
| Village Fixed effects | Yes | |
| Log likelihood | -434.733 | |
| Wald test of exogeneity (Prob > chi2) | 0.004 | |
| t statistics in parentheses | | |
| *p<0.10, ** p<0.05, *** p<0.01 | | |
| Instrument : Membership in Association | | |
| Reference group for Sex is Male, Social groups is Other castes, Religion is Chris | | |
| Wald test identifies exogeneity of the instrumented variables. We reject the n | | |
| As endogeneity is present, the above IV model is suitable and appropriate | | |

Table 2: Regression results of IV Probit with village level fixed effects

There are three major findings of this study. First, ANE has a significant and negative impact on the adoption of smartphones. This implies that as the farmers' is connected to more people in village network, he/she is less likely to adopt smartphone. Second, Centrality measures have significant and positive relation on the adoption of smartphone (*Different centrality measures have been significant, but degree centrality remains the best candidate). This implies that if a farmer is more central to a network he/she has higher chances of smartphone adoption. In contrast if a farmer less central (at the boundary) of a network, there is less chance of smartphone adoption. Third, network homophily has insignificant relation on adoption of smartphone. Although insignificant, a positive relation indicates that farmers belonging to heterogenous have better chances of adopting smartphone.

Conclusion

This paper explores the unique village level informal social networks' role in the farmers' smartphone adoption decision. The results depict that social network variables have significant impact on the farmers' decision making process. There are three major policy recommendations from this study. First is the improved targeting for technology adoption. Learnings from our research could provide district and state level agriculture department insights about better injection points for technology. Second is to complement existing agriculture extension officers. To promote ICT as a supportive form of extension delivery mechanism, the inputs from this study would be very useful for the policy makers. Finally, the findings of this study could help government frame better policies by replacing traditional information dissemination channels with village social networks.

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The Asymmetric effect of FEARS Sentiment: Evidence from Emerging Stock Market using Quantile Regression

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Abstract

The paper examines the asymmetric effect of investor sentiment on stock market activity through quantile regression models. The results indicate a strong negative relationship between FEARS sentiment and stock return. We also observe a positive (negative) relationship between sentiment and liquidity (illiquidity). The results show that short-sell and arbitrage constraint attenuates the potential impact of sentiment on return behaviour. Our results also indicate that the FEARS sentiment influences behavioral biases and trading activity of market participants.

Keywords: FEARS, investor sentiment, returns, liquidity, volatility

Market Reaction Around Announcement on Bankruptcy Framework Reform Measure: An Event Study

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Abstract

On 24th March 2017 the then Finance Minister (FM) of India Late Arun Jaitely indicated the market about a drastic overhaul of existing bankruptcy framework is impending. The objective of the paper was to examine the impact of announcement on the banking stocks, big defaulters and also on the top capitalized firms, to test the validity of efficient market hypotheses. The study indicated that while the PSBs and private banks stocks registered significant positive returns on and after the event date, the defaulters reported negative returns. No significant impact was observed on top capitalized firms. The paper also experienced semi strong form of efficiency in Indian capital market.

Keywords: Event Study, Efficient Market Hypothesis, Market Model, IBC, Bankruptcy Code, Market Efficiency

1. INTRODUCTION

The countries where the judiciary system enforces creditors right rigorously is likely to have vibrant financial system with better developed banks and capital markets (Porta et al., 1997; Levine, 1998). A stronger creditor rights along with a better placed judicial system in the country increases the chance of bankruptcy filing and thus ensure borrowers (debtors) do not indulge in taking risk taking business practices which are redundant and force them to take sensible, practical business decisions (Claessens *et.al.*, 1999; Tyagi, 2018). In India, many government committees have worked on bankruptcy reforms for many decades. From time to time all these committees proposed for SICA, 1985; RDDBFI Act, 1993; SARFAESI Act, 2002; Companies (Amendment) Act, 2002, Proposed repeal of SICA; Enforcement of Securities Interest and Recovery of Debts Bill, 2011 (With amendments to RDDBFI and SARFAESI); Draft Indian Financial Code which includes a 'Resolution Corporation' for resolving distressed financial firms. However, all these bankruptcy reforms undertook some incremental changes over the extant bankruptcy process and lacking a comprehensive reform.

At this backdrop, the then union finance minister (FM) Arun Jaitley hinted at the presentation of CNBC-TV18 India Business Leader Awards on 24th March 2017 during trading hours by saying that

'You see the amounts are large, but the amounts are restricted. It's not that hundred and thousands of businesses have created this problem. The problem of big NPA is confined essentially to 30-40, at best 50 companies, and therefore those 40-50 accounts need to be resolved, I think you wait for a few hours or few days... You wait for the next couple of days. There is some policy decision between the RBI and the government which we will implement, which will put adequate pressure on people to settle...'

It was an enough hint for the market to understand that the govt. is formulating a bankruptcy framework for restructuring the bad loans which will come into effect very soon. There is no contemporary study investigating the impact of pre and post announcement effect of IBC on banking stocks except a RBI study (2017). This deficiency provides a motivation for conducting the study. The study also focuses on the market reaction of private banks and defaulters vis-à-vis top-capitalized firms.

The objectives of the paper are as follows:

- to examine the effect of announcement by FM regarding bankruptcy code on public sector bank (PSB) and private bank stocks.
- to investigate the market reaction of big defaulters vis-à-vis top-capitalized firms to the information on bankruptcy code
- to test the validity of EMH

Hence, the current study provides an evidence how important is a mere statement made by a person who holds a key position for entire economy. No matter whether the statement is a formal announcement on behalf of government or not. The paper fills an important research gap by examining the impact on stock prices before the formal introduction of reform measures among public sector banking sector stocks whose performance is crucial for building a sound economy. It also provides a proof how the responses to an event differs with respect to (a) different business entities with conflicting interest (lender vis-a-vis defaulter), (b) different banks with varying asset quality (PSBs vis-à-vis private banks) in the context of the paper. Thus, the paper contributes a lot to the existing body of knowledge.

The rest of the paper is designed as follows. Section 2 illustrates the literature review. Section 3 depicts the model specification. Section 4 describes the results while section 5 concludes the study.

2. LITERATURE SURVEY

We came across few studies in international context in which it was attempted to analyse the impact of public statement made by the President of respective countries or politicians through event study methodology. Gift *et.al.*, (2011) used event study method to examine stock market response of US casino related business to the then President Obama's public statement which was construed as negative regarding trips to Las Vegas. The findings revealed that all casino related business across were not negatively affected by President's statement. Bastin *et. al.*, (2006) studied the impact of the statement of the then President of US and UK Clinton and Blair respectively on biopharmaceutical industry of both the countries. It indicated that the statement impacted adversely the biotechnology stock returns in both the bio industries. Haupenthal *et. al.*, (2017) analysed impact on intraday stock returns in Germany, Greece and Euro area by Grexit related statements (whether or not Greece should remain in the euro area) made by six important politicians from euro area. The results showed that positive statements lead to higher returns while negative statements to lower returns. Henry *et.al.*, (2008) explored the relation between stock market response and earning press release. The study revealed that when tone of press release becomes more positive, abnormal market returns tend to high. It also indicated that longer and more numerically intensive press releases actually reduces market impact of unexpected earnings.

We observed studies where impact of regulatory changes on stock market were examined. Sethi *et.al.*, (2020) analysed the effect of reform initiative for resolution of NPAs on stock market. The study indicated that very few stocks gained significant cumulative abnormal returns around the announcement of reform initiative for resolution of NPAs. Mills *et.al.*, () examined the behaviour of stock prices of oil and gas firms in response to the tax legislation relating to oil and gas companies. It revealed that new tax bill significantly impacted stock prices of oil and gas firms. Yamori *et.al.*, (2019) explored the introduction of Deposit Insurance in China on banking industry. It specified that the introduction of Deposit Insurance resulted significantly negative average abnormal returns on the announcement day. The results of Claessens *et.al.*,

(2002) study indicated that legal reform can increase the extent to which bankruptcy system is used to resolve financial distress. Chatterjee *et.al.*, (2018) examined the orders passed during the first six months of initiation of the provisions of the IBC to find out who are the initial users of insolvency process, average time taken to dispose off cases, outcome of the proceedings, whether there is any variation in outcome across benches. They found lack of standardized format of order passed which leads to variation in information available from each order. Miyajima *et.al.*, (2007) computed the abnormal stock returns for Japanese non-financial companies around banking crisis during 1995 to 2000. They found that the small, leveraged, low tech companies with low credit ratings and low market to book ratio are mostly affected.

3. DATA & METHODOLOGY

Data & Sample

The sample consists of top 10 public sector banks namely, SBI, Punjab National Bank, Bank of Baroda, IDBI Ltd., Bank of India, Central Bank of India, Canara Bank, Oriental Bank of Commerce, Union Bank and Indian Overseas Bank and top 13 private sector banks namely, HDFC Bank, ICICI Bank, Axis Bank, Kotak Mahindra Bank, IndusInd Bank, Yes Bank, Federal Bank, City Union Bank, RBL Bank, Karur Vysya Bank, DCB, South Indian Bank and Karnataka Bank in terms of market capitalization dated 7th June 2019 listed in BSE. The PSBs performed the role of lead bankers in offering loans to big defaulters. The event date is the date on which the then finance minister indicated to the press about radical overhaul for resolution of bad loans.

It was attempted to examine the market reaction of those big defaulters whose names were referred to NCLT as per direction of RBI. The defaulters which are listed on the exchange till 7th June 2019 were identified as follows: Lanco Infratech Ltd., Amtek Auto, Videocon Industries, JSL, JP Power, ABAN Offshore, IVRCL, Uttam Galva Steel, Punjab Lloyd, Shree Renuka Sugars, Castex Technologies, Jai Prakash Power Ventures and Alok Industries. Moreover, the companies whose market capitalization is highest in the sector in which defaulting companies belong as on 10th June 2019 were identified and the market reaction towards those top market capitalized companies were also examined for the same event window. Those companies are Honeywell, Siemens, NTPC, ONGC, Tata Steel, L&T, Balarampur Chinni Mills, Bosch Ltd., Power Grid Corporation and Page Industries.

We determine event window as $t = -9$ to $t = +9$ relative to the event day $t = 0$. $t = 0$ is the date on which the then FM promised solution to bad loans. t test has been conducted to test the significance of the results.

Estimation Procedure

The aim of the study is to observe whether there are any abnormal returns around the event dates and how quickly the information about bankruptcy code incorporates in the stock prices. The null hypothesis (H_0) is as follows:

There is no significant Average Abnormal Return (AAR) around the event dates, i.e. $1/n \sum AR = 0$ where n is the number of sample banks.

The alternative hypothesis (H_1) is as follows:

Stock prices indicates a significant response around the event dates.

4. RESULTS & DISCUSSION

It is also tried to explore the impact of announcement on the PSBs and private banks on one side and borrowers and top capitalized firm on another side.

4.1 Analysis of impact on PSBs & Private Banks

Table 1 reports that during pre-announcement nine days, PSBs registered the negative AAR is evidenced for seven days. Out of these seven negative AAR values, five values are significant on 9th day, 7th day, 5th day, 3rd day, 2nd day and the day before announcement. It means a serious negative sentiment over the future prospect of PSBs was existed already before the event day among investors' mind.

However, immediately after the indication given by the then FM on 24th March 2017 (event day) sample PSBs stock surged significantly on the same day and immediate next trading day. The average abnormal returns surged to 0.54% and 1.44% on event day (t=0) and next trading day (t= 1) respectively. The result on t=1 is significant at 5% level and maximum in entire event window. It is to be noted that on t=0 day six out of ten PSBs and on t=1 day nine out of ten PSBs reported positive abnormal returns.

| Public Sector Banks (PSBs) | | | | | | Private Sector Banks | | | |
|----------------------------|---------|--------------------|------------|----------|------------|----------------------|------------|--------|------------|
| Day | AAR | Positive: Negative | sig 2 tail | CAAR | sig 2 tail | AAR | sig 2 tail | CAAR | sig 2 tail |
| -9 | -2.14%* | 0:10 | 0.00 | -0.0214* | .000 | 0.02% | 0.849 | 0.02% | .927 |
| -8 | -0.09% | 4:6 | 0.847 | -0.0223* | .005 | 1.37%* | 0.022 | 1.39%* | .023 |
| -7 | -0.62% | 2:8 | 0.051 | -0.0285 | .217 | 0.55% | 0.236 | 1.94% | .007 |
| -6 | 0.08% | 4:6 | 0.853 | -0.0277 | .435 | 0.75%* | 0.02 | 2.69%* | .025 |
| -5 | -1.04%* | 0:10 | 0.015 | -0.0381 | .171 | -0.48% | 0.124 | 2.20% | .545 |
| -4 | -0.83% | 3:7 | 0.182 | -0.0464* | .033 | 0.21% | 0.623 | 2.42% | .667 |
| -3 | -1.36%* | 1:9 | 0.003 | -0.06* | .012 | -0.10% | 0.81 | 2.31% | .884 |
| -2 | -2.69%* | 0:10 | 0.001 | -0.0869* | .000 | -1.08%* | 0 | 1.24%* | .019 |
| -1 | 1.17% | 8:2 | 0.006 | -0.0752* | .008 | 0.65%* | 0.046 | 1.89% | .267 |
| 0 | 0.54% | 6:4 | 0.087 | -0.0698* | .011 | 0.75%* | 0.036 | 2.64%* | .019 |
| 1 | 1.44%* | 9:1 | 0.028 | -0.0554* | .020 | -0.08% | 0.807 | 2.56% | .084 |
| 2 | -1.19% | 1:9 | 0.007 | -0.0673 | .678 | 0.16% | 0.594 | 2.72% | .843 |
| 3 | -1.41%* | 3:7 | 0.022 | -0.0813* | .008 | 0.00% | 0.93 | 2.72% | .737 |
| 4 | 0.72%* | 8:2 | 0.022 | -0.0741 | .276 | 0.55% | 0.082 | 3.27% | .176 |
| 5 | -1.66%* | 2:8 | 0.033 | -0.0907 | .083 | 0.68% | 0.249 | 3.95% | .124 |
| 6 | -3.65%* | 1:9 | 0.001 | -0.1272* | .002 | 0.65% | 0.178 | 4.60% | .110 |
| 7 | 0.48% | 10:0 | 0.343 | -0.1224* | .016 | 1.07%* | 0.034 | 5.67%* | .032 |
| 8 | 1.32%* | 7:3 | 0.033 | -0.1092* | .003 | -0.21% | 0.578 | 5.46% | .239 |
| 9 | -0.77%* | 1:9 | 0.011 | -0.1169 | .350 | -0.64% | 0.06 | 4.82% | .149 |

(Source: Authors' calculation) * indicates significance at 5% level

Table 1
Stock Price Reaction of PSBs & Private Banks Around Event (9 days event window)

Unlike PSBs, the private banks evidenced a positive sentiment among investors over their prospects in pre-announcement days. A significant negative return of 1.08% is observed only on two days before the event took place. On event day the private banks register a positive and significant AR of 0.75%. More than 85% sample private banks reported positive returns on the event day. The day immediately after event day reports a marginal negative return of 0.08% which is not significant. From 2nd day onwards (t=2) positive returns are reported in all the days except on t=8 and t=9. On t=7 day a significant positive return of 1.07% is observed. The cumulative returns depict a positive trend in entire the event window. Therefore, table 1

indicates that the announcement of ex-FM was able to influence the investors of private banks convincingly.

4.2 Analysis of Impact on Defaulters & Top Capitalized Firms

The table 2 indicates that the announcement regarding bankruptcy framework affected the defaulting firms adversely. The defaulting firms reported negative returns consecutively for three days after the event date out of which two days' (t_{+2} and t_{+3} day) results are significant. It is noteworthy that the selected defaulting firms were identified and were referred to National Company Law Tribunal (NCLT) as big defaulters much after the study was undertaken which means the investors guessed in advance the likely impact of the announcement on the defaulters. The proportion of stocks having negative return on the event day is 67 per cent. However, the proportion of stocks reporting negative return increased to 92 per cent and 75 per cent on t_{+2} and t_{+3} day respectively. The CAAR values reveals a negative trend in entire the event window. It reports significant uninterrupted negative returns from t_{+1} to t_{+4} in post announcement event window.

| Defaulting Firms | | | | | Top Capitalized Firms | | | |
|------------------|-------------------------|-------------|-----------|-------------|-------------------------|-------------|--------|-------------|
| Date | AAR of defaulting firms | Sig. 2 tail | CAAR | Sig. 2 tail | AAR of defaulting firms | Sig. 2 tail | CAAR | Sig. 2 tail |
| 10-Mar-17 | -0.53% | .083 | -0.00533 | .083 | -0.11% | .820 | -0.11% | .820 |
| 14-Mar-17 | -1.60% | .068 | -0.02134* | .032 | -0.02% | .973 | -0.13% | .840 |
| 15-Mar-17 | 1.04% | .071 | -0.01092 | .162 | 0.37% | .425 | 0.24% | .770 |
| 16-Mar-17 | -0.04% | .903 | -0.01129 | .226 | 0.22% | .601 | 0.45% | .592 |
| 17-Mar-17 | -1.57%* | .022 | -0.02703 | .052 | -0.27% | .437 | 0.19% | .785 |
| 20-Mar-17 | -1.02% | .173 | -0.03725 | .062 | -0.10% | .662 | 0.09% | .901 |
| 21-Mar-17 | -0.84% | .072 | -0.04561* | .019 | 0.08% | .840 | 0.16% | .865 |
| 22-Mar-17 | -0.48% | .135 | -0.05042* | .018 | -0.21% | .534 | -0.05% | .969 |
| 23-Mar-17 | 0.33% | .315 | -0.0471* | .033 | 0.78% | .068 | 0.73% | .429 |
| 24-Mar-17 | 0.34% | .549 | -0.04368 | .067 | -0.40% | .118 | 0.33% | .745 |
| 27-Mar-17 | -0.69% | .274 | -0.0506* | .050 | -0.07% | .839 | 0.26% | .812 |
| 28-Mar-17 | -1.29%* | .003 | -0.06355* | .012 | -0.19% | .397 | 0.07% | .944 |
| 29-Mar-17 | -1.72%* | .003 | -0.08075* | .002 | -0.28% | .177 | -0.20% | .858 |
| 30-Mar-17 | 0.83% | .057 | -0.07288* | .004 | -0.79%* | .027 | -1.00% | .396 |
| 31-Mar-17 | -0.36% | .425 | -0.07587 | .007 | 0.79%* | .012 | -0.21% | .877 |
| 03-Apr-17 | 0.69% | .347 | -0.06918* | .020 | 0.24% | .715 | 0.04% | .983 |
| 05-Apr-17 | 1.83%* | .003 | -0.05135 | .064 | 1.16%* | .046 | 1.20% | .537 |
| 06-Apr-17 | -0.18% | .753 | -0.05237 | .090 | 0.25% | .392 | 1.45% | .426 |
| 07-Apr-17 | -0.64% | .486 | -0.05808 | .118 | -0.31% | .439 | 1.13% | .543 |

Source: Own calculation * indicates significance at 5% level

Table 2
Market Reaction towards Defaulting & Top-Capitalized Firms

Table 2 indicates that only a significant negative AR of 0.79 per cent was observed on t_{+4} day and a significant positive AR of 0.79 per cent was found immediately next day for top capitalized firms. Almost all the CAAR values were positive in entire event window except in six days. The sample firms were established in the market, market leader of respective industries and is likely to be financially sound to service debts. Therefore, they were not at all worried about the legal reforms developed in the economy. It also indicates that the investors are not at all concerned about the fate of the top-quality firms or non-defaulters.

5. CONCLUSION

One of the allegations against EMH is the price anomalies around the event dates. The study revealed that even if the announcement was informal in nature, the shareholders of sample PSBs and private banks experienced a positive AAR immediately after positive news stormed in the market. The CAAR values reveal a negative trend throughout the event window for PSBs but positive for private banks. Notwithstanding, this type of anomaly would not be experienced if EMH were valid.

Furthermore, it is also tried to explore the impact of announcement on the big defaulters whose cases were referred for initiating insolvency process later and finally the effect on top-capitalized entities were also examined. On the other hand, the same news hit the defaulting firms adversely resulting significant negative returns for successively 2 days after the event. However, the top-quality firms' stocks behaved indifferently about the news and did not post any significant results. Moreover, the pattern of AAR and CAAR found to be consistent with the theory of semi-strong form of market efficiency.

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Multi Objective Portfolio Optimization of Retail Loans using Genetic Algorithms

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Abstract

Portfolio selection for loans, primarily involves strategies for right allocation of capital between various asset classes. In addition to the Risk-Return objectives, Banks are often constrained by several financial regulations, as any breach can be costly to the bank. Single objective optimization methods are very often, far from being practical. Due to this reason, a multi-objective formulation is considered which simultaneously optimizes all objectives and gives a large number of alternative solutions, so that a bank could select a solution that gels with the bank's credit strategy and the external environment.

Two genetic algorithms, namely "Non dominated sorting genetic Algorithm (NSGA II) and Strength Pareto evolutionary Algorithm (SPEA II) are used for creating optimal allocation for a retail loans data set. A publicly available data set of 2,29,133 loans across 4 retail asset classes is considered for purpose.

Keywords: Portfolio Optimization, Risk-Return, Retail Banking, Genetic Algorithm

Introduction

Banks receive money from their depositors and lend money in form of advances to customers. The primary source of revenue for a bank is the interest earned on advances, while primary risk is the risk of credit default. For a healthy sustenance of Banking industry, both return and risk are equally important. While shareholders place emphasis on return, the regulators underscore the importance of understanding the risk associated with the portfolio sufficiently. Basel III regulations recommend that the bank assess the credit risk and maintain adequate capital, in order to sustain credit losses. Hence, it is to the advantage of the bank to maintain an optimized portfolio, so that capital requirement is reduced to the extent possible. Hence, the goal of the bank is to achieve optimal allocation of bank's funds into various loan asset classes in order to create the right tradeoff between returns and credit risk, while adhering to the constraints

Genetic Algorithm is widely used in supply chain, engineering design for solving optimization problems. The methodology aims at solving the optimization problem by using evolutionary biology phenomena like mutation, crossovers and inheritance. So far, its usage in retail banking has been limited. This study aims at using two different genetic algorithms for creating an efficient frontier.

The objectives of the study are

- (i) To develop a quantitative model that will balance risk and returns by maximizing the expected returns on loans and minimizing the credit risk associated with the portfolio
- (ii) To determine optimum loan portfolio across the selected asset classes, using genetic algorithm. The research in stock and bond market portfolios shows that 'Genetic Algorithm' based models outperform the traditional models in terms of performance. (Collether John , 2014). Hence, evolutionary algorithm-based methodology is applied for a banking loan portfolio.

The study uses portfolio optimization framework that combines the loss-averse attitude of bankers as measured by downside risk, and return maximization attitude of shareholders, to create right asset allocation that satisfies all the stakeholders.

The paper is divided into 5 sections.

Introduction & Literature review – introduces the topic and collates the relevant literature in

the field of portfolio optimization for loans and application of genetic algorithm for optimization.

Pareto based evolutionary Algorithm - Provides a glimpse of two evolutionary algorithms NSGA II and SPEA II and the concept of Pareto optimal solution set.

Multi Objective Portfolio optimization - discusses key objectives of the study, along with constraints

Results and Analysis - provides the results of optimal allocation using the two algorithms and compares the results with that of initial portfolio

Conclusion - discusses overall conclusions and recommendations

Literature Review

Markowitz mean variance model is one of the earliest efforts to postulate the concept of portfolio optimization and efficient frontier.(Markowitz,1952). Empirical literature studied on asset allocation of banks, has shown that significant gains are possible, through optimal asset allocation. (Francesco M. Paris(2005), Dawen et al(2016) , Abbas Toloei et al(2011), A.K.Misra et al(2013), Amitabha Mukherjee et al (2002), Agarana et al (2014), V. Thyagarajan et al (2005), Anthony Donkor at al (2018), Gollinger et al (1993). Donkor (2018), in his research estimated that the bank could increase its annual turnover by GH¢5,961,300.00, which is 61% higher than existing turnover, by switching to optimal portfolio allocation. Gollinger (1993), Altman (1982), Clemente (2014), Ming Chang Lee(2015) , who studied “Portfolio optimization” in the context of corporate loans, have created portfolio allocation by Industries / Sectors. On the other hand, Francesco M. Paris (2005), Yan Dawen et al(2016), Abbas Toloei et al(2011), A.K.Misra et al(2013), Amitabha Mukherjee et al (2002), Agarana et al (2014), V. Thyagarajan et al (2005) have studied loan portfolio from “Retail loan” perspective and preferred to segregate the portfolio by asset classes , as each asset has a distinct risk return pattern . The study follows a similar approach to generate an allocation across four categories of retail loans.

Risk and return are two primary attributes of Portfolio optimization. While majority of studies compute risk using measures such as variance(AK Misra,2014; Sirignano, 2016), standard deviation (Amitabha et al, 2002) and semi variance (Dawen et al, 2016), there is an increasing consensus among researchers and regulators that such measures are not suitable for loan portfolios, due to the fat tailed nature of loan returns. After the economic downturn in 2008, the tail risk that quantifies maximum loss has gained prominence with regulators including Basel. Conditional VaR (CVaR) is hence gaining prominence (Ming Chang Lee, 2015 ; Clemente,2014 ; Ursula et al, 2000) , as it measures the loss beyond VaR and it’s coherent too (Rockafellar et al. 2000). The current study takes into account the tail risk, by including CVaR as risk measure.

Having multiple objectives and multiple constraints makes “Portfolio selection” problem NP hard, making it difficult for the researchers to solve using statistical / basic machine learning techniques. The advent of multi-objective evolutionary algorithms (MOEAs) has paved the way to consider multiple objectives at a time, to simultaneously create an efficient frontier. (Misra et al. 2014). Amongst various evolutionary algorithms that are in use, Genetic algorithms are particularly popular for solving portfolio allocation problems, and have been used widely in equities, funds.(Sefiane, Slimane et al , 2018; Collether John, 2014;) Genetic algorithms use techniques such as inheritance, mutation, selection, and crossover, to arrive at ideal combination of portfolio components. Misra et al used NSGA II for creating asset allocation for retail loans, that optimizes risk and return as measured by expected return and the variance. Chang et al. (2009) used genetic algorithm-based optimization for risk reduction by using variance, semi-

variance, absolute deviation, and variance with skewness as risk measures. Noura Metawa et al (2016) considered Genetic Algorithm for classifying loans into good and bad ones. Amir E. Khandani, Adlar J. Kim, and Andrew W (2010) applied GA to construct nonlinear nonparametric forecasting models of consumer credit risk.

Chen and Wang (2015) used two objective evolutionary metaheuristics for return -risk in stock trading context. Massimiliano Kaucic, Mojtaba Moradi and Mohammad Mirzazadeh (2019) proposed 3 portfolio strategies for loss averse investors using NSGA II and SPEA II, by experimenting with 5 data sets from stock markets. Macedo et al. (2017) compared NSGA II and SPEA II in stock market context and found that the latter performed better.

So far, the usage of “evolutionary algorithms” in banking context has been minimal, and there is no study that used 2 different genetic algorithms and compared their efficacy. This study uses bi objective optimization problem with regulatory constraints, using NSGA II and SPEA II algorithms, and compares the performance of algorithms. The usefulness of the proposed models is validated in a real-world loan consensus problem, using publicly available loan data set.

Pareto-based evolutionary algorithms

Over the last decade, the multi-objective evolutionary algorithms (Fonseca and Fleming 1993; Srinivas and Deb 1995; Zitzler and Thiele 1998; Ranjithan, Chetan and Dakshina 2001) have gained prominence in solving “Optimization” problems. NSGA II (Deb et al, 2002) and SPEA II ((Zitzler et al. 2001) are eminent among them. The importance of these algorithms comes from their ability to find multiple “Near optimal” solutions (called Pareto optimal solutions/ Non dominated set) in a single simulation.

Consider a multi-objective problem involving minimizing m objectives $f_1(x), f_2(x) \dots f_m(x)$ over a universe U . Given $p, q \in U$,

- p dominates q if $f_i(p) < f_i(q)$ for all $i \in [1, m]$. (Amitabha Mukerjee et al , 2002)

A solution p is efficient if there are no other $X \in U$ such that X dominates p . The set of such efficient solutions are called the pareto-optimal set, or the non-dominated front.

The study uses two variants of genetic algorithm, namely NSGA-II and SPEA II, and investigates their effectiveness in solving the loan portfolio optimization problem. While NSGA II has been used in loan portfolio context earlier (AK Misra et al , 2014 ; Amitabha et al, 2002), SPEA II, though found to be competent in other areas such as equities , funds etc. (Massimiliano Kaucic, et al, 2019) has not been tried in banking context. All the experiments are carried out using SPEA II and NSGA II algorithm (Massimiliano Kaucic, et al, 2019). The method used by NSGA-and SPEA II to determine the pareto front differ, and the study thus, estimates the effectiveness of each through various performance parameters.

The Multi-Objective Bank Loan Optimization Problem

While providing loan to a customer having lower credit grade increases the possibility of increasing the return, it can also increase the probability of default, and thus the economic capital to be maintained by the bank. A bank thus aims at a tradeoff involving, minimization of the credit risk and maximization of the return to maximize shareholder wealth.

In this study, the focus is on the risk-return tradeoff faced in loan portfolio management. The solution aims at generating multiple “equally good” solutions. This provides the bank, the flexibility to choose the solution that caters to the bank’s requirements and prevailing economic conditions.

Objective Function

The optimization model comprises the two objective functions

$f_1()$: Maximize expected return on portfolio R_p

$f_2()$: Minimize CVaR on credit losses

$$\text{Expected Return } R_p = \sum_{i=1}^4 (W_i R_i - L_i) \tag{1}$$

W_i – Weightage of allocation to a particular asset category i ; R_i – Return associated with the Loan category i ; L_i – Credit Loss associated with the Loan category i .

The Portfolio risk is measured by CVaR, also called "expected shortfall" at $\alpha\%$ level is the expected loss given that the loss exceeds VaR .

CVaR for portfolio x is defined as (Cornuejols & Tutuncu, 2006):.

$$\text{CVaR } (x) = \frac{1}{1-\alpha} \int_{f(x,v) \geq \text{VaR}_{\alpha}(x)}^1 f(x,v) p(v) d(v) \tag{2}$$

x - portfolio choice vector ; $p(v)$ - a probability density function ; $f(x, v)$ - the loss function.

α – confidence level (The study considers 99.9% confidence levels)

Assets are divided into different asset classes/ loan categories as defined in Table 1. Each asset class has a given rate of return and risk. Hence, by defining the weights provided to each class, the overall portfolio returns and risk can be varied. Table 1 provides the boundary constraints used for the study

| Asset Class | Allocation | Capital Allocation Range | |
|----------------|------------|--------------------------|---------|
| | | Minimum | Maximum |
| Credit Card | W_1 | No Limit | 40% |
| Auto | W_2 | 10% | 40% |
| Small Business | W_3 | 12% | 40% |
| Home | W_4 | 10% | 40% |

Table 1: Asset classes and their boundary weights

Definition 1: Non negative constraints -Individual losses and returns for each asset class should be non-negative expressed as follows.

$$L_i \geq 0 \tag{3}$$

$$R_i \geq 0 \tag{4}$$

Definition 2: Short Sell constraints - Each loan class should have positive weights expressed as

$$W_i \geq 0 ; 0 \leq W_i \leq 1$$

(5) **Definition 3: Total Capital constraints** - Total Capital remains the same before and after allocation. Given C_b , C_a are Capital before and after allocation . Mathematically the constraint is expressed as

$$C_b = C_a \tag{6}$$

Definition 4: Capital Allocation constraints- Sum of capital allocated across asset classes is 100%

$$\sum W_i = 1 \tag{7}$$

Results & Discussions

In this paper we have used a publicly available dataset from lending club which was a Peer 2 Peer (P2P) lender (Kaggle). Later it was converted to Lending Club Bank after acquiring Radius bank. Data set consist of 887380 records and 27 features such as loan category, loan amount ,

principal paid , recovery (in case of default), loan condition, installment amount , geography , start and end dates , interest charged etc. Loans are from 13 different loan classes. For this work we have chosen four asset class which are relevant to Indian Context. Within each of the asset classes, only loans that are completely paid out have been considered for the purpose of the study. After removing the unpaid loans, we considered 2,29,133 loans of four asset class for experimentation. Two Genetic algorithm techniques, namely NSGA II and SPEA II are used for creating optimum allocation of retail loans. Initial allocation across asset classes by Lending club is given in Table 1.

| Loan Category | Allocation Percentage | Loan Return |
|-------------------------------|------------------------------|--------------------|
| Credit Card | 91.51% | 8.21% |
| Auto | 2.28% | 7.75% |
| Small Business | 4.63% | 4.58% |
| Home | 1.59% | 8.96% |
| Portfolio Return | 8.04% | |
| Portfolio Risk = CVAR/ EAD | 19.46% | |
| Return / Risk | 0.4131 | |

Table 2: Initial Portfolio allocation

The initial portfolio, though provides good returns, is highly skewed towards unsecured loans i.e Credit card loan, which is very risky to the bank. Since the P2P lenders were not under regulatory scrutiny, the lender could maintain a skewed portfolio. Perhaps some of the issues faced by the lender in later years could be attributed to the portfolio structure. However, since the “Radius Bank” comes under the SEC regulations, the above portfolio structure would breach the regulatory prescriptions. In the subsequent section, 3 portfolios across 3 strategies, are created that would adhere to the regulatory norms of distribution of the loans across various classes, while concentrating on objectives.

The paper uses NSGA II and SPEA II algorithms to attain multiple pareto solutions with varying risk-return patterns.

From the Pareto solutions, 3 Portfolio Strategies are considered in this paper namely, Return Maximization Strategy, Risk Minimization Strategy and trade off strategy as given by Return / Risk

Figures 1 and 2 show the efficient frontier curve obtained by using NSGA II and SPEA II respectively.

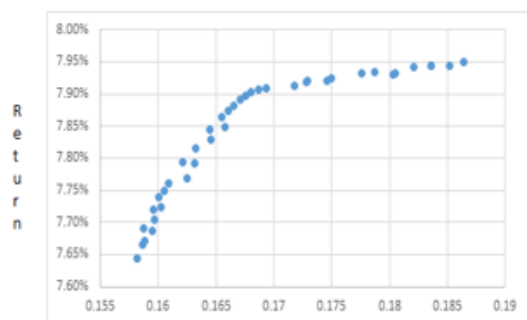


Figure 1: Efficient Frontier curve for NSGAII

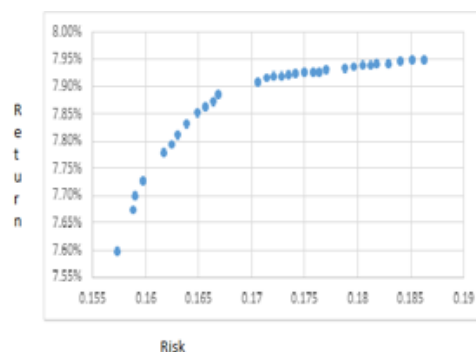


Figure 2: Efficient Frontier curve for SPEAII

Table 3 shows the results of relative allocation and performance of using NSGA II and SPEA II, across three portfolio strategies.

| Asset Class | Max Return | | Min CVAR | | Max Return/ Risk | |
|-----------------------------------|---------------|---------------|---------------|---------------|------------------|---------------|
| | NSGA | SPEA | NSGA | SPEA | NSGA | SPEA |
| Credit Card | 14.99% | 14.97% | 14.99% | 14.96% | 13.95% | 13.92% |
| Auto | 20.06% | 20.18% | 45.31% | 49.13% | 45.85% | 45.26% |
| Small Business | 14.99% | 14.97% | 15.00% | 14.96% | 13.97% | 13.93% |
| Home | 49.96% | 49.89% | 24.70% | 20.92% | 26.23% | 26.87% |
| Portfolio Return | 7.95% | 7.95% | 7.64% | 7.59% | 7.69% | 7.69% |
| Portfolio Risk = CVAR/ EAD | 18.65% | 18.63% | 15.82% | 15.73% | 15.87% | 15.89% |
| Portfolio Return/ Risk | 0.4264 | 0.4267 | 0.4832 | 0.4830 | 0.4844 | 0.4842 |

Table 3: Objective parameter values across 3 portfolio strategies, using NSGAII and SPEAII

The comparison of initial portfolio is made against the best values achieved through NSGA II and SPEA II in Table 4, for maximum return, minimum risk and maximum return /risk.

| Scenario | Maximum Return | Minimum Risk | Maximum Return / Risk | IGD | Time taken |
|-------------------|----------------|---------------|-----------------------|--------------|-----------------|
| NSGA -2 | 7.95% | 15.82% | 48.44% | 1.22 | 3.14 sec |
| SPEA-2 | 7.95% | 15.73% | 48.42% | 1.217 | 18.2 sec |
| Initial Portfolio | 8.04% | 19.46% | 41.31% | | |

Table 4: Comparison of Optimal values against Initial Portfolio

We see that SPEA -II and NSGA-II allocations are highly comparable, the return/risk of NSGA-II is slightly better than SPEA-II. The efficient frontier of SPEA is more distributed, and avoids the clustering of solutions at a point, visible from lower “Inverted generational distance” (IGD), which provides an indication of the quality of Pareto front, in the given solution. With respect to computational time taken, NSGA is 6 times faster than that of NSGA. Hence, overall NSGA-II showed marginally better performance on most of the fronts. It is clearly seen that both solutions are better than the initial portfolio.

Conclusion

Lending is an important component of a Bank's sustainability and profitability, as loans are the main source of income for banks. The portfolio construction of "bank loans" is a highly complicated and dynamic process due to the presence of various dynamic macroeconomic, socio-political contributors such as changes in interest rates, regulatory guidelines, which can influence the day-to-day operations and loan decisions. The decision that is deemed correct may be highly inappropriate with the change in market conditions. Hence, the determination of Bank's portfolio composition has to take into account, multiple objectives and constraints, at the same time provide multiple alternative solutions to the bank, so that the bank can maneuver its allocation based on the changing market factors. Multi objective evolutionary algorithms, thus become an ideal fit for creating a loan portfolio allocation, as they provide a range of solutions instead of a single one. Two algorithms NSGA II and SPEA II have been used in the context of retail loans, to create ideal allocation and compare the performance. It is noticed that both the multi objective evolutionary algorithm fared well compared to initial portfolio.

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Using Machine Learning to predict Credit Rating: Evidences from Non- Banking Finance Company (NBFCs)

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Abstract

Credit ratings have an important role to play in anticipating the future financial stability and riskiness of organizations in meeting their contractual obligations. Ratings agencies quite often update their ratings much after the organization starts defaulting on its contractual obligations and thus is unable to provide quick information for timely action. Hence, this study investigates whether different machine learning model can reduce the time taken in assigning credit ratings to NBFCs. Recent studies have shown that successful machine learning models can continuously track the changes that happen in the performance of the companies and provide the credit scores. In this study, the suitability of six machine learning models deemed suitable based on previous studies (Support Vector Machine, Artificial Neural Network, Naïve Bayes, Decision Tree, Random Forest and Gradient Boosting Decision Tree) were examined on the same dataset for ascertaining the credit ratings for Indian NBFCs. For the purpose of the study 50 Indian NBFCs were selected and data for six fiscal years from 2014-15 to 2019-20 was taken for running the models. The data has been collected from the Centre for Monitoring India Economy (CMIE) database, while some missing data has been taken from the annual reports of the listed companies. The performances of the models were assessed based on five metrics which are five-fold cross-validated mean accuracy, macro-average precision and recall, F1 score, and Area under Curve (AUC). Further, the relative importance of each variable in prediction of credit ratings is obtained using the Decision Tree and its ensemble models. The best prediction performance has been achieved using Gradient Boosting Decision Tree algorithm, followed by polynomial kernel – Support Vector Machine and Random Forest algorithms.

Keywords: Credit Rating, Machine Learning, Non-Banking Finance Company, India

1. Introduction

In the current financial system, credit ratings control the flow of capital. For a steady and sustainable flow of capital, the valves or the credit ratings should be able to check unsustainable flows and flag them before significant damages are caused by them. The timing is as important as the reasoning behind the ratings. The need for timely issuance of ratings further elevates when the rated entity is an NBFC which serves an economically fragile section of the society and has the tendency to transfer the risk to the banking system. Consequently, the objective of the paper is to test the suitability of machine learning models to predict credit ratings for Indian NBFCs.

NBFCs are companies registered under the Companies Act, 1956 (RBI, 2017). They were formally introduced in India in 1964 when the RBI Act, 1934 was amended to add a new chapter into it related to such companies. Over time, NBFCs have evolved as a mechanism for financial inclusion of the economically weaker section of the society. Loans disbursed to comparatively smaller enterprises have a multiplier effect in constructively influencing the community around it (Basu, 2016). As on March 2020, NBFCs' share in personal loan market is 44.92% in terms of volume while only 17.94% in terms of value (Business Line, 2020). This indicate that most of the personal loans sanctioned by NBFCs are small in value. As on Dec2019, NBFCs are responsible for 12.5% of all credit to micro small and medium enterprises (MSMEs) in India

(SIDBI, 2020). However, the clientele of NBFCs include those who find difficult to access credit from banks. This increases the risk exposure for NBFCs. The major sources of funds for NBFCs are banks and financial markets (Ghosh, 2021). In the case of failure of a large NBFC, the distress is transferred to the banks and the financial investors who provided it the fund. The problem turns into a bad loan problem for the banks and there occurs loss of investor confidence in the financial instruments related to that NBFC. The loss of investor confidence exacerbates the problem by restraining further the supply of funds to the NBFC. Depending on the size of the NBFC that failed, the whole economy is exposed to economic shock via the banking sector. This has been the case when two large NBFCs in India – Diwan Housing Finance Limited (DHFL) and Infrastructure Leasing & Financial Services (IL & FS) crippled during 2018-19 (Moneycontrol, 2019).

The Indian statutory body which regulates securities and commodity markets of the nation has seven credit rating agencies which are registered with it. These are CRISIL Limited, India Ratings and Research Private Limited (IND-RA), ICRA limited, Credit Analysis and Research Limited (CARE), Brickwork Ratings India Private Limited, Acuite Ratings and Research Limited, and Infomercials Valuation and Rating Private Limited (SEBI, 2021). CRISIL and India Ratings are subsidiaries of S&P Global and Fitch Group respectively. ICRA was set up in India in 1991 as an independent company. Now, Moody's Investor Service is its indirect largest shareholder. CARE started its operations in 1993 in India. It has partnered with ARC ratings which is a global credit rating agency. Acuite Ratings and Brickwork began their operations relatively recently in 2005 and 2008 respectively. In the initial days, the majority of the clientele of Acuite Ratings comprised of small and medium enterprises (SME), consequently it was known as the SME Rating Agency (SMERA). Canara Bank, which is one of the twelve public sector banks in the country is the promoter and strategic partner of Brickwork. Infomercials is a new entrant into the list. It has been accredited as a credit rating agency by SEBI in March 2020.

Rating agencies in India like CRISIL, ICRA, IND-RA and ACUITE regularly publish their rating methodologies for NBFCs. The set of parameters each of the agencies refer to in the process is not very different from that of others. The factor which they consider for rating NBFCs are market share, profitability, liquidity, asset quality, concentration risk, risk management, product diversity and geographical diversity. However, the importance given to each parameter by each of the agencies varies. CRISIL Ratings considers Asset quality, capitalisation and earnings as core factors and market position, resource profile, liquidity and management profile as secondary factors in rating NBFCs (CRISIL Ratings, 2019). IND-RA views diversity in sources of funds in terms of market, investors and geography along with funding stability as most significant parameters in determination of ratings for NBFCs. For this study, the parameters chosen for model development are inspired from the set of factors considered by various rating agencies. However, factors like geographical diversity, product diversity and macroeconomic variables are not considered in the study.

The flow of the paper is as follows. Section 2 discusses the literature review. Section 3 discusses the six machine learning algorithms employed in the study. Section 4 presents the data and methodology. Section 5 and Section 6 respectively give the results and the conclusion of the study.

2. Literature Review

Machine Learning models are frequently used by the financial managers for a variety of purpose to ascertain the trends in data. Equity share price prediction models based on machine learning use demand- supply, volume, macro and micro economic factors, financial performance, growth

and trader's behavior as parameters to predict the share price movement in spite of the randomness of the data (Gu, Kelly, & Xiu, 2019). Machine learning models are also used for predicting the credit ratings of the companies, which indicates whether the specific company is risky or not to honor its financial obligations in future. Credit rating agencies like CRISIL Limited, India Ratings and Research Private Limited (IND-RA), ICRA limited, Credit Analysis and Research Limited (CARE), Brickwork Ratings India Private Limited, Acuite Ratings and Research Limited, and Infomerics Valuation and Rating Private Limited (SEBI, 2021) analyze the financial statements of the companies to ascertain the credit ratings based on which the investors can make investment decisions. Such assessments using the traditional methods takes a lot of time as many facets or variables need to be taken into consideration while assigning a rating to a company. Machine learning based models can be helpful in arriving at the ratings on a daily basis based on the historical data, thus ensuring timely changes, which will enable investors to make wiser decisions and will caution them in case there is a dip in the ratings. The credit ratings depend on the internal as well as the environmental factors of the assessed entity. In order to match the rate of changes in factors influencing the ratings, fast computation technologies have been tested for their suitability for the credit rating process. Initially, computer based statistical algorithms were explored for the prediction of credit ratings. Lately, with evolution in machine learning algorithms, the focus shifted to them. The performances of machine learning algorithms have been found superior to that of statistical algorithms in most of the studies (Ozturk et al., 2016). Nonetheless, some researchers still tested statistical methods for credit rating prediction as late as in 2016 (Golbayani et al., 2020). Karminsky and Khromova (2016) were able to predict ratings for banks with error of more than one rating class for only 6.8% of cases. Hwang, 2010 employed ordered linear probit model (OLPM) and ordered semiparametric probit model (OSPM) for prediction of ratings for listed US companies. Jones et al., (2015) compared the performances of Linear Discriminant and logit/probit methods with that of machine learning algorithms for prediction of credit ratings for corporates. Cox and Wang, (2014) used discriminant analysis to predict failure of US banks post the subprime mortgage crisis. Halling and Hayden(2008) employed two-step survival time method to predict failure of Austrian banks. Among the most commonly used machine learning algorithms for credit rating prediction are Support Vector Machine, Neural network, Decision Tree and its ensembles. Wu et al., (2014) compared the performance of above algorithms for corporate credit rating prediction and found that decision tree models ensembles outperform the rest. Sun et al., (2015) in their study found that incremental SVM ensemble models have superior performance to their non-incremental peers. Paula et al., (2019) compared the performance of Random Forest algorithm with Ordinary Least Square regression and found that the former outperforms the latter in predicting credit scores for Brazilian credit unions.

Some researchers integrated conventional machine learning algorithms with special mathematical functions to achieve better prediction performance. Huang (2009) found that Kernel Graph Embedding – Support Vector Machine (KGE-SVM) outperformed pure SVM for prediction of credit ratings for Taiwanese technology companies. Viswanathan et al., 2020 found that Modified Boosted Support Vector Machines (MBSVM) outperformed Linear, Polynomial, RBF and Sigmoid kernel SVMs in terms of Geometric mean for prediction of credit ratings for scheduled commercial banks. Apart from routinely used statistical and machine learning algorithms, some researchers incorporated novel and unique approaches to the prediction problem. Chen (2012) employed cumulative probability distribution approach (CPDA) along with Rough set theory to predict ratings for Asian banks. Huang (2011) found that Gaussian Process classifiers outperformed SVM classifiers in prediction of ratings for Taiwanese technology companies. Pai et al., (2015) used Decision Tree Support Vector Machine (DTSVM) algorithm complimented with Rough set theory for prediction of credit

ratings. Laha (2007) utilized Self-organized map and fuzzy KNN clustering techniques to develop a unique credit risk evaluation model, which also provided the reasoning behind the output. Yu et al. (2010) proposed weighted least square support vector machine model to assign different weightage to each input variable in the SVM model developed for credit risk evaluation.

In previous studies, the target entities whose ratings have been predicted includes individuals (Chen and Le, 2014), small and medium enterprises (Chen et al., 2010), corporates (Petropoulos et al., 2016) (Wang and Ku, 2021) and banks (Gogas et al., 2013). There has been no study to the best of the knowledge of the authors in the area of machine learning models that predict credit ratings for NBFCs. This paper aims to develop credit rating prediction models for NBFCs using six different machine learning classification algorithms – Neural Networks, Naïve Bayes, Decision Tree, Random Forest (RF), Gradient Boosting Decision Trees (GBDT) and, Non-linear Support Vector Machine (SVM). For the SVM algorithm, two types of kernel functions are used – Polynomial kernel and Gaussian Radial Basis function. In this study, the performance of all the six algorithms is compared as well as the relative importance of parameters employed in prediction of credit ratings is gauged.

3. Machine Learning Models

Over the years, there has been a steep increase in application of the machine learning algorithms to a diverse range of fields including biotechnology, space science and fintech (Raz et al., 2020). Machine learning algorithms are replacing conventional statistical techniques for applications like classification, regression, and clustering, because of their superior performance in terms of precision, recall and accuracy. Machine learning algorithms can be grouped into two sets—supervised and unsupervised algorithms. The former set of algorithms requires a labelled dataset to develop a model. This model can further be used for prediction purposes. Supervised algorithms are employed for classification and regression problems. The latter set of algorithms use unlabelled data. The main utility of such algorithms is to understand obscure patterns in a dataset that are difficult to identify by observation, particularly when the dataset is large. One of the very common application of unsupervised algorithms is clustering.

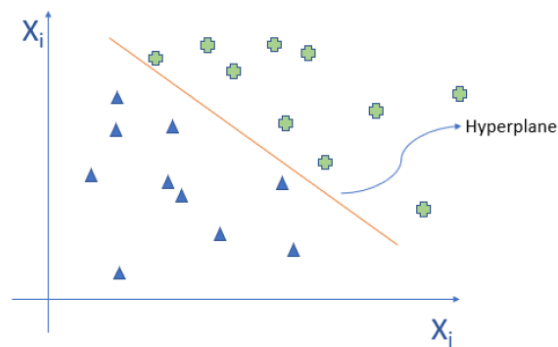
In this study, classification models have been developed using supervised machine learning algorithms. All the algorithms used in this study are briefly reviewed below.

3.1. Support Vector Machines

Support vector machine is a supervised machine learning algorithm that can be employed for the purposes of classification or regression. It can be used for multi-class classification as well. Under this technique, the training set is used to establish a boundary between different classes and a class is assigned to a test set instance based on its location on either side of the boundary. It can even classify linearly inseparable data, in which case a transformation function called as the kernel function is applied over the input variables to a higher dimensional space (Jothilakshmi and Gudivada, 2016). The newly derived variables after transformation are linearly separable with the help of a hyper plane.

$$x \in \mathbb{R}^I \rightarrow \Phi(x) \in \mathbb{R}^H$$

I is the initial dimensional space of the input variable x and H is the dimensional space of the transformed variables. The function $\Phi(x)$ which maps the input variable to the higher dimensional space is the kernel function.



Support vector machines are further classified into types based on the kind of kernel function used for the transformation of the input variables. In this study, two types of kernel functions are used - Polynomial function and Gaussian Radial Basis Function (RBF).

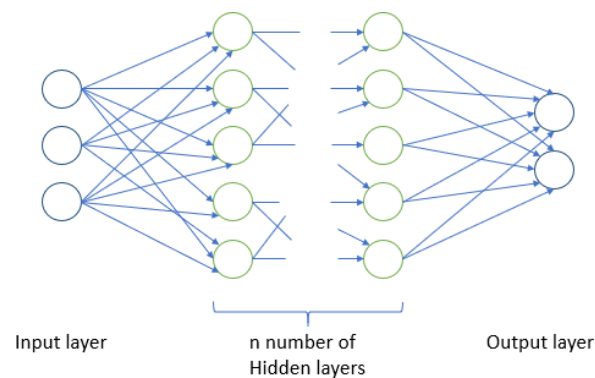
Polynomial kernels are represented as $\Phi(x_i, x_j) = (x_i \cdot x_j + 1)^d$ where dot (.) represent the dot product and d is the degree. The Gaussian Radial Basis Function (RBF) kernel is represented as $\Phi(x_i, x_j) = \exp(-\gamma \cdot \|x_i - x_j\|^2)$ where γ is a hyperparameter which varies between 0 and 1.

SVM algorithm is one of the most frequently tested algorithms for the purpose of credit rating prediction (Huang et al., 2004) (Punniyamorthy and Sridevi, 2015). The algorithm has performed comparatively better than other algorithms in a variety of credit rating prediction problems. Li and Sun, 2011 employed SVM for prediction of business failure in China.

Young-Chan Lee, 2007 found in his study that SVM algorithm outperformed Back Propagation Neural Network and Multi-Discriminant Analysis in prediction of credit ratings for corporates. Bellotti et al., 2011 found that SVM algorithm outperformed Ordered Choice Models in prediction of ratings for international banks. The results obtained from SVM algorithms have been so promising that researchers have gone a step forward to experiment with modifications in conventional SVM algorithm to further improve the prediction performance (Yu et al., 2020) (Daneenas et al., 2011) (Wang and Ma, 2012) (Kim and Ahn, 2012).

3.2 Artificial Neural Network

Artificial neural network model has been created in the study using MLP classifiers. MLP classifiers are feed forward artificial neural networks which comprise of three layers – the input layer, the hidden layers and the output layer. The input layer and the output layer are respectively responsible for receiving input parameters and allotment of a class to the instance based on the set of input parameters whereas, the hidden layer is responsible for the intermediate calculations (Abirami and Chitra, 2020).



The number of hidden layers in the model can be varied for the purpose of optimizing the results of the model, that is to say that the number of hidden layers is one of the hyper parameters in the model.

The output vector of each layer can be expressed as $Y = f(w^T X + b)$ where w and b are the weight vector and bias respectively. The output of the previous layer serves as the input for the next layer. The outputs for all the layers are chained together to obtain the final output of the model.

In a number of previous studies, the suitability of Neural network based models have been tested for the purpose of prediction of credit ratings. Al-Najjar and Al-Najjar, 2012 employed Back Propagation Neural Network for prediction of credit ratings for Jordanian corporates. Son et al., 2016 concluded in their study that Artificial neural network models outperformed Bayesian neural network, Support vector regression and Gaussian process regression in prediction of credit default swaps on a North American dataset.

3.3 Naïve Bayes

Naïve Bayes classifier works on the principle of Bayesian theorem. It has a presumption that all the features are independent of each other and takes equal contribution of each feature for predicting the output. This method is suited to dataset with a large number of independent features. It also has a high computation speed which makes it suitable for real-time applications (Misra et al., 2020).

In a training set with two feature sets (X_1, X_2) and two class labels (y_1, y_2), the algorithm calculates the probability for both the classes y_1 and y_2 for each set of instances $(x_{1i}, x_{2i}) \in (X_1, X_2)$.

$$P(y_i | X_1, X_2) = [P(X_1|y_i) P(X_2|y_i) P(X_3|y_i) P(y_i)] / [P(X_1) P(X_2) P(X_3)]$$

For the sake of prediction of a class for a given set of instances, that class is selected which maximizes the value of $P(X_1|y_i) P(X_2|y_i) P(X_3|y_i) P(y_i)$.

Cuicui Luo, 2019 studied the performance of Naïve Bayes classifier to predict credit ratings for companies belonging to 11 different industries and headquartered in 62 different nations. In this study, it was found that Naïve Bayes classifiers outperformed MLP classifiers, Support vector machines and Logistic regression based models, however it underperformed Random Forest based model in terms of accuracy and AUC score.

3.4. Decision Trees

Decision tree is one of the most commonly used machine learning algorithms used for both classification and regression purposes. Decision tree is a prediction algorithm that iteratively

splits the feature space to subspaces that form the basis for classification or regression. The structure of a decision tree comprises of internal nodes, branches and leaf nodes. The internal nodes are the point of partitioning of the feature space based on some parameter, like a flowchart (Tan, 2015). Leaf nodes represent a class label, and the branches are the linkages between two internal nodes or an internal and a leaf node. Unlike other machine learning algorithms like Support Vector Machines, Logistic Regression, Naïve Bayes, Artificial Neural Network, etc., the logic behind the results obtained through Decision tree algorithms are comprehensible and can be interpreted by the users in their own language and terms related to the application. There are two other significant advantages associated with Decision tree algorithms. First, it requires little or no pre-processing of data for model development. Second, the algorithm on its own prioritizes features based on their importance to the objective of the model (Kotu and Deshpande, 2018)

However, there are some drawbacks of Decision tree algorithms. They are prone to over-fitting and are unstable in terms of changes in training data. Even small changes in training data can cause complete restructuring of the model. These drawbacks are overcome by combining several Decision trees together into a single model. Such models are called Decision tree ensembles. There are two techniques for forming Decision tree ensembles – Bagging and Boosting. In Bagging technique, multiple decision trees are formed from randomly selected subsets of the training data and the final result of the model is obtained by taking average of the results obtained from all the decision trees. In Boosting technique, small and simple decision trees formed from randomly selected subset of training data are added consecutively to the model with the objective to reduce the net error of the earlier model.

Decision Trees have been frequently used for the purpose of predicting credit ratings (Wu and Wu, 2016) (Ruyu et al., 2019) (Wang et al., 2020). Golbayani et al. (2020) found that decision tree based algorithms outperform Support Vector Machines and MLP Classifiers in prediction of corporate credit ratings for companies belonging to energy and health care sector.

3.5. Random Forest

Random Forest algorithm is an extension of bagging techniques for forming Decision tree ensembles. In this algorithm multiple decision trees are formed from random subsets of training data comprising randomly selected feature subset of the training data. The average or the majority of the results from all the decision trees is taken as the final result of the model. Since all the decision trees in the model are formed with different subsets of training data comprising different subsets of features, they are very low correlation between them. This tends to cancel the individual errors or noises when combined together (Li et al., 2020)

Researchers have already employed Random Forest algorithm to various prediction cases. Some of the studies have found this algorithm is superior to their cases. Wang et al. (2020) compared the performances of various machine learning algorithms in prediction of credit ratings of individuals. They found that Random Forest algorithm outperformed KNN classifier, Decision Tree, Naïve Bayes and Logistic Regression algorithms. Similarly, Wu and Wu (2016) found Random Forest model superior to Decision Tree, SVM and Neural Network models in predicting the credit rating of North American public companies. Petropoulos et al. (2020) employed various machine learning techniques, including Random Forest, SVM, Neural network, etc., in predicting bank insolvencies and found that the Random Forest algorithm has an edge over other algorithms.

3.6. Gradient Boosting Decision Trees

Gradient Boosting Decision Tree (GBDT) is also an ensemble of Decision Tree like Random

Forest. As the name suggests this algorithm employs boosting technique to create the ensemble. This is unlike Random Forest where bagging technique is employed to create the ensemble. Here, smaller and simpler Decision Trees are added to the same model consecutively with the objective to remedy the loss of the earlier model.

Tian et al. (2020) claim that GBDT is the most superior algorithm for credit risk assessment among Logistic Regression, SVM, Multi-layer Perceptron, Random Forest and AdaBoost algorithms. Moscatelli et al. (2020) compared the performance of GBDT with Random Forest, Logistic Regression and Linear Discriminant Analysis and found that it outperforms all others except Random Forest.

4. Data and methodology

The research data comprises of 158 instances of credit ratings and corresponding financial data. The ratings taken are those which are assigned to the companies after the release of their annual reports. The data belongs to 50 unique non-banking financial companies across multiple fiscal years among 2014-15, 2015-16, 2016-17, 2017-18, 2018-19, 2019-20 and 2020-21. The financial data and the credit ratings are taken from Centre for Monitoring Indian Economy Pvt. Ltd. (CMIE) through their desktop app - ProwessIQ. CMIE is a private body which collects and publishes economic and business data in India. It is one of the most reliable sources for such data in the country. Some of the financial data which cannot be found on the CMIE app has been extracted from the annual reports of the companies.

The set of non-banking financial companies considered in the study are registered before the Reserve Bank of India as asset finance companies, investment companies, loan companies, infrastructure finance companies, systematically important core investment companies or micro-finance institutions. The credit ratings considered in the study are assigned to the companies by one of the following six credit rating agencies - CRISIL, ICRA Limited, CARE Ratings, Brickwork Ratings (BRICKWORK), Acuite Ratings and Research Limited (ACUITE) or India Ratings and Research Private Limited (IND-RA). The instruments of the companies whose ratings are considered are 'Term loans' or 'Debentures/bonds/notes/bills'. The ratings for both the instruments for all the companies is found to be same. The rating scales for all the six rating agencies are identical. It comprises of twenty levels with similar interpretation for each level. In the study, the twenty rating levels are grouped together into five levels. This is done to ensure that significant number of instances exists for each prediction class. The actual rating scale and modified scale are as follows – micro-finance institutions. The credit ratings considered in the study are assigned to the companies by one of the following six credit rating agencies - CRISIL, ICRA Limited, CARE Ratings, Brickwork Ratings (BRICKWORK), Acuite Ratings and Research Limited (ACUITE) or India Ratings and Research Private Limited (IND-RA). The instruments of the companies whose ratings are considered are 'Term loans' or 'Debentures/bonds/notes/bills'. The ratings for both the instruments for all the companies is found to be same. The rating scales for all the six rating agencies are identical. It comprises of twenty levels with similar interpretation for each level. In the study, the twenty rating levels are grouped together into five levels. This is done to ensure that significant number of instances exists for each prediction class. The actual rating scale and modified scale are as follows –

| Rating scale | Modified scale |
|---------------------|-----------------------|
| AAA | AAA |
| AA+ | |

| | |
|------|-----|
| AA | AA |
| AA- | |
| A+ | |
| A | A |
| A- | |
| BBB+ | |
| BBB | BBB |
| BBB- | |
| BB+ | O |
| BB | |
| BB- | |
| B+ | |
| B | |
| B- | |
| C+ | |
| C | |
| C- | |
| D | |

The distribution of the sample across the modified scale and across financial years is as follows

| Rating | Number of companies |
|---------------|----------------------------|
| AAA | 30 |
| AA | 61 |
| A | 31 |
| BBB | 25 |
| O | 11 |
| | 158 |

| Year | Number of companies |
|-------------|----------------------------|
| 2014-15 | 5 |
| 2015-16 | 19 |
| 2016-17 | 22 |
| 2017-18 | 30 |
| 2018-19 | 37 |
| 2019-20 | 39 |
| 2020-21 | 6 |
| | 158 |

There are 16 financial metrics that are used for the prediction of credit ratings. These metrics capture the size of the company, the capital structure of the company, profit in the respective year, liquidity, financial concentration risk, risk due to non-performing assets and their risk management fund. Some of the metrics come under the statutory disclosures which NBFCs in India have to make every year along with their annual reports. It is mandated by Reserve Bank of India. Some of the metrics have been processed to optimize their operability as explained in the next section. Further, all the metrics have been encoded into Greek alphabets for their easy representation in the paper and the computer codes.

| Metric | Unit | Modified metric | code |
|-------------------------------------|------------|-------------------------------------|---------|
| Debt to equity ratio (times) | Times | Debt to equity ratio (times) | alpha |
| CRAR | (%) | CRAR | beta |
| Return on net worth | (%) | Return on net worth | gamma |
| Return (cash) on net worth | (%) | Return (cash) on net worth | delta |
| Return on capital employed | (%) | Return on capital employed | epsilon |
| Return on total assets | (%) | Return on total assets | zeta |
| Current ratio (times) | Times | Current ratio (times) | eta |
| Cash to current liabilities (times) | Times | Cash to current liabilities (times) | theta |
| Net NPAs to net advances (%) | (%) | Net NPAs to net advances (%) | iota |
| Provision coverage ratio | Times | Provision coverage ratio | kappa |
| Gross NPAs to net advances (%) | (%) | Gross NPAs to net advances (%) | lambda |
| Relative change in gross NPA (%) | (%) | Relative change in gross NPA (%) | mu |
| Concentration risk | (%) | Concentration risk | nu |
| Total assets | Rs Million | Total assets / 1000 | xi |
| Profit after tax | Rs Million | Profit after tax / 100 | omicron |
| Net worth | Rs Million | Net worth / 1000 | pi |

4.1. Feature preprocessing

All the metrics are expressed as a percentage or a ratio except Total assets, Profit after tax and Net worth, which are absolute values. These three metrics are processed to reduce their ranges without loss of information. Total asset and Net worth are divided by a constant 1000 and rounded to two decimal places. Similarly, Profit after tax of a company is replaced by its ratio with a constant 100. It is then rounded to two decimal places.

All other metrics which are expressed as a percentage or as a ratio are rounded to two decimal places. The objective of preprocessing the raw data is to make the values easy to operate for the processor while there is no loss of information. This helps in forming robust model and prevents high computation time.

4.2. Feature selection

Large number of features in a dataset serve as a challenge for researchers in developing machine learning models (Cai et al., 2018). Large number of features often lead to compromise in terms of accuracy, computation time as well as interpretability of the model (Chandrashekar and Sahin, 2014). Therefore, redundant features which do not add value to the model are removed. This is called feature selection. Feature selection methods can be categorized into two sets – Filter methods and wrapper methods. Filter methods operate over the dataset and are independent of the machine learning algorithm which will be used for model creation. The output solely depends on the relationship between features in the dataset. They can be coupled with any machine learning algorithm (Bommert et al., 2020). Few examples of filter methods are Chi-squared test, Principal Component Analysis, Pearson's correlation, etc. Contrary to filter methods, wrapper methods operate in sync with the machine learning algorithm to determine the best set of features for a given dataset and for that particular algorithm. Two commonly used wrapper methods are Recursive Feature Elimination (RFE) and genetic algorithms. They are more computationally intensive relative to filter methods since they incorporate the performance of the model as feedback to them. However, they are capable of producing better

results compared to filter methods for a particular algorithm to which they are coupled with for model development (Hua et al., 2009).

In this study, feature selection is performed only for Naïve Bayes algorithm. This is because all the sixteen features employed measure a distinct real-world parameter. Even if there is a correlation found between their values in this particular dataset, there exists no theoretical justification for it. All the features have their own real-world significance and none of them contain the same information as any of the other features in the dataset. The incorporation of all the features in Decision Tree and its ensemble algorithms has an added advantage that the relative importance of each feature in the process of credit rating prediction can be obtained. However, the performance of the Naïve Bayes model is highly sensitive to the set of features employed (Chen et al., 2009). This is because Naïve Bayes algorithm has an inherent assumption that all the features are independent to each other. Highly correlated features tend to bias the model as they lead to multiplication of the weight of the same feature. Hence, in this study Pearson’s correlation based filter method is utilized to eliminate redundant features for Naïve Bayes algorithm only.

The procedure followed for feature selection is as follows:

1. The values for mutual correlations between all pairs of independent variables are obtained.
2. The higher is the value of correlation between two variables, the higher is the information overlap between the two variables. The identification of threshold value for correlation is a balancing job between preventing information overlap and retaining features which have high theoretical significance in credit rating determination. Two threshold values for correlation coefficient are selected – 0.75 and 0.55.
3. For each threshold value the set of correlated features are identified. These are the features that have higher correlation than the threshold value. correlation between them. Out of each set of correlated features, one feature is selected to represent all other features in the set to which it belongs to. The selection is based on the value of mutual correlation of each feature in the set and the output class, after decoding the output class into numeric values as follows:

[AAA, AA, A, BBB, O] → [4, 3, 2, 1, 0]

| Alpha | beta | gammadelta | epsilonzeta | eta | theta | iota | kappa | lambda | mu | nu | xi | omicron | | | | | |
|-------|--------|------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|-------|
| 1.000 | -0.053 | -0.679 | -0.097 | -0.072 | -0.066 | | | | -0.039 | | | | | | | | |
| | 1.000 | -0.439 | -0.068 | | | 0.360 | 0.066 | 0.082 | | 0.097 | 0.041 | -0.05 | | | | | |
| | | 1.000 | -0.005 | | | -0.074 | -0.048 | | -0.008 | -0.020 | -0.017 | | | | | | |
| | | | 1.000 | 0.034 | 0.006 | 0.012 | 0.033 | 0.036 | | -0.009 | | -0.02 | | | | | |
| | | | | 1.000 | 0.726 | 0.813 | 0.847 | -0.159 | -0.060 | -0.822 | -0.156 | -0.770 | -0.065 | -0.435 | 0.124 | 0.29 | |
| | | | | | 1.000 | 0.409 | 0.424 | -0.181 | -0.131 | -0.505 | 0.015 | -0.414 | -0.022 | -0.381 | 0.090 | 0.22 | |
| | | | | | | 1.000 | 0.991 | -0.145 | -0.020 | -0.673 | -0.202 | -0.978 | -0.084 | -0.462 | 0.063 | 0.15 | |
| | | | | | | | 1.000 | -0.133 | -0.011 | -0.703 | -0.207 | -0.946 | -0.072 | -0.458 | 0.060 | 0.18 | |
| | | | | | | | | 1.000 | 0.984 | 0.037 | 0.086 | 0.150 | -0.006 | | -0.130 | | |
| | | | | | | | | | 1.000 | -0.059 | | | -0.012 | -0.076 | -0.149 | -0.15 | |
| | | | | | | | | | | 1.000 | 0.056 | 0.021 | | | | -0.15 | |
| | | | | | | | | | | | 1.000 | 0.077 | 0.666 | 0.082 | 0.414 | 0.060 | -0.13 |
| | | | | | | | | | | | | 1.000 | 0.182 | -0.027 | -0.021 | -0.079 | -0.07 |
| | | | | | | | | | | | | | 1.000 | | | -0.048 | |

| | | | | | | | | | | | | | | | | |
|-------|-------|-------|-------|---------|-------|-------|-------|-------|-------|----------|-------|-------|--------|-------|--------|-------|
| | | | | | | | | | | | 1.000 | 0.095 | 0.465 | | | -0.10 |
| | | | | | | | | | | | | 1.000 | 0.113 | | -0.039 | -0.08 |
| | | | | | | | | | | | | | 1.000 | 0.393 | | 0.21 |
| | | | | | | | | | | | | | | 1.000 | | 0.88 |
| | | | | | | | | | | | | | | | | 1.00 |
| alpha | beta | gamma | delta | epsilon | zeta | eta | theta | iota | kappa | lambdamu | nu | xi | omicro | | | |
| - | | | | | | | | | | | | | | | | |
| 0.096 | 0.075 | 0.434 | 0.275 | 0.307 | 0.323 | 0.171 | 0.136 | 0.281 | 0.205 | -0.280 | 0.119 | 0.115 | 0.464 | 0.48 | | |

| THRESHOLD VALUE | 0.75 | 0.55 |
|---|---|---|
| SET OF CORRELATED FEATURES | [gamma, epsilon, zeta, iota, lambda], [eta, theta], [xi, omicron, pi] | [alpha, gamma, delta, epsilon, zeta, iota, lambda], [eta, theta], [xi, omicron, pi] |
| FEATURES SELECTED OUT OF EACH SET | gamma eta pi | gamma eta pi |
| ALL FEATURES EMPLOYED IN MODEL DEVELOPMENT FOR THAT THRESHOLD VALUE | [alpha, beta, gamma, delta, kappa, mu, nu, eta, pi] | [beta, gamma, kappa, mu, nu, eta, pi] |

4.3 Model tuning

All machine learning algorithms have some hyper parameters associated to them which significantly influence the performance of the model (Wu et al., 2019). In most of the cases, the trial-and-error method is adopted to identify the best values for the hyper parameters which ensure a balance between under-fitting and over-fitting of the model. This makes the process for identification of the best suited hyper parameters highly computation intensive (Wu et al., 2020).

In this study, hyper parameters are tuned over the training set using grid search method.

4.4 Model development and performance testing

The set of 158 instances which are combinations of modified ratings and pre-processed data is randomly divided into two parts in the ratio 3:1. The larger part of the data is employed to train the classification model and the smaller part is used to test the performance of the model. Eight classification models have been developed using the six machine learning algorithms – Decision Tree, Gradient Boosting Decision Tree, Random Forest, Non-linear Support Vector Machine, Naïve Bayes and Artificial Neural Network. Two models have been developed using the SVM algorithm having two different kinds of kernel functions – Polynomial and Radial Basis Function (RBF). Similarly, two models have been developed using the Naïve Bayes algorithm, each incorporating one of the two different set of features obtained by keeping the two different threshold values for correlation coefficient between the features. The machine

learning models have been developed using Python language in Anaconda environment. The performance of the models is tested through five metrics – Accuracy, Precision, Recall, F1 score, and Area under Curve (AUC).

4.4.1 Accuracy

Accuracy can be defined as the number of times the model makes correct predictions out of the total number of attempts made by it. In percentage terms, it represents the number of correct predictions made by the model out of one hundred predictions made by it.

$$\text{Accuracy} = \frac{\text{Number of correct predictions}}{\text{Total number of predictions}}$$

$$= \frac{TP+TN}{TP+FP+TN+FN}$$

Where TP – True positive, TN – True negative, FP – False positive, FN – False negative

Accuracy does not present the complete picture of model performance when the data set is class imbalanced, i.e., there is a difference between the numbers of instances of each label class. In that case we use two more metrics along with accuracy to assess model performance.

4.4.2. Precision and Recall

Precision and Recall are calculated for each label class. Precision tells us out of all the times our model predicted a particular class how many times it was right in predicting that class.

$$\text{Precision} = \frac{TP}{TP+FP}$$

Recall tells us out of all the instances of a particular label class present how many times our model predicted them right. It is also known as sensitivity.

$$\text{Recall} = \frac{TP}{TP+FN}$$

Through F1 score we combine Precision and Recall into a single number by taking their harmonic mean. It is considered a better measure of performance than accuracy when the dataset is class imbalanced.

$$\text{F1 score} = 2 * \frac{\text{Precision} * \text{Recall}}{\text{Precision} + \text{Recall}}$$

$$= \frac{2 * TP}{2 * TP + FN + FP}$$

The values for Precision, Recall and F1 score for all the classes in a model can be combined in two ways to represent the value of the respective measure for the complete model. If they are combined using simple arithmetic mean, the result is termed as macro-average of the respective measure for the model. If they are combined using weighted average, where the sample size of each class serves as the weight, the result is termed as the weighted average of the respective measure for the model. Macro-average value for Precision and Recall is a better measure for overall model performance compared to their respective weighted average because of

imbalance of label classes in the dataset.

4.4.3. Area Under Curve (AUC)

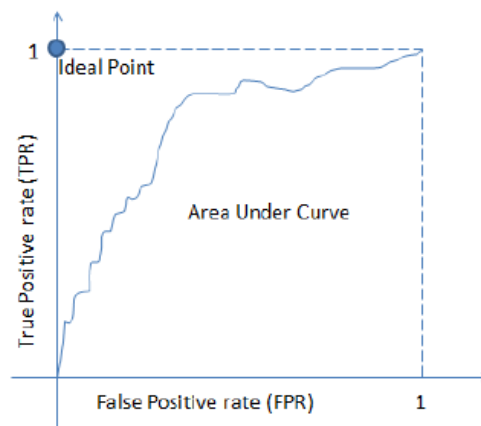
The Area Under Curve (AUC) as the name suggests, is the actual area under the curve which plots True Positive Rate (TPR) for different values of False Positive Rates (FPR). This curve is called the Receiver Operating Characteristic (ROC) of the model. The area under the ROC curve presents an innate assessment of the model. Unlike Recall, Precision and F1 score, AUC is independent of the classification threshold.

TPR and FPR are calculated as follows:

$$\text{TPR or Recall} = \frac{TP}{TP+FN}$$

$$\text{FPR or Specificity} = \frac{FP}{FP+TN}$$

AUC value ranges from 0 to 1. Ideally, TPR and FPR should be 1 and 0 respectively, consequently AUC should be 1. The nearer AUC is to 1, the better is the model.



5. Results and Discussion

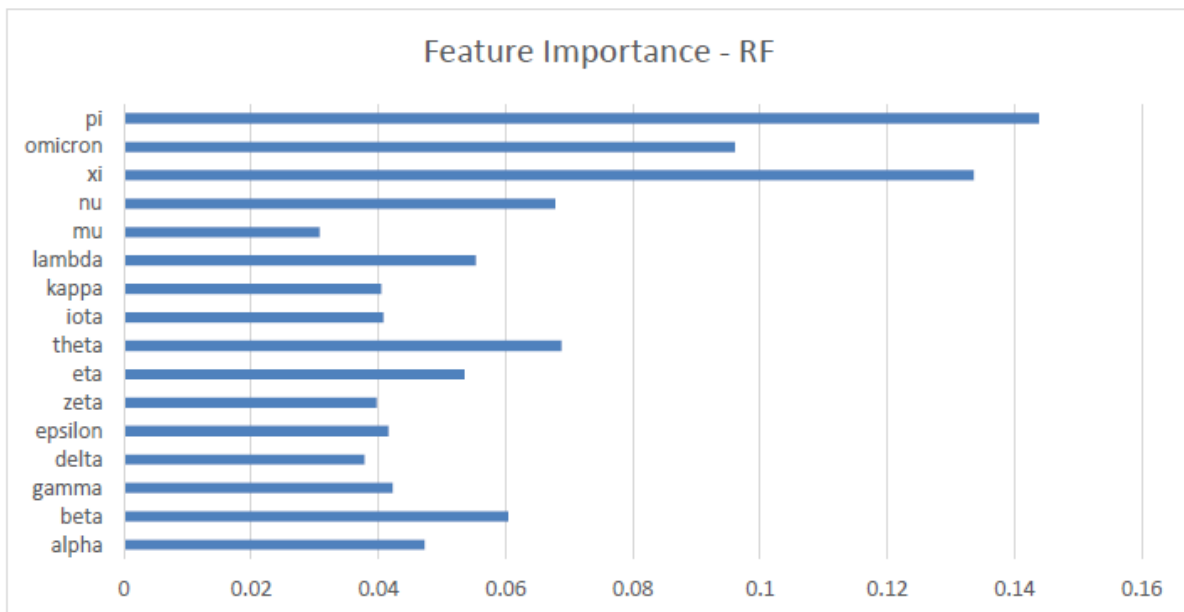
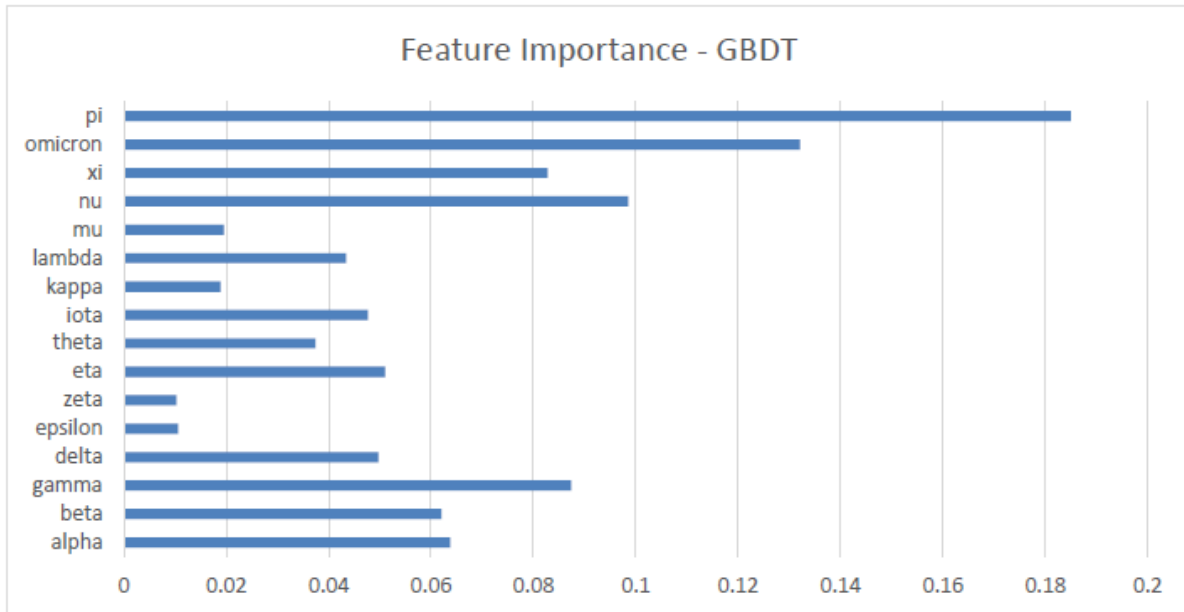
It is found that Gradient Boosting Decision Tree model outperforms other models in terms of mean accuracy, F1 score as well as AUC score. Random Forest and Polynomial kernel SVM models are comparable in performance in terms of mean accuracy. However, polynomial kernel SVM model leads Random Forest model in terms of F1 score which is a better measure for model performance compared to mean accuracy for an imbalanced dataset incorporated in the study. AUC score could not be found for SVM models because the Anaconda environment do not support the use of that particular function used for calculating AUC score on SVM models.

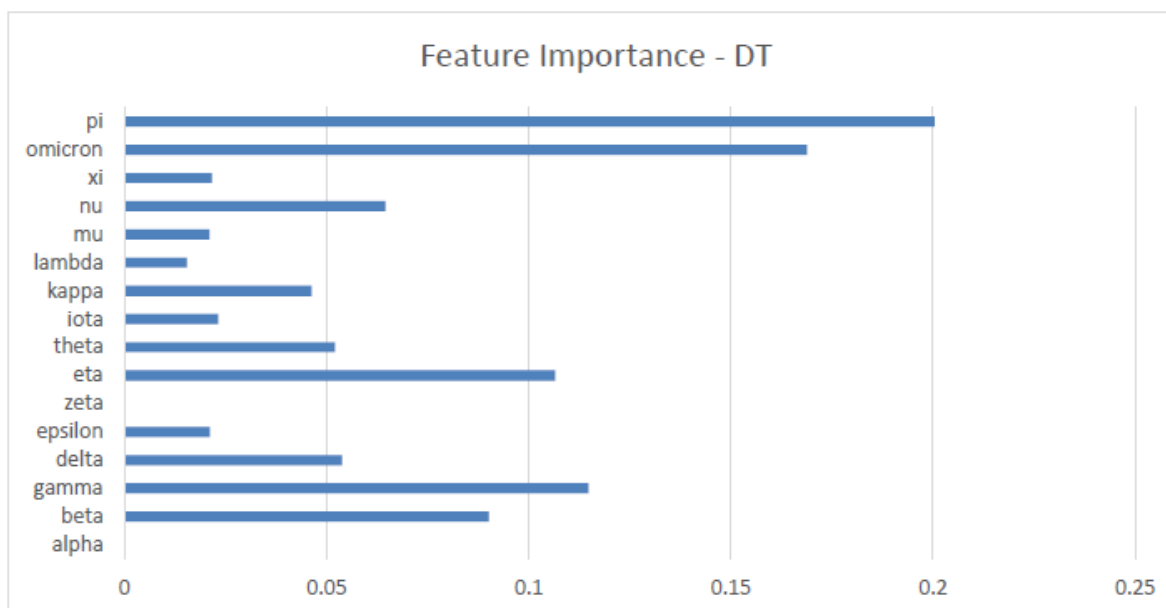
Macro-average Recall is highest for GBDT model which implies that in use cases, where we have to put high stake on the prediction of the model, we can opt for the results of GBDT model. GBDT model has less tendency to error. This is followed by polynomial kernel SVM, Random Forest and Decision Tree models.

| Model | Accuracy | Mean cross-validated accuracy (5-fold) | Precision (macro average) | Precision (weighted average) | Recall (macro average) | Recall (weighted average) | F1 score (macro average) | F1 score (weighted average) | AUC score |
|------------|----------|--|---------------------------|------------------------------|------------------------|---------------------------|--------------------------|-----------------------------|-----------|
| SVM - poly | 0.72 | 0.72 | 0.76 | 0.79 | 0.75 | 0.72 | 0.71 | 0.73 | - |

| | | | | | | | | | |
|----------------------------------|------|-------|------|------|------|------|------|------|-------|
| SVM - rbf | 0.70 | 0.678 | 0.69 | 0.69 | 0.65 | 0.70 | 0.66 | 0.69 | - |
| ANN | 0.65 | 0.67 | 0.60 | 0.73 | 0.48 | 0.65 | 0.52 | 0.67 | 0.816 |
| Naïve Bayes ($r \leq 0.75$) | 0.62 | 0.607 | 0.56 | 0.58 | 0.55 | 0.62 | 0.53 | 0.58 | 0.851 |
| Naïve Bayes ($r \leq 0.55$) | 0.57 | 0.589 | 0.49 | 0.63 | 0.57 | 0.57 | 0.47 | 0.56 | 0.863 |
| Decision Tree | 0.65 | 0.627 | 0.67 | 0.65 | 0.68 | 0.65 | 0.67 | 0.64 | 0.802 |
| Random Forest | 0.70 | 0.721 | 0.84 | 0.81 | 0.68 | 0.70 | 0.70 | 0.69 | 0.941 |
| GBDT | 0.78 | 0.772 | 0.73 | 0.78 | 0.82 | 0.78 | 0.76 | 0.78 | 0.967 |

Decision Tree, Random Forest and GBDT algorithms provide the relative importance of each parameter in determination of credit rating for a test instance based on the respective models. According to GBDT model, the most important parameter in determination of credit rating is Net worth, followed by Profit after tax and concentration risk. The most important parameter is same for Random Forest and Decision Tree model as for GBDT model. However, Random Forest model considers Total assets and Profit after tax as the second and third most important parameters in credit rating prediction. Similarly, Decision Tree model considers Profit after tax and Return on net worth as the second and third most important parameters for credit rating prediction. Interestingly, according to the Decision Tree model, Debt to Equity ratio and Return on total assets have no significance in predicting credit ratings for NBFCs.





6. Conclusion

Gradient Boosting Decision Tree algorithm emerges out as the most suitable algorithm for development of credit rating prediction models for Indian NBFCs. Net worth and Profit after tax are consistently two of the top three parameters that influence the credit ratings for Indian NBFCs.

The application of machine learning algorithms substantially reduces the time and effort in prediction of credit ratings. The application of machine learning algorithms for the particular purpose is more justified for dynamically changing industry like NBFCs. However, the efficiency and accuracy of the model is of prime importance. The development of model based on large amount of dataset may enhance the performance and hence reliability on these models. In this regard there are some factors which may be considered in future studies. For example, incorporating features that account for the geographical diversity and product diversity of the NBFCs. With the availability of large amount of data, separate models can be developed for different kinds of NBFCs like asset finance companies, investment companies, loan companies, infrastructure finance companies, systematically important core investment companies or micro-finance institutions. Macroeconomic factors which collectively influence the significance of financial figures may also be considered if the dataset belong to a larger range of time period. There is scope for improvement in the model development process by utilization of wrapper techniques like genetic algorithm and recursive feature elimination for feature selection which may improve the performance of the model.

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Impact of COVID-19 on Shariah versus non-Shariah compliant stocks: A comparative study using wavelet analysis

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Abstract

The present study examines impact of COVID-19 pandemic on the relative performance of Shariah-compliant stocks to non-Shariah-compliant stocks. We argue that the Shariah-compliant stocks will out-perform conventional stocks during the COVID-19 crisis because the Shariah compliant stocks follow the Islamic financial framework which is based upon the core doctrines of justice, equality, and fairness. We use NSE 500 Shariah index to gauge the reaction and resilience of the Shariah complaint firms during COVID-19 and compare with its parent index NSE 500. The results of the study support of our hypotheses that Shariah compliant stocks out-perform and bring more resilience. Moreover, the results indicate that the negative impact of COVID-19 news on Shariah complaint firms are less pronounced and short lived compared to non-Shariah complaint firms.

Keywords: Shariah Compliance, COVID-19, Stock Market Resilience

Introduction

It is well documented in the literature that stock returns significantly respond to financial or economic crisis. But, the recent reaction of stock markets to the COVID-19 pandemic is one of the quickest crash in the history of stock markets and resulted in hefty losses for investors. However, the magnitude of the response and resilience of stock market returns are not analogous amongst firms even within a country. It has elevated staid questions among the investor community about investment choices, risk management, resource allocation, portfolio choices, and risk aversion. By and large, it is argued that the conventional financial instruments inject more risk into the financial systems by allowing excessive risk and speculation.

The recent impact of COVID-19 on the stock markets also led to various responses from policymakers and market participants who oppose traditional financial market regulations, governance, risk management, financial innovations, and also globalization of international capital markets. As proposed by Aglietta and Rigot (2009), there is a need to infuse more stability by restructuring and reorganizing the financial system and markets across the globe. During turbulent times, in order to bring more stability in the financial system, we need to design and implement an alternative system where risks and speculation are strictly monitored and controlled. As suggested by Jouini and Pastre (2009), Islamic finance offers an excellent platform to inject more stability into a financial system because it functions on the core principles like justice, equality, and fairness. The Islamic finance can bolster the financial markets and participants by developing instruments having ethical and moral values, greater sustainability and social responsibility. The COVID-19 pandemic has fetched several slits in our ecology and accentuated the necessity to estimate the effect of our actions on the planet and our society at large. As the integrations among economies are more intensified and complex, leading to environmental and social challenges stretching from climate catastrophe to poverty and unemployment. In such a context, the concept of Islamic finance is a fast gaining ideology in the financial world. This is apparent from the increasing number of investors who begin to apply Shariah filters to their investment decision making process.

Islamic finance is grounded on the Islamic Law called the Shariah, which itself develops a periphery for investment and financial products that restrict excess risk positions and condenses

the effects of speculation. The Islamic Law or Shariah, derived from the Quran, Fiqh, and Sunnah, encompasses all facets of human life and activities associated with social, political, spiritual, economic, and ethical life. The Shariah is basically centered on rules that Muslims follow both in individual demeanor and business practice, and the core doctrines encompass justice, equality, and fairness. Hence, the present form of Islamic financial framework also encompasses all aspects of Shariah. According to Ainley et al. (2007), the Islamic financial system is based upon the following philosophies. First, it aims for economic prosperity and social justice of the whole civic by plummeting the concentration of wealth in few hands and providing relief for the poor. Second, Islam inspires individuals to do business or other fecund activities and generate profit, but a proper distinction has been made between activities that are allowable and forbidden. Third, as per the Islamic economic model, interest is prohibited, but it is based upon risk and profit-sharing. Fourth, to reduce uncertainty and ambiguity, it provides broad regulations for contracts so that all the parties can take well-informed decisions.

Indeed, during turbulent times created by either an epidemic or any other crisis, such moral philosophies and rules can endorse Islamic finance more apposite than conventional finance as it shields investors from the high risks concomitant with conventional financial instruments. Specifically, Islamic finance is emerging as an alternative investment platform with its newfangled and less risky innovations and act as an evacuee for investors as it provides a conducive investment climate with less risk and safe financial settings (Jouini and Pastre, 2009). A number of professionals, academicians, and policymakers also consider Islamic finance as an effective substitute, proposing that Islamic finance instruments could out-perform conventional finance instruments in the future (Srairi, 2009; Jawadi et al., 2011). In this context, we argue that the Shariah-compliant stocks will out-perform conventional equities during the COVID-19 epidemic, making them more attractive to the market participants who have become disillusioned with conventional financial instruments. Consequently, the present paper aims at investigating the impact of the COVID-19 epidemic on the relative performance of Shariah-compliant stocks to non-Shariah-compliant stocks.

In the extant literature, there are studies that compare the relative performance of conventional stock market indices and Islamic stock market indices. Hakim and Rashidian (2004) compare the Dow Jones Index (DJI) to the Dow Jones Sustainability World Index (DJS) and Dow Jones World Index (DJW) and find that DJI outperform DJW but underperforms DJS. On the other hand, Hassan and Girard (2011) argue that the Dow Jones Islamic indices outperform their conventional counterparts only during certain time period of the study. Hussein (2007) compares the FTSE All World Index with FTSE Global Islamic Index and finds that the FTSE Global Islamic Index performance is similar to the FTSE All World Index. But, the FTSE Islamic Global Index underperforms during the bear period and outperforms for the bull period. Abbas (2012) analyses the returns and volatility of 35 Islamic stock market indices and compares them with conventional counterparts. The results show that the performance of Islamic indices and others are identical. Arouri et al. (2013) examine both Islamic indices and conventional indices and show evidence that Islamic indices offer higher returns at lower risk particularly during economic stress and thus help to stabilize financial markets. Tahir and Ibrahim (2020) examine the relative performance of Shariah-compliant companies compared to conventional companies during the recession period of 2007-2010 and the non-recession period of 2011-2014. The results show that Shariah-compliant companies outperformed non-Shariah compliant companies during both periods. Although there have been studies related to Shariah-complaint stocks and their performance, studies related to the performance of Shariah-complaint stocks during crisis period is limited and more specifically studies during pandemic/epidemic are scant. In this context, the present study empirically examines whether Shariah-compliant stocks

out-perform non-Shariah-compliant stocks during the COVID-19 epidemic.

We use NSE 500 Shariah index to gauge the reaction and resilience of the shariah-complaint firms and investments into them. To make a meaningful comparison we include its parent index NSE 500. NSE 500 index covers about 90% of the total market capitalization and 80% of the traded volume of the major stock exchange of India¹, National Stock Exchange (NSE)². All the constituents of NSE 500 index are screened for shariah compliance and only those who qualify becomes part of NSE 500 Shariah index. Thus by construction itself, the constituents of the two indices are expected to be similar in all other market characteristics (for example, liquidity, size and credit ratings etc.) except those required to qualify to be a shariah complaint firm. This provides us with an excellent setting to compare the shariah versus non-shariah complaint investments as any difference in the behavior of the two indices can be directly attributed to the non-shariah complaint portion of the NSE 500 index.

India is emerging as a major destination for investment fueled by growing income of domestic population and increased demand in the global markets, as it emerges perhaps as one of most powerful economy in the world. Indian capital markets have evolved into highly innovative and competitive marketplace with robust electronic interface, transaction speed, democratic investor access and cutting- edge technologies. It encouraged and implemented market microstructural innovations in like algorithmic trading and colocation way back in 2020, when many of economies in the region were still debating over its advantages and disadvantages. The Indian exchanges have emerged as world leaders in trading (NSE) and listing (BSE). NSE emerged as the largest derivatives exchange in the world for last two consecutive years (2019 and 2020) in terms of volumes of contract traded. It also ranked largest, second largest and third largest in the world in terms in terms of contract for the options (on index and currency futures), stock futures and cash market segments respectively in the year 2019 (NSE Annual Reports, 2020).

Even though, fiscal year 2020 was accompanied by unprecedented levels of uncertainty, unrest and panic owing to oil price wars, China-US trade wars and the pandemic COVID-19, India emerged out of it as a winner. The well planned containment measures, large-scale fiscal and monetary stimulus to mitigate the economic and social impact of COVID-19 and a scientific approach to this medical situation has helped India to be the only major economy in the world to register an expected double digit growth for the financial year 2022³. This is in spite of the overall slowdown of the economy by 4% reduction in GDP in financial year 2020 owing to strict COVID-19 containment measures.

Indian market has also evolved in terms of its products diversity. It encourages and embraces innovative products including shariah complaint investments. According to World Investment Report, 61% of the total market capitalization of Indian market qualify on shariah parameters. The representation of shariah-complaint investment in India (61%) is in fact way over some of countries where a majority of the population is Muslim, like Malaysia (57%), Pakistan (51%) and Bahrain (6%). Hence, we find it interesting to investigate the differences in the behavior of shariah complaint and non-shariah complaint investments during the crisis. To the best of our knowledge, the present study is the first study that investigates the impact of an epidemic on the relative performance of Shariah-compliant stocks to non- Shariah-compliant stocks.

To comprehend and examine the relative performance of Shariah-compliant stocks to non-Shariah- compliant stocks, first we decompose the data over time and frequency using wavelet analysis. The decomposition of data by wavelet transform gives us further acumen into the dynamics of economic/financial time series and many dynamic features such as multi-

¹ https://www1.nseindia.com/content/indices/Method_Nifty_Shariah_Indices.pdf

² NSE Annual Reports, 2020.

³ Economic Survey, 2021.

resolution, non-stationarity, and approximate de-correlation arises from wavelet filters. Hence, wavelet filtering offers an efficient platform to deal with many time-varying physiognomies embedded in most time series. Consequently, wavelet analysis has substantial benefits over other traditional time series analyses when the variable under study is locally stationary and inhomogeneous (Percival and Walden, 2000; Ramsey, 2002). Generally, economic/financial time series may not follow the identical association as a function of time horizon (scale). Therefore, a transform that decomposes the entire time series into different time horizons is necessary as it segregates seasonality, divulges volatility clusters and structural breaks, and detects local and global dynamic properties of the time series at these time horizons (Gençay et al., 2001). Thus, decomposition of data into wavelet transformation judiciously acclimates itself to capture characteristics through an inclusive range of frequencies that are local in time. Therefore, wavelet transform is considered as a better tool for analyzing non-stationary time series (Fan and Gençay, 2010). In the present study, we use wavelet coherence for measuring the degree of correlation between the energy and sectoral indices. It is interesting to analyze how the correlations progress in time and also to observe whether the associations diverge across different frequencies, i.e., if there are robust dependencies in the longer or shorter investment horizons. Moreover, continuous wavelet analysis aids to disentangle local correlation over different time periods and frequencies without depending on traditional econometric techniques.

The results of the study support of our hypotheses that Shariah compliance brings more resilience into the investments; specifically, during crisis. The NSE-500 Shariah Index was impacted less due to COVID-19 cases and deaths compared to its parent index, NSE 500. Also the impact of COVID-19 news on the two indices are examined using a battery of COVID-19 news indices, more particular negative news index and panic index. The results indicate that the negative impact of COVID-19 news on the Shariah complaint firms are less pronounced and short lived compared to non-Shariah complaint firms.

The present study is particularly interesting as it enables us to investigate investment strategies and diversification opportunities within two types of financial funds during a crisis. The question is of particular interest in view of the COVID-19 crisis that has led to significant losses and has destroyed investors' trust in financial markets and funds once again. Our study could thus have considerable implications for investors and policymakers in the revision of their investment strategies and risk management decisions that might now include a new class of financial products: Islamic funds. In particular, our exploration offers further evidence of new resource allocation opportunities and optimal portfolio management strategies through a mix of conventional and Islamic funds.

The rest of the paper is organized as follows; section 2 describes the data and variables used for the study. Section 3 explains the methodology employed to test the hypotheses. The results are discussed in the section 4 and finally conclusions are drawn in section 5.

2. Data and Variables

The time period for the study considered is 4th March 2020 to 31st December 2020. Even though

the first case of COVID-19 was detected on 31st January 2020, the number of cases were insufficient till 4th of March⁴. The data on the two indices NSE 500 and NSE 500 Shariah is collected from Prowess database. The data on COVID-19 cases, deaths and recoveries is

⁴ The number of cases in India were 5 or less before this date and above 23 from this date onwards

collected from the website of Johns Hopkins University. The data on the media hype index, media coverage index, infodemic index, panic index and fake news index is collected from the website RavenPack⁵. A brief description of all the variables used in the study is given in Table 1 and summary statistics of all the variables is reported in Table 2.

Table 1: Description of variables

| Variable | Description |
|----------------------|---|
| RNSE500 | Daily return of NSE 500 Index |
| RNSE500Sh | Daily return of NSE 500 Shariah Index |
| COVID-19 Cases | Daily changes in the number of COVID-19 cases |
| COVID-19 Deaths | Daily changes in the number of COVID-19 deaths |
| COVID-19 Recoveries | Daily changes in the number of COVID-19 recoveries |
| Media Hype Index | Percentage of news talking about COVID-19 |
| Infodemic Index | Percentages of entities (places, companies etc.) linked to COVID-19 |
| Media Coverage Index | Percentage of news sources covering the topic COVID-19 |
| Panic Index | Percentage of news related with COVID-19 panic or hysteria |
| Fake News Index | Percentage of news that had misinformation or fake news related to COVID-19 |

Table 2: Summary Statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max | Correlation with | |
|----------------------|-----|-------|-----------|--------|-------|------------------|-----------|
| | | | | | | RNSE500 | RNSE500Sh |
| RNSE500 | 161 | 0.003 | 0.016 | -0.083 | 0.056 | | 0.892*** |
| RNSE500Sh | 161 | 0.003 | 0.014 | -0.075 | 0.066 | 0.892*** | |
| COVID-19 Cases | 161 | 0.068 | 0.363 | 0.002 | 4.600 | -0.060 | -0.014 |
| COVID-19 Deaths | 161 | 0.047 | 0.119 | 0.000 | 1.000 | 0.151* | 0.078 |
| COVID-19 Recoveries | 161 | 0.048 | 0.077 | 0.000 | 0.622 | 0.174** | 0.218*** |
| Media Hype Index | 161 | 0.464 | 0.090 | 0.201 | 0.680 | 0.284*** | 0.222*** |
| Infodemic Index | 161 | 0.626 | 0.074 | 0.349 | 0.779 | 0.250*** | 0.195* |
| Media Coverage Index | 161 | 0.690 | 0.065 | 0.433 | 0.832 | 0.258*** | 0.211*** |
| Panic Index | 161 | 0.039 | 0.018 | 0.013 | 0.100 | 0.166** | 0.190** |
| Fake News Index | 161 | 0.011 | 0.010 | 0.002 | 0.057 | 0.067 | 0.028 |

Note: *, ** and *** represents significance level at 10%, 5% and 1% respectively.

The primitive examination of data shows that the NSE 500 Shariah Index experienced lower volatility in spite of having similar returns, when compared to its parent index NSE 500. In addition, the Shariah index was found to less sensitive to the COVID-19 deaths and different measurements of overall media news. It however reacted more to the positive news of COVID-19 recoveries compared to its parent index NSE 500. The only aspect in which NSE 500 Shariah is seems to be relatively more vulnerable is the COVID-19 news induced panic. We should however interpret these results with caution, as they represent the one shot relationship between COVID-19 and the two indices for entire study period. Whereas these relationships during period is expected to have substantial amount of heterogeneity owing to rapid changes in all the investors investment horizon, willingness to take risk etc which can be better addressed

by the method which is capable of taking into account such heterogeneous investors behavior and the use of time and frequency method is justified in this case. The elaborated discussion about the method is presented in section 3.

⁵ RavenPack is a data analytics provider in financial services

3. Methodology

We use wavelet analysis to examine the relationship between the returns NSE 500 Shariah Index (and NSE 500 Index) with the COVID-19 cases, deaths and news. The wavelet analysis allows us to decompose the relationship across frequencies and time. It provides a complete picture as the relationship might vary across time and frequency. Further, the phase angle allows to examine the direction of information flows among the series along with the lead-lag relationship.

3.1 Continuous wavelet transform

The continuous wavelet transform allows for complete time-frequency decomposition of data. It is extremely useful to examine the dynamic heterogeneous relationship between two series across time and scale. As the study period had varying levels of impact of COVID-19 for the period, wavelet transform appears to one most suitable method to examine the individual characteristics across the series. It has two dimensions representing the location (u) and scale (s). The localization factor (u) is used to determine the time (t) within the total time-period and scale (s) determines the frequency (f). The scale dimension is an inverse function of frequency, which means low scale implies high frequency of data and high sale represents the low frequency (Tiwari et al., 2015; Huang et al., 2016, and Reboredo et al., 2017). With the help of these the characteristics of the series can envisioned for all possible time- frequency coordinates across the two-dimensional location-scale space.

$$\psi_{u,s} = \frac{1}{\sqrt{s}} \psi\left(\frac{t-u}{s}\right) \quad (1)$$

where $\frac{1}{\sqrt{s}}$ is a normalization constant which ensures that the wavelet possesses unit variance (Reboredo et al., 2017).

The Heisenberg uncertainty principle predicts a trade-off between the localization of the time and scale. The Morlet wavelet with $\omega_0=6$ is employed for the purpose of extracting the features of the model, as it provides an excellent balance between time and frequency localisations.

$$\psi_{0(\eta)} = \pi^{-\frac{1}{4}} e^{i\omega_0\eta} e^{-\frac{1}{2}\eta^2} \quad (2)$$

The projection of the original time series onto the specific wavelet $\psi(\cdot)$ could produce the continuous wavelet transform. The specific wavelet, which is characterized by the location and scale parameters, could be expressed as:

$$W_{X(u,s)} \equiv \int_{-\infty}^{\infty} \frac{1}{\sqrt{s}} \psi\left(\frac{t-u}{s}\right) dt \quad (3)$$

The wavelet power spectrum, presented as the square of the amplitude $|W_x|^2$, indicates that the variance distribution of diverse frequency components of the original time series change over time — a large variance corresponding to a large power.

The wavelet coherence has similar characteristics to the traditional linear correlation but differs in the sense that it presents the correlation between two-time series in the joint time-frequency domain. The wavelet coherence is calculated based on the cross-wavelet transform and wavelet power spectrum of each time series. The cross-wavelet transform of the two time series $x(t)$ and $y(t)$ is defined as $W_n^{xy} = W_n^x W_n^{y*}$, for which W_n^{y*} is the complex conjugation of the wavelet transform of time series $y(t)$. Moreover, the cross-wavelet power is specified as $|W_n^{xy}|$ to describe the covariance of the two time series in the joint-frequency domain. Therefore, the wavelet coherence can be computed as follows:

$$R(x, y) = \frac{|S(s^{-1}W_n^{xy})|}{S(s^{-1}|W_n^x|^{\frac{1}{2}})S(s^{-1}|W_n^y|^{\frac{1}{2}})} \quad (4)$$

where S implies a smoothing process in the time and frequency simultaneously (Tiwari et al., 2015; Huang et al., 2016 and Reboredo et al., 2017).

However, the CWT suffers from edge effects due to the fact that wavelets are not completely localized in time. Thus, to address this issue, we use the cone of influence (COI). Outside the COI, the edge effects are predominant and can distort the result. Also, the phase relationship is depicted using circular mean of the phase for some of the regions that have statistical significance higher than 5% and are outside the COI. The circular mean for a set of angles $(\Phi_t, t=1, 2, \dots, n)$ is given as;

$$\bar{\Phi}_m = \arg(A, B) \quad (5)$$

where: $A = \sum_{t=1}^n \cos(\Phi_t)$ and $B = \sum_{t=1}^n \sin(\Phi_t)$.

3.3 Phase difference angle

The wavelet coherency allows us to estimate the strength of the correlation between two series, but it cannot establish the lead-lag relationship between them. This can be achieved by using the phase-difference. If the phase difference between two series is zero then there are no lead and lag relationship as both the series moves simultaneously. Adopting the methodology of Aguirar-Conraria and Soares (2011), we define the phase difference between the index and COVID-19 parameters as

$\theta_{I,C}$. If, $\theta_{I,C} \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$, the index returns and the COVID-19 parameters are in phase or sync with

positive correlation. If, $\theta_{I,C} \in \left[\frac{\pi}{2}, -\frac{\pi}{2}\right]$, the index returns and the COVID-19 parameters are out of

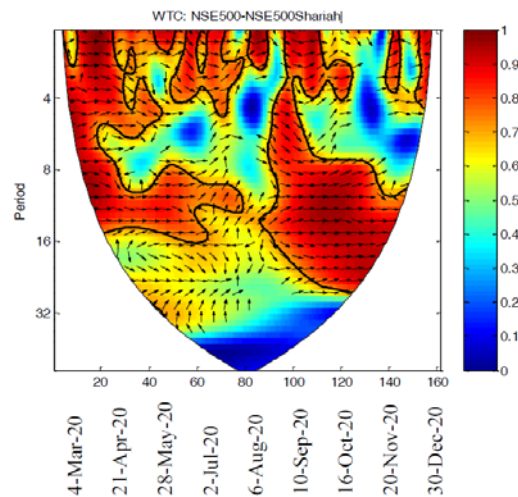
phase with negative correlation. The index returns leads COVID-19 parameters if $\theta_{I,C} \in \left[\frac{\pi}{2}, \pi\right]$ or

$\theta_{I,C} \in \left[-\frac{\pi}{2}, 0\right]$, whereas the COVID-19 parameters leads the index returns if $\theta_{I,C} \in \left[0, \frac{\pi}{2}\right]$ or

$\theta_{I,C} \in \left[-\pi, -\frac{\pi}{2}\right]$.

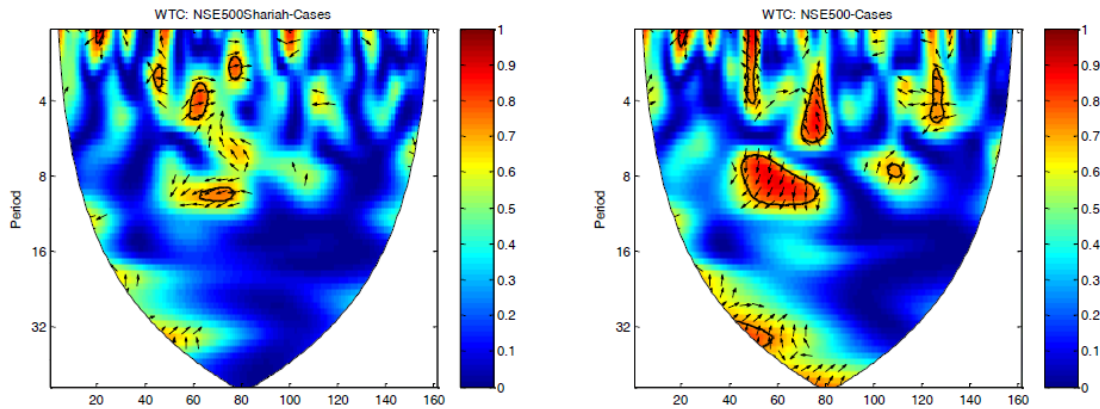
4. Results

4.1. NSE 500 and NSE 500 Shariah

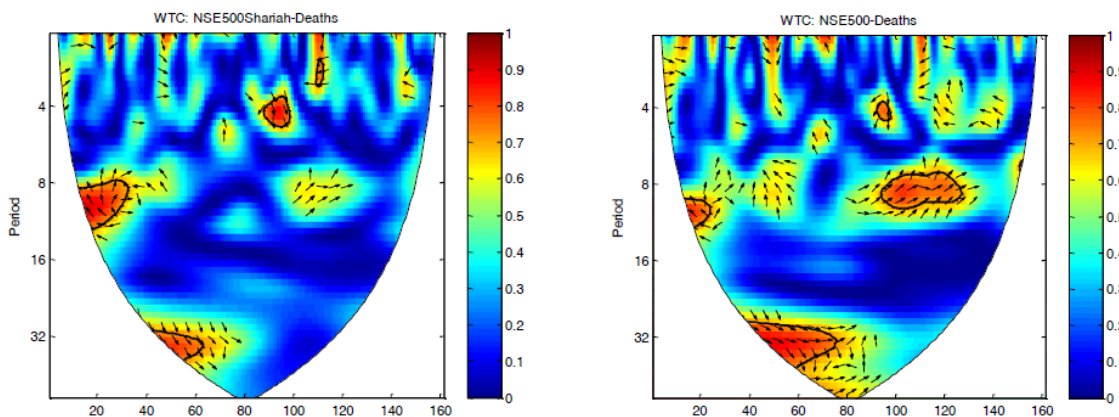


The parent index NSE 500 and its Shariah counterpart NSE 500 Shariah are closely related to each other as evident from the significant coherence among themselves for most of the period and across low and mid frequencies. Although it is the temporary disconnect between them that demonstrate that there are diversification benefits with the shariah compliant investments.

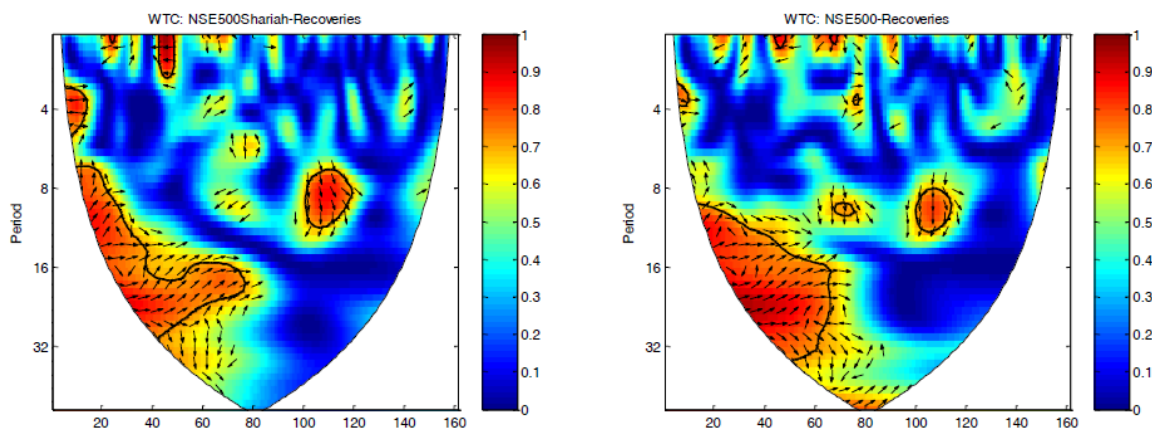
4.2. COVID-19 and shariah compliance



Higher impact of COVID cases on the parent index implies non-shariah compliant firms suffered more due to the pandemic. Index leading with positive and negative association implies the investors were anticipating impact of COVID-19 on economy and taking both long and short positions. The mixed news was creating both positive and negative reactions from the markets.



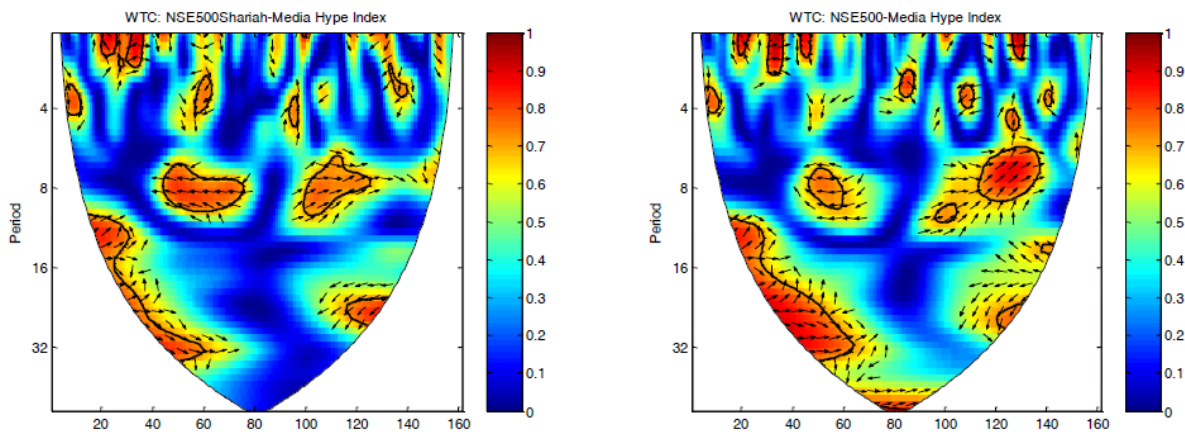
The impact of increase in COVID-19 deaths on the indices demonstrates more prominent impact of negative news on the parent index implying higher vulnerability of the non-shariah compliant stocks. The asymmetry was observed not only to actual COVID deaths, but the parent index reacted strongly even to the anticipations of deaths as NSE 500 led COVID deaths during mid-frequency end period. Interestingly the association during this period is significant only for the parent index.



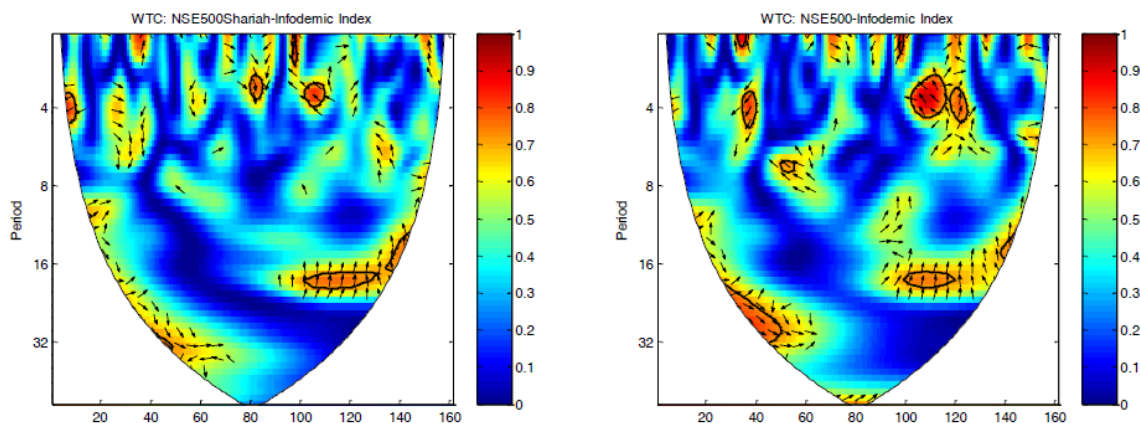
There is an overall higher response of the shariah-compliant firms to the positive news related to COVID-19, i.e. number of cases recovered. Although the negative association between the positive news

and index returns at some frequencies is surprising and perhaps can be attributed to the fact that the impact of the negative news related to COVID-19 (deaths) cannot be eliminated as both occurred on during the same period.

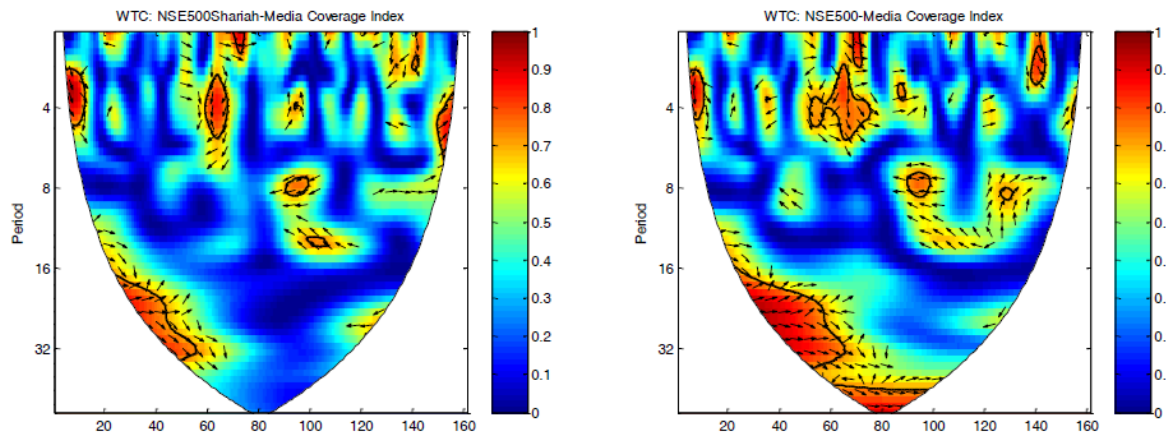
4.3. COVID-19 news and shariah compliance



Investors are sensitive towards the media news during crisis (Carlini, et al. (2020), Dang, et al. (2020)). Hence along with the increase in case, deaths and recoveries, we also examined the impact of media news related to COVID-19 on the returns of the two indices. The overall impact of media hype, which measures proportion of COVID-19 news to total news, is more prominent in case of parent index, although episodic pronounced impact is visible on shariah index in beginning period-high frequency and mid period-mid frequency. During the second half of the year huge speculation is visible as both the indices are leading the media-hype, although the association is negative suggesting that most of time negative news about the pandemic was released in the market.

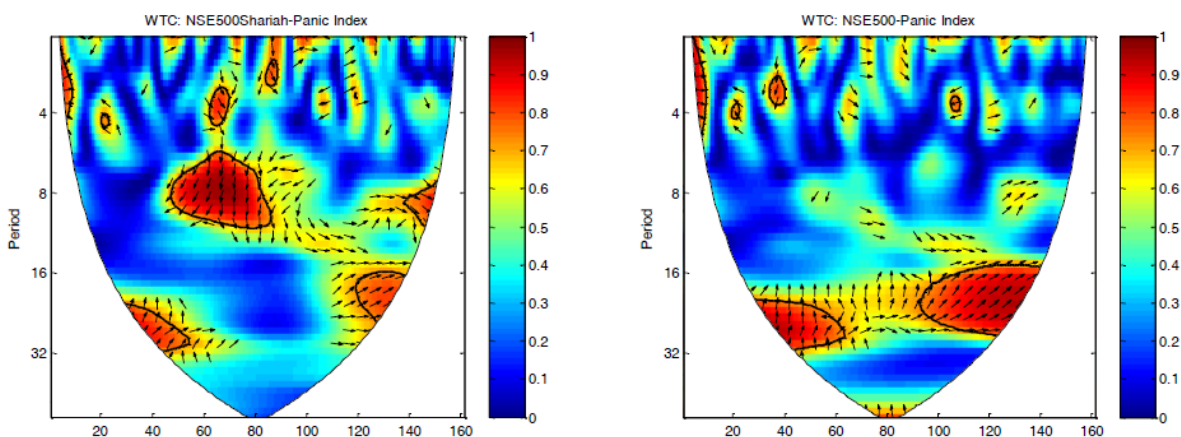


Infodemic Index measure the proportion of entities (ex. WHO) in news that were associated with COVID-19. Both the indices seems to be almost unaffected by the infodemic index, implying that eventhough there is significant impact of COVID-19 related news on the stock market, the impact of the involvement of various entities is almost negligible. The impact is slightly higher in case of parent index, once again implying the vulnerability of the non-shariah firms.



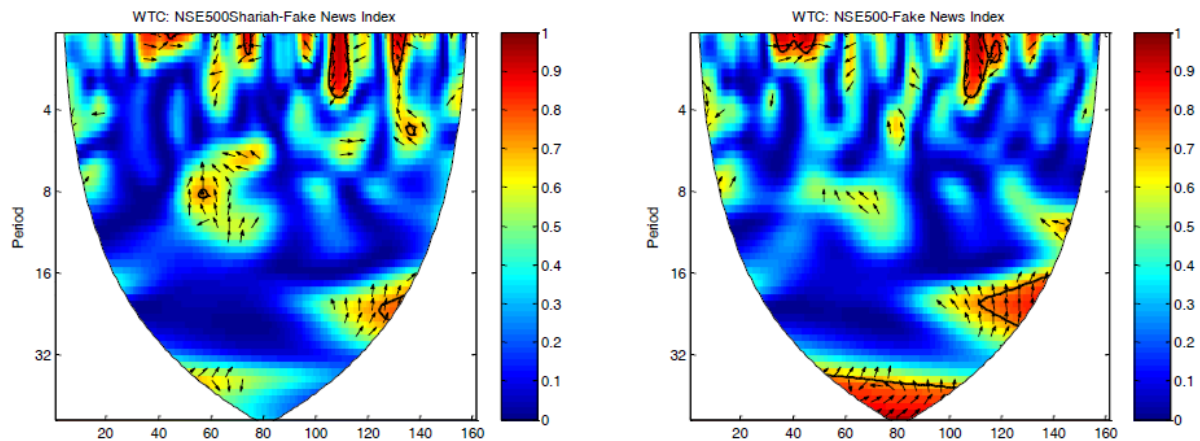
Media coverage index signifies the proportion of news sources that were engaged in COVID-19 related news. The result confirms the previous results that non-shariah firms were impacted more through the COVID-19 related news. Especially, the difference is clearly evident in beginning period-low frequency and mid period-high frequency.

4.4. COVID-19 negative news and shariah compliance



The news related indices in the last section were unable to differentiate between the negative and positive news. Hence we used panic index which signifies the proportion of the panic and hysteria related to COVID-19 in the total news. The results are interesting as both indices exhibit strong associations but two different sets of scale and time. Impact on shariah compliant firms was higher during mid period-mid frequency whereas it was more prominent for non-shariah compliant firms for the low frequencies. Investors seem to recurrently speculate as the indices leads the panic over majority of the periods and frequencies.

4.5. COVID-19 fake news and shariah compliance



Lastly, even though the media was buzzing with COVID-19 related news, not all of it eventually turned out to be true. The results of the study are supportive of our hypotheses that Shariah compliance brings in higher resilience in to the investments; specifically, during crisis. The NSE-500 Shariah Index was impacted less due to COVID-19 cases and deaths compared to its parent index, NSE 500. Also the impact of COVID-19 news on the two indices are examined using a series of indices related to COVID-19 news, more particular negative news index and panic index. The results highlight that the negative impact of COVID-19 news on the Shariah complaint firms are less pronounced and short lived compared to non-Shariah complaint firms. The results of our study support the finding in the literature, especially studies like, Ahmed (2009), Ariffin et al. (2009), Dewi and Ferdian (2009), Altarawneh and Lucas (2012), Arouri et al. (2013), Javad and Aliasghar (2016) and Tahir and Ibrahim (2020).

5. Conclusion

The pandemic COVID-19 brought unprecedented levels of uncertainty and unrest in the stock markets. One of the major concern for investors, management and regulators alike was the systemic risk unleashed across markets and asset classes. The crisis period in general are marked by heightened connectedness within and across asset classes and economies, making it extremely difficult to design successful diversification strategies and the present pandemic was no exception. In this situation, a strong need was felt to explore the diversification benefits of shariah complaint stocks which are expected to be more resilient during tough times due to their core principles embedded in ethical and moral values, greater sustainability and social responsibility. Also shariah complaint firms are more closely monitored and controlled which checks on the excessive risk and speculation. The comparative analysis of the linkages of COVID-19 and performance of NSE 500 Shariah and its parent index NSE 500 supported our hypotheses that investment into shariah-complaint firms are better prepared to tackle such crisis and offers superior diversification benefits compared to non-shariah complaint firms. The results makes us to ponder, if perhaps the best corrective behavior humans can demonstrate to calm the nature's fury in the form of this pandemic towards human greed is to follow the ethics and moral in all walks of life, including investments.

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Using ARDL Approach to investigate the relationship between corporate bond market liquidity and economic growth in India

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Abstract

Bond Market is an integral component of financial markets. The deep, robust, vibrant and stable bond market acts an alternative route for bank financing & equity market. For long term economic growth of the country, the bond market plays a crucial role in mitigating the risk of financial crisis. The current paper examines the long run relationship between bond market liquidity and economic growth of India for a period of 2007-2020. Using Auto regressive distributed lag (ARDL) and granger causality between bond market liquidity indicators and economic growth, the presence of long run relationship and uni-directional causality is observed. The implication of study is that more the number of trades and volume of trade in corporate bond market, more will be the economic growth.

Key words: economic growth, bond market liquidity, long run relationship, trade volume, trade value

Introduction

Financial system is a complex of institutions and mechanisms which facilitates the transfer of funds from surplus units to deficit units. It allows efficient allocation of resources not only to large AAA rated firms and Government but also to less known sub-investment grade firms. The development of financial system leads to capital formation which in turn supports economic development (Khan, 2019) and thus is an ingredient of producing high growth economies (Mishkin, 2006). They are also significant in transmitting the effectiveness of monetary policy impulses. Therefore, integrated and well developed financial markets augment the response of monetary policy transmission efficiently to short term and long term rates in the money, credit and bond markets (Mohan, 2007). All the markets are interrelated and interdependent on each other, the growth in debt market complements equity market (Rangarajan, 1997). Every market has to be developed for the overall growth of economy (Reddy, 1997). The financial system and financial markets of India are underdeveloped and less diversified (Akram & Das, 2015, Patil, 2005). However, the equity and derivative markets in India have good liquidity, high trading volumes, and market infrastructure at par with international standards (Sophasienphong et al., 2008). Also, the stock market capitalization contributes to economic growth and a bi-directional causal relationship was established between economic growth and real market capitalization by Deb & Mukherjee (2008). As far as debt market is concerned, Debt to GDP ratio in India is 72.2% in FY 2020, out of which 3.5% of GDP belongs to external debt and 27% GDP goes to state government and the rest belongs to central government (Nayak, 2020), whereas, corporate debt to GDP was 17.16% in June 2017 as compared to 123% in the USA (Ganguly (2019). This indicates that corporate debt market lacks depth in the Indian financial markets. There are various supply sides, demand side, regulatory and infrastructural issues, hindering the growth of corporate bond market, however, the efforts have been taken to boost the same. Developed countries are marked by the strong and developed financial system, where all components of financial system are well functioning with significant contribution to economic growth. Stock, bond and derivative market exert a strong influence on economic development (Gandhi, 2014). Most of the literature in finance relates economic growth particularly with either development of stock market or with banking sector. There is a dearth of studies related to establishing a relationship between economic growth and bond market development. However, some of the studies conducted, either used the data for G-20 countries

(Pradhan et al. 2015), or by taking other group of Asian countries, where India might be included and Latin America (Fink et al. 2003, Eichengreen 2004) and tried establishing a relationship between bond market development and economic growth. To the best of our knowledge, we have not come across any separate independent study, which has established the relationship between Indian corporate bond market and economic growth of India, therefore, the present study adds to the literature by examining their relationship. Regulators, Policy makers and the Government of India have been taking various measures to deepen the corporate bond market since several decades. It has now become a matter of discussion for academicians and researchers too, as it is an integral component of financial system which not only complements equity market at distressed times but to banking sector as well (Reddy, 2002) by offloading the burden of Non Performing assets from banks. Corporate bond market has a dynamic role in enhancing and managing the portfolios of insurance companies, pension funds, real investment trusts and thus contributing to the economic growth. Therefore, if the corporate bond market is liquid enough with increased depth and vibrancy, it can add to economic growth. The present study attempts to establish a relationship between the liquidity of corporate bond market and economic growth and tries to understand if enhanced liquidity and more frequent availability of data in corporate bond market can increase the gross domestic product.

Earlier work on relationship between Bond market and economic growth

Financial development increases both the quantity and quality of capital and hence follows economic growth (Robinson (1952). However, there are different schools of thought on the relationship and direction of causality between financial development & economic growth. Some argue that financial development leads to economic growth supporting supply-lead approach (Schumpeter (1911), some emphasizes on uni-directional causality running from economic growth to financial development favoring demand-led approach (Zang & Kim (2007)). Some others observed the bi-directional causality between the two (Apergis et al. (2007)). It has been seen that there is a close tie between financial and economic development for a few countries (Goldsmith (1969) and Mckinnon (1973)). Greenwood & Jovanovic (1990) presented a paradigm in which both, the extent of financial intermediation and the rate of economic growth were endogenously determined and inextricably linked to each other. They argues that financial system comprising a robust structure of financial market, financial institutions, financial services and financial instruments; altogether promotes growth and higher rate of return on capital. King & Levine (1993), presented a cross country evidence which was consistent with Schumpeter's view and concluded that financial system could promote economic growth. The relationship of bond market within the framework of financial development with economic development is well documented in several literatures such as (Eichengreen (2004), Goswami & Sharma (2011)). Fink, Haiss & Hristoforova (2003) examined the relationship between the development of the aggregate bond markets and real GDP in 13 highly developed economies over the 1950 to 2000 period and found uni-directional causal relationship supporting the supply-leading approach in the USA, UK, Switzerland, Germany, Austria, Netherlands and Spain; whereas, in case of Japan, Finland, and Italy, the interdependence between bond market capitalization growth and real output growth was observed. The domestic bond market helps in avoiding double mismatches of currency and maturity (Reddy, 2002). Eichengreen (2004) documented a positive correlation between the bond market capitalization and other variables such as larger country size, stronger institutions, less volatile exchange rates, and more competitive banking sectors and this relationship was responsible for slow development of Asian bond market. However, Burger & Warnock (2006), analyzed the development of 49 local bond markets and found that the policies and laws also affect the bond market: countries with stable inflation rates and strong creditor rights have more developed local bond markets and rely less on foreign currency denominated bonds. Emerging

economies might improve local debt market by improving policy performance and strengthening institutions which could reduce their currency mismatch, further reducing the likelihood of future crisis; and need not inherently dependent on foreign currency debt. Goswami and Sharma (2011) reported that the debt market is underdeveloped in Asian countries because such economies heavily depend upon the banking system. However, a well-diversified economy with balanced distribution of bank lending and corporate bonds is less susceptible to financial crisis (Luengnaruemitchai and Ong (2005)). Pradhan et al. (2015) examined the long run relationship of economic growth and bond market development using vector autoregressive model (VAR) for G-20 countries and found the presence of both unidirectional and bidirectional causality between the regressor and regressand. The current study will help to know the relationship of Indian corporate bond market with the economic growth, thus adding to the literature.

Research Methodology

The proxy variables measuring bond market liquidity such as number of trades (TNT) and trade value (value of total trades taken place in corporate bond market, (TT)) are taken as independent variables, whereas GDP, an indicator for economic growth is taken as a dependent variable. For this, the analysis is performed on the two types of data set. The frequency of one set of data is annual and quarterly data is collected for another set of data. Secondary data is collected from the official website of NSE, for set „A“ having a period of 8 years – from 2010-11 to 2018 and for set „B“ having a period of 2007-08 Q1 to 2019-20 Q4. The Historical values of GDP are collected from database on Indian economy by Reserve bank of India. In order to use any cointegration test, the order of integration of variables must be known and therefore Preliminary test of stationarity was performed using ADF test on both data sets.

Augmented Dickey Fuller Test

This test is applied to check unit root. All the variables have been transformed into natural logarithm and it is found that GDP is stationary at level, but other two variables are not (Refer Table 1.1). The similar results are obtained for quarterly frequency (Refer Table 1.2). Hence, the best co-integration model for mixed order of integration is ARDL bound testing cointegration model for both types of data set.

Table 1.1 ADF Unit Root Test for Annual frequency

| Variables | No Trend | | Trend | | Integration Status |
|-----------|----------|---------------|---------|---------------|--------------------|
| | (Level) | (First Diff.) | (Level) | (First Diff.) | |
| LGDP | -3.71** | --- | -2.64 | -2.60 | I(0) |
| LTNT | -1.65 | -3.70** | -1.96 | -4.52* | I(1) |
| LTT | -0.49 | -3.27* | -2.51 | -2.81 | I(1) |

***, **, and * denote 1% , 5% and 10% level of significance, respectively

Table 1.2 ADF Unit Root Test for Quarterly Frequency

| At Level | | | | | | | Without Constant & Trend | |
|----------|---------------|--------|-----------------------|-------|-------------|-------|--------------------------|--|
| | With Constant | | With Constant & Trend | | | | | |
| | t-Statistic | Prob. | t-Statistic | Prob. | t-Statistic | Prob. | | |
| GDP | -3.23 | 0.02** | -3.23 | 0.09* | -0.89 | 0.33 | n0 | |
| TNT | 0.46 | 0.98 | -2.48 | 0.33 | 1.80 | 0.98 | n0 | |

| | | | | | | | | | |
|----------------------------|----------------------|--------------|----|----------------------------------|--------------|----|-------------------------------------|--------------|----|
| TT | 0.43 | 0.98 | n0 | -2.28 | 0.44 | n0 | 1.79 | 0.98 | n0 |
| At First Difference | | | | | | | | | |
| | With Constant | | | With Constant & Trend | | | Without Constant & Trend | | |
| | t-Statistic | Prob. | | t-Statistic | Prob. | | t-Statistic | Prob. | |
| d(GDP) | -5.92 | 0*** | | -6.27 | 0*** | | -4.90 | 0*** | |
| d(TNT) | -7.47 | 0*** | | -7.74 | 0*** | | -7.02 | 0*** | |
| d(TT) | -5.88 | 0*** | | -6.00 | 0*** | | -5.45 | 0*** | |

***, **, and * denote 1% , 5% and 10% level of significance, respectively

ARDL Bound Test Cointegration for Annual frequency

The following equations are formed under ARDL model:

Total Number of trades of Bonds and Economic Growth

$$\Delta LGDP_t = \alpha_1 + \sum_{i=1}^n \delta_{1i} \Delta LGDP_{t-i} + \sum_{i=0}^n \delta_{2i} \Delta LTNT_{t-i} + \delta_3 LGDP_{t-1} + \delta_4 LTNT_{t-1} + \varepsilon_t \dots (1)$$

$$\Delta LTNT_t = \alpha_2 + \sum_{i=1}^n \vartheta_{1i} \Delta LTNT_{t-i} + \sum_{i=0}^n \vartheta_{2i} \Delta LGDP_{t-i} + \vartheta_3 LTNT_{t-1} + \vartheta_4 LGDP_{t-1} + \varepsilon_t \dots (2)$$

Total Traded Values of Bonds and Economic Growth

$$\Delta LGDP_t = \alpha_3 + \sum_{i=1}^n \gamma_{1i} \Delta LGDP_{t-i} + \sum_{i=0}^n \gamma_{2i} \Delta LTT_{t-i} + \gamma_3 LGDP_{t-1} + \gamma_4 LTT_{t-1} + \varepsilon_t \dots (3)$$

$$\Delta LTT_t = \alpha_4 + \sum_{i=1}^n \varphi_{1i} \Delta LTT_{t-i} + \sum_{i=0}^n \varphi_{2i} \Delta LGDP_{t-i} + \varphi_3 LTT_{t-1} + \varphi_4 LGDP_{t-1} + \varepsilon_t \dots (4)$$

Where: LGDP = log of GDP; LTNT = log of total number of trades; LTT = log of total traded values in billion rupees; ε_t = white noise error term; Δ = first difference operator.

The ARDL bounds testing utilize the joint F-statistic or Wald statistic for testing log-run relation. “The asymptotic distribution of the F-statistics is non-standard under the null hypothesis of no cointegration between examined variables (Odhiambo, 2010). The null hypothesis of no cointegration among the

variables in equation (1) is (Ho: $\delta_3 = \delta_4 = 0$) against the alternative hypothesis (H1: $\delta_3 \neq \delta_4 \neq 0$). In

equation 2, the null hypothesis of no cointegration is (Ho: $\vartheta_3 = \vartheta_4 = 0$) against the alternative

hypothesis (H1: $\vartheta_3 \neq \vartheta_4 \neq 0$). In equation 3, the null hypothesis of no cointegration is (Ho: $\gamma_3 = \gamma_4 =$

0) against the alternative hypothesis (H1: $\gamma_3 \neq \gamma_4 \neq 0$). In equation 4, the null hypothesis of no

cointegration is (Ho: $\varphi_3 = \varphi_4 = 0$) against the alternative hypothesis (H1: $\varphi_3 \neq \varphi_4 \neq 0$). Pesaran and

Pesaran (1997) and Pesaran et al. (2001) report “two sets of critical values for a given significance level. One set of critical values assumes that all variables included in the ARDL model are I(0), while the other is calculated on the assumption that the variables are I(1). If the computed test statistic exceeds the upper critical bounds value, then the Ho hypothesis is rejected. If the F-statistic falls into the bounds then the cointegration test becomes inconclusive. If the F-statistic

is lower than the lower bounds value, then the null hypothesis of no cointegration cannot be rejected” (Odhiambo, 2010).

Table 1.3 ARDL Bound Test Cointegration

| Model 1 – Total Number of Trades of Bonds and Economic Growth | | | Critical Values | | |
|---|-------------|------------------|-----------------|------|------|
| Dependent variable | Function | F-test statistic | Sig. | (0) | I(1) |
| LGDP | LTNT (LGDP) | 10.285881*** | 10% | 4.05 | 4.49 |
| LTNT | LGDP (LTNT) | 1.686741 | 5% | 4.68 | 5.15 |
| Model 2 – Total Traded Values of Bonds and Economic Growth | | | Critical Values | | |
| LGDP | LTT (LGDP) | 13.329*** | 2.5% | 5.3 | 5.83 |
| LTT | LGDP (LTT) | 1.650 | 1% | 6.1 | 6.73 |

Note: Pesaran et al (2001), p. 300, Table CI(ii)Case II and *** denotes 1% level of significance

ARDL Bound Test shows that there is a cointegrating relationship between GDP and TNT and also between GDP & TT when GDP is the dependent variable, but the reverse is not true (Refer Table 1.3).

Error Correction Model and robustness Test

To check short run relationship between the select variables, error correction model and robustness test is applied. Since there is cointegration between GDP and TT and between GDP and TNT, so short run relationships will be explored for models 1 and 3 only. Table 1.4 below present results where it can be seen that the ECT(-1) is negative and significant in both cases.

Table 1.4 Error Correction Models and Robustness Tests

| | LTNT (LGDP) | LGDP (LTNT) | LTT (LGDP) | LGDP (LTT) |
|--|------------------|---------------|-----------------|----------------|
| | 1 | 2 | 3 | 4 |
| CointEq(-1)* | -0.240(-7.17)*** | -1.204(2.06)* | -0.307(-8.16)** | -1.346(-2.87)* |
| Normality Test | | | | |
| Jarque-Bera | 0.84 (0.656) | 0.239(0.887) | 3.003(0.2227) | 0.635(0.727) |
| Breusch-Godfrey Serial Correlation LM Test: | | | | |
| F-statistic | 2.840654(0.3869) | 0.842(0.610) | 42.6(0.1070) | 4.02(0.33) |
| Heteroskedasticity Test, Breusch-Pagan-Godfrey: | | | | |
| F-statistic | 0.016854(0.9964) | 1.3855(0.397) | 0.150(0.922) | 1.103(0.46) |

***, **, and * denote 1% , 5% and 10% level of significance, respectively

Further, results of Jarque-Bera also confirm that errors in both models are normally distributed because the null of normality in errors hypothesis is not rejected. Serial correlations and heteroscedasticity are also not present in the errors of both models. Breusch-Godfrey Serial Correlation LM Test and the null hypothesis of homoscedasticity in errors is also not rejected for both models, indicating that the errors of both of the models follow the ARDL model's assumptions.

Granger Causality Test

To explore the relationship further, causation has to be identified using Granger causality test. A unidirectional causality is running from GDP to TNT at 10% significance level and also running from GDP to TT (Refer Table 1.5), indicating that higher national income provide required funds to investors to invest in Indian corporate bond market.

Table 1.5 Granger Causality Tests

| Dependent variable: LGDP | | | |
|--------------------------|----------|----|--------|
| Excluded | Chi-sq | df | Prob. |
| LTNT | 0.451621 | 1 | 0.5016 |
| LTT | 0.234139 | 1 | 0.6285 |

ARDL Bound Test Cointegration for Quarterly frequency

Total Number of Trades of Bonds and Economic Growth

$$\Delta GDP_t = \alpha_1 + \sum_{i=1}^n \delta_{1i} \Delta GDP_{t-i} + \sum_{i=0}^n \delta_{2i} \Delta TNT_{t-i} + \delta_3 GDP_{t-1} + \delta_4 TNT_{t-1} + \varepsilon_t \dots (1)$$

$$\Delta TNT_t = \alpha_2 + \sum_{i=1}^n \vartheta_{1i} \Delta TNT_{t-i} + \sum_{i=0}^n \vartheta_{2i} \Delta GDP_{t-i} + \vartheta_3 TNT_{t-1} + \vartheta_4 GDP_{t-1} + \varepsilon_t \dots (2)$$

Total Traded Values of Bonds and Economic Growth

$$\Delta GDP_t = \alpha_3 + \sum_{i=1}^n \gamma_{1i} \Delta GDP_{t-i} + \sum_{i=0}^n \gamma_{2i} \Delta TT_{t-i} + \gamma_3 GDP_{t-1} + \gamma_4 TT_{t-1} + \varepsilon_t \dots (3)$$

$$\Delta TT_t = \alpha_4 + \sum_{i=1}^n \varphi_{1i} \Delta TT_{t-i} + \sum_{i=0}^n \varphi_{2i} \Delta GDP_{t-i} + \varphi_3 TT_{t-1} + \varphi_4 GDP_{t-1} + \varepsilon_t \dots (4)$$

Where: GDP = Indian GDP growth rates; TNT = total number of trades of bonds on BSE and NSE stock exchanges from 2007Q1-2019Q4; TT = Total Traded values of bonds in billion rupees traded on BSE and NSE stock exchanges from 2007Q1-2019Q4; ε_t = white noise error term; Δ = first difference operator.

Table 1.7 ARDL Bound Test Cointegration

| Model 1 – Total Number of Trades of Bonds and Economic Growth | | | CRITICAL VALUES | Sig. | I(0) | I(1) |
|---|--------------|------------------|-----------------|------|------|------|
| Dependent variable | Function | F-test statistic | | | | |
| GDP | GDP = f(TNT) | 11.161*** | | 10% | 3.02 | 3.51 |
| TNT | TNT = f(GDP) | 1.980 | | 5% | 3.62 | 4.16 |
| Model 2 – Total Traded Values of Bonds and Economic Growth | | | | 2.5% | 5.3 | 5.83 |
| GDP | GDP = f(TT) | 3.865* | | 1% | 4.94 | 5.58 |
| TT | TT = f(GDP) | 1.1685 | | | | |

Note: Pesaran et al (2001), p. 300, Table CI(ii) Case II and *** denotes 1% level of significance

RDL Bound test results shows that there is a cointegrating relationship between GDP and TNT and also between GDP and TT when GDP is the dependent variable, however, no cointegrating relationship exist between the two series when TNT become the dependent variable (Refer Table 1.7). The same holds for the long-run relationship between GDP and TT. That is, a cointegrating relationship is noticed when GDP is the dependent variable; however, no

cointegrating relationship exists between the two series when TT become the dependent variable.

Error Correction Models and robustness Tests for Quarterly frequency

The ECT(-1) is negative and significant in both cases (Refer Table 1.8).

Table 1.8 Error Correction Models and Robustness Tests

| | GDP (TNT) | GDP(TT) |
|---|-------------------------|-------------------------|
| | 1 | 2 |
| CointEq(-1)* | -0.667(-5.92)*** | -0.383(-2.74)*** |
| R-squared | 0.4608 | 0.3873 |
| Normality Test | | |
| Jarque-Bera | 2.447 (0.2941) | 1.412(0.4934) |
| Breusch-Godfrey Serial Correlation LM Test: | | |
| F-statistic | 6.5122 (0.1640) | 3.06(0.5477) |
| Heteroskedasticity Test Breusch-Pagan-Godfrey: | | |
| F-statistic | 8.6088(0.1389) | 12.351(0.0986) |

***, **, and * denote 1%, 5% and 10% level of significance, respectively

R-squared of the models stand at 46.08% and 38.73% as shown above. Further, results of Jarque-Bera also confirm that error in both models is normally distributed because the null of normality in errors hypothesis is not rejected. Serial correlations and heteroscedasticity are also not present in the errors of both models. Further, results indicate that the errors of both of the models follow the ARDL model's assumptions.

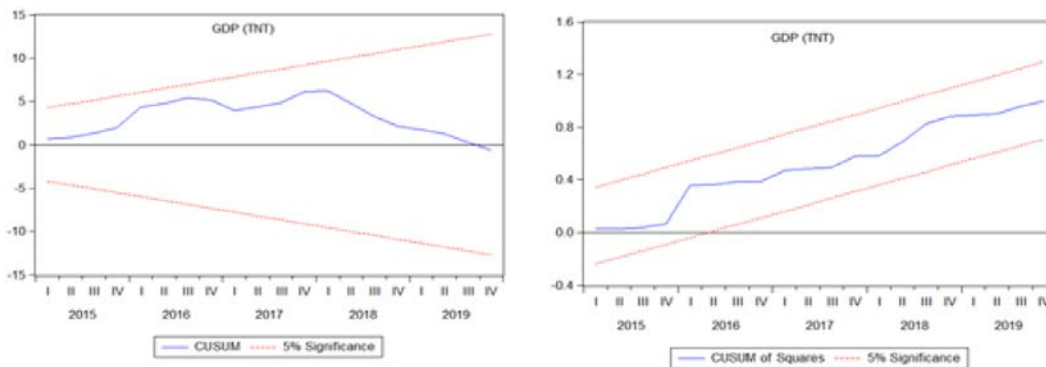
Cumulative sum (CUSUM) and CUSUM of squares (CUSUMSQ) TESTS

Further, to investigate the stability of the models above, Cumulative Sum of Squares and Cumulative Squared Sum of Residual is also plotted below to show that the cointegrating relationships between all the variables are stable. Since a structural break was identified in both models when GDP was a dependent variable at 2014Q4 and 2016Q2 using CUSUM test and CUSUM Squares test, a dummy variable was added to both ARDL models calibrated above. The following stability test is done at 5% significance level.

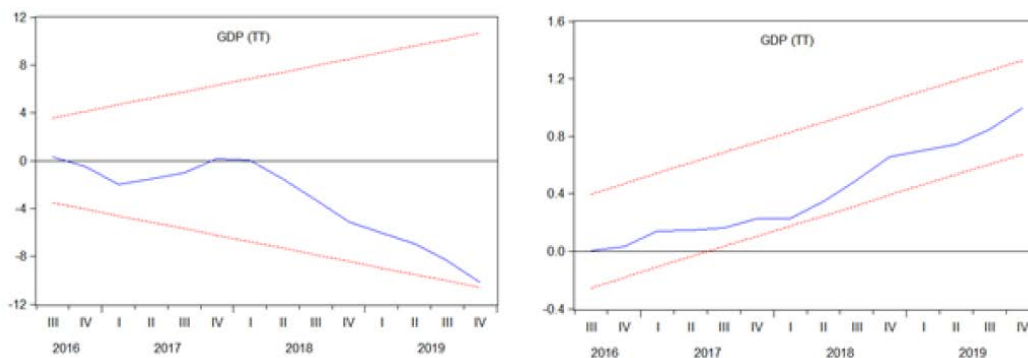
Cumulative sum (CUSUM) and CUSUM of squares (CUSUMSQ) TESTS

CUSUM and CUSUMSQ tested the models' structural stability testing long-run relation between GDP and TNT and as well as of GDP and TT. Since recursive residuals of both CUSUM test and CUSUM of squares do not deviate from the expected value of zero and remain within symmetric confidence lines above and below the zero value at 5% significance level, it is concluded the coefficient vector β is constant in every quarter after 2014Q4 for GDP and TNT (Refer Figure 1.1), whereas it is constant after 2016Q2 in the sample period for GDP & TT. However, it does not seem to hold because CUMSUM test plot also shows that the line may cross the boundary after 2019Q4 (Refer Figure 1.2).

Figure 1.1: GDP(TNT)



1.2: GDP (TT)



Figure

Granger Causality Test

Causal relationships running from TT and TNT to GDP in India at 5% and 10% levels of significance is observed (Refer Table 1.9). It indicates that higher the volumes and values of trades of bond market, the higher will be the national income. That is, a more developed bond market will help increase the national income in India. The result is in line with Pradhan et al. (2015).

Table 1.9 Granger Causality Tests

| Dependent variable: GDP | | | |
|-------------------------|----------|----|--------|
| Excluded | Chi-sq | df | Prob. |
| D(TT) | 2.737322 | 1 | 0.0980 |
| D(TNT) | 3.918590 | 1 | 0.0478 |
| All | 3.926076 | 2 | 0.1404 |

Conclusion

The present study investigated the relationship between the liquidity of the corporate bond and economic growth by using ARDL model and the study indicated that there is a long run relationship between the bond market liquidity and economic growth. However, the contradictory results were obtained with two different data sets. With Annual frequency, uni-direction relationship is found running from GDP to Bond liquidity, whereas, the results from quarterly frequency also indicate the uni-direction, but flowing from Bond liquidity to GDP.

Hence, the policy makers should draw their attention on enhancing the liquidity of the corporate bond market. More meaningful results can be obtained, if data is available either monthly or fortnightly in future.

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Mixed Methods Research: A Case Study on Community Development from India

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Abstract

Based on the theoretical framework integrating the cathedral and bazaar metaphor of Eric Raymond with mixed methods research (MMR), we examine the process of combining qualitative and quantitative methods in a field-based community development study. In so doing, this article describes the bazaar approach to qualitative exploratory, and the cathedral approach to quantitative survey and integration of findings phases. We conclude by proposing contingency approach- an agile approach which enables dynamic movement along the cathedral-bazaar continuum. Furthermore, it seeks to advance MMR literature by presenting key characteristics of this approach. Finally we present how this approach can be used by MMR scholars from different disciplines and contexts.

Keywords: Contingency approach, mixed methods research, community development

Introduction

In recent years, the use of qualitative and quantitative methods has gained momentum in social science research. Traditionally, Appreciative Inquiry (AI) has mostly used qualitative (Jones, & Masika, 2021), sometimes quantitative (Jones, 1998), or both methods (Thibodeau, 2011), but there is a paucity of community development research using both qualitative and quantitative methods to study the same phenomenon. Hence this paper employs mixed methods research (MMR) to maximise the benefits of both the methods and minimise their challenges. Qualitative methods are often criticised for being anecdotal and difficult to generalise, while quantitative methods are criticised for their lack of depth and understanding (Mohr, 1982; Jick, 1979). Researchers have thus proposed mixed methods for better research results as combining overcomes the drawbacks of one and strengthen the benefits of the other (Hurmerinta-Peltonmäki and Nummela, 2006). MMR is the integration of the two methods, quantitative- dominated by the positivist paradigm, and qualitative- dominated by the constructivist paradigm (Venkatesh, Brown and Bala, 2013). Despite the arguments of incompatibility of the two methods (Teddlie and Tashakkori, 2003) researchers have argued that mixed methods make it possible to generate “thick” data in a way that survey methodology does not allow, yet at the same time, it makes it possible to check for generalisation in a way that most qualitative methods do not (Langley, 1999). While the process of combining these two paradigms in the same study is challenging (Foss and Ellefsen, 2002), disciplined methodological pluralism have been attempted (Weber, 2004) as seen in some studies (Bamberger, Rao and Woolcock, 2010). Others propose creating new research designs (Creswell, Klassen, Plano Clark, 2011) to suit the context, however what is largely neglected is developing an approach that can support emerging designs in MMR. We propose to fill this gap.

In this field-based empirical MMR in community development, the two research methods are captured by the 'Cathedral and the Bazaar' metaphor of Eric Raymond (1999) who describes the fundamental differences between the proprietary computer code written by in-house developers and protected by copyright law as the cathedral. While the bazaar approach embodies the Open Source Software (OSS) decentralized coding while inviting many unrelated people to collaboratively work in the development phase. We attach the 'cathedral' approach to the traditional disciplined methodological pluralism (Weber, 2004), a research design plan and implementation, driven solely by the researcher, following structured, strict research guidelines and prescribed research designs. We use 'bazaar' approach to describe a more fluid approach where the research subjects, and other stakeholders from the community participate

in research and influence certain research decisions. We propose an agile approach which creates synergy from the dynamic movement along the cathedral-bazaar continuum and breaks the superiority of positivism and the subordination of constructivist research methodologies. Furthermore, highlighting the key characteristics of the proposed contingency approach, the paper argues that lessons from the open source inform MMR studies in community development. Finally, it presents how this approach could be used by scholars from different disciplines and contexts.

Study of CBOs in Myrada

This study is designed to investigate Myrada's base level community based organisations (CBOs) namely Self-Help Affinity Groups (SAGs) and Watershed Management Associations (WMAs), in Karnataka, India. Based on the traditional cathedral approach, the researcher initially planned to study the impact of AI on sustainable community development through a survey-based quantitative analysis. However, interaction with the community stakeholders not only revealed an interplay of other concepts and theories - capacity building and social capital but with progressively increasing participation, they even became co-creators of this research project. This led to designing it in two phases; an exploratory study followed by a survey.

Agreeing that use of qualitative and quantitative is binary which shadows the diverse methodology within them (Giddings, 2006), henceforth exploratory and survey phases will be used where qualitative and quantitative methods are employed respectively. The goal of the sequential research design is to leverage the findings from the exploratory phase to inform the survey phase and integrate them to add richness to the overall study. Hence both the phases were considered equally important as they made it possible to generate thick data in a way that survey does not, and yet it made it possible to check for generalization in a way that most exploratory studies do not (Langley 1999). Moreover, due to the dynamic nature of the discipline of community development, pragmatism, transformative-emancipatory, and critical realism paradigms formed the basis for this study which considered combining the exploratory and survey phases not so much for validation of data, but for analysing the research problem from multiple perspectives, as well as for gaining wider and deeper understanding of the phenomenon. Moreover, the purpose of this section is to describe the approach to MMR study, hence the focus is on the research approach rather than on results.

Bazaar approach to exploratory phase. It involved interaction between the researcher and the community participants, using transformative-emancipatory paradigm, considered important to give voice to marginalized communities from rural and drought prone areas, and to listen to their narrations and stories. Data was collected for which visits were made to the project location. Thick descriptive data was collected from intense discussions and interactions with the community: focus group discussions (FDGs); in-depth individual interviews; observations of CBO meetings, capacity building training, and interaction of field staff with community members; and records such as books, ledgers of CBOs, and their vision charts.

The short introduction session before the FGDs helped the researcher establish rapport with the community members and paved the way for mutual understanding and transparency considered important to gain their acceptance and participation in the research. Sitting in an *anganwadi*, a temple courtyard or under a large village tree, most of the members were more comfortable discussing and telling stories of their success, hopes and strengths. They were very spontaneous in their interactions as they felt that rather than collecting "data", researcher was talking to them about their experience with AI and how it has impacted their lives. Moreover, using *doordrishti* instead of AI, enabled the researcher to gain their trust and respect their worldview. The

exploratory (bazaar) study, generated rich and raw data in the form of stories and field notes which helped understanding and describing the creation of social capital, capacity building and AI in the community from the perspective of the community members.

Survey phase. As the community members co-designed and co-created the research project in the exploratory phase, the rich data helped the researcher to concretise context specific research questions, formulate hypotheses and develop a questionnaire. The survey study was then designed to test two relationships: First, does CBO capacity building in AI have an impact on sustainable community development? Second, is social capital an intermediate variable, that is, is there a relationship between CBO initiatives and social capital, and between social capital and development?

Survey cathedral approach. Pragmatism paradigm, which considers the research questions as important, thus dictated the researcher to select quantitative methods. The design of survey was carried out in the typical style of building a cathedral, where the researcher, solely planned and implemented the whole process and prepared the blueprint of the research design. A sample of 200 comprising 100 respondents from AI and 100 from non AI CBOs were selected for the study.

Survey bazaar approach. Working with mostly illiterate CBOs, many of these challenges surfaced during the pilot study using a structured questionnaire generally considered easy to administer, when CBO members were asked to mark the statements graded on a five-point scale. Though the questions were in Kannada (the local language) and was self-administered most of the respondents were not able to respond by themselves because either had they never seen a questionnaire, or they could not read. The researcher had to swiftly transition from cathedral to bazaar approach by involving volunteers who were Myrada staff from the local community to help the CBO members respond and minimize respondent bias and error. Further to explain the five-point scale, the ingenious staff quickly stepped out to find five stones of different sizes and placed them from the biggest to the smallest. Further, each statement had to be first read aloud and often explained to enable them to choose the right size of stone.

Survey cathedral approach. Data analysis required that the researcher tests the hypotheses using tools for statistical inference, and as a result overcome the bias of the exploratory-qualitative phase (though this was not the primary objective) considered subjective. Since the aim of this paper is to describe the approach to MMR study in community development and keeping the concern for space for reporting, one-way ANOVA, and the path analysis model were undertaken and the resulting discussions have been kept shorter. Results show that the CBOs that have undergone AI training and those that have not, have shown significant differences in sustainable community development. The investigation also reveals a linear relationship between CBO efforts and holistic development in the area of economic and social development and the status of women. While there was a significant positive causal relationship between social capital and the three development variables,

Cathedral approach to integration phase. In the critical realism paradigm, using a variety of methods, in the cathedral style the researcher knitted the narratives from exploratory study together with the data in numbers from the survey. The purpose of synergising was, then, to go beyond convergence, to develop meta-inferences, and thus have an in-depth understanding of the phenomenon of community development. Hence, the data from the exploratory phase became more meaningful when the researcher interpreted them in light of statistical analysis of survey data. Finally, the process of developing broader generalizations from specific

observations through meta-inferences (Venkatesh et al, 2013), led the researcher to create a framework, illustrating complex relationships and interrelationships among the various constructs of sustainable community development.

Conclusion

The study had set out with the objective to describe the approach used in the MMR study in community development. In the absence of a restrictive a priori classifications and judgment, employing the bazaar approach and the cathedral approaches, sitting in the cathedral with doors open, the researcher-project architect, seamlessly integrated the findings from the exploratory and the survey phases to developed a holistic picture of sustainable community development. This MMR study then proposes an agile approach which enables movement along a continuum with cathedral at one end and bazaar on the other. Unlike cathedrals, no matter how carefully crafted is the research design, given the dynamic and complex nature of the context, in which lies community development, it may require revisiting or going back to the drawing board. In some cases, a MMR study may have a predetermined research design, but new components of the design may evolve as researchers follow up on leads that develop as data are collected and analysed. This calls for researcher creativity, who rather than being limited by the existing designs (Teddlie and Tashakkori, 2006), develop an approach which is more accommodating to more emergent situations beyond the expected and anticipated. This study thus proposes a contingency approach.

If the researcher however, were the sole designer and implementer of the MMR study, she would face the risk of non-cooperation and non-acceptance from the key participants, which could lead to incomplete data and biases. Rather than studies traditionally driven by researcher(s) working in isolation, the contingency approach allows for inputs and feedback from diverse participants. This builds trust and transparency which is crucial for research on community development. Finally, among others, community development research has implications for community development practitioners, hence community engagement could make the MMR study, its findings and recommendations more acceptable to them.

Some researchers suggest a bottom-up approach, wherein the research question drives the approach (Tashakkori, 2006), others suggest a top-down, where the researcher interested in the lives of the marginalised, conducts emancipatory-participatory research (Mertens 2010). Rather than pigeon-holing the MMR paradigm into either dialectical, pragmatism, critical realism, or transformative-emancipatory, rather than representing a dichotomy (Tashakkori, 2006), the contingency approach facilitates multiple paradigms in the same study. While the study relied on scientific conventions of cathedral approach for maximizing the credibility of the findings, it also relied on the feel of the situation emerging from the bazaar exploratory study as reflected in the interpretation process.

MMR literature shows that most mixed methods is employed for one or the other purpose. However, as suggested by Venkatesh et al, 2013, and also empirically shown (Kownatzki, Walter, Floyd, & Lechner, 2013), the contingency approach enables a study with multiple aims-from the developmental, compensation, completeness, expansion, to confirmation. Another challenge in MMR studies is deciding on the dominant methods or on equal status (Molina-Azorin et al., 2012) and this arises because the priority assigned to methods are often subjective (Creswell et al., 2003). In this research, though the sample size of the qualitative exploratory study was smaller compared to survey, however, the interaction with the participants, and the rich and raw data generated made it as important as the larger sample size quantitative survey study. Besides the exploratory was important because it formed the basis on which the survey

was carried out. The contingency approach thus, ignores the subjectively designated priority assigned to each of these phases.

Moreover, rather than reinforcing the normative, binary distinction between qualitative and quantitative positions, rather than a synthesis (Johnson et al., 2007), this study highlights the synergy generated from the dynamic movement along the cathedral-bazaar continuum. Furthermore, it shows that the cathedral and bazaar approaches, as initially proposed and depicted by Raymond, are not dichotomous, but they lie along this continuum. Rather than having strict research guidelines, the focus must instead shift on the flexibility of the MMR approach. The cathedral and the bazaar approaches, thus enables exploring hybridization by radically mixing genres and conventions, as the researcher is working with radical undecidability (Freshwater, 2007, p. 144).

This study in community development has been enriched not just by the challenges of interpretivism meeting positivism (Singh, 2013), but the contingency approach enhancing the outcomes and rigor and persuasiveness of the MMR study (Creswell, 2011) as well. This has been possible because, this approach breaks the hegemony of positivism as well as the marginalization of nonpositivist research methodologies (Giddings, 2006). The study then proposes that researchers develop not just “newer, more free-flowing designs” (p. 123) but an agile approach in MMR studies that can support “unstructured” (Creswell, 2011, p. 120) and emergent designs (Creswell et al., 2011, p.7) as well.

Thus, the researcher may sometimes choose or create a complex MMR design, necessitating the adoption of the contingency approach. For instance, in international business, studying the influence of international experience of top management team (TMT) on subsidiary performance could call for largely a cathedral approach, a study entirely based on quantitative data from secondary sources. However, it may also involve qualitative data from interview of TMT members of a few subsidiaries, developing a case study on of another subsidiary, and sometimes observation of a TMT meeting as to how their international experience influences decision making and hence subsidiary performance. Moreover, the case study could again be based on secondary sources or primary qualitative data or a combination. Hence, this phase of the study could involve both bazaar and cathedral approaches. While the purpose of such a study would be to to develop a holistic understanding of the influence of international experience of TMT on subsidiary performance, the priority of the two methods could be determined by the importance of each strand in the study. Though this MMR design may seem a simple sequential quant→qual, it however, calls for a contingency approach to implement such an intricate and research design.

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Can Postmodernism help in revealing what lies behind and beyond the cultural shift Post Covid? - A Thematic Analysis of the Dilemmas People Faced during the Pandemic

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Abstract

The past two years of the pandemic have redefined all the “truisms” “people have been living by for generations, our constructs for – work, family, society, health, future, dreams, education, trust and physical “realities” like distance, geography, boundaries and the metaphysical like God, fate and destiny.

The Pandemic has shaken and stirred these ‘truths’ and is revealing new ones, causing many people to think, rethink, question the many underlying assumptions behind choices and key decisions they make.

During the course of the pandemic, people encountered new challenges and unforeseen circumstances, creating many dilemmas, to begin with: Vaccines – The entire issue of vaccination posed a challenge to many and between the sceptics and the positivists, there were many who were in dilemma grappling with -the hesitancy, credibility of clinical trials the efficacy, the brand and the booster shot. Then people had/must deal with Information Overload and were not sure of which source to trust - There were 24/7 news anchors whipping up mass hysteria, “shocking” social media posts and family forwards on WhatsApp groups. As the medical and health infrastructure collapsed, private health care was making the most of the situation and literally going for the kill. One of the worst, ethical dilemmas people faced during the ICU was having to deal with choices of life and putting a price of ICU care (Robert et al, 2020). People also did not know how to deal with new social distancing norms (Saha, 2021)

Then there were issues related to work whereby many homes became 24/7 workspaces with all boundaries breached. There were concerns regarding children’s education, loss of jobs and livelihoods, increased mental health issues, increase in domestic violence etc.

The way people navigated these dilemmas and found a way out created a choice architecture which suggests an emerging pattern which has allowed us to look for themes that define a cultural shift in society.

Methodology: This paper adopts a qualitative approach to the research question. Thematic analysis of focus group interview data has been selected as the research method as it provides a theoretically flexible approach to collecting and analysing qualitative data.

Focus groups interviews were an advantageous method of data collection for this study because of the layered and complex nature of questions and answers. The total number of respondents were 50 and belonged to the age group of 35-55. This demographic profile was deliberately selected because the study focuses on people, shouldering responsibilities and taking key decisions. The respondents belonged to cities across India -New Delhi, Mumbai, Pune, Bangalore and Lucknow and the sampling was purposeful.

Following Braun & Clarke (2006), this paper utilises a thematic analysis of focus group interviews in six steps. Step 1 is to become familiar with the focus group interview data. Step 2 is to generate initial codes. Step 3 involves searching for emerging themes. Step 4 focuses on reviewing themes. Step 5 defines finalised themes, and step 6 is the write-up of the findings in a replicable and systematic manner.

The theoretical construct for the study is Postmodernism which is a philosophical movement that has impacted the arts and critical thinking throughout the latter part of the twentieth century. The aim of postmodern thinkers was to shake the assumptions and the value systems of modernity. Postmodernism questions “modern concepts” like science, rationality, reason, progress, and brings scepticism into the way people assume the basic ideas that determine their lives. (Mouzakitis, 2017). Additionally, the term "postmodernism" refers to the philosophical mood and cultural expressions that are becoming increasingly prominent in modern society. After modernity has passed, a word known as postmodernism is used to characterize the period that follows. Postmodernism emerged as an academic field of study in the mid 1980s. The Premodern (medieval) age was referred to as the "age of faith and superstition," followed by the Modern age, which was referred to as the "age of reason, empiricism, and science," to summarize. Following this came the postmodern era of relativity and, more recently, the most recent version of postmodernism, the era of holism and interconnectedness, both of which are still in their early stages of development. The constructed organism, machine, text, and self-organizing system serve as guiding metaphors, respectively. Postmodernism, as well as two related terms, postmodern and postmodernist, have been introduced as a standard for the study of postmodernism. (2011) Singh

Within the huge body of Postmodernism, the study focuses on works of Michel Foucault who has made a huge contribution in understanding the modern Knowledge/Power apparatus, Jean Paul Sartre who has contributed towards Existentialism, Jacques Derrida who talks about the value of deconstructing knowledge systems and Baudrillard, whose work on Simulacra and Hyperreality shed light on the online world we inhabit in - all profound philosophers who have greatly enriched philosophy with a new “gaze”.

This study used dual moderator focus-group interviews as a qualitative approach to understanding dynamism and cultural shift. Two researchers were assigned to each group as group moderators to facilitate discussions. Due to social distancing and pandemic-related restricted mobility in the city of Pune, discussion groups took place online using the Zoom platform. A total of 10 focus groups were conducted. The number of participants in each group was 5. Sessions lasted for around 60 minutes.

A schedule, including a list of 10 questions, was prepared by the researchers beforehand to be used as guidance for each group discussion session. The schedule also included tips for moderators, including welcome message, consent process, introduction to the study, logistics and ground rules. Two moderators were present for all the discussions. The moderators’ role was to nurture discussions amongst the participants by ensuring maximum participation in the time allotted. Each session started with a “warm-up time”. The moderators spent a few minutes introducing themselves, introducing the topic and providing ground rules and guidelines to create a friendly and relaxed environment. The moderators exercised mild yet unobtrusive control throughout the sessions.

Overview of the Thematic Analysis

Once all the responses were manually transcribed, detailed coding was done by identifying repeated patterns within the data. The research team followed (Braun & Clarke, 2006) to immerse themselves in the interview data by repeated readings of the field notes, transcribing the data by listening to the Zoom recordings as many times as required.

Three major themes emerged from the analysis:

- i) Knowledge, Power and Truth – The Invisibles
- ii) Existential Angst- The Irony of the Networked Society
- iii) Aspirations – The Battle Within

Knowledge, Power and Truth- The Invisibles

One key feature of Postmodernism is an absence of a Meta Narrative and thus leading to the acceptance of many truths. This absence of a meta narrative was seen in post covid experiences in many ways. According to Foucault, knowledge and power are interrelated in subtle but powerful ways and shape the nature of prevailing discourse in society. Power as viewed conventionally is perceived as vested in some one or some authority or in some structure, but Foucault alludes that real power is ubiquitous, not seen but apparent. The sheer “power” of power lies when it is pervasive and hidden. Foucault also indicated that prevailing power, affects the discourse in society and controls the narrative. In today's society, we witness the Knowledge/Power apparatus of different entities: Social Media, Governments, Traditional Media, Corporates, Nations and Research Bodies. Each with its own discourse and version of the “truth”

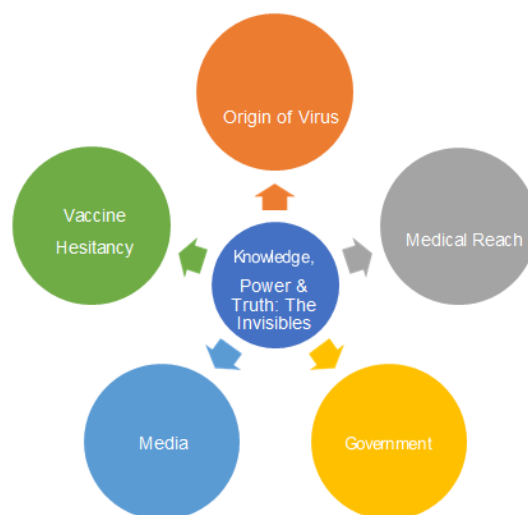


Image 1- Emerging themes on Knowledge /Power

Existential Angst- The Irony of the Networked Society

The restrictions imposed by the lockdown meant that offices and schools moved online. Gradually, social events, like marriages etc were also a “zoom” affair. However, most people reported a sense of loneliness and despair and a feeling of being “disconnected”. Although, technology helped in going through the crisis, however the gradual feeling of the understanding

the Lessing of the “human” in all interactions make people anxious about the future. The unreal, the synthetic phenomenon have taken precedence over the real and people are debating whether technology will build a utopian or dystopian future. The sense of alienation that people are reporting is immense despite having a vibrant, online community. Apart from alienation, there

seems to be also a sense of fragmentation of identities as people can easily create an identity to suit what works on a social media sites. The real, sense of selfhood is rendered worthless. The “Hyperreal” and the “absurd” have more value

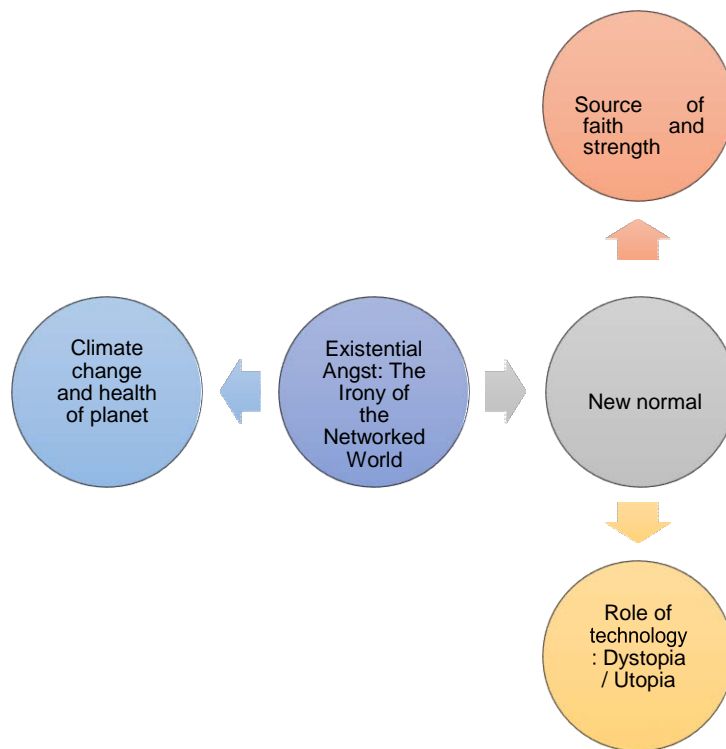


Image 2- Emerging themes on Existential Angst

Aspirations – The Battle Within

The pandemic was a period of self-reflection for many, and much reflection is taking place to accord order to health, happiness, peace, material fulfilment, nature and future of work. Whilst many have realized that, if work is online, then moving in less crowded cities or remote locations but what about the vibrancy and culture that cities offered, and what about infrastructure, should you need one. The online learning experience was also something to reckon with, everyone shifted online, and things got done, but an experience bereft of any meaning, memory or experience or emotional connections.

People are contemplating about the future for themselves and for future generations. What should one aspire to be or become and what means would be required is a subject of much debate? Work, till now has remained central to one’s identity in the modern world and the structures and scheduled built around work, gave structure and “meaning” to life. Once that, centrality is moving, the empty space is creating a void. Women reported a higher degree of trauma during the pandemic and many women respondents reported excessive exhaustion and more uncertainty. As Lyotard pointed out, postmodernism is a logical extension of modernism, which implies a movement away from modernism, however post modernists do not view time or progress as being linear. The postmodernist worldview, time moves in cycles and there is circular movement and defining arch’s in circles as progressive or regressive have no point.

Hence, it could be implied that what people are aspiring could be found somewhere hidden in ancient mysteries, so called myths or legends.



Image 3- Emerging themes from Aspirations and Progress

Purpose: The purpose of the study is to enquire into the meta narrative shaping post Covid Indian Society. It is a philosophical enquiry into the why of human behavior. Like any philosophical enquiry, it is an attempt to understand the assumptions which are influencing the why of our behavior. The purpose is also to contribute more critical thinking and an interdisciplinary approach to management thought and literature.

Practical Implications: The human being with a beating heart is the center of any business transaction, whether it's buying a loaf of bread or an airline ticket for space exploration. The loaf of bread caters to hunger of the stomach, space exploration caters to the hunger for adventure. These countless desires shaped by a prevailing narrative in society. It's imperative to understand the dynamics of power, aspirations, hopes and expectations of people in order to better serve them as customers or employees.

Originality /Value: Philosophy when literally translated means love for wisdom. What Philosophy does is that it throws larger questions about human life in the context of present complexities to try and come up with an overarching theme which shapes collective values, aspirations and thus creates a framework for society to function. This study has explored the emerging themes with the theoretical tool of postmodernism and in the conclusion have synthesized it with the Indian philosophical approach whereby, the world is considered as "Lila" or a matrix of illusions. The synthesis of contemporary and ancient thought systems will help in making meaning of the complex world we live in. Quoting Foucault- *I don't write a book so that it will be the final word; I write a book so that other books are possible, not necessarily written by me.* this is definitely not a final word, but another way of "seeing" the world.

Keywords: Dilemmas, postmodernism, philosophy, culture. society, covid, shifts, Lila, matrix of illusion,

Type of Paper: Qualitative Research / Track Three

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Working from home in COVID-19: A study of schoolteachers' work/non-work interface and wellbeing

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Abstract

We present initial results of an ongoing study examining the impact of working from home during COVID-19 on the work/non-work interface and wellbeing of schoolteachers. A survey was conducted among government and private schoolteachers. It included measures of wellbeing, work/non-work conflicts, and open-ended questions on work/non-work demands, perceived needs and coping mechanisms. 161 quantitative responses and 121 qualitative responses were gathered and analyzed using inferential statistics and thematic analysis respectively. Results indicate the negative impact of work/non-work conflict on wellbeing. Subgroup differences are presented. Changes in work and missing work-home boundaries have resulted in extended workhours, unorganized routines, and simultaneous work/non-work demands. Support from office and family members is revealed as important but also lacking. Subgroup differences are explored qualitatively, and implications are discussed.

Keywords: work/non-work interface, schoolteachers, remote work, work from home, wellbeing.

Corporate social responsibility in the wake of the COVID-19 pandemic: some evidence

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Abstract

The coronavirus disease (COVID-19) has impacted all economies, businesses and societies. The goal of this study is to analyze the current pandemic situation and present a case for corporate social responsibility (CSR) in terms of its relevance amidst the turmoil caused by this pandemic. The research is undertaken with an objective to understand how CSR can deliver in a pandemic like crisis by taking into account the interest of all its stakeholders by way of stakeholder theory. We use directed content analysis approach to retrieve relevant information from Thomson Reuters' Eikon[®] database from March -December 2020. Our findings show that companies from both developed and developing countries are taking constructive initiatives under CSR for stakeholder engagement in the wake of the COVID-19 pandemic.

Keywords- Corporate social responsibility, CSR, coronavirus, COVID-19, stakeholder theory

Introduction

The coronavirus disease (COVID-19) has taken the world by storm. It is being referred to as a 'black swan' event that has triggered unprecedented levels of economical, sociological, psychological, and technical disruption. It began in December 2019 in Wuhan, China when people started reporting pneumonia-like symptoms of unknown etiology. By early 2020, it has spread to almost all countries across the globe (Sohrabi et al., 2020). In March 2020, the World Health Organization (WHO) formally announced it as a global pandemic one month after naming the coronavirus disease as 'COVID-19' (WHO, 2020). The frequency of COVID-19 cases continues to increase, amid stringent global containment and quarantine efforts impacting both developed and developing countries alike (Figure 1).

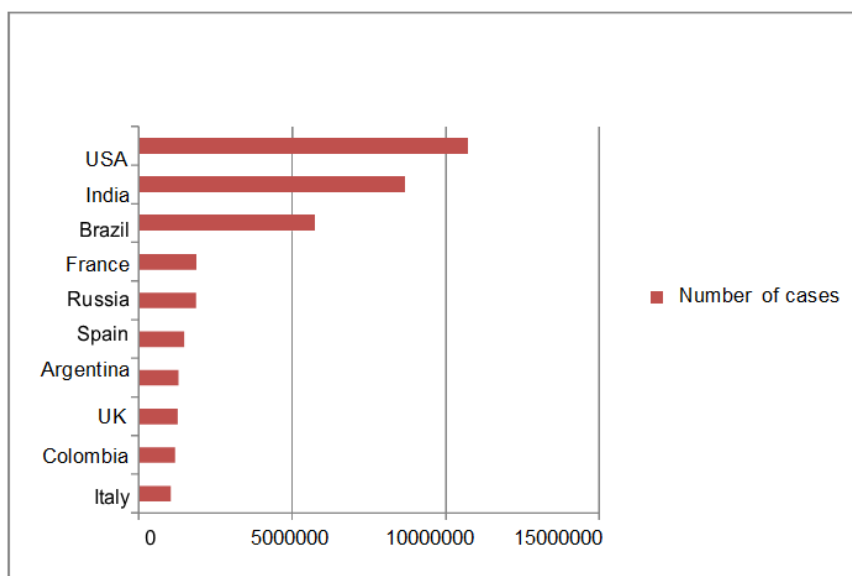


Figure 1. The top 10 worst coronavirus-affected countries

Source: Worldometer (2020)

Once the global community realized the seriousness of this pandemic, all sorts of measures were imposed. Many countries imposed a partial or complete lockdown, sealed their borders for inbound and outbound movement, and limited the supply of resources except those of essential items like food and medicines. This led to a drastic impact on all major economies and

international trade. Almost every sector slumped from its growth trajectory including aviation, freight transport, production and manufacturing, commercial services, tourism, hospitality and education. As the COVID-19 pandemic rampages across the globe, disabling social fabric and usual economic activities in every region, global trade is now expected to plunge by 13% to 32% in 2020 (WTO, 2020). The International Monetary Fund (IMF) forecasts that global GDP will fall by three percent in 2020, suggesting the worst economic slowdown since the Great Depression almost a century ago (IMF, 2020).

The pandemic is far from over yet. Our study is an attempt to look at the role played by CSR in answering the call of this pandemic. This not only strengthens the relevance of CSR but also goes to prove its prominence in the business world.

Concerns over the social and ethical commitments of organizations are not recent, and there is a long and diverse history of CSR. There has been an increased interest in CSR over the last few decades in terms of its practicality from the point of view of managers and academics. It is also because the majority of corporations now provide CSR reports, speeches and publications concerning their sustainable corporate practices (Holtbrügge and Conrad, 2020). Studies further show that socially responsible enterprises achieve financial and non-financial gains, such as reduced costs, better product performance, improved quality of operations and services, substantial pollution avoidance, and efficient energy consumption (Akhtar et al., 2020; Barrese et al., 2020).

Amid the entire fracas caused by the coronavirus outbreak, many corporations made their contribution to the welfare of employees, customers, and society at large by way of CSR. A number of current CSR theories, principles, and procedures have apparently been challenged by the pandemic (Crane and Matten, 2020). In this paper, we look at the way corporations tackled the harsh reality of the ongoing pandemic and served the interests of their stakeholders.

Research Gap and Research Problem

The business case for CSR claims that a company has valid reasons to invest in CSR operations. There is theoretical reasoning and empirical evidence from an economic point of view that engaging in socially responsible initiatives can minimize the company's costs and risks, develop the competitive advantage of the company, improve its prestige and credibility, and generate synergies (Bhardwaj et al., 2018). Camilleri (2017) argues that by aligning organization priorities with stakeholder management and social responsibility, businesses build economic and social value. Similarly, Baric (2017) reports that socially responsible businesses have a positive impact on a company's reputation, customer loyalty, morale of workers, long-term profitability and security from negative business decisions. Though the concept of CSR has existed for decades, its relevance has not been felt like this before. Specifically, concerning the exigencies posed by the coronavirus outbreak (Verma and Gustafsson, 2020). Based on the current

literature, we argue that CSR participation will help companies preserve stakeholders' interests and the wider community while maintaining the best possible business practices during this challenging time.

Theoretical background on CSR and stakeholder theory

The subject matter of corporate social responsibility (CSR) has a rich and varied history. Over the decades, it has been conceptualized and described in a variety of ways. The earliest conceptualization can be attributed to Howard Bowen. He described the social responsibilities of companies in his seminal book (*Social Responsibilities of the Businessman*) as “obligations to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society” (Bowen, 2013). Since then, the concept of CSR has been explored and broadened in its scope. Another classical theory is Carroll’s approach which argues that businesses are required to meet their “economic, legal, ethical and discretionary responsibilities” (Carroll, 1999).

Though CSR scholarship is very broad and there is no consensus on its boundaries, the literature is largely dominated by the stakeholder theory and related perspectives (Kolk, 2016). The stakeholder theory was given by Freeman, who identified the company's stakeholders as “groups or individuals who are under the control of business activities or who can control a company's business operations, directly or indirectly”. He pointed out that the key stakeholders of any company are shareholders, customers, employees, suppliers, creditors, financial institutions, non-governmental organizations and government agencies (Freeman et al., 2007). He also argued that corporations should aim to satisfy the needs of a broad community of stakeholders and that to do so in their best interests. Similar to Freeman’s stakeholder framework, Clarkson (1995) defined primary stakeholders as “one without whose continuing participation the corporation cannot survive as a going concern”. These groups comprise primarily employees, customers, shareholders and suppliers. He also defined secondary stakeholders as “those who influence or affect, or are influenced or affected by, the corporation, but they are not engaged in transactions with the corporation and are not essential for its survival”. Competitors, labour unions, media and advocacy groups comprise secondary stakeholders. For the long-term survival of a company, both stakeholder groups are equally relevant.

The stakeholder theory perspective dictates that a corporation should be managed to benefit all those who have an interest in them. It connects the performance of businesses with their ability to establish reliable and mutually respectful relationships with stakeholders such as consumers, employees, suppliers, investors, communities and governments (Hansen et al., 2011). Today, the idea of corporate social responsibility is almost difficult to address without taking care of the company's stakeholders. Within the framework of the CSR concept, stakeholders are portrayed as a group of people to whom the company's business and socially responsible activities are directed.

Methodology

In this study, we aim to analyze CSR measures taken up by companies in response to the coronavirus pandemic using news articles as our information source. We use the technique of content analysis to draw insights from such initiatives. In the extant literature, several CSR studies have used the content analysis approach (Gao, 2011; Lock and Seele, 2016; Aggarwal and Singh, 2019; Torelli et al., 2020).

Results

Our sample consists of 20 organizations around the globe that have taken up a wide variety of CSR initiatives in response to the coronavirus pandemic. Most of the corporations taking up CSR initiatives in response to the pandemic belong to India (n=6, 30%) followed by the UAE (n=4, 20%) and the USA (n=3, 15%). Interestingly, India is one of the few countries in the world that has mandated CSR participation by qualifying companies (Singh & Mittal, 2019).

The sample companies belonged to different industries. The bulk of CSR operations have been carried out by banking/finance firms (25%), followed by industries such as manufacturing, services, telecom, consumer durables, oil and gas among others. This shows equitable participation of all sectors for the purpose of stakeholder engagement in response to the ongoing pandemic.

The findings of the content analysis showed that the community was the stakeholder most often mentioned in the news items (n=20, 100%). All the firms in the sample redirected their CSR practices to local communities, followed by government (n=7, 35%), employees (n=5, 25%) and customers (n=4, 20%).

Conclusion

The COVID-19 pandemic took the entire world to a halt. While the scientific community is rummaging to contain the spread of this virus, the interim research to understand the effects and implications caused due to the outbreak is absolutely essential. The study was undertaken for this very purpose. The present research establishes the legitimacy of an organization to stay committed to the core principles of CSR for the realization of the intended welfare of all stakeholders even in times of uncertainty. Although the world is still in the middle of the crisis and businesses are greatly affected by it, the study opines that CSR is relevant and it provides the right perspective to respond to the needs of the pandemic through the stakeholder theory approach. If a company is exposed to a higher degree of external crisis, it is rational to select a strategy that allows the company to have stronger reconfiguration capability to maximize its existing businesses (Ebrahim and Buheji, 2020).

Implications

The study extends its implications to academia, governments and corporations. The global academia can take away the findings of this study to further examine the alignment of CSR goals to address the crisis similar to COVID-19. Also, at present, researchers around the world are at the forefront to maximize their understanding and implications of COVID-19. The study is an attempt to contribute to this initiative. The global economy has slumped and so has the world trade. The governments can effectively work by way of regulations and advisories to encourage CSR practices so that organizations can contribute to the crisis with their timely engagement.

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Achieving Business Excellence through Inclusive Organizational Practices: A Case Study

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Abstract

This study aims to explore how inclusive organizational practices fosters innovation and helps organizations in their journey towards business excellence by taking the case of an Indian manufacturing organization. A comprehensive review of literature is carried out on the topics of 'business excellence' and 'inclusive organizational practices'. Literature review reveals the importance of leaders of organizations understanding and practicing inclusive leadership to create an inclusive culture in the organization. A diverse work force working in an organization with an inclusive culture can take the organization to very high levels of innovation and performance. The organization chosen for this case study practices many inclusive organizational initiatives which helped them to continually enhance their performance, delight customers and achieve business growth and progress leading to business excellence

Keywords: Business excellence, inclusion, diversity, performance, culture, innovation and creativity

Introduction

In order to be successful under today's highly competitive, dynamic and increasingly global market conditions, it is essential for organizations to focus on innovation, creativity, continuous improvement, flexibility and agility which will ultimately lead organizations to excellence (Porter and Kramer, 2019). Organizations embrace business excellence practices to enhance competitiveness, improve business results and achieve stake holder satisfaction (Collins, 2001). Business excellence practices proposer in inclusive organizations. An inclusive organization is one where a culture of trust and openness exists and everyone has a sense of belonging and feeling that they are respected, valued and seen as individuals (Hofhuis *et al.*, 2016). Inclusive organizational practices start with deployment of a diverse workforce in terms of nationality, ethnic group, education, cultural background, religion, gender, age, working style, lifestyle personality, way of thinking etc (Mazur, 2014). Diversity in thinking together with inclusion nurtures and fosters creativity and innovation and make the organization a great place to work. People take ownership and willingly share their best ideas for the success of the organization under an inclusive culture.

This study is an attempt to understand the unique inclusive organizational practices followed by an Indian design and manufacturing organization which helped them to achieve and sustain business excellence. XYZ organization (name changed) designs and manufactures electronic components used for Industrial and telecommunication applications. XYZ was established as a Joint venture company in India in year 2008. XYZ organization has put in place many inclusive practices which helped them to get willing involvement of their employees in all activities of the company resulting in increased market share and finally becoming the third largest manufacturer of the niche electronic component in the world.

Literature Review

Competition from both global and domestic markets are becoming more and more intense today than in the past and manufacturing organizations are finding it very difficult to manage their business successfully (Bhosale *et al.*, 2018). Organizations need to be very innovative, dynamic, agile, flexible and also excellent in all their business processes in order to be successful in today's competitive business environment. Adopting business excellence

practices is one of the established approaches organizations can adopt for attaining strong competitive advantage (Afthonidis and Tsiotras, 2014). Inclusive organizations are finding it easy to implement and achieve business excellence practices and also in sustaining it over long periods.

Business Excellence

The main aim of implementing business excellence practices in organizations is to achieve outstanding performance in all areas of business and to satisfy all stake holders of the company on a continuous basis (Enquist *et al.*, 2015). Business excellence was originated from Japan in its initial form of TQM after World War II for reviving the Japanese industry. Later, in mid 1990s, the name got changed from TQM to business excellence (Talwar, 2011). EFQM (2014) defines business excellence as the relentless pursuit of continuous improvement in both organization's results and the way in which the results are achieved. Few of the prominent global business excellence models in use are Deming Prize (DP), Malcolm Baldrige National Quality Award (MBNQA) and European Foundation for Quality Management (EFQM) excellence model. In addition to these global business excellence models, there are various national business excellence models and models developed by researchers for addressing specific needs of industries (Unnikrishnan *et al.*, 2017). A study conducted by Unnikrishnan *et al.* (2019) have compiled an exhaustive list of success factors of business excellence from literature covering the period 1985 to 2018 and grouped them in to common category of 24 closely related success factors.

Inclusive Organization

Employees perform extremely well and give their very best to the organization when they feel that they are involved in all aspects of the business of the organization (Jonasson *et al.*, 2018). An inclusive culture is an organizational environment where people with different mindsets and ways of thinking works together very effectively and perform to their highest potential to achieve the desired organizational objectives (Mazur, 2014). Inclusion brings up comprehensive thinking in the minds of employees and ensures their active participation and involvement in various organizational issues (Shore *et al.*, 2011). No level of automation, excellent practices and policies are going to help organizations in achieving excellence if the people are not committed and dedicated (Simmons, 1995). Inclusive organization provides increased job satisfaction and higher sense of well-being among employees and helps in employee retention (Barak and Levin, 2002).

A combination of diverse team led by inclusive management helps organizations to get maximum benefit in terms of creativity, innovation and productivity (Frost, 2018). Inclusion has two distinct parts - belongingness and individuality. When an individual feels a sense of belonging to the group and at the same time perceive himself to be a distinct and unique individual, then inclusion is established (Shore *et al.*, 2011). Diversity and inclusion when embedded in to the culture of an organization will yield unthinkable benefits to the organization and to the team (Gagnon *et al.*, 2014). Leadership plays a very critical role in shaping the climate for inclusion (Collins, 2012). A study conducted by Gotsis and Grimani, (2016) identified that servant leadership practices addresses employee needs for belongingness and uniqueness and fosters an inclusive culture. Organizations which introduced diversity programs and inclusive programs together were able to handle complex problems better and take accurate and right decisions and achieve increased productivity, performance and creativity leading to business excellence (Sabharwal, 2014).

Theories of Inclusion

'Social identity' theory, 'optimal distinctiveness theory' and 'need to belong' theory are the common theories referred by researchers while conceptualizing inclusion. According to the social identity theory, our social identity within a group shapes our norms, attitudes and behavior (Tajfel, 2010). British Psychologists Henri Tajfel and John Turner introduced the social identity theory in 1979 and the theory includes three core elements such as social categorization, social identification, and social comparison. Optimal distinctiveness theory is a social psychological theory which asserts that individuals desire to attain an optimal balance of inclusion and distinctiveness within and between social groups (Brewer, 1991). The 'need to belong theory' states that human beings fundamentally want to be part of social groups and are reluctant to break social bonds (Shore *et al.*, 2011).

Research Methodology

An exploratory case study methodology is used for conducting this research. Case study methodology provides the advantage of doing an in-depth and thorough analysis of various aspects of the research topic under investigation in the selected organization (Jauch *et al.*, 1980). All four aspects of case study as specified by Yin (2016) such as triangulation, trustworthiness, validity, and reliability are taken care during the design of the case study to ensure increased credibility for this case study. Data collection was done by conducting face to face interactions and interviews with employees of the organization covering all levels from senior managers to the technicians. Secondary data were also collected from various documents available in the public domain such as company annual reports, company website and company notice boards.

Discussion

XYZ is a global organization and the management of XYZ consists of people from different countries with diverse educational backgrounds and work experiences. XYZ takes enough care at the recruiting stage to select their workforce from different parts of India with different cultural backgrounds, educational levels, experiences and personality types. This type of heterogeneity in the workforce is helping XYZ to get enhanced performance. Few of the best practices followed at XYZ which are in alignment with the principles of inclusive organization are 1). 'Creating the future' program 2). Employee motivation, involvement, empowerment and recognition initiatives 3). Continuous improvement initiatives and 4). Gandhian servant leadership practices.

The organization was able to create a sense of ownership in the minds of their employees and every employee of the organization truly feels, believes and acts as if they are the owners of the organization. They voluntarily take responsibility to do everything needed for the growth of the organization. Employees willingly offer help to others as and when needed. There are no departmental boundaries existing at XYZ. Employees are free to talk and discuss to resolve technical and other issues with anyone in the organization at any level irrespective of their roles, responsibilities, departments and positions. At XYZ, cross functional teams sit together in open offices which helps them to take quick decisions on day to day issues. It is this open culture that facilitates and fosters the inclusive organizational practices at XYZ to a great extent.

'Creating the Future' Program

'Creating the future' concept and involving all employees of the organization in the process of creating the future of the organization is a unique approach developed at XYZ and evolved over the last many years. Employees from all functions and at different levels are involved in this initiative. Employees of XYZ truly believe that nothing is impossible and they have the potential and power to create whatever they want. At the beginning of every financial year, a

diverse group of around 100 staff employees meet and spend two full days together and create the future of the organization – what they want to achieve for the year ahead. The program starts with the top management sharing the high-level organizational goals, revenue target, market positioning etc. Ten to fifteen cross functional teams are then formed with members having diverse cultural background, education, functional experience and level of hierarchies in the organization. This heterogeneous team is formed specifically to get diverse views on the discussion topics. After many rounds of deliberations, each team finalizes on 2 to 3 major project ideas/audacious goals for the year. This way, a total of 25 to 30 high level very relevant projects are initiated every year to achieve the set objectives. Each team works on their projects throughout the year and the progress are reviewed on a monthly basis. While working on these projects, many more employees get involved in the program through various sub projects. The idea here is to create self-managed teams which manages the business by working on areas which needs improvements and focus, helping each other and enjoying their work all the time.

Employee Motivation, Involvement, Empowerment and Recognition Initiatives

XYZ organization identifies High Performers (HIPO) in the company and provides them a career path by putting them through various developmental programs. Higher education scheme for employees is one good example. This program helps in retaining potential and capable employees in the organization. Organization also provides global exposure to employees by sending them for training in XYZ's divisions in other countries. There are also various programs at XYZ such as small group activities, kaizen events, world quality day celebration, environmental day celebration, blood donation camp, innovation day, annual day, cultural events, world 10K run, yoga classes, food fests, sports day events, women's day celebrations etc in which employees participates and show case their talents. Awards and recognition to best performers are part of all these events. XYZ also provides long service awards to employees on completion of 5, 10, 15 and 20 years of service in the company as a recognition to their contribution to the growth of the organization. All these initiatives help to improve the bonding and engagement of the employees with the organization which is the fundamental principle of inclusiveness.

Continuous Improvement Initiatives

XYZ is a Kaizen practicing company and this initiative has significantly helped XYZ to improve their performance in terms of productivity, quality, safety, lead-time, waste elimination, cost reduction etc. Continuous improvement is practiced across all departments and the target is minimum 1 improvement per person per month. Best improvement awards are given to team members every month during the monthly town hall meetings. Rapid action workshops are conducted to implement large number of improvements in a shorter time. 5 S are part of the culture of the organization. All these practices helps to have better employee engagement and is clearly a move in the right direction towards building an inclusive organization.

Gandhian Servant Leadership Practices

Leaders at various levels at XYZ practices Gandhian servant leadership (GSL) principles. These practices are in alignment with the inclusive organizational principles. A study conducted by Gotsis and Girimani (2016) concluded that servant leadership helps inclusive ideas to thrive in a diverse workforce environment. Few of the GSL principles practiced at XYZ to mention are cleanliness is next to Godliness, dignity of physical labor, hatred for waste, utmost respect for time, deep respect and compassion for all, change yourself first, lead by example, delight customer and inspire/support by walking around.

All these inclusive initiatives together with other world class manufacturing practices such as Kaizen and Lean manufacturing helped XYZ organization to continually enhance their performance and reach a leadership position in the market. XYZ is clearly moving on the right path to business excellence.

Findings

XYZ organization truly believes that employees are their biggest asset and XYZ put maximum focus to engage their employees with the organization. Various initiatives mentioned above makes XYZ organization a true inclusive organization with diverse workforce at various organizational levels. Significant benefits gained by XYZ from these initiative are 1). Improved customer service & happy customers 2). Enhanced revenue and profitability 3). Increased morale of employees 4). Happy and satisfied employees contributing their very best to the organization 5). Innovation & continuous improvement 6). Very low levels of attrition 7). Employees taking more responsibility and ownership in doing their work 8). Employees voluntarily helping each other to achieve their targets 9). Ability to attract more talents 10). Quick resolution to issues 11). Employees meeting their commitments and honoring their word. The key performance indicators of the organization as given in table 1 demonstrates the benefits gained by XYZ through these initiatives. XYZ was able to achieve excellent financial and non-financial results in a consistent manner through these unique inclusive organizational practices. Employees of the organization are happy to work and contribute their very best to the organization and all stake holders are satisfied with the growth of the business and this situation is clearly a right move towards business excellence. A clear demonstration that inclusive practices are a catalyst to business excellence.

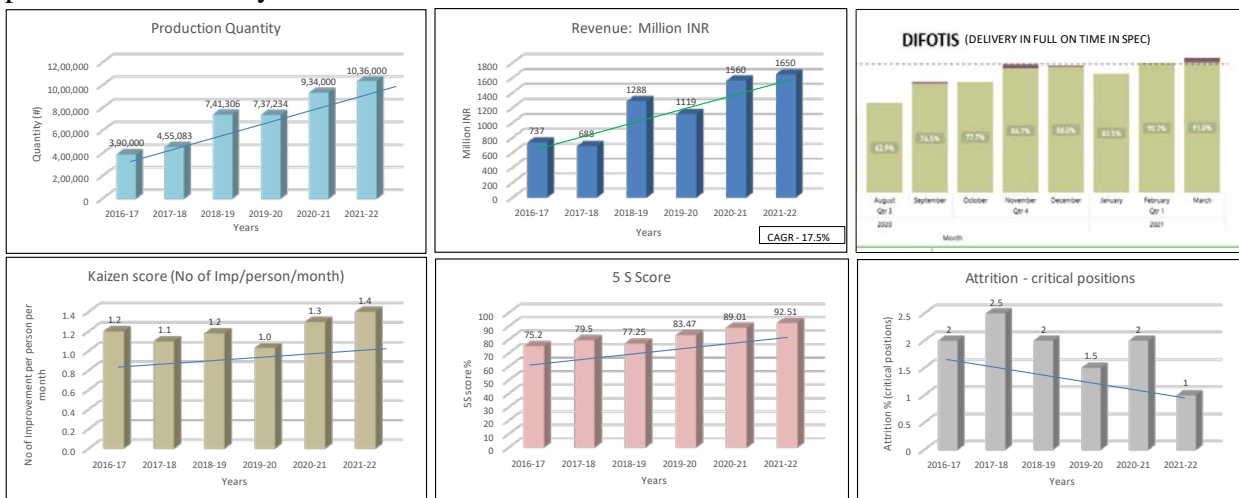


Figure 1: Key performance indicators of XYZ (2016 to 2021)

Linking the findings with theories of inclusion

At XYZ, employees were part of various groups / teams and were encouraged to showcase their skills, talents and capabilities. Employees were acknowledged and rewarded for their contribution to the organization. Employee’s desire to be part of large social groups and getting recognized are fulfilled at XYZ and is in alignment with the ‘theory of social identity’. Satisfied and motivated employees putting their very best efforts to the progress of the organization is clearly apparent at XYZ. The organizational environment at XYZ was such that the employees were treated as insiders and at the same time they were encouraged to retain their uniqueness as individuals. XYZ always recognizes and values the uniqueness and diverse views individuals. This has helped XYZ to enhance the engagement of their employees with the organization to grow the organization multifold. An optimum balance between the

inclusiveness and uniqueness was maintained at XYZ which is in line with the 'optimal distinctiveness theory' of inclusion. As per the theories of inclusion, when both the belongingness needs and uniqueness needs of individuals are met, it enhances the self-esteem of individuals and employees are motivated to perform to their fullest potential. This aspect is very visible throughout XYZ and has contributed significantly to their success.

Conclusion

This case study reinforces the concept that success of organizations hugely depends on the level of diversity in the workforce and the inclusive culture prevailing in the organization. Practitioners can use ideas from the inclusive practices of XYZ by suitably modifying it to suit their organizational needs and by actively involving all their employees to achieve excellence in performance. One of the major limitations of this study is that it is focused only on one organization. Similar studies to be conducted in other organizations which are practicing similar or other inclusive practices to generalize the findings of this study.

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Disability Inclusion through Sustainable Employment

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Abstract

When we talk about diversity or minority groups, the disabled are one of the largest minority and most excluded ones, despite several conventions, treaties, and laws; high unemployment leads to poverty, resulting in more inequality. This research paper aims to study how the individual level (psychological safety and self-efficacy) and Organizational level (accessibility and inclusive H.R. practices) positively affect the Workers' employability, work engagement, and affective commitment, resulting in sustainable employment for people with disabilities. Sustainable employment helps in the inclusion and integration of the disabled in the organization and society. Top management exhibits a crucial part in creating a conducive environment where people with disabilities find sustainable employment.

Keyword: people with disabilities (P.W.D.), Sustainable Employment, Inclusion, and workplace

Introduction

Diversity in the organization is under the social sustainability goal of organizations (three main pillars of sustainability are: economic, environmental, and social). Disability is not visible throughout the "H.R.D literature when discussing diversity or minority groups (Bierema, 2010; Rocco, 1998, 2002, 2005; Procknow & Rocco, 2016)". "Disabled people are the world's largest minority (United Nations, 2006)", most neglected and excluded from mainstream society. Irrespective of impairment's nature, complication, and severity, humans are of equal price and the right to seam in all areas of mainstream network life. "The right to work of any vulnerable population is anchored in the Universal Declaration of Human Rights of the United Nations (U.N. General Assembly, 1948)". Despite several conventions, laws, and treaties for mainstreaming, people with disabilities are still excluded. Employment is critical to make them financially independent and their poverty alleviation. The employment ratio of disabled and those without disabilities have a massive gap. There is the preconceived notion in the mind of people and many employers that P.W.D does not have the required skills or ability to perform the task or are not productive like people without disabilities.

The United Nations, 2030 Agenda for Sustainable Development talks about the harmony and prosperity of individuals and the planet now and in the future. All countries need immediate action in development and development through implemented measures to create a sustainable world and a resilient path. While S.D.Gs Goal 8 Goal 10 focuses on reducing inequality; domestic and domestic inequality remains independent of the efforts and measures needed to reduce inequality. Key concerns (U.N., 2015). "The concept of sustainability in employment is to organize work in a way that encourages rather than curtails human resources so that employers can manage these resources in the future (Docherty et al., 2009; Hedge.), 2008; Mohrman & Worley, 2010)".

Literature Review

In starting, disability was looked up as a medical or charity model but now started looking for a right and social model of disability. "As per Mike Oliver's 1983 social model of disability", disability results from barriers between people with disabilities and the environment surrounded by attitudes, communication, and social walls (Oliver, 2013). In the 21st century, there is a right-based model in which disability is seen as a denial of human rights—unequal opportunity to

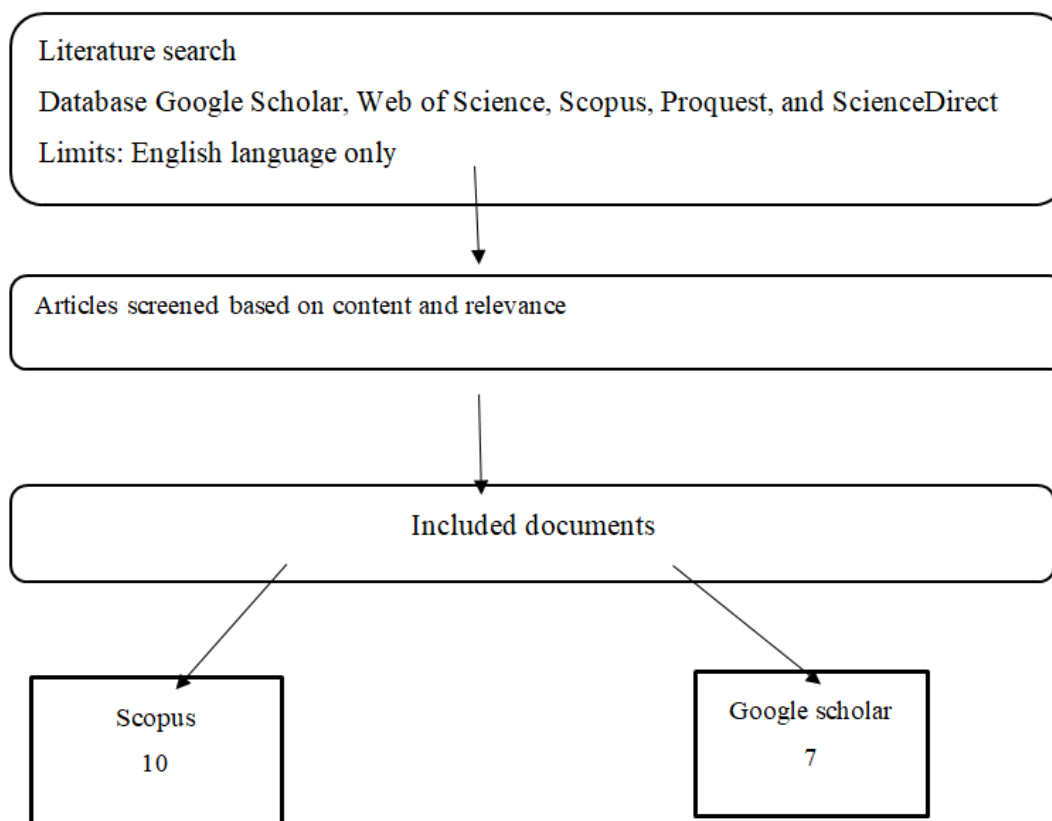
participate in society and unequal access to society. Changes required in attitude, information, communication, and barriers linked to physical appearance. Change is needed to empower people with disabilities to participate in socio-economic, cultural, and political participation.

In management, researchers mostly use the disability definition given by "The Americans with Disabilities Act (A.D.A.) and Amendments Act (ADAAA), which defines: (A) a physical or mental condition that substantially limits one or more major life activities such as walking, talking, seeing, hearing, or learning;(B) a record of such an impairment, such as an illness that is in remission; or(C) being regarded as having such an impairment, even if it is not present." In India, disability is defined under The Rights of Persons with Disabilities Act, 2016. "Person with a disability means a person with long-term physical, mental, intellectual, or sensory impairment which, in interaction with barriers, hinders his full and effective participation in society equally with others." "4% reservation for the employment of PwD in government and public sector organizations and incentives to private sector employers for employing PwD (Persons with Disabilities Act, 2016)" and "national action plan for skill training of PwD have been initiated (Ministry of Social Justice and Empowerment, 2018)."

"The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) declares disability based on individual barriers and social attitudes and environmental factors that prevent persons with disabilities from participating fairly (UNCRPD, 2016).)". This is a strong international legal document, but the effectiveness of UNCRPD depends on national and local governments. "Studies on the implementation of UNCRPD have not thoroughly investigated the role of employer practices (Brayley, 2012; Owen & Harris, 2012; Power, Lord, 13). Article 27 describes the right to work and employment on an equal footing, including acceptance in the employment market and the opportunity to earn a living through free choice of work or an open, comprehensive and supportive environment. It includes prohibiting employer discrimination (recruitment, selection, compensation, retention, promotion). It provides decent and safe working conditions, a proper grievances redressal system, union participation, access to technical and professional advice and training, uniform wages, reasonable and modified accommodation. Also, it provides the right to Incentives, service, and training opportunities, gives people with disabilities more choice and control over the types of support they may need, and prioritizes facilitative mechanisms such as independent planning and assisted decision-making(Power et al., 2013). Local, national, and local governments must support new international standards, and only then can it include disabilities in the workplace and society.

Methodology

We conducted a documentary-based research study; this study is purely conceptual and based on secondary data. Documents from academic literature, government document, and international organizations reports are selected. To answer the question, databases used for the literature search are Google Scholar, Web of Science, and Scopus. Keywords used in the investigation are 'Disability', 'Diversity,' 'Inclusion,' 'Sustainability,' and 'Employment.' Articles include published in English only, with the main emphasis on sustainable development for disability inclusion. Functioning words search must be recognized in the article's title from the initial, abstract, or keyword section. "The detailed review of the abstracts reviewed fewer articles for the study after eliminating non-relevant publications related to the context." The document type filtered the research to search only "articles" and "Review papers"—Seventeen documents.



Disability Inclusion and Sustainable Employment

Disabled people are acknowledged as valuable resources; they have creativity and unique skills like numerical, memorization, attention to detail, innovative ideas, and talent. People with disabilities are loyal and hardworking employees, but the employment rate is still very highly negligible compared to other groups of diversity or minorities. "There are legal (Parlalis, 2013) and moral (Markel and Barclay, 2009) obligations to hire and maintain persons with disabilities (Baumgärtner et al., 2014)". The visible characteristic of the person with disabilities does not affect employment to a large extent compared to the prejudice in the minds of the non-disabled people. Cultural attitudes are a major obstacle in implementing reforms that address universal involvement, especially under national social and legal norms (Lord & Stein, 2013). Myths can only be addressed by creating awareness and sensitivity to the organization. "The international obligations of the Convention on the Rights of Persons with Disabilities (CRPD), the 2030 Agenda for Sustainable Development, the Agenda for Mankind, and the United Nations Strategy for Inclusion of Persons with Disabilities (I.L.O. 2020) are also important commitments about transformative and long-term change to include the organization's commitment to diverse, inclusive and fair work " so that they can sustain and retain in employment. Sustainable employment is vital for inclusion disabled "Sustainable employment is defined as the degree to which workers can continue to work now and in the future and are interested (S.E.R, 2009; Van Vuuren, 2012) (van Dam et al., 2017).)"; Sustainable employment can be achieved as a result of the sustainable H.R.M. Approach. Three indicators of sustainable employment were measured as crucial requirements for employees to continue working satisfactorily, i.e., "Three indicators of sustainable employment have been measured to be essential for the satisfactory retention of workers are workers' employability, work engagement, and affective commitment(van Dam et al., 2017)".

Worker Employability: "Employability refers to an individual's ability to perform current properly and future work within and outside the current organization (Berntson, Sverke & Marklund, 2006; Fugate et al., 2004; Van Dam, 2004)". The ability of a person to find and maintain employment includes traits such as ability, skill, and knowledge. (Van Dam et al., 2017) ". Disabled people have the ability and skills required to accomplish the task, and appropriate training can enhance their skills to maintain or sustain employment.

Work Engagement: "Work Engagement refers to a positive and fulfilling, work-related state of mind characterized by motivation, dedication, and absorption (Bakker & Demerouti, 2007) (van Dam et al., 2017) ". Employees with disabilities will be engaged when they are treated as an insider in the organization. They have a say in decision-making, which affects them.

Affective commitment: Affective commitment is an emotional attachment to the organization. "Affective commitment is defined as the degree to which employees identify, engage, and connect with the organization (Mowday, Steers & Porter, 1979). affective commitment, i.e., the emotional bond that employees have built with the organization. (Van Dam et al., 2017) ".

Inclusive H.R. practices, Workplace Accessibility, and Sustainable Employment

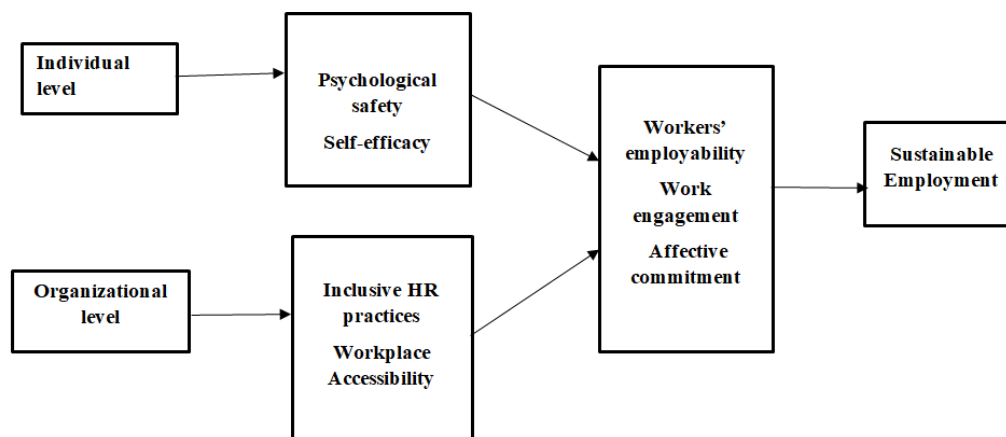
Accessibility to the workplace is vital for gaining and sustaining employment. Accessibility must be able to provide opportunities to the disabled to participate in the recruiting process. Accessibility to the workplace includes inclusive buildings, organization's infrastructure, workplace accommodation. Workplace accommodation (W.A.) changes in the workplace as per the requirements of the person. It consists of all accommodations required by disabled employees to stay competitive in the job. It has changes in work schedules, developments in the work environment, taking help of other persons, and changes in travel to and from work. The pivot can be on a sole individual or the entire organization, acquiring assistive technology (AT) and I.T. infrastructure. Accessibility is essential for people with disabilities for equal employment opportunities. Inclusive hr practices include disability-inclusive organizations policies and practices, provisions for disability inclusion in the organizations, inclusive recruitments, and selection, which give an equal chance to disabled to the selection; selection should be based on skills and knowledge appearance. After the hiring, induction and orientation are essential for making disabled employees familiar with the organization. They should not feel alienated if they are familiar with the work environment and adopt themselves accordingly to sustain employment. Educating all employees, especially managers, on how to work with disabled employees through sensitivity training is essential for employment sustainment. Training programs develop the skills of disabled employees, which helps them to change themselves according to the requirement of the job and will increase their employability and make their career sustainable. Training programs should be developed according to the type of disability then only the necessary change can be brought to the employee. The suitable appointment and training are vital for protection are agreed by most respondents (Kalargyrou, 2014). Feedback of training program is necessary to assess the learning which helps in their sustainable employment. Rewarding disabled employees when they perform well will give them significant status, reduce absenteeism, and make them emotionally attached to the organization; generally, disabled employees leave the organization because they are given token status. Generally, disabled employees are treated as outgroups, so awareness and sensitivity training of co-workers must make a conducive environment for the disabled to perform efficiently and for their long-term employment. H.R. professionals should frame anti-discriminatory policies for employees with disabilities so that employees can engage in their work with full potential. Top management should work on the grievance redressal of disabled employees if they have any issue or discontentment that can be addressed. Organizational level factor-like Inclusive H.R. practices, workplace accessibility positively affects and enhances the ability to work and motivate them to work with full potential. Employees also develop an

emotional connection with the organization. Organizational level factor-like Inclusive H.R. practices, workplace accessibility, is positively related to workers employability, work engagement, and affective commitment, which results in sustainable employment.

Psychological safety, Self-efficacy and Sustainable Employment

"Psychological Safety (P.S.) is the sense of being able to show and employ one's self without fear of negative results to self-image, status, or career. More precisely, the culture and support from the organizations create the best conditions for people with and without disabilities to work side by side". Organizations should enable a transparent, cooperative, and respectful work culture. Only employees will feel engaged and motivated to work efficiently and effectively. There should not be a negative image of themselves regarding their appearance in their mind; then, only disabled employees can feel psychologically safe. The relationship of employees with the management is very significant in Psychological Safety. Psychological Safe employees can use skills properly to accomplish tasks efficiently. The inclusive conducive environment tarnishes the stigma, and negative attitude regarding disabled workers increases the self-esteem of disabled employees and makes them psychologically safe, resulting in disabled people trusting the organizations. They will develop emotional attachment or affective commitment for organization and to their job more engaging."

"Self-efficacy is defined as a person's belief in his or her capabilities to produce specific effects by his or her actions (Bandura, 1977)". Self-efficacy beliefs determine which behaviors will be initiated and whether the effort to carry them out will increase or decrease disability inclusion in the workplace (Bandura, 2012). Of all variables that empirically predict productivity in non-disabled people, self-efficacy is considered the best. (Bandura and Jorden, 1991; Jersey and Bono, 2001). In contrast, less is known about its effect on people with disabilities concerning self-efficacy (O'Sullivan et al., 2012) (Baumgärtner et al., 2014). "job self-efficacy is defined as the overall confidence of employees in their ability to perform their jobs (Tierney & Farmer, 2002). Job self-efficacy is enhanced through positive performance appraisal (Bandura, 1997) (Zhu et al., 2019)." Job evaluation and performance appraisal give them a boost that they can perform tasks as best as employees without disabilities. Self-efficacy gives them a sense of belief in themselves which is very crucial for sustainable employment. Employees with disabilities should identify competencies and develop those competencies to survive in the long run and sustain themselves in their careers. Psychological safety and Self-efficacy in people with disabilities help sustain their employment and job longevity which is necessary for their inclusion. Individual-level factors like physiological safety and self-efficacy positively affect workers' employability, work engagement, and affective commitment, resulting in sustainable employment.



Conclusion

The employment rate of the disabled is significantly lower, they are more likely to be underemployed, and unemployment and income levels are considerably lower than those without disabilities (Houtenville & Ruiz, 2011). Employers face problems, dilemmas, and concerns before employment (Hernandez et al., 2008) (Kulkarni & LengnickHall, 2014). Even if a person with a disability finds employment, they are treated as an outsider. However, it is difficult for a worker without a disability to integrate into the workplace (Colella & Bruyère, 2011). For the inclusion of the disabled in society, sustainable employment is significant. Individual-level factors such as physiological safety and self-efficacy positively affect "employability, work engagement, and affective commitment," leading to sustainable employment. Workplace accessibility and H.R. practices, which is a corporate-level factor, positively impact "worker employability, work engagement, and affective commitment" that leads to sustainable employment. Although there is a growing literature on the benefits of hiring people with disabilities, misconceptions about barriers to hiring and retaining people with disabilities in the workplace (Lindsay et al., 2018), more research is still needed in this area.

Research Implication

Sustainable employment is needed for the "inclusion of people with disabilities in the workplace" and society.

Research Limitation and Future Direction

Limitations of this study are associated with the methodology used for the review of the literature. Despite substantial efforts, the literature may not have been able to record all the papers related to disability inclusion through sustainable employment. Despite all safety measures taken, the authors accept their subjectivity as concerned with the classification of documents; it does not include all papers only from 2013 to 2020. A deeper study of this model is required for better understanding; it is only a conceptual model.

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Will the Behavioural Intention toward Collaborative Consumption of Shared Services change Post Covid-19?

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Abstract

There has been significant change in attitude of people towards collaborative consumption in different fields for mindful usage of the resources for benefiting society. But COVID-19 pandemic has changed outlook of users towards collaborative consumption due to social distancing, which is required to arrest spread of the virus. But once cities reopen will car-pooling with safety measures be preferred choice instead of public transport? The current empirical research focuses on factors which will play vital role in deciding travel preference of users via carpool during new normal. Findings suggest that millennial consumers have been using carpool very extensively pre pandemic. Post pandemic although there are few mind blocks but our study highlights that customer attitude towards car pool will not have much negative impact.

Key words: Collaborative Consumption, Perceived Sustainability, Subjective Norms, Behavioural Intention, Psychological Factors, Attitude, External Factors

1. Introduction

Past few years have shown a significant change in attitude of people towards Collaborative Consumption (CC) in different fields for mindful usage of the resources for benefiting the society. CC initiatives can be represented with exchanges, mortgages, leasing, and other ways of sharing which can allow users to gain access to any goods and services at the time of necessity (Billows, G., & McNeill, L. 2018). But COVID-19 pandemic has changed the outlook of users towards CC due to social distancing, which is required to arrest spread of the virus. One such service is car-pooling which are casual arrangements of transportation for travellers to go to work, to school to university, and any other activities. Carpooling services are majorly hit by the pandemic due to restriction on mobility, work from home and social distancing norms to curb the spread of the virus. The major benefit of carpooling which are cost saving and benefiting the environment are overshadowed by the fear of getting infected by the virus during pandemic in a shared vehicle.

James Cox CEO of a Routable AI, an MIT born start-up which are pioneer in carpool services in a special report state that resistance towards carpooling is only short term but when the cities reopen for the new normal and people start going to work, colleges and for other activities they will prefer shared rides instead of public transport to avoid the crowd the public transport may have. The only thing to be focused as topmost priority is making the riders feel safe during the shared ride.

Road transport system of India has been struggling form long time due to heavy traffic congestion, limited integration of different modes of vehicles insufficient public transport facilities, damaged footpaths no cycling tracks, which has led to increased vehicle flow on road causing increase in noise and environmental pollution levels. Pandemic crisis will bring new challenges specially in places with extensive travel demand, it will produce several new trials and challenges for shared rides after cities reopen as travel behaviour is expected to change, as country steps towards a new normal.

Users will try to change from public transport towards shared rides due to elevated perceived risks. There is an immediate necessity to recognize the probable nature of shift in preference

of traveling patterns and develop suitable strategies to encourage sustainable modes of travel in the new normal. Therefore, the current research focuses on evaluating the factors which will be important to access user's attitude toward car-pooling intentions post pandemic.

2. Literature review

2.1. Overview on sharing economy, sustainability and collaborative consumption

The digital revolution around the globe has led to evolution of new forms of consumption and has also transformed the consumer-product relationship. The consumers now prefer to share a car instead of buying (Bardhi & Eckhardt, 2012). This concept has evolved as "sharing economy". Belk (2007) defined "Sharing as the act and process of distributing what is ours to others for their use as well as the act and process of receiving something from others for our use". Later Botsman (2013) evolved the concept of Sharing economy as "an economic model based on sharing underutilized assets like space, skills and other things for monetary or non-monetary benefits. It is currently largely discussed in relation to P2P marketplaces, but equal opportunity lies in the B2C models". These sharing actions take place in innumerable arrangements, one of which is "Collaborative Consumption" (CC). This concept has underway acceptance with the advent of sharing economy. According to Choi and He 2019, CC refers to the condition where consumers get involved in combined activities of sharing resources, they can be involved in sharing of resources like cars, apartments, car parking, knowledge, digital content or even electricity (Kalathil et al., 2017). There can be various advantages of adopting these concepts of CC and sharing economy. It helps in creating value for consumers by giving an opportunity to utilize their under-utilized resources in some productive manner. Some examples of sharing economy/collaborative consumption comprise car and bike-sharing, exchange fashion accessories and garments, renting rooms (Heinrichs, 2013). Both thoughts empower the use of market acumen to contribute towards a sustainable and collaborative culture.

As the coronavirus pandemic has rapidly spread across the world, it has induced a substantial degree of fear, worry, concern and mental stress among the consumers. Very recently, Boons et al (2020) had studied the interruption and modification of practices linked to the COVID-19 eruption. His study revealed that essential areas such as food facility, shopping, and sustainable movement have started reflecting how the existing coping strategies might forage into the conversion to sustainable societies. Sustainable development idea has evolved as a new paradigm to sustenance in enervating existing and forthcoming environmental and social difficulties which might be due to outburst of Covid-19 pandemic. Sustainable development has three main dimensions' environment, economy and society (Ratiu and Anderson, 2014). And this concept has been said to contribute towards the development of sharing economy. It has been emphasized in literature that sharing economy is the new probable alleyway to achieve sustainability (Heinrichs (2013).

2.2. Factors affecting collaborative consumption practices

The market size for collaborative consumption has happening to upsurge immensely with the advent of digital transformation (Li and Wen, 2019). However, there are various determinants responsible for the adoption of sharing economy and CC. One such element is the financial benefits to consumers, highlighted in a study by Schor and Fitzmaurice (2015). Li and Wen in 2019 had defined financial benefits as the level to which collaborators assume that if they engage in CC practices it will provide them with money or help in reducing costs. Another very promising determinant poised in literature is Sustainability. According to Hamari, J (2016) sustainability is one of the main explanations that individuals engage in CC. There is a research on car sharing which revealed that sustainability is one of the stimuli which impacts attitudes toward car share (Hamari et al., 2016). However, there is literature to support that

environmentalism does not have a direct association with one's behavioural intention toward a CC (Möhlmann, M 2007). Due to this contradictory issue, it gave us the motive to further explore this phenomenon. Additionally, intentions are expected to upsurge when customers trust that their friends and families are following some activities in their life which would benefit the environment (Park and Ha, 2014). In a Meta-Analysis of factors influencing travellers to Carpool by Lars E. Olsson et al 2019, many psychological factors like security, reliability, time saving and cost saving has emerged. However, the effect of these factors on impacting the perceived sustainability was not explored in the previous studies. In the same study authors have also mentioned about various external factors that could have an impact on carpooling intentions. The non-availability of public transport on certain routes and the distance of traveling might impact the decision of adopting carpooling services. However, the impact of these external factors post covid 19 has not been explored among Indian users. With the kind of fear in the minds of consumers after undergoing this traumatic pandemic might have some impact on their behavioural intention to car-pooling services.

Consumer behaviour theory recurrently classifies an attitude-behaviour slit in many consumption areas, like amongst sustainable behaviour and environmental attitude. In the explicit concept of CC, while attitude predisposed intention to engage in CC, it was to a reduced degree than typically initiate amongst these constructs, perhaps demonstrating an inconsistency amongst testified attitude and actual behaviour (Hamari et al., 2016). However, the previous study detected relationship amongst attitude and intention toward CC in overall, and not toward a specific condition like the present study.

Hence hypothesis poised for the study are:

H¹: Psychological factors significantly impact perceived sustainability of CC

H²: Perceived Sustainability of CC will significantly impact attitude toward car-pooling intentions H³: Attitudes significantly impact carpooling intentions

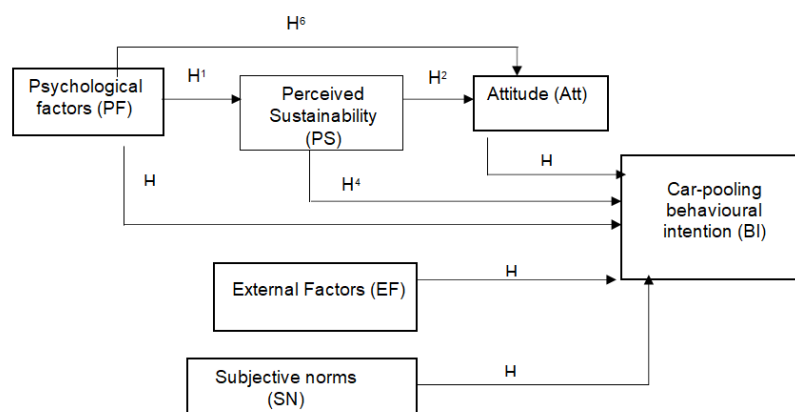
H⁴: Perceived sustainability of CC will significantly impact behavioural intention toward car-pooling H⁵: Psychological factors will significantly impact attitude toward car-pooling

H⁶: Psychological factors will significantly impact behavioural intention toward car-pooling

H⁷: External factors will significantly impact behavioural intention toward carpooling

H⁸: Subjective norms significantly impact carpooling intentions

3. Proposed conceptual framework



4. Research Methodology

A conclusive descriptive research was adopted for present research, employing surveys. This research was largely embattled to millennials within the age bracket of 22–38 years. Millennials

are considered to be highly tech savvy and very prompt on social media and Internet. They believe in the concept of trying out new modes of consumption rather than owning the product (Hwang and Griffiths, 2017). So, they are judiciously well-thought-out to be the section of customers for whom collaborative consumption is attractive. Convenience sampling method was applied to collect responses from 285 participants of the above-mentioned target populace. All the scales adopted in the current study were adapted from present protuberant printed sources. Few questions pertaining to actual use of car-pooling before covid-19 was also included in the survey. To test the proposed hypotheses of the present research multiple regression analysis was the prime analytical technique implemented. As suggested by Hair et al 2014 multiple regressions is most used tool to envisage the effect of independent variables on dependent variable, and is considered to be beneficial for understanding how various factors will impact attitude and behavioural intention toward the car-pooling. Principal axis factor analysis was executed to dispense the survey items regarding each construct to a single illustrative variable to be used in regression analysis. To establish the measurement model, a 2-step approach, operationalized by Anderson & Gerbing in 1988 was adopted. Step 1 comprised EFA; step 2 involved the Confirmatory Factor Analysis (CFA).

5. Major Findings

Situation 1: Pre-covid 19:

Based on the survey analysis it was emphasized that the millennial consumers have been using car pool very extensively. The summary of analysis has been given in table 1.

Table1: Summary of Pre covid-19 data analysis

| Parameter | | Frequency | Percentage |
|--|-------------------|-----------|------------|
| Since how long have you been using car-pooling? | More than 1 year | 41 | 14.38 |
| | 1-2 years | 157 | 55.08 |
| | More than 2 years | 87 | 30.52 |
| To what extent did you use car-pooling before covid-19 pandemic? | Every day | 136 | 47.71 |
| | Once in a month | 80 | 28.07 |
| | Fortnightly | 59 | 20.70 |
| | Very rare | 10 | 3.5 |

Situation 2: Post-covid 19:

Exploratory factor analysis

The exploratory factor analysis (EFA) extracted 6 factors as shown in Table 2. In EFA, the KMO value (more than 0.5 with significance) showed that the sample is adequate and acceptable. Hence, suggesting the appropriateness of the data for factor analysis. With the rotated component matrix, sixteen (25) items were rotated using the varimax rotation with Kaiser Normalization. The results showed that these 6 factors explained more than 76.01 per cent of total variance and there was no cross-loading on any factor. The reliability test also done for these factors and it showed that for all the factors the alpha values were more than 0.70.

Table 2: Determinants of car-pooling intentions post-COVID 19

| Name of the Variables/Factors | Factor Loadings | Total variance explained (%) | Eigen Values |
|-------------------------------|-----------------|------------------------------|--------------|
| Att1 | .659 | 39.672 | 9.918 |
| Att2 | .853 | | |
| Att3 | .805 | | |
| Att4 | .864 | | |
| Att5 | .811 | | |
| SN1 | .904 | 10.819 | 2.705 |
| SN2 | .859 | | |
| SN3 | .871 | | |
| SN4 | .909 | | |
| BI1 | .790 | 9.279 | 2.320 |
| BI2 | .875 | | |
| BI3 | .883 | | |
| BI4 | .742 | | |
| PF1 | .894 | 8.317 | 2.079 |
| PF2 | .754 | | |
| PF3 | .743 | | |
| PF4 | .893 | | |
| PS1 | .907 | 5.904 | 1.476 |
| PS2 | .616 | | |
| PS3 | .716 | | |
| PS4 | .914 | | |
| EF1 | .732 | 4.575 | 1.144 |
| EF2 | .793 | | |
| EF3 | .771 | | |
| EF4 | .619 | | |

Confirmatory factor analysis (CFA)

Goodness of fit indices

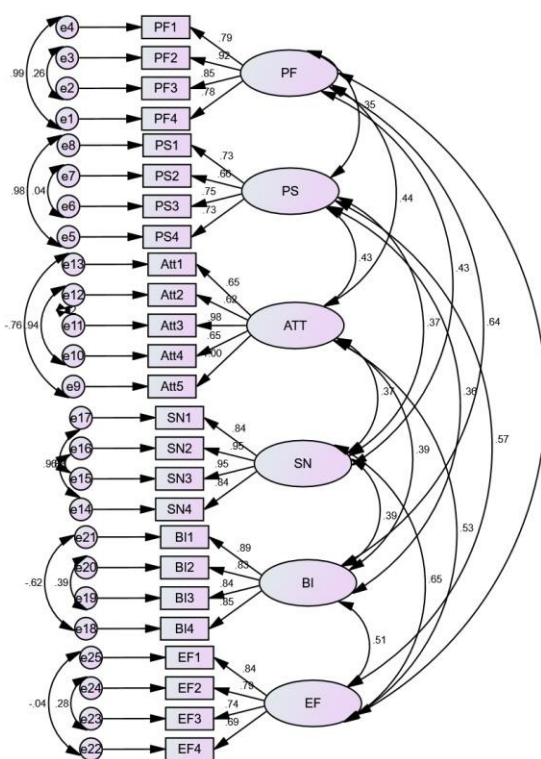
As suggested by Hair et.al 2008, measurement model was established. A sample size of 285 was used for proving the proposed associations between the constructs. The goodness-of-fit (GFI) of the estimated measurement model, were analysed, by adopting the guidelines by Hooper et.al., 2008. The measurement model of dependent and independent variables analysed using the CFA depicted a fairly good model fit with $\chi^2/df = 1.92$, CFI = 0.976, NFI = 0.952, IFI = 0.976, TLI = 0.971, and RMSEA = 0.057. Fig 2 shows CFA model. The results of the regression analysis have been highlighted in table 3.

Since the p value for all the stated hypothesis was less than 0.05, all the hypothesis were accepted. Table 3. Regression Analysis results.

| Independent Variable | Dependent Variable | F Value | Adjusted R2 | Standardized Coefficients (Beta) | Sig |
|------------------------------|------------------------------|---------|-------------|----------------------------------|-------|
| Perceived Sustainability(PS) | Attitude(Att) | 48.357 | 0.143 | 0.382 | 0.000 |
| Psychological Factors(PF) | Perceived Sustainability(PS) | 25.402 | 0.082 | 0.287 | 0.000 |

| | | | | | |
|------------------------------|---------------------------------------|---------|-------|-------|-------|
| Psychological Factors(PF) | Car-pooling behavioural intention(BI) | 128.967 | 0.311 | 0.560 | 0.000 |
| Psychological Factors(PF) | Attitude(Att) | 79.509 | 0.217 | 0.468 | 0.000 |
| External Factors (EF) | Car-pooling behavioural intention(BI) | 64.482 | 0.183 | 0.431 | 0.000 |
| Subjective Norms(SN) | Car-pooling behavioural intention(BI) | 37.209 | 0.113 | 0.341 | 0.000 |
| Attitude(Att) | Car-pooling behavioural intention(BI) | 48.854 | 0.144 | 0.384 | 0.000 |
| Perceived Sustainability(PS) | Car-pooling behavioural intention(BI) | 30.417 | 0.094 | 0.312 | 0.000 |

Fig 2: Measurement model



6. Implications of the study

The present study has investigated the impact of COVID-19 pandemic on the car-pooling intention (CC). Overall, data confirms that the pandemic outbreak has not impacted on consumers’ attitude towards car-pooling and hence car-pooling intention. All the proposed hypothesis were accepted. The acceptance of the hypothesis states that the users in India will not get impacted by this pandemic. As majority of the respondents have been using carpooling services since last 1-2 years and have been using it quite extensively, they agree that the psychological factors like cost benefits, time saving will definitely impact their intention towards using car-pooling. These users perceive carpooling as a sustainable mode of consumption.

Situations after COVID-19 have halted many lives and has prompted them to re-evaluate their choices and behaviour. Amongst all daily activities and businesses which pandemic has

affected, the transport industry in general and travel behaviour of people in specific are expected to change as the country progresses towards a new normal. To comply with social distance standards, public transportation systems will need to operate with limited capacity in new normal. Cabs and other shared services will also be impacted by the same restrictions. People may try to shift from public transport to shared rides services due to higher perceived risks associated with overcrowded public transport in India. Pandemic might have altered the attitude of Indian customers towards carpooling due to government lockdowns hygiene and health related concerns when sharing a ride but the present study indicates that it will not stay for long.

Given the anticipated changes post COVID-19, carpooling companies must take up proactive actions which are essential to reverse the augmentation of undesirable external factors. Safeguarding the safety and accessibility of public transport will be crucial for enabling economic activity and diminishing adverse environmental impacts. Companies must understand the possible psychological factors which might be associated with carpooling post Covid and devise suitable strategies to encourage sustainable car pool models for upcoming new normal like setting vehicle occupation to maximum three people including driver, making masks, hand sanitising and temperature checks mandatory compulsory. Appropriate distance to be maintained between passengers, vehicle to be well ventilated, set of rules for regular disinfection can be followed and displayed to all occupants, vaccination certificate can be uploaded while booking the rides by the passengers. Companies must understand that present need of the hour is to make passengers feel safe during carpooling to break all the psychological barriers to accept the new normal.

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Effect of Superstitions On Consumers' Purchase Intentions

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Abstract

Scanty literature is available on the effect of superstitions on consumers' purchase intentions. The study attempts to understand the effect of superstitions on purchase intentions. Along with superstitions, values and beliefs and attitude were also tested for their effect on purchase intentions. The primary data was obtained through convenience sampling from 222 respondents. SEM was applied on the data and it was found that superstitions, values and beliefs and attitude significantly influence the purchase intentions of the consumers.

Keywords

Superstitions, purchase intentions, values and beliefs, attitude, Consumer Behaviour

Introduction

While academic research has recognized the importance of various elements of the social and cultural environments in Marketing, individuals' superstitious beliefs and their impact on consumer behaviour have received very little attention in the Indian context. Superstitious beliefs and rituals can cause consumers to make purchase decisions that run parallel to their social rationality. Ang (1997) finds that quality expectations are greater for products with brand names for which consumers hold positive superstitious associations. Differences in expectations, in turn, are likely to influence how satisfied consumers will be post purchase (Oliver 1980; Oliver & Bearden 1985). Many prior studies have focused on the European and American consumers where the effects of Friday the 13th have been predominantly listed. Departmental stores in China sell red underwear the most in December to February to ward off evil & bad luck (Naumann et al, 2009) Studies in china have commonly identified the effects of Feng shui on consumers' decision-making process. The westerners too have their lucky amulets, which they carry along with them (Wiseman and Watt, 2004).

Superstition is expressed as irrational thought or belief that an object, behaviour or situation is associated with certain consequences (Damisch et al., 2010). Many people often perform rituals before making certain decisions, hit the board, avoid going under the stairs, use their lucky pens to succeed in exams (Vaidyanathan & Aggarwal, 2008), believe in astrology (Carlson et al., 2009) or attribute some special meanings to certain numbers. For example, while 8 means development or increase in the welfare in China, 4 means death (Simmons et al., 2003). In western culture, 13 is considered unlucky (Yang, 2011).

The objectives of the study are to study the effect of superstitions, values and attitudes and attitude on purchase intentions. The following figure is the proposed model of the study.

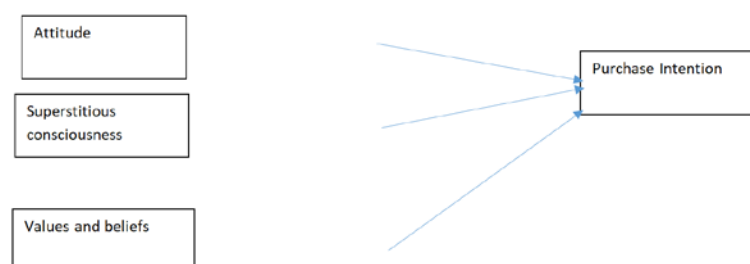


Figure 1: Proposed Model

Literature Review

According to Kramer and Block (2011), superstitious belief is a kind of peculiar belief and may exist either as a belief or half-belief. Superstition is a widespread, illogical and irrational belief that originates from anxiety or ignoring a phenomenon, whose cause is not known (Ang et al., 2014; Kramer and Block, 2011; Carlson et al., 2009). In spite of their prevalence, it is difficult to predict how superstitions may impact some behaviour. In professional sports and sports management, studies have shown that superstitious behaviour among athletes may have a positive effect on performance by reducing anxiety levels or helping to build confidence (Foster et al., 2006). On an empirical front, Kramer and Block (2007) found that superstitious beliefs influenced consumer decision making and how satisfied they were with product purchases. Consumers, for example were willing to pay more for a product when the price included lucky numbers or reported being more dissatisfied when a product deemed lucky failed.

Superstitions are beliefs that are not based on reason or scientific knowledge, but characterised by obsessive reverence to omens, charms, myths and more (Cambridge, 1995). At the basic level, people may engage in superstitious behaviours because they believe in its efficacy at influencing future outcomes (Kramer & Block, 2007). The belief in the ability of superstitious behaviours to affect outcomes can be influenced by the amount of uncertainty in the environment (Kramer & Block, 2007). Additionally, previous research suggests that superstitious beliefs provide people with an instrument to cope with the psychological and physical strain of their disadvantaged social and economic status (Rice, 2003). Superstition covers a wide range of beliefs and practices. Each individual differs in the propensity to express superstitious behaviour. Renard (1987) classifies superstitious behaviour into five distinct types: avoidance, attack, retraction, seduction and mythical justification. Avoidance is related to all superstitious prohibitions. Many people avoid doing something because it can bring them bad luck. Attack involves defending oneself by imposing counter-signs such as crossing fingers and touching a piece of wood or metal. Retraction is protecting or seeking shelter by using such things as good luck charms to escape bad luck. Seduction is an act of making an offer or sacrifice and asking for good luck in return. Mythical justification involves accepting good or bad luck from an irrational explanation on random events.

Superstitions are important factors that affect consumer behaviours. Studies on superstitions in the field of marketing usually focus on the effects of such superstitions as certain lucky objects or colours or hitting the board on the consumer. In these studies, individuals were generally examined in terms of turning superstitions into behaviour with the aim of feeling themselves secure and for controlling purposes (Damisch et al., 2010). The superstitious behaviours have been identified as –

- Purchasing or attributing special meanings to products that contain specific or lucky colours (green, etc.) or numbers (Kramer & Block, 2007a; Block & Kramer, 2009; Hamerman & Johar, 2013) etc.
- Believing that doing important purchases at times considered lucky such as when there is a full moon or believing that the time of starting shopping affected the result (Balakrishnan, 2017).
- While playing the lottery, selecting the numbers out of interesting things like dreams or leaves of the tree, making vows to increase the chances of winning such as celebrating after winning, doing good work and realizing the vow (Pusaksrikit et al., 2018). Assuming that the chance of winning the lottery would increase, desiring for more participation in the lottery and investing more money based on the lucky numbers (Jiang et al., 2009).
- Paying more for market offerings regarding superstitions (8th floor apartments in China can be sold at higher prices) (Chau et al., 2001; Yang, 2011).

Hypothesis for the study

H1: Values and beliefs influence consumers' purchase intentions.

H2: Attitude influences consumers' purchase intentions.

H3: Superstitions influence consumers' purchase intentions.

Method

This study is a cross-sectional study. The data were collected with the help of a well-structured questionnaire from young people in the age group of 15-40 years, residing in Non Capital Region(NCR)/New Delhi, India. Survey was conducted from December 2020 to February, 2021. Convenience sampling method was used. Convenience sampling was especially selected because they are easily accessible to researchers (Sekaran and Bougie, 2013). This approach is typically used in exploratory studies as it is not time-consuming nor is it costly in the selection process of a random research sample. The close-ended questionnaire was divided into two parts. The first part contained consumers' attitudes towards superstitious beliefs and values. The second part describes the demographic details of respondents. The first part of the questionnaire included a list of statements (22 items) that measured their extent of agreement towards the variables. The items were measured on a 7-point Likert scale with 1 representing a low score (strongly disagree) and 7 representing a high score (strongly agree). These statements were selected after a rigorous literature review and discussion with a four-member panel. The multi-item scales adopted from the past studies were used and improved to fit in the context of the study. These statements were sequenced in a way to avoid response bias to the maximum extent. Prior to the main survey, a pilot study was conducted to validate the items of the instrument on a sample of 20 respondents. They were asked to comment on the length, format and wording of the statements of questions. The results of this pilot study led to minor changes in the language of some questions, as English is not a native language of India. Although 240 respondents participated in the survey, only 222 responses were usable. The remaining responses were rejected on account of incompleteness. The structured questionnaire was found to be reliable and valid. The Cronbach alpha of each item ranged between 0.704 - 0.807. Since, all constructs had Cronbach's alpha of greater than 0.70 (Nunnally, 1967), it suggests internal consistency of items to measure each construct.

Results and Discussion

Respondents' profile

The demographic profile of the respondents is illustrated in table 1.

Table 1: Demographic Profile

| Variables | Intervals | Frequency | Percentage |
|----------------|---------------|-----------|------------|
| Age | 13-19 | 33 | 14.9 |
| | 20-35 | 152 | 68.5 |
| | 36-50 | 37 | 16.7 |
| Total | | 222 | 100 |
| Qualifications | Schooling | 21 | 9.5 |
| | Graduate | 114 | 51.4 |
| | Post Graduate | 61 | 27.5 |
| | Professional | 26 | 11.7 |
| Total | | 222 | 100 |
| Marital status | Single | 143 | 67.4 |

| | | | |
|-------------------------|------------------|-----|------|
| | Married | 61 | 27.5 |
| | Widower/Divorcee | 18 | 8.1 |
| Total | | 222 | 100 |
| Occupation | Self-employed | 30 | 13.5 |
| | Private | 56 | 25.2 |
| | Housewife | 34 | 15.3 |
| | Students | 102 | 45.9 |
| Total | | 222 | 100 |
| Annual Household income | <=3lkhs | 43 | 19.4 |
| | 3.1-6lkhs | 60 | 27 |
| | 6.1-10lakhs | 85 | 38.3 |
| | Above 10 lakhs | 34 | 15.3 |
| Total | | 222 | 100 |

Exploratory Factor Analysis(EFA)

An EFA was carried out using SPSS to identify the underlying factors, as per the guidelines suggested by Garbing and Anderson (1988). Principal component analysis (PCA) was conducted to extract a set of factors. All the twenty-two items were found to have a communality of greater than 0.5. To test the sample adequacy, KMO measure of sampling adequacy is computed, which is found to be 0.874 indicating that the sample is good enough for sampling. The correlations matrices computed & examined reveal that there is enough correlation to go ahead with factor analysis. KMO measure of sampling adequacy (MSA) for individual variables show that correlation is sufficiently high for all variables (Hair et al, 1995). The Bartlett test of Sphericity (approx. Chi-square = 2348.388 significant $d = 0.00$) supports the validity of the data set for factor analysis. Those factors having Eigen values greater than one are considered significant, all the other factors are considered insignificant & disregarded. Varimax rotation was considered. The index for the solution accounts for 61.612 of the total variation which is a good extraction as it is able to economize on the number of choice factors (from twenty-two it was reduced to five underlying factors) while it lost 38.38% information content for choice variables.

Table 2: Eigen values, variance

| S.no | Eigen Values | Variance | Cumulative variance |
|------|--------------|----------|---------------------|
| 1 | 7.973 | 14.509 | 14.509 |
| 2 | 1.743 | 14.202 | 28.712 |
| 3 | 1.466 | 12.998 | 41.710 |
| 4 | 1.250 | 10.901 | 52.611 |
| 5 | 1.123 | 9.001 | 61.612 |

Table 3: Extraction Method: Principal Component Analysis

| Items | Purchase Intention | Attitude | Superstitious | Values and beliefs |
|-------|--------------------|----------|---------------|--------------------|
| PINT1 | .518 | | | |
| PINT2 | .743 | | | |
| PINT3 | .743 | | | |

| | | | | |
|--------------------|----------|------|------|------|
| PINT4 | .532 | | | |
| PINT5 | .665 | | | |
| Att1 | | .683 | | |
| Att2 | | .742 | | |
| Att3 | | .713 | | |
| Att4 | | .662 | | |
| S1 | | | .675 | |
| S2 | | | .750 | |
| S3 | | | .569 | |
| S4 | | | .702 | |
| S5 | | | .622 | |
| Vb1 | | | | .634 |
| Vb2 | | | | .703 |
| Vb3 | | | | .546 |
| KMO | .874 | | | |
| Approx. Chi-Square | 2348.388 | | | |
| df | 231 | | | |
| Sig. | .000 | | | |

In the study, measurement of the research constructs relies on the perceptions of the consumers. A concern over same-source bias or general method variance may arise. So, the data was tested for common method variance (CMV) in accordance with Harman's one-factor test as suggested by Podsakoff et al. (2003). CMV occurs if all the variables load on one factor or a single factor explains the majority of variance. An un-rotated factor analysis of all items showed that the first factor only explained 33.82% out of 61.62% of the variance that was explained by factors. This was less than 50%. No single factor dominated. Therefore, there was no evidence for common method bias.

The variance-based method Partial least squares structural equation modelling (PLS-SEM) was used for information investigation and hypotheses testing proposed by different researchers (Hair et al., 2017; Rönkkö and Evermann, 2013). This study follows the two-stage analytical procedures recommended by Anderson and Gerbing (1988) using AMOS. In the first stage, the measurement model was evaluated to assess convergent validity and discriminant validity. The structural model was evaluated to test the hypotheses.

Measurement Modelling

The purpose of assessment of the measurement model was to evaluate the relationship between each indicator and its related construct, as well as to ensure that each construct is distinct from the others. Table 4 presents standardised factor loadings, composite reliability, average variance extracted and Cronbach's alpha for measured scales. The alpha values range from .704 to .807, which are above the threshold of 0.70 (Hair et al, 2015; Malhotra and Dash, 2014). The convergent validity was measured through standardised factor loadings, composite reliability (CR) and average variance extracted (AVE). Standardised factor loadings above 0.50 (Hair et al, 2015) were kept for further analysis. Two items for purchase intention (PINT1 and PINT2),

two items for superstitious conscious (S4 and S5) and one item for values and beliefs (vb1) had to be deleted because of low standardised factor loadings. The prerequisites of construct reliability are achieved when composite reliability (CR) is >0.7 and AVE is >0.5 (Hair et al, 2015). The analysis indicates that CR for all constructs is >0.7 and AVE is >0.50 . Thus, all variables are reliable. The discriminant validity was achieved when average variance extracted (AVE) $>$ square correlation estimate (Hair et al, 2015). Table 5 indicates that AVE on all variables of this study exceeds the square correlation between constructs. Thus, discriminant validity is met with.

Table 4: Standardised factor loadings, Composite reliability, Average variance Extracted and Cronbach's alpha

| Construct | Items | Loadings | CR | AVE | Cronbach's alpha |
|-------------------------|-------|----------|------|------|------------------|
| Values and beliefs | vb2 | 0.889 | 0.7 | .551 | .704 |
| | vb3 | 0.559 | | | |
| Attitude | Att1 | 0.774 | .809 | .516 | .807 |
| | Att2 | 0.816 | | | |
| | Att3 | 0.645 | | | |
| | Att4 | 0.622 | | | |
| Superstitious conscious | S1 | 0.706 | .793 | .561 | .789 |
| | S2 | 0.822 | | | |
| | S3 | 0.715 | | | |
| Purchase intention | PI3 | 0.615 | .769 | .722 | .755 |
| | PI4 | 0.73 | | | |
| | PI5 | 0.823 | | | |

Table 5: Discriminant Validity

| | Values and beliefs | Attitude | Superstitious Conscious | Purchase Intention |
|-------------------------|--------------------|-------------|-------------------------|--------------------|
| Values and beliefs | .742 | | | |
| Attitude | .624 | .718 | | |
| Superstitious Conscious | .5 | .641 | .749 | |
| Purchase Intention | .575 | .695 | .601 | .850 |

Note: Diagonal values represent the square root of AVE, while off-diagonal values represent the correlations.

The assessment of goodness of fit was made by multiple indicators. The ratio of chi-square and degree of freedom should be below the recommended value of 3 (Kline, 2015). Goodness of fit (GFI) should exceed 0.90, Adjusted Goodness of Fit Index (AGFI) should exceed 0.80, Incremental Fit Index (IFI) with a value of more than 0.90 indicates a good model fit, Normed Fit index (NFI) and Comparative Fit Index (CFI) should also exceed 0.90 (Hair et

al,2015;Malhotra and Dash,2014).Root Mean Square Error of Approximation(RMSEA) with a value within range of 0.80 indicate a model fit(Jackson and Trull,2001;Morey,1991).For this study, all these fit indices are acceptable (CMIN/DF=2.078,GFI=0.933, AGFI=0.891,IFI=0.949,NFI=0.907,TLI=0.929,CFI=0.949,RMSEA=0.07).

Hypothesis Testing-Structural Model

PLS-SEM was used to recognise the structural relationships between different variables and their effects and to test hypotheses for this study. We tested the collinearity statistics among the constructs in the structural model. According to Hair et al (2017), the variance inflation factor (VIF) values should be ≤ 5 . In this study, the VIF values range from 2.181 to 3.055. Thus, there are no collinearity issues in the model.

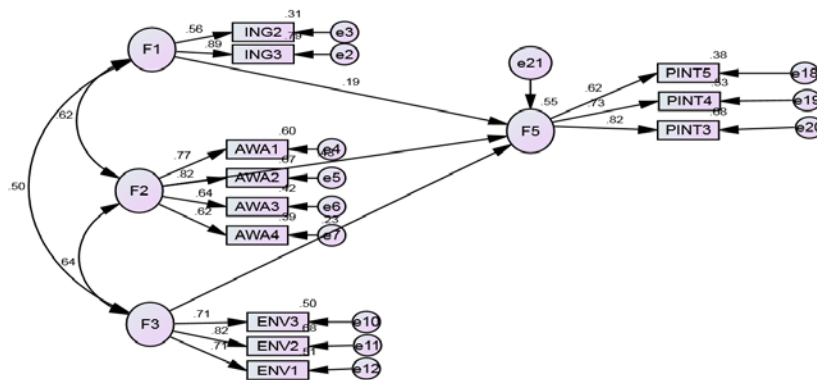
The second step was to assess the path coefficient to evaluate the significance of the hypothesized relationship among the constructs. The results of the path coefficients indicate that all the three hypotheses are supported (table 6). The results indicate the path coefficient between values and beliefs and purchase intention is .193, the path coefficient between brand attitude and purchase intention is .516, and the path coefficient between superstitious consciousness and purchase intention is .210.

Table 6: Calculation of Structural Model

| Hypotheses | Relationship between variables | Non-standardised regression coefficient | Standardised regression coefficient | t value | Result |
|------------|---|---|-------------------------------------|---------|-----------|
| H1 | Values and beliefs' influence on purchase intention | .111 | .193 | 2.862* | Supported |
| H2 | Attitudes' influence on purchase intention | .314 | .426 | 3.509* | Supported |
| H3 | Superstitious conscious influence on purchase intention | .168 | .231 | 2.289* | Supported |

* $p < 0.05$

Figure 2 : Final Model



F1 – Values and Beliefs F2 – Attitude, F3 – Superstitious, F5-Purchase Intention

Conclusion

Scanty literature is available on the effect of superstitions on consumers' purchase intentions. The study attempts to understand the effect of superstitions on purchase intentions. Along with superstitions, values and beliefs and attitude were also tested for their effect on purchase intentions. The primary data was obtained through convenience sampling from 222 respondents. SEM was applied on the data and it was found that superstitions, values and beliefs and attitude significantly influence the purchase intentions of the consumers.

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Appendix - A list of Questionnaire's items

1. I buy the products that I think are lucky (contains my lucky colour or number etc.)
2. I buy the products when I think they bring me luck (Friday, Weekend etc.)

3. I buy products from stores that I think have brought luck
4. I buy products that fit my horoscope
5. I carry a lucky amulet with me all the time.
6. While buying products I would like to base the purchase on my superstitious beliefs (lucky products, numbers, colours, times, stores etc.)
7. Purchasing products in accordance with my superstitions is nice.
8. It is important to buy products based on my superstitions for me.
9. Buying products based on my superstitions (lucky / lucky numbers, colourful, time, store, amulet etc.).is easy for me.
10. I believe in superstitions.
11. Buying products based on my superstitions (lucky / lucky numbers, colourful, time, store, amulet etc.).is resourceful to me.
12. Purchasing products in accordance with my superstitions is enjoyable to me.
13. I never leave home without my good luck charm.
14. I believe in the power of lucky charms.
15. I believe in fan rituals, like wearing lucky shirts during a game can influence game outcomes.
16. I believe in karma.
17. I buy products when associated with it strongly.
18. I read and believe in the horoscopes published online/offline in newspapers.
19. I believe it is possible to jinx things or situations.
20. Good chi attracts prosperity.
21. I try hard to live my life according to my values and beliefs.
22. I take a positive attitude toward myself.

Making meat, better: Indian Consumers' preference and acceptance for plant-based meat

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Abstract

Meat alternatives made using plant-produce and their variants are being consumed at a slower rate in underdeveloped countries. Considering their sustainable benefits, it is important to understand their acceptance among consumers. Additionally, increased meat consumption has undesirable effects on the environment. It will be vital to determine whether the consumers' health and environmental consciousness can be considered reliable allies in achieving this shift toward alternative meat consumption in the future. This empirical research applying SEM purposes to understand the awareness, acceptance of plant-based meat among consumers by evaluating the effect of environmental concern, meat attachment, and understanding of the health benefits. The study findings approve that the health and environmental concern have a significant impact on preference and acceptance of plant-based meat. This study has potential repercussions for the meat industry and the government.

Keywords: Plant-based meat, Meat Consumption, Health Consciousness, Food Neophobia and Food Products.

Social Class Change through Consumption: Effect of Sanskritization and Taste Insertion

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Abstract

This study brought better understanding of the class change process through 'sanskritization' (Srinivas, 1966) in current times with specific focus on habitus based 'taste' (Bourdieu, 1984) changes that eventually culminates into altered consumption pattern. Through interpretive research methods, gathered information primarily from members of two groups, geographically separated but belonging to same social class, and had experienced upgradation in lifestyle. The findings are captured in the form of a model detailing the process and The successful Achiever identifies the 'marker possessions' of the target class group and tries to acquire them modifying own 'taste' through imitation (Tarde, 1903). Thus, acquisition of new status goods provides with a possibility of continuous upward movement to other classes, which is an opportunity for brands to capitalize on.

Keywords: Social class, Sanskritization, Taste change, Marker possessions, Imitation, Insertion

Introduction

The social class mix in developing countries is undergoing drastic changes with intense economic activities, which brought about unprecedented growth in middle class size. Considerable amount of population has crossed the class boundaries occupying new classes. Class change is not a simple process which can be effected by the income change alone. In pre-modernization period, wealthy low caste copied rituals and life-style, got sanskritized (Srinivas, 1966), to claim higher caste status (Srinivas, 1966, p. 96). In today's context too, any class change does requires copying of life-styles and symbols of destination class. The process 'Sanskritization' is used here in a broader perspective, keeping true to the essence of 'imitation or copying', of symbols, idea and life style of a reference group of current times to uplift once own life styles class status. Hence, we are taking the help of the same processes to study the effect of class changes from marketing perspective.

Class effect on Consumption

When looking from the consumption angle, the objects consumed encompass cultural and personal meanings and it aids to classify their consumers (Holt, 1995). When many people consume similar products, they get identified as a group with similar preferences and becomes base for classifying them as 'class'. Bourdieu (1984) reasons that having similar level of education, income and occupation pools individuals into having 'habitus' (the term used by Bourdieu) or common ideas on 'life style' appropriate to the group. He says that an individual's consumption is to their socially conditioned 'taste', as per the respective habitus. Hence, the 'tastes' can be broadly seen as learned. Based on the above, we can also state that the consumer preferences are based on the tastes shaped by the 'habitus' (Allen & Anderson, 1994). Habitus is common to people with similar social conditionings and similar material conditions of life that they share, and identifies them as a group or a class.

Research Approach

The study is of sociocultural in nature involving people using consumption to modify their social standing. Accordingly, followed interpretive research protocol to bring out the deeper sociocultural understandings. Hence, used 'conversational interviews' as the primary method of data collection along with observation and extant literature available on the subject. Primarily observed and interviewed respondents belonging to two groups from a specific lower social class (varna) and who gradually got their life style upgraded, benefitting from the socioeconomic changes in their immediate environment. One group was influenced by the growing city which engulfed them. While, other group got benefited from the growth of tourism industry in their area and the inflow of foreign tourists. Also used information gathered from young individuals who have experienced a lifestyle change as they migrated into a city in connection with their new found employment. All interviews were video recorded, along with observational details. Coded the gathered data using open and axial coding approach (Braun & Clarke, 2006) and analysed. Using the patterns emerged created a model for class change and the process.

Achieving class change

The social class is a dynamic assembly of people who contribute and share to the collective identity of the class. Bourdieu and Wacquant (1992) define 'habitus' as an "open set of dispositions" of individual actors that is constantly modified or reinforced through experience (Allen and Andersen, 1994). Class habitus influences the 'taste' of the consumer preferences. Respondents detailed on their journey to become part of their aspirational group or get general approval from those whom they want to be like. A change in class is by means of getting exposed to a new 'class habitus' (Destination Class Habitus) and get influenced by it, and the class change is confirmed through changes in the 'taste'- Figure 1.

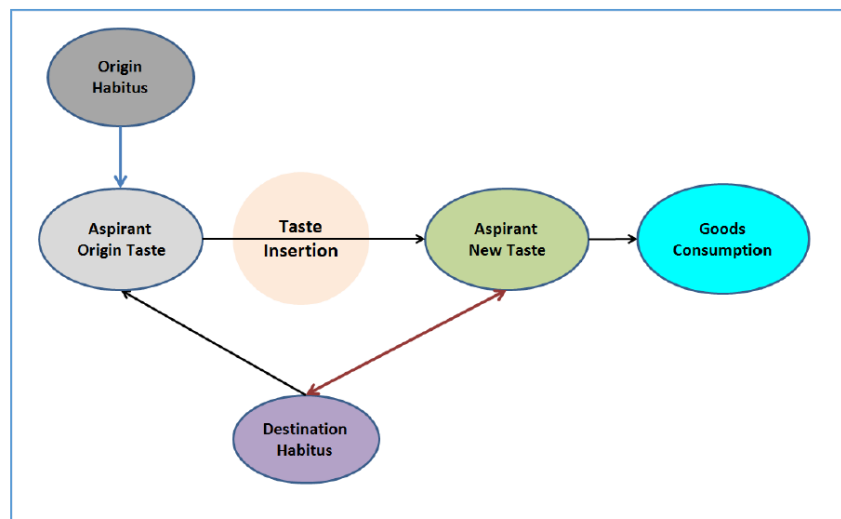


Figure 1. Taste Formation and Consumption

The change in 'taste' is a continuous process that, Aspirant shaped to origin class habitus interacts with the destination habitus to form 'new taste' and gradually gets integrated. The new taste is formed through 'insertion' (Tarde 1903), by reinforcing or diluting or deleting or replacing origin class tastes, to form new taste canted towards that of destination class habitus. Confirmatory evidence of taste change is noted through consumption preference exhibited by the Aspirant. The goods consumed witness the class change, enabling new class membership,

though it happens through interactions over time. Destination class habitus and Aspirant taste are continuously evolving to achieve congruence across the habitus. However, some of the taste from the origin class can remain with the aspirant.

Announcing class change

Personal effects were used as 'markers of status' for ages and were used in identifying social class (Han, Nunes, & Drèze, 2010). In the Pre-modernization days, the lower caste who acquired wealth and political power, get themselves sanskritized by copying the locally dominant class over a period of time and made claim to high caste or varna status. Figure -1 is the proposed model for class change process showing various factors derived from the study and literature. Caste based class division lost its enforcing capability and hence its value, especially in urbanized areas and ceased to provide status associated with it. In an effort to differentiate, high ranking elite class got themselves westernized and secularized, when they noticed many lower caste getting themselves sanskritized. Secularized and Urbanized classes showed their opulence by exhibiting then in an ostensible way. (Srinivas, 1966, p. 132) narrates how wedding reception were used to conspicuously exhibit wealth and 'connections' by inviting ministers, prominent politicians and local worthies.

Veblen (1899, p. 57) made the noteworthy statement that 'all classes indulge in conspicuous consumption to the degree affordable'. Hence, possession becomes tangible evidence of prowess and carries out honorific signalling. Thus, Class status get judged against possessions and each class becomes identifiable with their possessions. Levy (1959) while talking on signalling capability of goods said that "things are bought to attest to their (owner's) social (class) positions". In conveying status, goods are more forthcoming and more revealing (McCracken, 1986). Possessions viewed and identified by the others, tend to become status indicators according to the perceiver's status perceptions and gets endowed with status accordingly, irrespective of the fact that the possessor flaunts it or not.

Achiever get sanskritized to the 'life-style' of the destination class by consuming those goods which identify the class, in an attempt to resemble reference group (Bearden & Etzel, 1982). Imitation is the best possible way to learn the 'taste' and enrol into the 'class habitus' of the new class. In the quest to attain entry into the new class, assiduous effort in copying the 'life-style' make Achiever to consume those products which associate themselves with and be perceived as a member of destination class (Han, Nunes, & Drèze, 2010). Those goods consumed in public by the members of the destination class with high conspicuous value become first point of reference for the Achiever. Destination class is the reference group and is used as standard of comparison against which the Achiever carries out self-appraisal (Bearden & Etzel, 1982)) on class status achievement. Through 'Consumer Socialization' (Ward, Consumer Socialization, 1974) Achiever acquires 'attitudes and behaviours' appropriate to the destination class (Ismail, 2011).

Class status symbols are of expressive significance which fulfils the function of communicating and allowing others to discover ones' status (Goffman, 1951). Through observation the Achiever notices those 'loud' symbols which were the 'markers' of the aspirational destination class. Exclusive goods which are "seen and identified by others", starting with publically consumed necessities to publically consumed luxuries (Etzel et al, 1982) serves to the purpose of class status announcement. Status goods with high visibility will get consumed as the foremost interest for Achiever to disassociate from origin class (Han et al, 2010).

The effect of Mass media coupled with fast paced technology will be so great that market

information flow in either direction will be instantaneous and marketer has to be in tandem that it reflects in their offerings. It even makes it possible to identify and know reference groups across markets, societies and countries (Ustuner & Holt, 2010). Education will be more of skill based and again technology enabled, making easily accessible to masses and empowering individual to carve their own success path. Better education paves path to better employment prospects produced by rapidly expanding industry and economy. Social and spatial mobility improves exponentially with reduced barriers. Increase of wealth through possession accumulation is continuous and necessary condition to maintain position and upward class movement. Time factor is most favourably placed with overall improvements in infrastructure and institutions that multiple class changes or even leapfrogging to higher class is possible.

Upward mobility of new achievers will be much higher compared to those a decade ago, due to the favourable disposition of the factors. This will enable many to join higher class from below and those in lower strata to move up at faster pace, resulting faster sanskritization into the destination class, making sporadic changes to the market demands in quantity, quality, function, and fashion by imitation coupled with innovation (Tarde, 1903). Pace Keeper, previously sanskritized achiever into the class or level, continues sanskritization to differentiate from fast sanskritizing lower class (level). The skidders, who moved down from top tiers of classes, brings along with them some remnants of their 'taste', causing trickledown effect which will reach to the lower levels.

Conclusion

Acquisition opportunity for new status goods is present continuously in upward class movement and in moving along class levels. Most of the Achievers tend to be young and their need for attention and recognition is high, making demand for publically consumed luxuries to go up (Truong, McColl and Kitchen 2009) along with publically consumed necessities. This group tend to consume those luxuries which are 'loud' in conspicuous value. The presence of Achievers makes it necessary for the Pace Keepers to sanskritize further in effort to maintain differentiation, and are inclined to go for goods with 'quite' and 'discreet' appeal. There no need for announcing their presence, rather the symbols used are for 'horizontal signalling' to fellow Pace Keepers. The skidders, tend to prefer 'quiet' symbols as they neither want their arrival noticed nor want to integrate into the destination group easily. Brands can serve differentiation function by providing 'loud and quiet' versions of branding.

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The Linkage of Mirror Neuron Theory with Cause Related Marketing Efficacy: The Impact of Cause Category, Cause Type and Personal Values on Attitude Towards Corporate Image

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Abstract

This study, conducted in the cities of Bangalore, Chennai, Hyderabad, Kochi and Vishakpatnam, was an investigation to identify the dimensions of mirror-neuron based cause related marketing, which is a special type of cause related marketing with high emphasis on empathy-oriented cause specificity. This research identified the characteristics of mirror-neuron based communication as empathy-embedded communications that target primary need-based humanitarian causes. The mirror neuron theory of empathy and imitation was supported by this classical field experiment, which also highlighted the fact that the more the communication content was identical with the recipient the more would be the customer centricity. Higher degree of customer centricity led to better advertisement attitude, which enhanced favourable corporate image and customer behaviour.

Keywords: Mirror Neuron, Cause related marketing, corporate image, cause category

Background of the Study

Marketing communication is considered to be the ways and means by which companies engage to inform, remind and persuade consumers indirectly or directly about their services or products or even about their corporate policies and mission. Kotler et al. (2009) pointed that marketing communications represent the 'voice' of the company and its brand and are a platform by which it can institute a dialogue and begin relationships with all stakeholders, specifically with customers. Finally, commercial communication clutter is rampant and it seems more consumers are opting for pro-social (Nilsson, 2007) and eco-friendly standpoint in purchase options.

| Construct | Definition | Proponents |
|-------------------------|---|---------------------------------|
| Cause related marketing | Cause-related marketing is the procedure of formulating and applying marketing activities that are categorized by an offer from the firm to contribute a definite amount to a designated cause while customers engage in revenue providing exchanges that satisfy organizational and personal objectives. | Varadarajan & Menon (1980) |
| Cause | Organized endeavors or activities designed to alleviate a societal problem. | O'Brien (2004) |
| Mirror Neurons | Mirror neurons are a specific class of visuomotor neurons in the brain that display activity both when a person performs an action and when he observes another person performing the same action. | Rizzolatti and Craighero (2005) |

Table 1: Definitions

Conceptual Model

Mirror neurons, characterise a system that straight matches observed and executed activities (Shete and Garkal, 2016). Ramachandran (2000) predicted that “mirror neurons will do for psychology what DNA did for biology”.

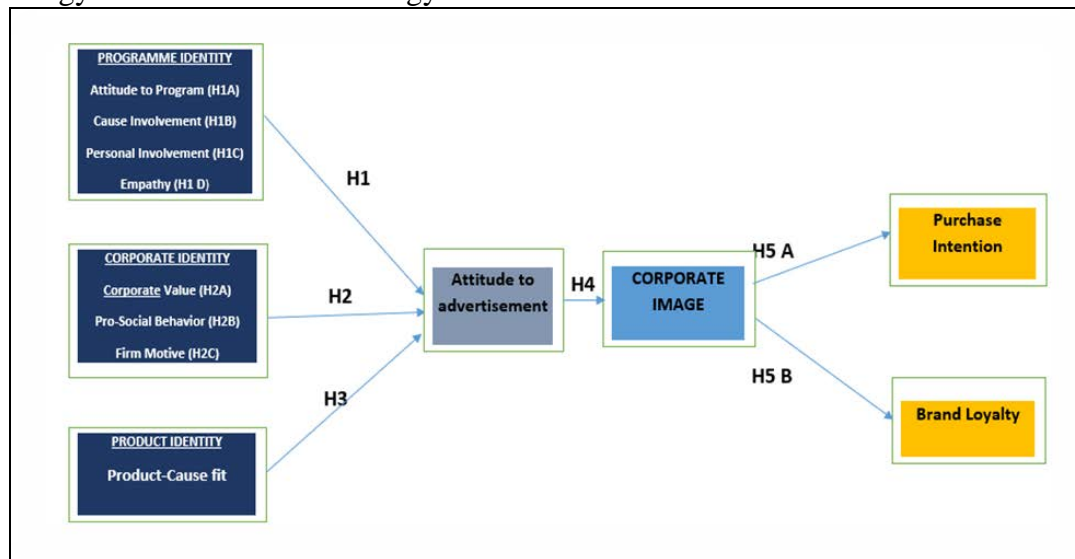


Figure 1: The Conceptual Model

Methodology

This study follows the framework of classical experimental design, which is the most widely used design to measure attitudinal and behavioural changes. Respondents were assigned to each of the designated groups randomly: Control group, Amazon Rainforest Project Group (hereafter referred to as Amazon Group), Save Child from Education Group (hereafter referred to as Child group) and Food for Homeless Hungry Children Group (hereafter referred to as Hunger group). Independent variables were manipulated using four stimuli:

- (1) Stimulus A: An exposure to negative corporate image of a fictitious brand called FIGY Noodles India Ltd.
- (2) Stimulus B: An exposure to negative corporate image a fictitious brand called FIGY Noodles India Ltd and exposure to cause-related marketing message on Save Amazon Rainforest by FIGY Noodles India Ltd.
- (3) Stimulus C: An exposure to negative corporate image and exposure to cause-related marketing message on Educate Homeless Children project by FIGY Noodles India Ltd.
- (4) Stimulus D: An exposure to negative corporate image and exposure to Cause-related marketing message on Feed Homeless Children project by FIGY Noodles India Ltd.

Classical Experiment

The first step: selection and assignment involve two comparable groups: the test group and the control group. The control group does not receive the stimulus but instead serves as a baseline for evaluating the behaviour (dependent variable) of the experimental group or test group. The second step is to pre-test each group.

| Treatment group/ Characteristics | Control Group | Amazon Group | Child Education | Feeding poor children Group |
|-------------------------------------|---------------|---------------|-----------------|-----------------------------|
| Group | Group 1 | Group 2 | Group 3 | Group 4 |
| Cause Type | NA | Tertiary | Secondary | Primary |
| Cause category | NA | Environmental | Social | Humanitarian |

Table 2: Summary of Group Characteristics

Sample

Data collection was conducted in five major southern States of India using quota sampling method, mainly targeting urban consumers. A total of 812 cases remained for the analysis, in which 446 were female participants, that is 54.92 per cent and 336 were males that is 45.07 per cent. Respondents were distributed geographically as follows: Andhra (162), Karnataka (158), Kerala (166), Tamilnadu (163) and Telangana (163).

Manipulation Checks

Both treatment and control groups are provided with the following elements to negate the confounding effects: keeping donation amount identical, random sampling, same demographic characteristics, identical programme duration, use of utilitarian product from FMCG category and manipulation only in the cause specificity (mirror neuron-based cause)

Results of Structural Model Tests

The result of reliability analysis for the general model is given below:

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | No. of Items |
|------------------|--|--------------|
| .945 | .949 | 78 |

Table 3: Reliability Statistics

Reliability and Scale Statistics

The Standard Deviation (SD) is an indicator of how far an individual response to an item deviate or vary from its mean value (Datastar, 2013). Programme identity has highest mean (51.56) and SD (8.465) among all dimensions. All scales, except Product Identity have more than 0.7 Cronbach's Alpha. Product Identity has a low value 0.599 even after removing least scored item.

| Scale | Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | No. of Items | Mean | Variance | SD |
|--------------------|------------------|--|--------------|-------|----------|-------|
| Program Identity | 0.839 | 0.843 | 16 | 51.86 | 74.739 | 8.645 |
| Corporate Identity | 0.763 | 0.786 | 10 | 31.8 | 44.301 | 6.656 |
| Product Identity | 0.598 | 0.599 | 2 | 6.37 | 2.807 | 1.676 |
| Personal Belief | 0.799 | 0.8 | 7 | 27.05 | 17.377 | 4.169 |
| Attitude to Ad | 0.864 | 0.87 | 9 | 29.09 | 42.885 | 6.549 |
| Corporate Image | 0.834 | 0.852 | 5 | 15.77 | 11.156 | 3.34 |
| Purchase intention | 0.861 | 0.86 | 6 | 17.38 | 24.668 | 4.967 |
| Brand Loyalty | 0.907 | 0.907 | 5 | 14.55 | 19.505 | 4.416 |
| GFI=.969 | CFI=0.993 | NFI=0.993 | IFI=0.992 | | | |

Table 4: Reliability score for dimensions

Findings

An independent-sample t-test was carried out to compare the following dependent variables: Attitude to Ad, Purchase Intention, Brand Loyalty and Corporate Image, in Amazon group and Child Education group conditions. There was a not significant difference in the scores of Attitude to Ad (AdE) for Amazon (M=3.26, SD= 0.728) and Child Education (M= 3.36, SD=

.766) conditions; $t(482) = 1.498$, $p = 0.135$; Purchase intention for Amazon ($M = 2.87$, $SD = 0.844$) and Child Education ($M = 2.95$, $SD = .924$) conditions; $t(482) = 1.065$, $p = .285$; Brand Loyalty for Amazon ($M = 2.86$, $SD = 0.864$) and Child Education ($M = 2.91$, $SD = .94$) conditions; $t(482) = .672$, $p = 0.502$; and Corporate Image for Amazon ($M = 3.18$, $SD = 0.707$) and Child Education ($M = 3.21$, $SD = .563$) conditions; $t(482) = -0.506$, $p = 0.613$.

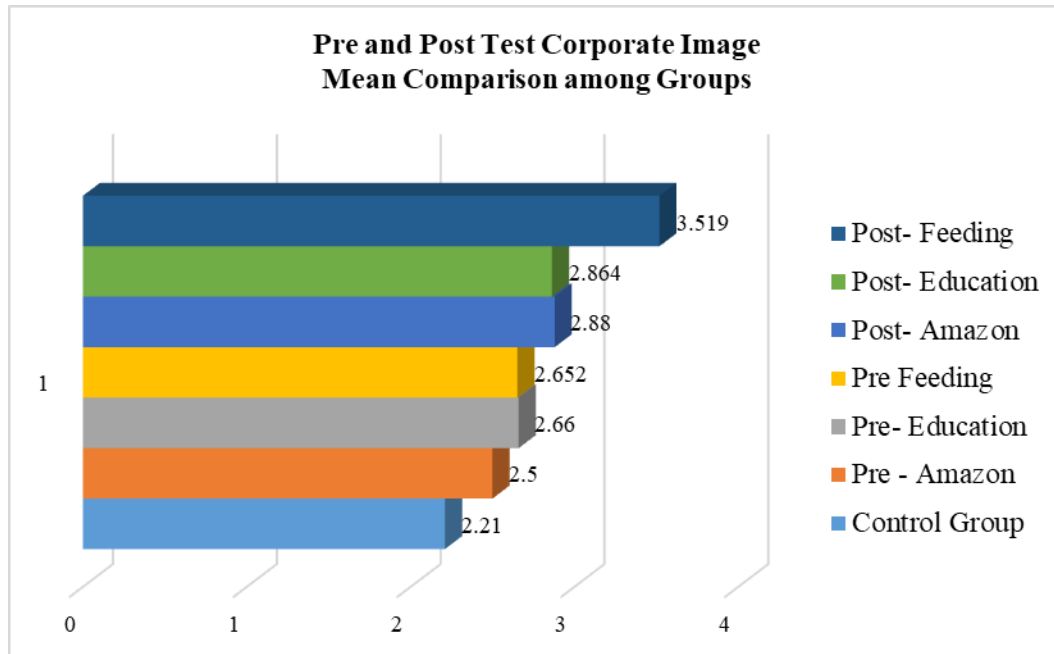


Figure 2: Response to Corporate Image from respondents of different groups

The results presented in table show that there is a considerable difference between the mean values of pre and post experimental study for Corporate Image within groups and between groups. Feeding the Hungry Group has come up with highest value 3.519 followed by Child Education Group with a value of 2.864. The model was tested on a sample size of 1142 with 1507 degrees of freedom at 0.000 probability level. Number of sample moments were 1653 and distinct parameters reported were 146. The result of the regression weight analysis for individual items against the corresponding sub dimension showed that items in the product identity do not have significant value. All three items in the product-cause fit sub dimensions failed to get significance in the analysis. Also, there is a negative relationship between firm motive 2 (-.350) and Corporate Identity and firm motive 3 (-.500) and corporate identity.

Again, the result of analysis of covariances shows that interaction effect between Product Identity and Programme Identity, Product Identity and Corporate Identity, attitude change and Product Identity, Product Identity and Behaviour Change and Product Identity and Corporate Identity have no significance in the current model. Almost all the Product Identity related interactions have no significant role in this study.

The hypothesis, Corporate Identity is positively related to Attitude to Adversiment is found to be insignificant for Control Group. All other hypotheses were found to be significant in the analysis.

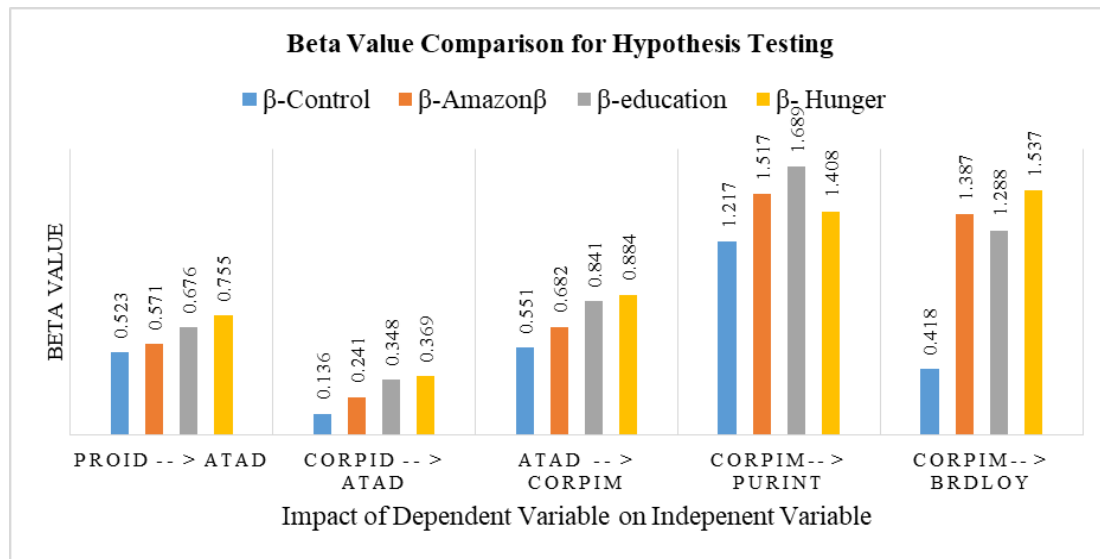


Figure 3: Comparison of Beta value between groups

The result shows that Feeding the Hungry Group has scored highest Beta value in four relationships, except in the relationship, Corporate Image is positively related to Purchase Intention. In general, humanitarian causes fared well in all situations.

Structural Model and Measurement Model Test Analysis

The standardised regression weights of the outcome and hypotheses testing results show status of support for every hypothesis in the current study. Majority of the hypotheses are accepted and very few were not supported.

| | Hypothesis | Estimate | P value | Status |
|-------------|---|----------|---------|-----------------|
| H1 A | Attitude to program is positively related to attitude to advertisement | 0.476 | 0.035 | Accepted |
| H1 B | Cause Involvement is positively related to attitude to advertisement | 0.43 | 0.018 | Accepted |
| H1 C | Personal involvement is positively related to attitude to advertisement | 0.238 | .000 | Accepted |
| H1 D | Empathy is positively related to attitude to advertisement | 0.103 | 0.041 | Accepted |
| H2 A | Corporate value is positively related to attitude to advertisement | 0.307 | .000 | Accepted |
| H2 B | Corporate Pro-social behaviour is positively related to attitude to advertisement | 0.794 | .000 | Accepted |
| H2 C | Firm motive is positively related to attitude to advertisement | 0.81 | .000 | Accepted |
| H3 | Product-cause fit is positively related to attitude to advertisement | 0.758 | .060 | Rejected |
| H4 | Attitude to advertisement is positively related to corporate image | 0.092 | 0.011 | Accepted |
| H5 A | Corporate image is positively related to Purchase intention | 0.412 | 0.019 | Accepted |
| H5 B | Corporate image is positively related to brand loyalty | 0.939 | .000 | Accepted |

Table 5: Result of Hypotheses testing

Result of the t-test analysis

| | | |
|-------------|--|-----------------|
| H6 | The change in attitude towards corporate image experienced by customers will be more positive as a result of exposure to primary cause based CrM message than secondary cause based CrM message | Accepted |
| H7 | The change in attitude towards purchase intention experienced by customers will be more positive as a result of exposure to primary cause based CrM message than secondary cause based CrM message | Accepted |
| H8 | The change in attitude towards brand loyalty experienced by customers will be more positive as a result of exposure to primary cause based CrM message than secondary cause based CrM message | Accepted |
| H9 A | The change in attitude towards corporate image experienced by customers will be more as a result of exposure to humanitarian cause based CrM message than social cause or environmental cause based CrM message | Accepted |
| H9 B | The change in attitude towards brand loyalty experienced by customers will be more as a result of exposure to humanitarian cause based CrM message than social cause or environmental cause based CrM message | Accepted |
| H9 C | The change in attitude towards purchase intention experienced by customers will be more as a result of exposure to humanitarian cause based CrM message than social cause or environmental cause based CrM message | Rejected |

Table 6: Result of Hypothesis testing

Discussions

The mirror neurons theory revolves around the principal tenet that same neurons are fired when doing an action, observing someone doing it or hearing the sounds of the activity (Gallese et al., 1996). The current study also supports the hypothesis that personal involvement of the customer is positively associated with attitude to advertisement. Customers associate the cause with own individual relevance and subsequently judge the CRM campaign, especially, in primary cause types, customers are more personally engaged and have higher objectives to partake (Ellen, 2000).

Managerial Implications

The study provided a concrete direction for choosing the elements of cause related marketing message design by discovering the most important elements of customer attention: primary cause and selecting humanitarian cause for Cause Related Marketing campaigns. The terminology, Mirror Neuron Based Communication could be the applied effectively in the creative formulation of advertisements. Practitioners can keep in mind that human brain attends effortlessly to the stimuli that are rich in visual content, expressed in local language, highly related to human primary needs related to the respondent's identical situation.

Conclusion

The main objective of this research was to explore the theoretical knowledge and insights on Mirror Neuron Based Cause Related Marketing as a means to enhance the corporate image of a hypothetical firm FIGY, which has undergone image breakdown.

The study came out with the conclusion that Indian middle-to high-income consumers are favorable towards Cause Related Marketing programs and the recommended strategy is to incorporate mirror neuron constituents into the Cause Related Marketing programs for channelizing mutually advantageous relationship between the corporate firms and society.

However, consumers, especially in India, are antagonistic to selfish-motivated cause marketing appeals and prone to associate with genuine, pro-social, and transparent pro-active campaigns that enhance the welfare of the entire society. The futuristic brands will be rated on account of their pro-social performance rather than advertisement power by the smart consumers.

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Thriving in a Political Arena: Political Will as a Mediator of Organizational Structure and Political Tactics

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Abstract

The purpose of this paper is to study the influence of organizational structure on the frequency of political behaviour of employees and examine the mediating role of political will. The study uses data (n = 234) collected from a large public sector organization in India. The interrelationships are tested empirically using structural equation modelling. The findings suggest that organizational structure significantly influences the frequency of political tactics used by employees and political will partially mediates the relationship between organizational structure and frequency of political tactics.

Keywords: Organizational structure, political behaviour, political will, frequency of political tactics

Buurtzorg Nederland: Elucidating An Elusive Homecare Model

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Abstract

“Humanity above bureaucracy”, was the motto of Jos De Blok, a community nurse from the Netherlands with rich experience in the homecare industry, who founded Buurtzorg Nederland, a self-managed non-profit home care organization, in 2006 to present an alternative to the conventional home care organizational model. He mentioned this motto in his 2015 TEDxTalk. He hired the nurses with the right skills, experience, and entrepreneurial attitude to work as caregivers at Buurtzorg. Caregivers operated in small teams of ten to twelve members. These teams were distributed all across the Netherlands. The caregivers at Buurtzorg Nederland provided care facilities to the critically and sub-critically ill home care subscribers while also serving the senile population in the locality of their operation. At Buurtzorg Nederland, the nurses provided the medical and support services in contrast to their bureaucratic counterparts. Less than one percent of staff acted as the formal support staff. The rest of the staff, including the founder, were qualified community nurses. Buurtzorg Nederland garnered an annual turnover of 280 million euros by 2014. Buurtzorg Nederland operated with over 850 teams, with 10000 caregivers serving all across the Netherlands by 2016 and had become functional in 24 countries. At Buurtzorg, the nurses were de-conditioned to develop the ability and freedom to inquire into whether their day-to-day job activities were meaningful or there existed a more uncomplicated way to perform them and know the modus operandi of the organization. Is self-managed homecare the future of the homecare industry? Are the revolutionary Human Resource Management practices at Buurtzorg an answer to recruitment inconsistencies? Are self-managed homecare organizations relevant in the Indian context with Buurtzorg Nederland’s subsidiary inaugurated in India in 2018? If so, what are the metrics of success and applicability of self-managed homecare organizations in the Indian context?

Keywords: Buurtzorg, Self-management, Motivation, Training, Person-Job Fit

Introduction

Jos De Blok made it quite lucid that bureaucracy had been a long-used tool, and therefore, it was time to question its effectiveness in the homecare context, and he started aiming at developing or promoting better and alternative ways of organizing that were holistic, non-profit, trailblazing and effective. In the quest for better homecare that revolved around the patient’s need, he founded Buurtzorg Nederland in 2006 along with the co-founders Ard Leferink and Gonnie Kronenberg as a pioneer and maiden organization in the field of teal organizations (Frederic Laloux, 2014) that was a better substitute to existing homecare organizations. One of the myriads of merits of Buurtzorg as an organization was that they referred to patients as their “clients” that had a huge positive impact on the mental well-being of the senile people, and those who were terminally ill, who were seriously injured or who were suffering from life-threatening ailments. The Netherlands was facing an increasing burden of the senile population as the result of lower birth rates and low mortality rates owing to better healthcare facilities available, highly encouraged family-planning drives, and myriads of other possible causes. Therefore Jos De Blok’s attention was inevitably drawn to geriatric healthcare. Health as an intangible concept could not be measured in terms of an ECG reading, Blood Pressure, Blood Sugar Level, or eyesight of an individual per se.

The thoughts of the founder of Buurtzorg Nederland were in consonance with the definition of health given by WHO, which was as follows:

“A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” – WHO Constitution

The founding members adopted the disruptive “Buurtzorg onion model” that represented a client-centric approach as it had the following features-

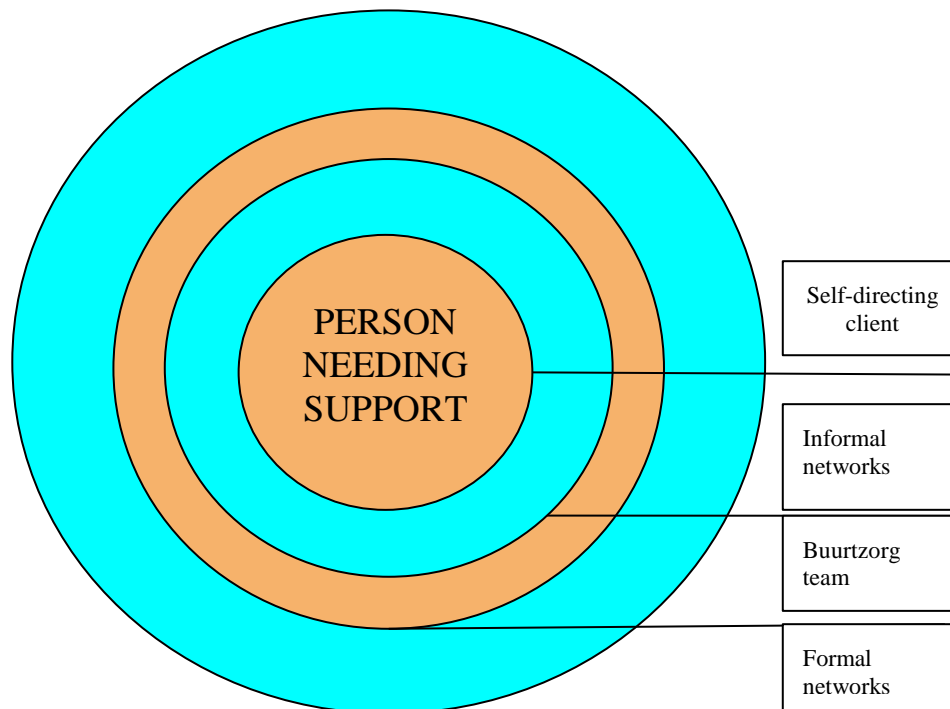


Figure 1. Buurtzorg Onion Model

Self-directed clients

Buurtzorg sought to make the clients self-reliant as much as possible and to employ their formal or professional networks and the informal network like family or neighbors for better and effective care delivery.

Self-directed teams

Buurtzorg started operating with teams of nurses that consisted of twelve members. The teams were autonomous, had the freedom to choose and rent a building of their choice in their locality of operation, and were free to choose how to deliver better homecare while keeping up with the resources available at the operation location. These self-directed teams showed a unique blend of autonomy and responsibility. In case of need of support, a regional coach was provided for nearly 30 teams operating in a region that facilitated solutions rather than imposing them on the teams.

Informal and Formal Networks

Buurtzorg employed informal and formal networks of the clients in order to augment the homecare delivery experience. Clients' formal network included the employees of the organizations they had worked with or were working with. It could also include the business network of the client.

Informal networks included the neighbors, friends, and relatives of the client who were ready to render support to Buurtzorg teams in homecare delivery.

d. Information and Communication Technology

Buurtzorg used ICT to simplify tasks, lessen bureaucracy, communicate quickly and effectively, and support professionals' daily work. Buurtzorg employed the OMAHA system, which represented a standardized taxonomy for healthcare that was entirely research-based. Buurtzorg had integrated the Buurtzorg Web with the OMAHA system, which enabled

incorporating the best practices adopted by various teams autonomously into the organizational culture. Buurtzorg Web, as an enabler technology, kept the health records, medical history of clients, and the track of homecare services provided through a timeline. Jos De Blok was of the opinion that such records at Buurtzorg were kept not for managerial control on the teams but for future referrals for taking care of clients.

Nurturing Trust at Buurtzorg

Trust played a vital role in building healthy employee-organization interrelations at Buurtzorg. The founding members realized that in the context of self-managed home care organizations, the trust among the staff and care providers made more sense when it came to holding responsibility not because of external control but with an intrinsic spirit of serving people with the feeling of one's duty and altruistically. Excess of control made the staff members, along with those at functional positions, immune and unresponsive to the lashes of constant excessive control. Therefore, the quality of job performance degraded to the lowest levels, which was undesirable for any organization's effectiveness. The right ways of motivation and training served to improve focus on the clients at Buurtzorg. Demand-Abilities fit, and Needs-Supplies fit were achieved with the trustor's ability to invest trust in the trustee. Trust, in turn, had positive organizational impacts with improved employee motivation and performance. In this way, the employees had a higher intrinsic motivation towards a better job performance, which led to trust-building among other stakeholders, particularly among the subscribers at Buurtzorg. In a self-managed organization, including Buurtzorg, the employees were motivated with swadharma, i.e., self-righteousness, which led to the application of their conscience in their day-to-day work life. The employees at Buurtzorg were motivated to provide exemplary homecare to the subscribers and not merely to show their performance on the records by doing only the assigned tasks. Buurtzorg had a positive orientation between the organizational set of values and those of the nurses as they had an inbuilt inclination towards a nursing profession.

Decentralization as a Key to Holistic Homecare

Decentralization did not result in effectiveness alone, but in the achievement of a reasonable level of efficiency by cutting resource wastage in meaningless processes at Buurtzorg in contrast to hierarchical and sophisticated management systems focussed on formal bureaucracy. However, this was highly dependent on the entrepreneurial mindset of stakeholders within the organization. A well-distributed decision-making power aided in fostering the holistic mindset at Buurtzorg. The employees were motivated to provide the best possible services to the subscribers (or clients) through their subscriber-centric approach. Instead of a formal bureaucracy-laden 'one shoe fits all' approach, care provider nurses at Buurtzorg, with their entrepreneurial mindset, could mobilize the resources in and around the given neighborhood and deliver customized care in the most effective way for the given client. All this was made possible only by providing higher autonomy to employees, which resulted in their working with greater creativity than the conventional bureaucratic organizations. The employees at Buurtzorg exhibited the demands-abilities fit and the needs-supplies fit, which ensured higher trust-building in the organization.

Training: How is it Delivered at Buurtzorg?

The concept of training in self-managed homecare organizations was examined through the case of Buurtzorg Nederland. At Buurtzorg, training was considered the central concept for enhanced job performance through the sharpened skill set, capabilities, technical knowledge, managerial knowledge, and the increased caliber of an employee. Training made the employees better job performers, enhanced their effectiveness at work, brought about behavioral changes, made them experience work satisfaction, and made them feel psychologically connected with

the organization. The training activities made organizational employees more efficient and effective through an enhanced skill set, capabilities, and know-how. Further proper training improved the utilization of the organization's resources by the employees, which they did more judiciously post-training.

Buurtzorg adopted a holistic, humanistic, and mindful approach to home care, which maximized the client's independence as they were trained in self-care and receiving voluntary services through the neighborhood's informal networks and the formal networks. The founder Jos De Blok, in 2015, mentioned, "70 percent of nurses at Buurtzorg are graduates or have equivalent degrees". Many other nurses at Buurtzorg Nederland possessed a minimum of two to three years of nursing training. The Buurtzorg stressed on high-quality training of its nurses (Burgers, Gray & Sarnak, 2015). The nurses at Buurtzorg had their salary slabs as per their education and training level. The annual increase in their salaries was in accordance with their seniority at Buurtzorg Nederland.

The self-guided training activities were given immense importance at Buurtzorg Nederland; therefore, surplus funds proved valuable in educating the nurses at Buurtzorg Nederland. Such funds were set aside by the teams according to their training and education budget as per the individual team's needs. Buurtzorg Academy, an online learning source provided on Buurtzorg Web, provided graduation-ready nurses with the opportunity to continue education. These practices had resulted in a better orientation of the employees with the organizational vision and goals; therefore, the employees showed a better person-organization fit. The training represented a holistic approach at Buurtzorg that led to employees' enhanced job satisfaction with better feedback from the clients and attainment of a good person-job fit. Training benefited the employees through personal skill development and the improved capability in obtaining a higher payment for their jobs. The nurses at Buurtzorg Nederland received regular bonuses, experientially led to enhanced team profitability, and received accolades for better job performance.

Motivation: An indispensable tool at Buurtzorg

The motivation was viewed as a psychological concept that encouraged employees to work in the direction of organizational aims and vision, which helped the organizations to achieve the desired results in terms of expansion in the concerned market, higher productivity, efficiency, effectiveness, and higher profitability. Motivation had an immense potential at Buurtzorg to be worked upon towards sustainably realizing the organizational vision in the context at the forefront.

Extrinsic motivation employed in bureaucratic homecare organizations was seen to be a relevant tool if employees showed a propensity to perform a job to get a reward of a suitable kind or to escape punishment. On the other hand, intrinsic motivation was seen as a relevant tool if on performing a job or an activity, an employee felt delighted to accomplish it, i.e., the job itself acted as the motivation or felt rewarding as witnessed at Buurtzorg. Therefore, there was no need for an external motivational agent.

The unmotivated employees could invite positive punishments or negative punishments for themselves at the organizational level, such as being deprived of a promotion or being fired. Therefore, the corporate environment was maintained to make the employees feel motivated towards their job to a higher degree. Motivation, therefore, improved their job performance at Buurtzorg while reinforcing their employability at the personal levels. Therefore, a good person-environment fit was achieved through the application of motivational forces in the

organizations. Motivation acted as an innovator for Buurtzorg and helped the organization to expand in the homecare market. Employees who were motivated to perform their jobs with enhanced interest and mindfully tended to exhibit better job performances at the organizational level. Therefore, a good person-organization fit was achieved. Motivation enabled the employees to push their performance beyond their prior capabilities and thus helped them strike a better person-job fit.

The nurses at Buurtzorg Nederland were motivated by the unique and philanthropic vision of their organization. The achievement of higher purposes of the nursing profession formed the basis of employee motivation at Buurtzorg Nederland. The nurses at Buurtzorg Nederland were motivated with a higher degree of autonomy, better skill development, and altruistic pursuits. Therefore, the motivation exhibited by Buurtzorg Nederland nurses was predominantly intrinsic. The nurses took pride in taking care of the subscribers in their neighborhood while also treating them in a personalized and humanistic manner. The nurses at Buurtzorg experienced a higher degree of freedom as they were self-directed and owing to their intrinsic motivation to serve their clients better.

The Pavlovian conditioning experiments explained that intensive conditioning ceased natural reflexes. At Buurtzorg Nederland, the nurses were deconditioned or, in other words, trained and motivated to retain their agility and VUCA (volatility, uncertainty, complexity, and ambiguity) readiness of the organization. With their rigid set of rules and regulations, the bureaucratic organizations could reduce the employees' problem-solving tendencies, which was undesirable in the case of self-managed organizations that required their employees to practice mindfulness in their day-to-day working.

When nurses underwent the pavlovian conditioning in the case of conventional bureaucratic organizations, they performed their job with a mindset preoccupied with conventional nursing procedures. The conventional nursing procedures went against the requirement to fulfill the person-job fit at Buurtzorg, aiming for holistic outcomes through innovative ways to deliver homecare. For that, it was imperative for nurses to exercise their entrepreneurial attitude not restricted to their skills, experience, and conversational skills with the client. When nurses were not conditioned, they could determine what is required in the situations encountered in their job, and accordingly, they developed a holistic care plan.

Nandram, in 2017, explained this through the theory of Integrating Simplification, which conceptualized this process in three phases: Needing (assessing what's needed in the context), Re-Thinking (dynamically assessing the context), and Common Sensing (doing that is necessary). The nurses at Buurtzorg were motivated to personalize the homecare plans. For example, as the clients' health improved, their dependency on nursing was sought to be decreased. Therefore, Buurtzorg, as an organization, had been able to fill the gap between the abilities of the nurses and the demands of the nursing job. Therefore, they exhibited an excellent demand-abilities fit.

The nurses at Buurtzorg were greatly acknowledged for their services by their subscribers verbally and through positive feedback. The intrinsic motivation of the teams at Buurtzorg Nederland was the chief reason behind its success. Also, self-managed team members' goals supported the organization's goals so that the clients incurred lesser care delivery costs. The resulting distribution of the surpluses among the team members boosted their motivation and morale to serve clients better. The annual turnover of Buurtzorg Nederland reportedly exceeded

200 million euros by the close of 2013. Among the critical factors for the success of Buurtzorg Nederland were its motivational practices.

Job Performance: How the Caregivers at Buurtzorg Achieve it at its Best?

Extra role behaviors were expressed by Buurtzorg nurses to a great extent through trust, decentralization, deconditioning, and adoption of a holistic approach which kept all the stakeholders in view while making the organizational decisions. Trust was seen as the foundation of any organizational transaction and a fundamental token of all human activities at Buurtzorg. The nurturing of trust at Buurtzorg through the application of self-management acted as a key to innovation and profitability. The deconditioning, trust, and a holistic approach at Buurtzorg increased nurses' job satisfaction and improved job performance.

The employees at Buurtzorg Nederland exhibited the contextual behaviors beyond the limits of merely their task performance associated with an employee's capabilities, skills, and knowledge as they were intrinsically motivated towards their job. Therefore, due to an enhanced interest in performing their nursing job in the best possible way, they exhibited a better job performance than the employees at their conventional bureaucratic counterparts. The employees at Buurtzorg made connections with the locals in their spare time to grow their informal network, helping in the home care delivery in their neighborhood. The nurses at Buurtzorg also learned about the resources available in their team's serviceable locality, making the home care services better at an affordable cost. The nurses sought voluntary support from the neighbors in the clients' homecare in all viable ways with job roles' flexibility and listened to customers while treating them with dignity, catering to their emotional wants. Nurses brought the clients out of their inactivity and encouraged them to be more active, keeping in mind patients' social and recreational needs. The nurses at Buurtzorg Nederland catered to the subscribers' needs with the help of neighbors, relatives, and others who were ready to render voluntary support for the clients. Therefore the overall job performance at Buurtzorg Nederland was enhanced manifolds.

Person-Job Fit: A Powerful Force at Buurtzorg

At Buurtzorg Nederland, the nursing teams were formed by like-minded people in a particular region or locality. That is, there was no hiring of individuals separately for a team by the founder. The employees themselves employed the other interested individuals as their new team members and Buurtzorg Nederland employees. Such decisional powers were vested in the employees through consensus in respective teams. In case of any problem encountered in the day-to-day working, the teams could readily seek help from the regional coaches. The regional coaches facilitated solutions to about 45 teams in a particular locality where Buurtzorg was functional in homecare delivery. The delivery of conflict resolution was through the mediation of staff, respective coaches, and the concerned team members themselves. The firing of employees was seen as the last resort if the conflict could not be resolved.

The recruitment and resignation processes further emboldened the person-job fit at Buurtzorg.

Why Buurtzorg in the Era of Disruption?

In most cases, the homecare clients could not sustain their health and well-being without the subscribed homecare services owing to their particular health conditions being critically or sub-critically ill. Family members of such clients were often found to be lacking the specialized nursing skills and did not feel confident about operating the indispensable medical equipment needed in homecare delivery. Besides, the family members of such clients were often busy in their profession and other family responsibilities and could not take care of patients requiring constant care.

The era of disruption and disruptive technologies brought about ambiguous and uncertainty-prone situations, yet the essential sectors, including homecare, needed to keep functioning in their best capacities. Jos De Blok, therefore, came up with the self-managed homecare organization which was named Buurtzorg, as he found that it could come to rescue with its humanistic qualities, greater flexibility to changing organizational environments, greater pliability to ever-changing contexts, better decision-making as it employed myriad minds in action due to the decentralization of authority and a “Zeitgeber Focus” which meant acclimatization to the concerned organizational stakeholders or entities.

One of the tenets of self-management was “swadharma,” or self-righteousness, which propelled the organizational members toward appropriate actions at a time or context. Swadharma as a concept helped the self-managed homecare organization Buurtzorg to cope with uncertainties and ambiguous situations faced by the organizations in disruptive times like those brought about by SARS-CoV-2.

Trust and autonomy were laid as core values at self-managed homecare organizations. Therefore, trust also played a role in workforce-company interrelations in the context of motivation, and it enhanced coherence in the workforce (as a diverse workforce may not have a common background or similarities on which they could rely).

Buurtzorg adopted the organizational innovation called “Integrating Simplification,” which allowed the organization to function innovatively and efficiently while keeping the subscriber’s needs at the focus. The Integrating Simplification Theory consisted of the three organizing principles: the needing principle, the rethinking principle, and the common sensing principle.

Buurtzorg’s Combat Mechanism in Disruptive Times: COVID-19

The holistic approach adopted by Buurtzorg was represented through the Buurtzorg S-model that carried the concepts of "Swadharma (self-responsibility), Swaartha (self-interest in the adopted context), Swavalamban (self-reliance), and Swaraaj (self-freedom)."

In the context of disruptive times as posed by the COVID-19 pandemic, the swadharma of Buurtzorg was to make the clients and their families as independent as possible through proper training while taking care of critically ill patients themselves amidst the current pandemic crisis in India to make the lives of clients better through their humanistic and quality homecare services. Through the principle of Swaartha or the needing principle, the client needs in the current context could be identified. In the context of the pandemic COVID-19, the clients could be identified as critically and sub-critically ill based on their home care needs. The family members of sub-critically ill homecare clients could be trained in essential nursing services.

In Buurtzorg, India, clients were taken care of by the self-managed nursing teams of two members who stayed at the client's home to prevent cross-infections and maintain regularity of service given the current frequent lockdowns. Buurtzorg applied the Swaraaj or the rethinking principle to analyze India's current pandemic situation and how it had affected India's homecare services. This principle also helped the organization analyze whether the organizational members were doing the right things at the right time while keeping their work as simple as possible to save cost and time. As an example, Buurtzorg India used surgical masks instead of the N-95 masks. Swavalamban, or the common-sensing principle, helped Buurtzorg in coping with frequently changing contexts and situations as presented by the COVID-19 pandemic and as reflected by the actions taken by Buurtzorg India amidst the pandemic situation. At the same time, the clients at prime focus at Buurtzorg.

The needing, rethinking, and common-sensing principles that comprised authenticity as a virtue along with the "abhyasa" (the art of keeping humanity above the bureaucracy), "vairagya" (maintaining the trust in the self-directed nursing teams), and "vivekam buddhi" (the art of reading between the lines) that comprised the cognition in the Integrative Yogic Leadership model were used as the tools used by the Buurtzorg in handling the volatility, uncertainty, complexity, and ambiguity prone situations while Buurtzorg kept the organizational focus undivided on the subscriber.

Keeping in view the pervasive lockdowns and critical measures to minimize the spread of COVID-19, the "core team" consisting of head nurses and senior members at Buurtzorg India prepared a strategic plan for delivery of homecare services during the lockdown period combating the pandemic blues, as illustrated in the table below.

Mutual fright & unease experienced by the nursing employees & the subscribers of the homecare services amidst an environment full of trepidation caused by the COVID-19 had induced an unknown state of affairs in India. As a result, 30 % of the nurses denied the duty were still paid & kept in touch through a zoom call and the nurses who served the critically ill subscribers to prevent anxiety in them and keep them motivated towards their job. The nurses who denied the duty were penalized neither professionally nor economically. Thereby, Buurtzorg India was successful in strengthening its holistic approach.

The measures taken by Buurtzorg Nederland significantly reduced clients' and respective families' dependency on the nursing staff of the subscribed homecare agency while caring for the health of the critically ill clients at their homes.

Metrics of Applicability of Self-Management in Homecare Industry in Indian Context

Buurtzorg Edugreen Neighborhood India Care Private Limited, India, one of the 24 subsidiaries of Buurtzorg Nederland across the globe, was inaugurated in 2018 as a Dutch homecare model employing self-management practices. It is the maiden self-managed homecare organization in India. Its footprint in India called for the exploration of the metrics of applicability of self-management in the Indian homecare industry, which were chalked out to be the nurses' capability of de-conceptualizing themselves of prevalent bureaucratic setup in a regular bureaucratic organization, nurses' capability of conceptualizing themselves of working and decision-making in a self-managed team, decision-making caliber of the nurses in day-to-day situations, and behavior/treatment met by the clients through the self-managed team members.

Metrics of Success of Self-Management in Homecare Industry in Indian Context

The metrics of success of self-management in the Indian homecare industry were chalked out to be the level of interest of the nurses to join self-managed organizations, level of retention of nurses at a self-managed organization, affordability of homecare services provided by self-managed organizations, decision-making capacity of the nurses at the self-managed organizations, and the paraphernalia of services availed by a given homecare organization that adopted self-management.

INSTRUCTOR'S MANUAL BUURTZORG NEDERLAND: ELUCIDATING AN ELUSIVE HOMECARE MODEL

1. Case Synopsis

"Humanity above bureaucracy" was Jos De Blok's motto, a community nurse from the Netherlands with rich experience in the homecare industry, who founded Buurtzorg Nederland, a self-managed non-profit home care organization, in 2006 to present an alternative to the conventional home care organizational model. He mentioned this motto in his 2015 TEDxTalk. He hired the nurses with the right skills, experience, and entrepreneurial attitude to work as caregivers at Buurtzorg. Caregivers operated in small teams of ten to twelve members. These teams were distributed all across the Netherlands. The caregivers at Buurtzorg Nederland provided care facilities to the critically and sub-critically ill home care subscribers while also serving the senile population in the locality of their operation. At Buurtzorg Nederland, the nurses provided the medical and support services in contrast to their bureaucratic counterparts. Less than one percent of staff acted as the formal support staff. The rest of the staff, including the founder, were qualified, community nurses. Buurtzorg Nederland garnered an annual turnover of 280 million euros by 2014. Buurtzorg Nederland operated with over 850 teams, with 10000 caregivers serving all across the Netherlands by 2016 and had become functional in 24 countries. At Buurtzorg, the nurses were de-conditioned to develop the ability and freedom to inquire into whether their day-to-day job activities were meaningful or there existed a more uncomplicated way to perform them and know the modus operandi of the organization.

Is self-managed homecare the future of the homecare industry? Are the revolutionary Human Resource Management practices at Buurtzorg an answer to recruitment inconsistencies? Are self-managed homecare organizations relevant in the Indian context with Buurtzorg Nederland's subsidiary inaugurated in India in 2018? If so, what are the metrics of success and applicability of self-managed homecare organizations in the Indian context?

2. Case Learning Objectives

The Buurtzorg Nederland case is best suited for undergraduate courses, graduate courses, and research coursework in Macro Organizational Behaviour, Entrepreneurship, and Human Resource Management. As the prospective students develop their academic courses' understanding while going through their academic journey, they could grasp and utilize the case study's essence accordingly.

a. Macro Organizational Behavior courses - Students could learn about the self-managed Organizational structure as an epitome of an unconventional way of organization structuring that is efficient, holistic, attuned to the clients, and VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) ready. They could think about innovative organizational design and redefining organizational culture to make an organization more productive and holistic in its approach with the thought of "In the well-being for all entities in a context lies the happiness for all of them" as all entities in a context are interconnected and affect each other.

b. Entrepreneurship courses (An innovative mind is a valued treasure) - Buurtzorg as a disruptive Dutch homecare model promises positive outcomes and promotes out of the box thinking for future entrepreneurs. As an unconventional way of organizing self-management challenges the future entrepreneurs to explore it and is meant to motivate them to come up with better organizational models and solutions. Human thinking capabilities, when challenged by unconventional and effective organizational practices give birth to more such innovative solutions that are promising for the future ahead.

c. Human Resource Management (The blindspot of the effective recruitment, retention and firing illuminated) - Trailblazer and effective recruitment and retention practices at Buurtzorg could become food for thought for the present and prospective Human Resource Management students. An unconventional view to the Human Resource Management practices given by this case study can help prospective students to look for better, previously unimagined effective, and highly effective Human Resource Management practices.

3. Discussion Questions

1. In the wake of the advances in Artificial Intelligence, consider that the electronic machines could efficiently measure the nurses' performance quite reliably. How will nurses exercise their autonomy provided by self-management in their daily tasks?
2. If the nurses' ethnicity is different from the clients in any case encountered in the near future at Buurtzorg. What could be the impact on the motivation and performance of the caregivers? What kind of additional training would the caregivers need in such a case?
3. If the demographics of the clients of Buurtzorg change as it does depending upon the country, climate changes, economic shifts, and other possible factors. What changes in the Buurtzorg model would you suggest?
4. What are the metrics of applicability of the Buurtzorg homecare model in your country?
5. What are the possible metrics of success of the Buurtzorg homecare model in your country?

4. Research Method

The case was prepared based on telephone conversations and interviews with the core team members at Buurtzorg India and the caregivers. Visits to Buurtzorg India, publicly available newsletters, and information on the Buurtzorg website also proved to be vital sources of information. A literature review on Buurtzorg and person-environment fit also helped in writing this case. The author is not affiliated with Buurtzorg India in any way. No names have been disclosed owing to the privacy concerns of individuals.

6. Conceptual Analysis

Buurtzorg Onion Model - Buurtzorg Onion model explained in the case elucidates the self-managed organizational structure at Buurtzorg. Buurtzorg has clients at the core of the structure as it adopts a client-centric approach. Buurtzorg makes the clients self-reliant by minimizing their dependence on others for care which boosts their morale and well-being. Buurtzorg employs the clients' and caregivers' formal and informal networks to deliver the care if they offer voluntary help. The voluntary help from the formal and informal networks increases the span of a dependable network of people to provide care to the clients. Self-managed teams of caregivers function in a locality of their choice.

Integrating Simplification Theory - Nandram in 2017 gave the theory of Integrating Simplification, which conceptualized deconditioning process for employees in three phases: Needing (assessing what's needed in the context), Re-Thinking (dynamically assessing the context), and Common Sensing (doing that is necessary).

Buurtzorg S model - The holistic approach adopted by Buurtzorg is represented through the Buurtzorg S-model that carried the concepts of "Swadharna (self-responsibility), Swaartha (self-interest in the adopted context), Swavalamban (self-reliance), and Swaraaj (self-freedom)."

Swadharma - Empower clients by making them self-reliant and striving to improve the homecare services constantly for clients' well-being.

Swartha - Process of identifying systematically assessing what is needed by the clients.

Swaraaj - Continuously contemplating and reconstructing one's reality in terms of whether the right actions are being taken or what could be the simpler ways of performing a job.

Swavalamban - Performing a job and finding new ways of performing a job according to changing circumstances and contexts.

7. Possible Answers to Discussion Questions

1. In such a situation, nurses could follow the "Buurtzorg S model" explained in the conceptual analysis. They will chiefly have to employ the "Swadharma" (self-responsibility) tenet of Buurtzorg S model and direct their actions in the direction they think befits their job and responsibility in a particular situation. If the caregivers are self-righteous, then it will not matter if they are being watched over unintentionally by Artificial Intelligence gadgets. Human consciousness has its irreplaceable job to play at various fronts while performing a nursing job. One must remember, "If I am right, surveillance is irrelevant."

2. All humans and the universe are interconnected, as suggested by various religious texts. Impact on one entity in the universe affects, subtly or significantly, the other entities as well. If the caregivers are trained to realize this interconnectedness and oneness of existence, then ethnicity variations will be rendered irrelevant. Caregivers and clients will be able to see the oneness of existence and, therefore, will cooperate in care delivery. Nurses will have to follow the Buurtzorg S model for constant motivation and better performance at their nursing job, which extends even beyond just physical well-being at Buurtzorg. At Buurtzorg, emotional and psychological well-being also have a great significance in its holistic approach.

3. The tenet of the oneness of all beings and interconnectedness works in such a scenario as well, as explained in answer to the second question if it's about ethnicity, religion, or nationality. If it is about a shift in the age groups seeking homecare then Integrating Simplification Theory must be employed by using its following principles:

- a. Needing (assessing what's needed in the context)
- b. Re-Thinking (dynamically assessing the context)
- c. Common Sensing (doing that is necessary).

4. I am a citizen of India. The possible metrics of applicability of the Buurtzorg homecare model in India are the nurses' capability of de-conceptualizing themselves of prevalent bureaucratic set-up in a regular bureaucratic organization, nurses' capability of conceptualizing themselves of working and decision-making in a self-managed team, decision-making caliber of the nurses in day-to-day situations, and behavior/treatment met by the clients through the self-managed team members.

5. I am a citizen of India. The possible metrics of success of self-management in the Indian homecare industry are the level of interest of the nurses to join self-managed organizations, level of retention of nurses at a self-managed organization, affordability of homecare services provided by self-managed organizations, decision-making capacity of the nurses at the self-managed organizations, and the paraphernalia of services availed by a given homecare organization that adopted self-management.

8. Notes and References

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Burnt not Broken: An Essay on Acid Attacks in India and the Role of Stakeholders*Rashida Salmani¹, Geeta Mishra² & Ashvini Kumar Singh³**^{1&3}Amity College of Commerce & Finance & ²Jamia Millia Islamia***Abstract**

With the rise of acid-related violence in India, vitriolage has emerged as one of the most heinous forms of hate crime ever devised and perpetrated. This act was perceived to be one of the most heinous atrocities against women, but it has been discovered that acid attacks are no longer gender specific. This paper identified the causes behind acid violence, challenges faced by attack survivors, measures adopted to counter those challenges and the participation of all the stakeholders involved in the rehabilitation of survivors. The researcher followed a multiple case study approach and conducted thorough semi-structured interviews of twenty-two acid attack survivors along with making use of secondary sources of data. Stakeholders greatly help in adopting strategies and measures that facilitate acid attack survivors.

An optimistic view on HR digitalization: Organizational change perspective

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Abstract

The study paints an optimistic picture about HRA implementation in a firm. It models how HRA implementation is an organizational change and how change agents and change recipients involve in sensemaking to facilitate the change. The paper introduces a two-way model starting from intention to change and ending at change prediction. The paper argues that organizational routines and resistance to change, instead of acting as inhibitors, promote HRA implementation. Adequate communication and participation also may lead to HRA implementation. Change readiness plays the role of a mediator in the above relationship. Furthermore, HRA implementation may be a pathway for change prediction, with the moderating effects of firm age and HR strategic positioning.

Introduction

Human resource analytics (HRA) has been a buzzword for more than a decade (Barbar, Choughri, & Soubjaki, 2019). With large organizations having adopted analytics for several operational requirements, HRA is increasingly getting academic and practice attention alike (Douthitt & Mondore, 2013). Marler & Boudreau (2017) defines HRA as: "an HR practice enabled by information technology that uses descriptive, visual, and statistical analyses of data related to HR processes, human capital, organizational performance, and external economic benchmarks to establish business impact and enable data-driven decision-making". This implies that, besides including statistical techniques to analyze the existing data, HRA incorporates business focus to predict what would happen in the future and take decisions in light of such modeling. Even when there have been extensive discussions about the use of analytics for description, prediction and prescription (Margherita, 2021), its implementation progression is slow in firms, not to mention its severely limited implementation in small and medium enterprises (SMEs) (Angrave, Charlwood, Kirkpatrick, Lawrence, & Stuart, 2016). A recent practitioner study by Fairsail of 150 private sector HR vice presidents and directors' point that even when HR managers have a relatively good idea of what 'workforce analytics' is, only 58% of HR leaders were confident in their abilities to interpret data analytics. The remaining 42% were not confident in their skills or abilities to embark on the analytics journey.

Several studies have examined the key barriers and inhibiting factors that point to why HRA is destined to fail in its implementation (Fernandez & Gallardo-Gallardo, 2020). Among these critical barriers, terms like 'organizational change,' 'resistance to change and 'organizational inertia' are repeated more often than not (Douthitt & Mondore, 2013). This study examines such terms in greater detail and tries to provide an overview of what works and what does not work during HRA implementation. In other words, the study tries to examine how HRA is defined in terms of organizational change and what happens in the organization when such a change is introduced. In addition, it examines how resistance to change paves the way for HRA implementation, which leads to organizational change prediction.

This article extends organizational change literature into HRA literature. It has several potential contributions. First, though there have been studies considering parts and pieces of HRA implementation, a complete model incorporating the antecedent and consequent effects of HRA implementation, especially regarding organizational change, is not yet modeled. This article provides a two-way model linking change aspects (resistance to change, change readiness, and change prediction) to and from HRA implementation (See Figure 1). Second, the moderating roles of HR strategic positioning and firm age in HRA implementation in the context of

organizational change are not yet considered. Therefore, this model acts as an initial point in extending strategic HR literature into HRA literature. Third, though there has been a focus on the requirement of better comprehension of HRA for its successful implementation, the importance of effective communication and opportunity for participation are often understated when it comes to employees' acceptance of HRA. The study focuses on examining this relationship as well. Finally, this article is an initial step for introducing the construct of change prediction in the theory of HRA. This may serve as a novel theoretical advancement in HRA literature considering the perceptions and beliefs of the employees.

Theoretical perspective and propositions

Sensemaking theory - Sensemaking theory involves both the interpretation of information and generating the interpreted meaning (Weick, 1993). Primarily, it can be considered as an ongoing process

by which individuals give meaning to their experiences. Weick (1995) identifies seven components of the theory as: Identity construction (who people they are in a setting shapes what people do and how they view events), Retrospective (reflection of experiences formulate the meanings individuals give), Enactive of realistic environments (based on what is 'sensed', individuals control and predict events and decrease the uncertainty involved in the context of a change), Social (sensemaking is a social process), Ongoing (sensemaking is a continuous process where individuals simultaneously shape and respond to their environments), Focused on and by extracted cues (extracted cues help in connecting the individual meanings to the broader picture) and Driven by plausibility rather than accuracy (sensemaking is accomplished through plausible reasoning based on incomplete information that fits the facts, and accuracy is not a requirement.). Each component revolves around the narratives built by the individuals.

Conceptual definition of HRA

HRA involves joining internal functional data of the firm and external data for data manipulation and reporting (Zeidan & Itani, 2020). In simple terms, it is the grouping of objective pieces of evidence & subjective attitudes and their following analysis for better decisions. Bassi (2012) defines HRA as "systematically reporting on an array of HR metrics."

This study considers HRA implementation to be the organizational change that a firm would witness. In addition, HRA is proposed to function as predictive analytics depending on whether it gains strategic importance or not. Furthermore, the paper argues that organizational routines and change resistance, instead of acting as inhibitors, promote HRA implementation. Adequate communication and participation may lead to HRA implementation. Change readiness plays the role of a mediator in the above relationship. HRA implementation may be a pathway for change prediction, with the moderating effects of firm age and HR strategic positioning. The change agent in the study may be HR professionals in the firm or consultants outside the firm. The change recipients include the top management and employees in the firm.

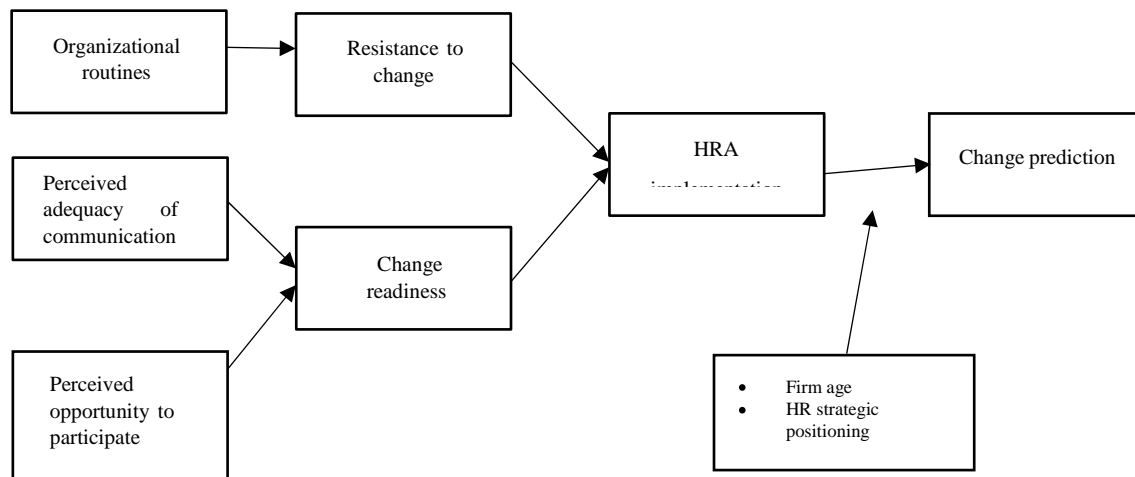


Figure 1: Change-related antecedents and consequences of HRA implementation

Organizational routines and HRA implementation

Organizational routines are unquestionably repeated, but they are not really static or unchanging (Feldman & Pentland, 2003). Routines, in particular, are created by a large number of individuals with varying levels of knowledge, expectations, and perceptions and are executed over time and space (Feldman, 2000). They interconnect with other streams of practice in such a way that it is not necessarily apparent when one organizational routine ends and another starts (Feldman & Pentland, 2003). Because of these factors, organizational routines are prone to change.

This study uses the distinction made by Latour (1986) between the ostensive and performative dimensions of routines that illustrates why routines are both a source of change and a source of stability. While the ostensive aspect of routines lays out the rules to follow during actions, contextual details are always open to question in this aspect. As Blau (1955: 23) pointed out, the rules "must be abstract in order to guide the different courses of action necessary for the accomplishment of an objective in diverse situations". This is where the performative aspect pitches in. Though rules and expectations are always there, the course of action one chooses is varied according to one's whims and fancies. Even in very constrained situations, though habitual actions are possible, people tend to self-reflect to observe what they are doing (Giddens, 1984). This is true in the case of work settings as well, where employees may be provided with an expected procedure to follow with expected outcomes. The performative aspect of routines can be considered as improvisational (Feldman & Pentland, 2003).

This is in line with sensemaking theory. As Weick (1993: 635) pointed out, "The basic idea of sensemaking is that reality is an ongoing accomplishment that emerges from efforts to create order and make retrospective sense of what occurs." This is like a feedback mechanism because while people attempt to deduce their behavior on the basis of their social environment, they also try to influence how others treat them. In this case, employees try to reflect on their actions to get a sense of what they are doing and there is always a probability for them to act otherwise, as against expectations (Giddens, 1984). Individual agency is moderated or attenuated to some degree since the acts within a routine are interdependent. Participants ought not simply to do whatever they want as other people's decisions can open up or shut off their options (Feldman & Pentland, 2003). These restrictions apply within the context of specific performances (Feldman & Pentland, 2003). Each participant can face a different set of possibilities, depending on the behavior of others. Interdependence between acts can be perceived as part of the structure (Feldman, 2000), but it can also create variation within individual performances.

From the above arguments, one can infer that even when organizational routines act as a source of stability, they are equally a source of change. Due to the interdependence of participants, if HR agents bring in the required change (in this case, HRA), participants may slowly adjust it to their routine. Therefore, organizational routines can serve as an alleyway to HRA implementation.

Proposition 1: Organizational routines is positively related to HRA implementation

Mediating effect of resistance to change

Whenever there is a change, recipients accept it with a pinch of salt. The recipient reaction will be resistance if the change is highly new such that it questions the existing norms and practices (Kanter, 2002). Such a change suffers from the "liabilities of newness, inexperience, and unfamiliarity" (Ford et al., 2008). However, resistance is a way to immunize people against change (McGuire, 1964).

Resistance is a form of conflict. However, conflict is not necessarily destructive. Conflict improves both the quality and implementation of decisions (Amason, 1996). With conflict, there are discussions (around the conflicting subject) everywhere in the organization. According to the theory of sensemaking, individuals enact the situations they encounter in discussions and narratives. It helps people understand what they think, organize their interactions, monitor, and anticipate incidents, and minimize uncertainty in the sense of change management (Weick, 1995). Conflict, in general, is perceived as dysfunctional by the change agent, when in reality, it may be functional due to these discussions resulting in knowledge development and reduction in uncertainty (Ford et al., 2008).

From the above evidence, the study argues that when change agents (be it HR professionals in the firm or consultants external to the firm) introduce HRA to the firm, resistance to change is unavoidable and inevitable. Nevertheless, how this resistance is used to facilitate the change required becomes the question. A number of scholars have investigated the usefulness of resistance and its strengthening value (Ford et al., 2008; Dent & Goldberg, 1999). Moreover, it is not unusual for employees to be ambivalent about the change, having contradictory feelings and cognitions about it, and for these attitudes to change over time, as the change is implemented in different stages (McKay, Kuntz, & Näswall, 2013).

Consequently, resistance to change, acts as an involvement to change, with a dedicated effort from HR professionals' side in molding their interpretations of top management and employee reactions. In addition, with a better relationship between the HR department and top management, resistance can act as an alleyway to HRA implementation.

Proposition 2: Resistance to change mediates the relationship between organizational routines and HRA implementation

Communication, participation, and HRA implementation

Rogers (2003) quotes adoption as 'a decision to make full use of an innovation as the best course of action available' (p. 177). While an individual's attitude towards a change may be optimistic because it is new, there is uncertainty about the change itself (Vargas, Yurova, Ruppel, Tworoger, & Greenwood,

2018). Until deciding to adopt the change, they may want to go through various activities to reduce their uncertainty (Vargas et al., 2018). According to Rogers (2003), change agents can demonstrate the product and try to minimize uncertainty by sharing personal experiences and engaging in a viral recommendation. Knowledge and persuasion are important for the effective adoption and subsequent implementation of anything new (Rogers, 2003). At the outset of any

change, lack of adequate information concerning the change process and expected outcomes would be more stressful for employees when compared to the practicalities concerning the change (McKay et al., 2013). When employees perceive that they have received timely and reasonable provision of information relating to the upcoming change, their anxiety may decrease. In such a case, they may be more receptive to change than otherwise (McKay et al., 2013). This is supported in the prior literature, which points to employees' positive evaluation of change and willingness for cooperation when they receive useful information regarding the change (Armenakis, Harris, & Mossholder, 1993). While communication would help overcome any conflict, providing an opportunity to participate in a change has also received praise for the successful implementation of change (McKay et al., 2013). Along with employees' feeling of belongingness in the decision-making, it also provides different perspectives for the change agents, facilitating the better implementation of change (McKay et al., 2013). Additionally, employee participation gives a clear idea about the realities of the transformation, and change recipients exhibit good engagement with and encourage the change (Lines, 2004).

The theory of sensemaking supports these arguments. Rather than a decision dictating the organization, sensemaking deals with how meaning drives the organization (Weick, 1993). Based on the information about the change, individuals extract cues from the context. Extracted cues act as points of reference for connecting information to the bigger picture and are "simple, familiar structures that are seeds from which people develop a larger sense of what may be occurring." (Weick, 1995: 50). This helps them decide whether the change is adequate and acceptable (Salancick & Pfeffer, 1978).

On the basis of the above arguments, the paper argues that when change recipients perceive that they have received adequate information regarding the change, thereby getting a chance to increase their knowledge about the change, they are more likely to accept the change implementation. Similarly, when there is enough participation of change recipients in the change, they become more receptive to it because they understand the scope and strategy underlying change plans and have the opportunity to raise any issues troubling them (McKay et al., 2013). Accordingly, the following is proposed:

Proposition 3a: Perceived adequacy of the communication about change is positively associated with HRA implementation

Proposition 3b: Perceived opportunity to participate in the change planning is positively associated with HRA implementation.

Mediating effect of change readiness

Change readiness outlines employee confidence in the advantages of a change to the organization and work processes and the probability of these changes being introduced successfully (Eby, Adams, Russell, & Gaby, 2000). Armenakis et al. (1993) outline two steps that must be taken in order to prepare an organization for change. The first is to send a direct message about the disparity between the current state and the desired end state. The second step is to instill trust in workers that they have the necessary knowledge, skills, and abilities to deal with the demands placed by the discrepancy. Employees are more likely to consider and engage in change planning if they believe their skills and abilities complement those needed to excel in new roles (Holt et al., 2007). Therefore, when there is clear communication of what will happen in the organization with the change introduction, both the employees and top

management are more likely to accept it and participate in the change process. Allowing participation is paramount as active engagement can include activities focusing on a) knowledge development concerning the change and b) increasing competency to deal with change requirements, such as providing a simulated learning environment compatible with new tasks and responsibilities (Armenakis et al., 1993).

Additionally, helping people understand their role in the new ways of doing things will boost people's trust and dedication to the changes both before and after they start (Smith, 2005). In the early stages of such an initiative, developing an understanding of the essence of and reasons for change will provide a solid foundation for future improvements and a greater willingness to take risks and push boundaries

(Smith, 2005). When such ability to initiate and respond to change is developed, then change implementation would be welcome. When change recipients are ready to enter the adoption stage (in this case, change readiness), they decide when to move on to the implementation stage to realize the full potential of the change and institutionalize it (Vargas et al., 2018).

From the above arguments, the study suggests that whenever a change is being introduced with proper communication and active organizational participation, the firm gradually becomes change-ready and may move towards change implementation. Accordingly, the following proposition is formed.

Proposition 4a: Change readiness mediates the relationship between Perceived adequacy of the communication about change and HRA implementation.

Proposition 4b: Change readiness mediates the relationship between Perceived opportunity to participate in change planning and HRA implementation

HRA implementation and change prediction

Margherita (2021) identified three types of HRA. They are descriptive, predictive, and prescriptive analytics, with prescriptive analytics to be of the higher-order compared to the other two. Among these three, predictive analytics is the focus here, with HRA serving as an efficient tool to make future forecasts depending on the currently available data. It is known popularly by the term HR predictive analytics (HRPA) (Shah, Irani, & Sharif, 2017). There have been models connecting HRPA to organizational effectiveness, performance appraisal, and talent development (Levenson, 2011; Sharma & Sharma, 2017; Zeidan & Itani, 2020). All these demonstrate that HRA helps the firm better prepared for future decision-making based on historical data. Such change predictions are possible depending on the professional judgment of the HR professionals or experts in the area (Gubbins, Harney, van der Werff, & Rousseau, 2018). Their sensemaking about the data becomes important to enable better analysis. Weick (1995) identifies one property of sensemaking as 'retrospection'. People look back at their experiences and make sense of the data they see (Gubbins et al., 2018). In other words, predictive analytics is used to predict any change that can happen in the organization based on the current and historical internal data as well as the data external to the firm. Along with these, change agents' intuition, depending on their experiences and retrospection, comes into play in change prediction. This implies that change prediction is possible with the efficient utilization of HRA.

Proposition 5: Using human resource predictive analytics is positively related to organizational change prediction.

Moderating effects of HR strategic positioning and firm age

Studies show that older firms tend to focus on previously existing HRM practices for evaluating employee performance (Bechter et al., 2018). In addition, data migration and data quality become issues as new systems like HRA are adopted (Angrave et al., 2016). Moreover, HR systems may be tightly embedded with the existing practices. Old firms are at a disadvantage in terms of time, effort, and costs associated with developing queries and dashboards that match the functionality of previous 'legacy' systems and efficient movement of data (Angrave et al., 2016). Technical challenges need to be dealt with to better implement HRA (Angrave et al., 2016). Similarly, silo mentalities are mostly observed in older firms that have routines in place and are difficult to change. In such cases, the HR department finds it difficult to obtain data from other departments to involve in predictive analysis. Therefore, even when HRA is in place, it may be impossible to predict change without enough information successfully. This is also in line with sensemaking theory, where individuals make sense of the available information and reach a conclusion that may not be accurate or practical in any way (Weick, 1995).

Though there have been discussions regarding the importance of placing HR in the strategic arena (Yorks & Barto, 2013), it is still overlooked in organizations. Only if HR has a say in strategic organizational decisions can it suggest the importance of placing HRA as in the center. HRA is most likely to be utilized as descriptive analytics rather than predictive one until HR receives strategic importance. Whether HRA is practical enough again has not received a solution in management circles (Angrave et al., 2016). Therefore, without having a better strategic positioning in the company, HRA would not be utilized to its full potential. Sensemaking theory explains that interpretations of information and context happen on the basis of previous experiences of the HR leaders and consultants (Weick, 1995). Therefore, whether HRA implementation would lead to better change prediction depends on the sensemaking of HR leaders or managers who club information from various departments to effectively gauge the outcome (Douthitt & Mondore, 2013). In order to get access to data from various departments, the HR department must be given greater priority in the organization (Angrave et al., 2016), which boils down to the importance of strategic positioning of HR in the firm. On the basis of the above arguments, the following propositions are made.

Proposition 6a: The relationship between HRA implementation and change prediction is moderated by firm age, such that the relationship is stronger for younger firms and weaker for older firms.

Proposition 6b: The relationship between HRA implementation and change prediction is moderated by HR strategic positioning, such that the relationship is stronger for those firms with better HR strategic positioning and weaker for firms with lesser HR strategic positioning

Conclusions

This study extends previous research on HRA, change management, and HR strategic positioning. Prior research has examined how HRA can be used to improve organizational effectiveness by various functions. However, the change mechanism which the organization undergoes when HRA is introduced into the organization is not yet modeled. The study argues that perceived effective communication about the change and perceived opportunity for

participation by the change recipients are pathways to HRA implementation. Change readiness, which is considered equivalent to change adoption in this study, paves the way for implementation, as seen in the prior literature (Vargas et al., 2018). In addition, organizational routines, which are generally considered as those creating organizational inertia, are argued to lead to HRA implementation if change agents have a strategic sense of recipient reactions and take actions accordingly. Resistance to change that can happen due to the routine work may lead to a good amount of discussion regarding the change implementation. Therefore, HRA implementation becomes the talk of the town as a result of which organizational inertia may dissolve. Accordingly, resistance to change acts as a mediator in the relationship between routine and HRA implementation. Once HRA implementation is successful, its leverage points can be exploited, keeping in mind the age of the firm and HR strategic positioning. Change prediction is an important function that HRA can do.

This has evidence in the literature in the form of HRP (Shah et al., 2017). The study makes several important contributions.

First, this is one among the few studies that consider HRA implementation as a change and has constructed a model incorporating the whole change process concerning the implementation. This study makes a novel theoretical advancement in HRA literature by introducing variables from the change literature like resistance to change, change readiness, and change prediction. Second, this is the first study that examines the positive effects of organizational routines in facilitating HRA implementation and thereby extends organizational routine literature to HRA literature. Third, the effect of firm age and strategic HR positioning on the association between HRA implementation and change prediction is examined.

Practical implications

As far as practical implications are concerned, for change agents interested in understanding and managing resistance from change recipients, a primary implication is that routines are not a source of inflexibility but something which can be molded gradually with suitable formal or informal interventions. With effective communication and opportunity for participation, change recipients are most likely to be change-ready. Vicarious learning can also be provided on the basis of change agents' experiences, which would help change recipients be ready to adopt HRA and enable subsequent HRA implementation. All these imply that HRA implementation is possible no matter what, depending on the dedicated efforts of change agents, be it HR professionals inside the firm or external consultants. This implies that for any change to be successfully implemented, communication, participation as well as routines are important. This may, in some way, provide an answer to the slow adoption of HRA in organizations. Most of the firms fear a high amount of resistance while planning to operate HRA. Moreover, those that operate HRA use descriptive analytics, which is used for basic operational purposes (Margherita, 2021). However, depending on the firm age and strategic positioning of HR, HRA can be better used for predicting the required organizational changes or future changes that may happen due to the current trend. Work which in reality can harm the organization (Barnes & Watson, 2019) at least in the long run. This also marks the importance of better strategic positioning of HR,

which eases predictive analytics to its full extent. As a whole, the study claims that even when a firm has to go through several hurdles to reach HRA implementation, it will be worth the effort as this helps in future forecasts and better strategic planning considering where the firm is heading.

Limitations and future research directions

Though the study tries to explain the change process in and around HRA implementation in a firm, it has potential limitations. First, the paper explains a model that may be valid in the real scenario. Future researchers may test the model empirically so that evidence is created. Though the study considered HRA implementation to be the change that is introduced, it is considered as a static mechanism, where in fact it is a dynamic process. It involves different levels of implementation, with a gradual shift from the old processes to the new. Therefore, future studies can take into consideration the different stages of the change process so that the resistance to change and change readiness would vary depending on the level of implementation. Another avenue for future research is to look into the moderating effects of professional competency and skills of HR professionals so that they actively involve in communication and participation in change planning. In addition, this moderating effect also becomes important to be considered in the relationship between HRA implementation and change prediction. This is because only when the skills and abilities of HR professionals are adequate will HRA be adopted for predictive modeling rather than descriptive modeling (as currently seen in the companies). However, the strategic positioning of HR and firm age may provide some idea regarding the position of HRA and would also cover some aspects of HR proficiency with technology. Future researchers may also look into the relationship between perceived communication, perceived participation, and resistance to change. Prior literature shows a negative relationship between these components (McKay et al., 2013). In addition, the mediating effect of change resistance in the relationship between HRA and change prediction can also be considered for future research

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Family business governance: The requirement, role, and benefit of the family constitution as a governance mechanism in family businesses

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Abstract

The family constitution is one of the widely used governance mechanisms by family businesses worldwide. However, it gained little attention from family business scholars. The qualitative study tries to fill this gap between practice and literature by highlighting reasons to adopt the family constitution, the process of developing a family constitution, and benefits associated with implementing the family constitution. The research is based on 58 interviews conducted with family businesses and family business advisors from different parts of the world. Key findings illustrate various reasons for family firms to adopt the family constitution ranging from the need for governance structure to managing family complexity to align next-generation family members with the business. Further, the research contributes to family governance literature by uncovering a multistage process of developing the family constitution for family businesses. The study also contributes to the literature on advising in family firms by discovering multiple roles a family business advisor plays during the constitution development process. Finally, the study highlights several benefits from implementing the family constitution for family businesses, such as documented guidelines for managing family conflicts, fair treatment to family members, institutionalized family communication, and role clarity.

Keywords: Family business, Family governance, Family constitution, Family business advisors

Glass-ceiling and the appointment of Women in the Board of Directors: A literature review and research agendas

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Abstract

The board of directors of thirty Indian firms listed on the Sensex was scanned and the position of each director reveals that there are only four women executive directors present on boards of the top Indian corporates. The data distinctly point towards the existence of glass-ceiling as an invisible barrier that hinders the career advancement of women within organizations. This paper had conducted a literature review to comprehensively put forward the relevance and importance of women on corporate boards and the factors that inhibit women from reaching this position. Also, certain factors that strengthen the glass-ceiling had been discussed, along with features that can drive ambitious women employees to reach the rank that they deserve within the enterprise. The paper puts forward certain research agendas that can be taken up by future scholars.

Keywords: glass-ceiling, women directorship, executive directors, gender discrimination

Corporate Governance and Intellectual Capital: A Literature Review

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Abstract

This article reviews the association between corporate governance and intellectual capital. Corporate governance attributes included in the study are board size, independence, audit committee characteristics, CEOs duality and ownership pattern. Corporate governance and intellectual capital have been extensively researched in the recent past but few studies have examined their linkage. We identified 34 studies from high-quality editorial sources for carrying out the review. The association between key determinants of corporate governance and intellectual capital is largely inconclusive due to differences in measurement criterion and variation in a legal, socio-economic and political framework. The findings of the study are of importance to academicians and practitioners to improve the governance practices for strengthening intellectual capital in the organizations.

Keywords: Corporate governance, ownership structure, intellectual capital, board of directors, audit committee

Introduction

In the contemporary world, intellectual capital assets have gained priority over tangible assets for maintaining sustainable corporate performance. Intellectual Capital (IC) is “the combination of market assets, human-centred assets, intellectual property assets and infrastructure assets” (Brooking, 1996). IC explains the variation between the capitalized value of the firm and its book value (Sveiby, 1997). IC includes all “the knowledge assets that can be converted into value. It is a matter of creating and supporting connectivity between the sets of expertise, experience and competencies inside and outside organization” (Cabrita and Bontis, 2008). IC has three constituents: human capital (skills, creativity, know-how of employees), structural capital (culture, R&D efforts, intellectual property) and relational capital (strategic alliance, ongoing relationships with customers, suppliers). Investment in IC has anticipated association with Corporate Governance (CG). The Board of Directors (BOD) create, maintain and leverage the IC (Keenan and Aggestam, 2001).

CG is “a system of checks and balances, both internal and external to companies, which ensures companies discharge their accountability to all their stakeholders and act in a socially responsible way” (Solomon, 2007). CG assures the suppliers of finance for receiving a return on their capital (Shleifer and Vishny, 1997). It ensures “executives respect the rights and interests of company stakeholders, as well as guarantee that stakeholders act responsibly with regard to the generation, protection, and distribution of wealth invested in the firm” (Aguilera and Jackson, 2003). CG has two dimensions: internal mechanism (boards related characteristics, ownership pattern, leadership structure) and external mechanism (market competition, influence by block-holders).

As far as we know, no earlier study has reviewed the relationship between CG and IC. A review of existing literature in this field would widen our knowledge regarding the connectivity between them and will further help to strengthen both domains.

Methodology

We used different combinations of keywords (board of directors, corporate governance, ownership structure and intellectual capital) to search for the relevant articles on EBSCO and Google Scholar. Initial search produced a total of 421 studies from the year 1980 to 2020. These

studies were then screened based on their title and abstract. This step reduced the potential number of studies to 123. We downloaded all of these studies and carried out full-text reading. Studies were excluded if they a) were descriptive b) used survey method c) were related to discipline other than accounting, management or finance. This step reduced the number of studies to 31. Additionally, we searched references in collected articles to find more similar studies. This step increased the final number of included studies to 34.

Findings

Measurement of Intellectual Capital

Value Added Intellectual Capital (VAIC) (Shahveisi *et al.*, 2017, Bullay 2018) and Intellectual Capital Disclosure Index (ICDI) (content analysis) (Abeysekera, 2010; Alfraih, 2018) are predominant measures of IC. VAIC generates verifiable results that are simple to calculate and compare (Firer and Williams, 2003). However, inconsistent results challenge its reliability (Maditinos *et al.*, 2011). Content analysis systematically codes qualitative and quantitative data into specific categories to establish a pattern (Abeysekera and Guthrie, 2005). There are no theoretical directions regarding the construction of ICDI. As a result, researchers build these indexes according to their goals (Artiach and Clarkson, 2011).

Measurement of Corporate Governance

Internal attributes like board related characteristics (size, meetings, independence, gender diversity), leadership structure (CEO duality), audit committee characteristics (committee's size, independence, expertise) and ownership pattern (government, insider, institutional ownership) are predominant measures of CG. Some studies use a single governance attribute (Shahveisi, 2017; Li *et al.*, 2012). While other proxy CG through the composite measure (Braune *et al.*, 2020). The creation of composite indices is arbitrary and not followed by a thorough and comparative study of their benefits (Brown *et al.*, 2011).

Relationship between CG attributes and IC

Board Size

The number of directors (sum of executive and non-executive members) considerably influence how directors execute their duties and responsibilities (Fama and Jensen, 1983). Larger boards possess wider excellence and add diversity of perspectives. On the contrary, Lipton and Lorsch (1992) argue larger board size result in a coordination problem. Findings of prior studies concerning board size being a determinant of ICD (documented in Table 1) are not conclusive. Inconsistent results prompted researchers to look for a curvilinear relationship (Hidalgo *et al.*, 2011; Rodrigues *et al.*, 2017).

Board Independence

Non-executive directors are the “referees” entrusted with responsibility for protecting shareholders rights (Fama 1980). Hiring an independent director signals the market boards monitoring capacity is being enhanced. Independent Directors provide a broad range of experience and prestige (Haniffa and Cooke (2005). Their skill and expertise play an active role in communicating with stakeholders about the value created by IC (Li *et al.*, 2012). The results obtained by previous studies concerning board independence to be a determinant of ICD are not conclusive (reported in Table 1).

CEO Duality

CEO duality (one person being CEO as well as chairman) is a “double-edged sword” (Finkelstein and D’Aveni, 1994). It can entrench the CEO at the top of a company, making the board ineffective in supervising management (Haniffa and Cooke, 2005). Duality can make the

CEOs advance their self-interest that is detrimental to the general interest of shareholders (Muttakin *et al.*, 2015). Alternatively, integrating these two positions may promote the unity of command, better leadership structure and sound decision making. The results obtained by prior studies regarding duality being a determinant of ICD (documented in Table 1) are not conclusive.

Table 1. Relationship between CG attributes and ICD

| Board Size | |
|--------------------|---|
| Positive | Abeysekera 2010, Haji and Ghazali 2013, Alfraih 2018, Dalwai and Mohammadi 2020, Aslam and Haron 2020. |
| Negative | Cerbioni and Parbonetti 2007, Tran <i>et al.</i> 2020 |
| Not significant | Al-musali and Ismail 2012, Appuhami and Bhuyan 2015, Mubaraq and Haji 2014, Tejada-Romero <i>et al.</i> 2017, Yan 2017, Dashtbayaz <i>et al.</i> 2020 |
| Board Independence | |
| Positive | Cerbioni and Parbonetti 2007, Mubaraq and Haji 2014, Appuhami and Bhuyan 2015, Yan 2017, Aslam and Haron 2020, Dashtbayaz <i>et al.</i> 2020 |
| Negative | Al-Musali and Ismail 2012, Rodrigues <i>et al.</i> 2017, Tejada-Romero <i>et al.</i> 2017, Tran <i>et al.</i> 2020 |
| Not significant | Hidalgo <i>et al.</i> 2011, Cardi <i>et al.</i> 2018, Dalwai and Mohammadi 2020 |
| CEOs Duality | |
| Positive | Hidalgo <i>et al.</i> 2011, Appuhami and Bhuyan 2015 |
| Negative | Cerbioni and Parbonetti 2007, Haji and Ghazali 2013, Rodrigues <i>et al.</i> 2017, Cardi <i>et al.</i> 2018, Aslam and Haron 2020 |
| Not significant | Li <i>et al.</i> 2008, Hidalgo <i>et al.</i> 2011, Muttakin <i>et al.</i> 2015, Alfraih 2018, |

Audit Committee characteristics

The audit committee plays a crucial role in strengthening the financial reporting systems and improving the efficacy of the board in monitoring management. Li *et al.*, 2008; 2012 found audit committee size and frequency of meetings positively influence ICD whereas, Hidalgo *et al.*, 2011; Bullay 2018 found no association between them. Li *et al.*, 2012; Appuhami and Bhuyan 2015 found audit committee independence does not influence ICD whereas, Bullay 2018 and Haji 2015 reported a positive association between them.

Insider ownership

Insider ownership (shares owned by executive officers and the managing directors) aligns the interest and motivates the manager to act in the best interests of shareholders. Ownership provides an incentive to managers to reveal greater information to notify the market they are making appropriate decisions concerning investment in IC (Hidalgo *et al.*, 2011). Firer and Williams 2005; Haji and Ghazali 2013 found director ownership reduces ICD. On the contrary, Mubaraq and Haji 2014 found a positive association and Hidalgo *et al.*, 2011 found insider ownership does not influence ICD.

Government ownership

Directors of government-owned companies concentrate more on policies associated with human resource development and innovation. (Firer and Williams (2005). Creditors believe government ownership makes the firm legally responsible for its liabilities, ensuring its solvency. Firer and Williams 2005; Haji and Ghazali 2013; Mubraq and Haji (2014) found government ownership increase the ICD. On the contrary, Shahveisi *et al.*, 2017 reported a negative relationship whereas, Alfraih (2018) found no significant association.

Institutional ownership

The presence of institutional shareholdings benefits the company in reducing agency cost, increasing accountability, transparency and maximizing profitability (Hidalgo et al. 2011, Alfraih 2018). However, the empirical findings are not conclusive. Shahveisi *et al.*, 2017 found existence of institutional ownership increase the ICD. Contrary to this, Hidalgo *et al.*, 2011 reported a negative association, while Haji and Ghazali 2013 found no significant association.

Future Research Directions

Future research studies can focus on comparing the relationship between CG and IC across different industries or nations. Also, relatively few studies have analyzed the influence of directors' age, qualification, interlocking, and tenure on the ICD. Thus, it presents the opportunity for future studies to include these variables in explaining underlying relations. Additionally, using some moderating variables in the existing model needs to be explored. Therefore, it can be another area for potential research in future.

Conclusion

This article reviews the relationship between CG and IC. Findings indicate that CG influences IC performance and ICD. However, the association between determinants of CG and IC is not conclusive due to differences in measurement criterion and variation in a legal, socio-economic and political framework. Most of the studies are country-specific and pertain to developed countries. Board related characteristics influence the IC of the service sector more strongly as compared to the manufacturing sector companies (Kamath, 2019). Sector specificity was evident within financial sector companies (banking, finance, insurance and investment companies). CG influenced the IC only for banking companies in Oman (Dalwai and Mohammadi, 2020). Further, country-specificity and variability among determinants of governance hinder the generalization of the research findings. Although many researchers have focused on this field of study in the last decade, a more consistent explanation underlying these relations still needs to be explored.

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The New Economic Geography and the Dynamics of Medium and Small Sized Towns in India

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Abstract

This paper examines the extent to which small and medium towns in India have contributed toward the growth of urban population. As agglomeration benefits outweigh its costs, small and medium towns can become an important hub for economic activity. Descriptive mapping of 15 Indian states indicates that the growth of small and medium towns have a substantial share in the overall growth of urban areas in a state. Results from the district-level regressions show that a positive shock in district urban population is associated with a significant increase in the number of small and medium towns and their population levels. However, the dispersed nature of urbanization may point towards the role of the government to mobilize resources from greater economic activities to facilitate the rapid growth of small and medium towns.

Keywords: Urbanization, small towns, medium towns, districts, urban population

The Contribution of Structural Transformation in the Productivity Growth for India

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Abstract

An immature secondary sector is hampering a sustainable economic development in India. The present study is an attempt to understand the underlying factors causing the unbalanced growth of the Indian economy by measuring the extent of structural transformation that happened in the economy. We show that the contribution of structural change in the average annual labour productivity growth in India has been around 29% during the period 1983-2017. While this contribution has declined since 2007, the remaining 71% of the aggregate productivity growth is originating within the individual sectors, and especially within the tertiary sector, which alone explains about 30% of this growth

Keywords: Sustainable Economic Development — Structural Change — Labour Productivity — Economic Growth — Indian Economy — Structural Transformation — Sectoral Productivity.

Introduction and Background

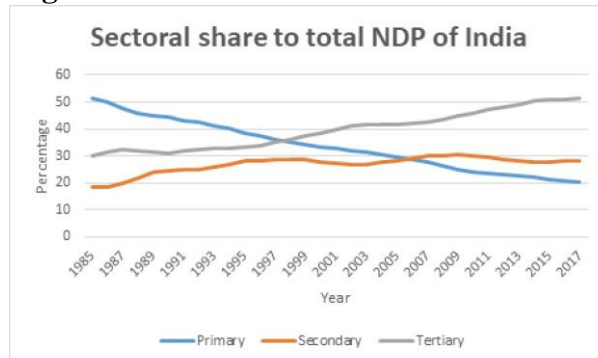
The term development has various definitions, and it has many dimensions. Economic development primarily deals with the growth of the economy. Studying economic development through a wider lens helps us to understand the macro behavior of the economy. Though we can use the economic principles across different contexts, the findings from a particular study have limited generalizability. To have a fruitful analysis of the economy from economic development studies, it should be context-specific. Studying the Indian economic development may help us understand the twists and turns in the Indian economy. Although India is a developing economy, there are multiple reasons, such as its prominence in the global trade, population, rapidly growing middle-income population etc., to believe that India can achieve a better position in the world economy in the recent future.

The current research focuses on the Indian economy for the years starting from 1983 to 2018. Post-independence, the Indian economy witnessed numerous economic changes and reforms to survive, crawl, run, and boost the economy. India has witnessed different kinds of reforms from time to time to cope with the domestic as well as the global economic scenario. The occasional economic reforms and modifications brought unconceivable reparations and damages to the economy. The current research focuses on the development of the economy through the lens of structural transformation that happened in the economy. It studies whether the structural transformation has contributed to the country's aggregate productivity or the sectoral productivity changes constituted the structural transformation.

The sectoral relocation of labor is termed as the structural transformation or the 'structural change' in an economy. The Indian story of structural transformation is evidently not in line with the structural change that happened in the currently developed economies. The developed economies have observed a progression of development of the primary sector, then the secondary sector, and finally, the tertiary sector. In India, the economy has witnessed a jump from a developed agriculture (primary) sector to the development of the service (tertiary) sector leaving a poorly developed manufacturing (secondary) sector. Due to this jump in the structural shift, it is famously referred to as the stunted structural transformation. Understanding India's structural transformation can help us understand the possible reasons for such a stunted structural transformation in India.

The Indian economy witnessed massive re-allocation of the labour force from the primary sector majorly to the tertiary sector. Post-independence, the primary sector was the major contributor towards the GDP, constituting more than 50 percent of the GDP, and later the tertiary sector took the role (see 1. In contrast, the secondary sector remained almost stagnant in terms of the contribution towards the GDP as well as the labour force share. Understanding the role of each sector and its development is essential to understand the economic growth achieved by countries. Re-allocation of production factors is one of the imperative requirements for a change in the economic performances of a country (Syrquin, 1988).

Figure 1. Sectoral share to total NDP of India.



The movement of labour out of the primary sector to other sectors helped countries to achieve unprecedented economic growth. The movement of labour occurs broadly due to two reasons: push factors and pull factors. The factors which enhance the productivity of the agricultural sector constitute the push factors. As productivity in the primary sector increases, the lesser and lesser labour force is required to produce the same amount of output Ung^o or^o (2017). Due to the increase in productivity, the primary sector pushes the labour out of it and pushes the labour into other sectors, such as the secondary sector and the tertiary sector. The factors which pull the labour force from the primary sector to other sectors constitute the pull factors. Though the productivity of the secondary sector and tertiary sectors also increased the domestic as well as the international trade for non-agricultural sectors demanded a large share of labour force Kuznets (1966). In addition to these factors, Kuznets found out the massive improvement in technology prompted the movement of the labour force from the primary sector to other sectors. The factor productivity growth or Total Factor Productivity (TFP) resulted in the intersectoral allocation of different production factors Lahiri & Yi (2009) is also in line with Kuznets' technology change claim. de Vries, Timmer, & de Vries, (2015) studied the structural transformation that happened in developing countries and identified that the resources reallocated to a sector with high productivity growth. As the resources moved from a sector with a low productivity growth rate to a highly productive sector, the result is improved performance by the overall economy.

The present study focuses on the possible levels of disaggregation to understand the structural change that happened in the Indian context. Therefore, the study conducts three sectors and ten sector levels of disaggregation to understand India's structural transformation. The informal sector also absorbs the labour force that moves away from the primary sector to other sectors. Despite that fact, the current study limits its scope to the structural transformation as a whole. No further categorization of the labor force into the formal/informal sector intake is out of the current study's purview. Economic development and structural transformation can be treated as the two sides of a coin. Globally we have seen that the one triggers the other. In India, the tremendous structural transformation that happened in the economy brought significant

economic development. The structural transformation that happened in India has its own uniqueness due to the rapidly growing tertiary sector and a stagnant secondary sector (see 2). A thorough and comprehensive study is required to frame the policies and plan to achieve more remarkable development. The present study designed in such a way that to understand the structural shift in all dimensions and to analyze the structural transformation that happened in India will help the country to achieve sustainable and long-lasting economic growth. A deprived manifestation characterizes the portrayal of the structural transformation in India, and the present study attempts to address the gap. The present study attempts to study the pattern of labour movement across the different sectors, the output from each of the sectors, and the productivity differences over the study period.



Figure 2. Sectoral share to total labourforce of India.

Another purpose of the study is to corroborate the famous jobless growth prerogative attached to Indian economic development. The present study attempts to determine the possible reason for the same in terms of the productivity of each of the sectors. India used to be primarily an agrarian-based economy in terms of its GDP contribution and labour force share. But post-1991 economic reforms resulted in massive structural changes, and the service sector emerged as a significant player. The skill-wise demanding service sector facilitated the movement of the labour force from relatively lower productive agriculture sector to the high productive sectors irrespective of the formal or informal sectors. Understanding the dynamics of the structural transformation helps us know the areas of improvement so that the policymakers can frame better policies and prepare a proper blueprint for future action. To facilitate the growth process and sustainable development requires a comprehensive understanding of the particulars of the economy. The present study intends to draw a clear picture of the Indian economy's status and the structural transformation that happened in the Indian economy as a whole and the various Indian states.

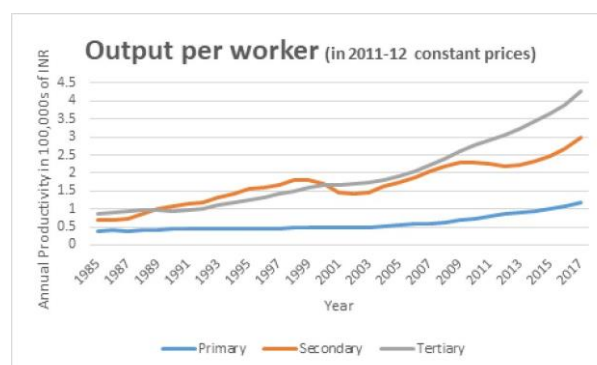


Figure 3. Output per worker (in 2011-12 constant prices).

Previous studies analyze the role of different factors such as the variations in investment, wages, and labour productivity influence job creation in a country's formal sector. The current paper marks its difference by incorporating the structural transformation aspect and how the changes in labour productivity can facilitate the structure of the economy and the overall economic development. The state-wise three- sectors and ten-sector GDP contribution, labour share are available for a minimal number of states. The state-wise movement of the labour force across different sectors is another aspect on which the data is available for certain states only. The current study attempts to compute the GDP, labour share from various sectors for a three-sector and a ten sector disaggregation. The present study attempts to measure the structural transformation by defining a measure to gauge the same for India and the Indian states.

1. Methodology

1.1 Labour Productivity

Our main variable of interest is labour productivity. The literature is largely silent on comparison of labour productivity between different Indian states because of the absence of suitable state-wise and sector-wise labour data. Our critical analysis focuses on the comparison of labor productivity across states. Labour productivity, for a particular state and a particular sector, was calculated by dividing the sector-wise Net State Domestic Product (NSDP) at a constant price by the labour force number of that sector for that state.

After calculating the labour productivity, we calculated the compounded annual growth rate (CAGR) in labour productivity for a particular period. For computing the CAGR in labour productivity, the final value of labour productivity is divided by the initial value. This ratio represents the total growth rate for the entire period. We take the logarithm of this ratio and then divide it by the number of years in the period to calculate the gross growth rate.

1.2 Sectoral Disaggregation

Our study necessitates the identification of the contribution of different sectors to the aggregate growth of the economy. We used sectoral disaggregation on two different levels. In the three-sector level, we divided the sectors as Primary, Secondary, and Tertiary. In the 10-sector level, we divided the sectors as (1) Agriculture, hunting, forestry, and fishing; (2) Mining and quarrying; (3) Manufacturing; (4) Construction; (5) Electricity, gas and water supply; (6) Transport storage and communication; (7) Trade, hotels and restaurants; (8) Finance, insurance, real estate, and business services; (9) Government services; (10) Community, social and personal services. The NSDP data are available for 11 broad industrial categories and 13 subsectors. We are constrained by the data to conduct a 35-sector disaggregation similar to De Vries, Erumban, Timmer, Voskoboynikov, & Wu (2012). We considered the sectors and subsectors following the convention of the widely cited GGDC ten sector database (Timmer, de Vries, & De Vries, 2015).

For each sector, we tabulated the corresponding National Industrial Classification (NIC-2008) codes. There are five different series of NIC classifications, NIC-2008, NIC-2004, NIC-1998, NIC-1987, NIC-1970, used for different survey rounds. The classification in NIC-1970 and NIC-1987 codes are available in one digit division, two-digit major groups, and three-digit group forms. NIC-1998 introduced the fivedigit classification of the industries. NIC 1998, NIC-2004, and NIC-2008 are available in single-alphabet tabulation categories, two-digit divisions, three-digit, four-digit, and fivedigit subgroups. The concordance between the different NIC classifications is openly available. The NIC codes differed widely between their 1970 version and the 1987-version. After 1987, much major change in NIC codes took place, along with

many minor changes, and the evolution of a more refined structure for the NIC codes happened. Additionally, we also use a three-sectors disaggregated view of the economy. These three sectors are named as primary, secondary, and tertiary.

1.3 Decomposition of Labour Productivity Growth

The decomposition of the growth of labour productivity to suitable components is the next stage of our analysis. We used the Oaxaca Blinder decomposition method to calculate the change in labour productivity, in line with the decomposition method adopted by Timmer, de Vries, & de Vries (2015). The Oaxaca Blinder decomposition works with computation of the difference between two groups. In the present study, we have identified these two groups with the observations from two periods-the beginning of the span of our study and the end of our study. This work used canonical decomposition method originally from Fabricant (1942) to account for the productivity growth as contributed by (i) the within sector, (ii) the between sector, and (iii) the interaction effect.

The within-sector effect (often called the "intra effect" in the literature) is defined as the change in productivity, contributed by the changes in the labour productivity within the sectors with the assumption of constant labour shares for the corresponding sectors. The effect is called "within sector" effect because of the contribution towards the change in productivity happens within the particular sectors without any other movement.

The between-sector effect (the "inter or between-sector effect - static") is defined as the effect on labour productivity due to the change in the labour share assuming no change in the initial labour productivities. Therefore, the change in productivity is the contribution of the movement of labour from one sector to another sector and not due to an increase in labour productivity within the sectors.

The interaction effect (the "inter or between sector effect - dynamic") is the change in productivity on account of the interaction of the two effects as mentioned earlier-the changes in the labour productivity of the individual sectors and the changes in the labour shares of those sectors. Adding these cumulative effects, i.e., intra-effect or within sector effect, between sector effect and the interaction effect, we get the change in the aggregate labour productivity growth, as shown in the following equation:

$$\Delta P = \sum_i \Delta P_i \cdot \theta_i + \sum_i \Delta \theta_i \cdot P_i + \sum_i \Delta \theta_i \cdot \Delta P_i \quad (1)$$

where θ_i is the sectoral labour share of the i th sector, P_i is the sectoral labour productivity of the i th sector and P is the aggregate labour productivity of the economy. The symbol Δ stands for a change in the value of a particular variable between two time periods. Out of the three terms added in the RHS of equation 1, the first term corresponds to the within-sector effect, the second term corresponds to the between-sector effect and the third term corresponds to the interaction effect. The LHS, i.e., the change in the aggregate labour productivity of the economy. The aggregate labour productivity, P , of the economy can be shown as the following equation:

$$P = (TotalOutput)/(TotalLabour) = (P_1 \cdot \theta_1 + P_2 \cdot \theta_2 + \dots + P_k \cdot \theta_k) / (\theta_1 + \theta_2 + \dots + \theta_k) \quad (2)$$

where P is the aggregate labour productivity, and P_i is the i th sector labour productivity for the i th sector. (Refer the ⁴ for the derivation of the aggregate labour productivity)

Table 1. Toy example to depict the STI calculation

| Time Period | Labour Productivity | | Labour force | | Change in Period | Aggregate Productivity | Growth in Productivity | Change in Labour Force | |
|-------------|---------------------|------|--------------|-------|------------------|------------------------|------------------------|------------------------|------|
| | Trad. | Mod. | L_t | L_m | | | | Trad. | Mod. |
| T_0 | 10 | 20 | 1 | 0 | | 10 | NA | Trad. | Mod. |
| T_1 | 20 | 20 | 1 | 0 | T_0 to T_1 | 20 | 10 | 0 | 0 |
| T_2 | 10 | 20 | 0 | 1 | T_0 to T_2 | 20 | 10 | -1 | 1 |

In the current study, we decomposed the aggregate productivity change into the three components of the within-sector effect, the between-sector effect, and the interaction effect. We computed the ratios of each of these effects to the aggregate productivity change. These ratios decompose the total change into three fractions, which add up to unity. We also computed the CAGR for the aggregate labour productivity for a particular state. We multiplied the CAGR by these fractions to compute the contribution of each of these effects towards the CAGR for labour productivity.

We decomposed the labour productivity growth of the six zones as well as for All India for four different time periods and the entire time period into intra-effect or within sector effect, between sector effect and interaction effect. The following section contains the plots depicting the different time period performance of each zone in terms of the three effects.

4

$$P = (Q_1 + Q_2 + \dots + Q_k) / (L_1 + L_2 + \dots + L_k)$$

$$P = (P_1 L_1 + P_2 L_2 + \dots + P_k L_k) / (L_1 + L_2 + \dots + L_k)$$

$$P = P_1 \cdot (L_1) / (L_1 + L_2 + \dots + L_k) + P_2 \cdot (L_2) / (L_1 + L_2 + \dots + L_k) + \dots + P_k \cdot (L_k) / (L_1 + L_2 + \dots + L_k)$$

$$P = (P_1 \theta_1 + P_2 \theta_2 + \dots + P_k \theta_k) / (\theta_1 + \theta_2 + \dots + \theta_k)$$

L_i is the i th sector labour force number, and θ_i is the i th sector labour share.

1.3.1 Structural Transformation Index and A Toy Example As structural transformation happens, labour force moves from the traditional sector to modern sectors. To quantify the changes in the structure of the economy, we use the following measure. Our measure, the Structural Transformation Index (STI) is defined as follows:

$$STI = (BSE + IE) / (WSE + BSE + IE) \quad (3)$$

where BSE = between-sector effect, IE= interaction-effect and WSE = within-sector effect and the effects are as defined in equation 1.

We motivate the utility of our index through a toy example, as specified below. The calculation of STI can be shown in the following example:

We consider a two-sector economy where the sectors are named as traditional and modern. In the time period T_0 , the productivities in the traditional and the modern sectors had been 10 and 20, respectively. One labourer had been employed in the traditional sector and none in the modern.

Table 2. Toy example within-sector effect, between-sector effect, interaction effect, and STI

| Time Period | WSE | BSE | IE | ΔP | STI |
|-------------|-----|-----|----|------------|-----|
| T0 to T1 | 10 | 0 | 0 | 10 | 0 |
| T0 to T2 | 0 | 10 | 0 | 10 | 1 |

In the time period T1, the productivity in the traditional sector increased by 10 to the new value of 20, and the productivity of the modern sector remained unchanged. The labour force employed in both sectors did not change too.

In the time period T2, the productivities of the traditional and the modern sector were no different than their corresponding values in T0, but the sole labourer moved from the traditional sector to the modern sector. Therefore, the traditional sector employed no labourer whereas the modern sector employed one.

From Table 2, we observe that the growth in total productivity during T0 to T1 is exactly the same as the corresponding figure during T0 to T2. However, during the transition of the economy from T0 to T1, no movement of labour across the sectors happened. This transition of the economy from T0 to T1 is growth without any structural transformation. On the other hand, the transition of the economy from T0 to T2 the economy witnessed a movement of labour across the sectors and without any change in sectoral productivity. The growth of the economy, in this case, is attributed to a structural transformation of the economy. The STI (as we defined) is calculated for this toy example in Table (5). Our STI can successfully capture the intuition found in this toy example. For the transition from T0 to T1, the calculated STI is 0, whereas for the transition T0 to T2, the calculated value of STI is 1. This example (Table (4) and Table (5)) is a toy example and the real scenarios will be more complicated. Nevertheless, the STI is expected to capture the extent of structural change.

1.4 State-wise and Zonal Decomposition of Labour Productivity Growth and Calculation of STI

Due to the availability of data as elaborated in the next section, we limited the focus of our study to the years of 1983 - 2018. We also divided the entire period into four sub-periods: 1983 - 1991 (Pre economic reform period), 1991 - 1998 (Early economic reform period), 1998 - 2008 (Golden years of economic reform period), and 2008 - 2018 (Post global slump period).

1.4.1 Categorization of Zones and Major States

Our dataset consists of 36 Indian states and union territories (administrative divisions governed directly by the central Government of India). We denoted 17 states as major states while presenting our results. Each of the major states has more than two crores (twenty million) as its population based on the 2011 census. Based on this criterion, the major states are Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal. Since the labour data on Telangana is present only for the year of 2017 - 18, it is not possible to study any dynamics about this state. Therefore, for the calculation and further analysis, we clubbed the 2017 - 18 values of Telangana with Andhra Pradesh and considered the undivided Andhra Pradesh as one unit, instead of considering Telangana as a separate entity.

We also conducted a zonal analysis of the Indian Economy. To that end, we followed the six administrative zones defined for the Indian states by the States Reorganisation Act, 1956. The six zones were northern, western, eastern, southern, central, and north-eastern zones. The northern zone contains Chandigarh, Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir,

Ladakh, Punjab, and Rajasthan. The western zone consists of Dadra and Nagar Haveli, Daman and Diu, Goa, Gujarat, and Maharashtra. The eastern zone has in it Bihar, Jharkhand, Odisha, and West Bengal. The southern zone is composed of Andhra Pradesh, Karnataka, Kerala, Puducherry, Tamil Nadu, and Telangana. The central zone refers to the states of Chhattisgarh, Madhya Pradesh, Uttarakhand, and Uttar Pradesh. Finally, the north-eastern zone-in our definition are the eight states of Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim⁵, and Tripura. We compared the economic performance of different zones, along with a comparison of the state economies.

STI can be treated as the measure of the structural transformation happens in an economy. It thus measures the allocation and movement of labour factor across different sectors of an economy. Thus it becomes imperative to study whether the allocation of production factors across sectors is optimal or not in an economy. This can be studied by computation of labour allocation wedge and capital allocation wedge.

⁵The common years from two base years series required for computing the ratio with which the former base year series is converted to the latter base year series. In the case of Sikkim, such common year from two base years are absent and thus we computed the ratio for converting the different base year serieses into 2011 - 12 series by computing the annual growth rate of each of the ten sectors and imputed values for two years and computed the required ratio.

2. Data and Measurement Issues

We obtained data on two important variables: Output, and Labour for various states of India. For the calculation of output we closely followed the methodology adopted by Lahiri & Yi (2009).

No paper to our knowledge used labour employed in different sectors—primary, secondary, and tertiary for the threesector disaggregation and each of the ten-sectors for the corresponding disaggregation— for different Indian states as a variable. One contribution of our paper, in its own right, is the calculation of state-wise labour employment for different sectors from the micro-data. We considered the years 1983–2018 because of the availability of the micro-data for these years.

The datasets which compiled based primarily on the National Accounts Statistics cover the sectors based on the national industrial classification. The surveys Employment and Unemployment Survey (EUS) 38th round and 43rd rounds use the NIC-1970 codes, EUS 50th round uses NIC-1987 codes, EUS 55th round, 60th round, 61st round use NIC-1998 codes, EUS 62nd round, 64th round, and 66th round use NIC-2004 codes and EUS 68th round uses NIC-2008 codes. The next session describes the different data and data sources used for the current study.

2.1 Sources of Data

We used various sources of data, as noted below:

1. NAS: We considered the EPWRFITS (Economic and Political Weekly Research Foundation India Time Series) constant price and current price NDP series for the Indian states. The different modules on which time-series data are available are National Accounts Statistics of India, Domestic Product of States of India, Price Indices, Agricultural Statistics, Wage Rates in Rural India, Annual Survey of Industries, Industrial Production Series, Statistics of Mines, Mineral Statistics, Power Sector, External Sector, Monetary Statistics, Financial Markets, Banking Statistics, Insurance Statistics, Finances of State Governments, Combined

Government Finances, Health Statistics, Educational Statistics. These modules are collected by different governmental agencies such as Central Statistics Office (CSO), Ministry of Commerce and Industry Department of Industrial Policy and Promotion Office of the Economic Adviser, State Directorates of Economics and Statistics, The Directorate of Economics and Statistics, Ministry of Agriculture (DESMOA), etc. The Central Statistics Office's (CSO) system of national accounts under the Ministry of Statistics and Programme Implementation collects the National Accounts Statistics of India data. The State Directorates of Economics and Statistics has compiled the SDP data used in our work.

2. NSSO: The National Sample Survey Office (NSSO)⁶ under the Ministry of Statistics and Programme Implementation gathers data annually (called "Round"). In every fifth year—known as quinquennial round—the sample size is considerably larger compared to an

⁶The present study utilizes the EUS dataset as well as the HCE dataset as both these surveys collect data on labour for different industrial categories. HCE is considered in addition to EUS because the survey gives an idea of the labour share of different industrial sectors for the years for which EUS data are unavailable. Though NSSO conducts employment and unemployment surveys every year, the characteristics of the quinquennial round surveys are its large sample size. NSSO started collecting labour data from its 27th round (October 1972 - September 1973) onwards. The EUS provides rich data on multiple indicators related to the labour force of the country and the different Indian states.

average round. Apart from its annual compilation of Household Consumer Expenditure (HCE) and Employment and Unemployment Survey (EUS), NSSO undertakes periodic surveys on different categories such as Health, Education, Nutrition, Migration, Informal Sector, Energy, Unorganised Manufacturing, Situation Assessment, Asset, Housing Condition, Debt and Investment, Domestic Tourism, Land and Livestock, etc.

From Table 6, we can see that the last EUS survey happened during 2011 - 12, and no recent EUS survey conducted by NSSO. Instead, NSSO published the first periodic labour force survey (PLFS) during 2017 - 18. The current study considered PLFS also to get the labour share numbers of the different sectors for the year 2017 - 18.

3. Census: We considered the Census of India data. The Office of the Registrar General & Census Commissioner, India, under the Ministry of Home Affairs, and the Government of India collects the Census of India data. Originally started in 1872, the Census of India is carried out once in a decade as a complete enumeration of the Indian population. We used the Census of India for the years 1991, 2001, and 2011 as available on the Census digital library.

4. ASI: The primary investigator of the ASI data is the Central Statistics Office (CSO), which is affiliated to the Ministry of Statistics and Programme Implementation, Government of India. CSO conducts the Annual Survey of Industries (ASI). ASI is the primary source of Indian industrial statistics. The annual data collected based on systematic sampling techniques facilitates publishing industrial statistics and promotes research to form crucial perspectives on the Indian economy.

ASI has two parts: The CSO Information Systems wing administers part 1, and Labour Bureau processes part 2. Part 1 contains the data on assets, liabilities, costs, etc. while part 2 contains the data on worker-days and other labour statistics. The unit of analysis of the survey is a factory/ workshop/ undertaking or licensee/ an establishment as the case, and the survey spans to different sectors such as manufacturing, construction, electricity, gas, water supply, repair service, and cold storage. The data are collected employing a sampling procedure. The sample frame is the factories registered under Sections 2(m)(i) and 2(m)(ii) of the Factories Act, 1948. ASI sampling design periodically updated as per the technical as well as other requirements. From 2012 - 13 onwards, a new sampling design has been followed according to the

recommendations of Dr. S. L. Shetty Committee. Based on this new sampling design, the sampling frame divided into Census and Sample.

Three categories of the factories constitute the Census sector. The categories are the industrial units from less industrially developed Manipur, Meghalaya, Nagaland, Sikkim, Tripura, and Andaman & Nicobar Islands; industrial units of the rest of the states having 100 or more employees; and units part of the strata from the Bidi, Manufacturing and Electricity sectors. The industrial units excluded from the above categories constitute the sample sector. All the census sector industrial units and the units selected from the sample sector based on the Circular Systematic Sampling technique constitute the observations.

2.2 Construction of the Variables

2.2.1 Output

We used the National Accounting Statistics (NAS) exclusively in the calculation of the output variable. The annual data are available from 1960 to 2018. The dataset provides state domestic products for different sectors of the economy. We considered net state domestic product series (NSDP) at the constant price. NSDP is defined as the Gross Domestic Product for the particular state, excluding the depreciation for the capital.

The NSDP data at the constant price are available for different base years 1960 - 61, 1970 - 71, 1980 - 81, 1993 - 94, 1999 - 00, 2004 - 05, and 2011 - 12. As the data are available for different base years, we changed the data into a single base year series in the interest of comparability and consistency. We employed the following standard procedure in converting the NSDP data for different base years into the constant 2011 - 12 price series data. For the appropriate conversion factor, we calculated the ratio of the NSDP as per the new base year and its counterpart as per the old base year for those years for which the NSDP data for both base years are available.

We clarify our procedure here with a suitable example. For example, the time-series data for 2011 - 2014 are available for both 2011 - 12 and 2004 - 05 base year. We calculated the ratio of 2011 - 12 NSDP at the 2011 - 12 base year value and the same NSDP at the 2004 - 05 base year value. We repeated this procedure to calculate the corresponding ratio for all the different NSDPs for all the common years of 2012 - 13 and 2013 - 14. We considered the average of these ratios for calculating the conversion factor to convert the NSDPs from the 2004 - 2005 base year value to the 2011 - 12 base year value.

Now, much of the NSDP series are not available at 2004 - 05 base year but are available at some other base year value. We used the chain rule, which is recursive use of the same procedure for the multiple base years, to convert them to the 2011 - 12 base year value. For instance, for the NSDP data at 1999 - 00 value, we used the same procedure described above to convert them to 2004 - 05 base year value by multiplying them by a suitable conversion factor to be calculated by our methodology. After converting them to 2004 - 05 base year value, once again, we multiplied them by a different conversion factor - the one we already calculated to convert 2004 - 05 series to 2011 - 12 series - to convert them to 2011 - 12 base year value. For the data at the disaggregated level, we repeated this same procedure for all the sectors and all the states, separately.

2.2.2 Labour

For calculation of labour employed for different sectors in different Indian states, we used different NSSO datasets: 9 different rounds of EUS from 1983 to 2012, 11 different rounds of

HCE during 1990 - 2002, and the solitary round of PLFS for 2017 - 18. Apart from NSSO data, we also used the census data for the years of 1991, 2001, and 2011. Table 6 shows the details of different NSSO surveys, and the rounds of the surveys utilized for the current study. We may also point out to the fact that although all the HCE datasets (for 26 rounds) contain occupation, we used only the person records module (available for 11 rounds only) to compute the labour share values for different sectors. For the other rounds, only the household characteristics module contains the occupation of the head of the household, forcing the dataanalyst to take the occupation of the head as that of the entire household, which is not sufficient for calculating the labourforce numbers.

3. Results & Discussions

In the current paper, we have constructed the data on labour share, productivity and structural transformation of India and the six zones. The study period 1983 – 2018 has divided into four subperiods and remarkable observations found from the results. Labour productivity of the primary sector witnesses a marginal increase while the productivity of the tertiary sector reports a phenomenal increase. The trends in the labour productivity of the three-sectors are similar in all-India as well as in the major Indian states. In the ten-sector disaggregation, the constituents, such as (i) Trade, Hotels, and Restaurants, (ii) Transport Storage and Communication, and (iii) Finance, insurance, real estate, and business services, of the tertiary sector shows remarkable labour productivity figures in all-India and all major Indian states. Another important observation from the constituents of the secondary sector is that both the Construction sector and the Electricity, gas and water supply sector reported a large increase in its labour shares. Both the sector reported an increase of more than 10% in their labour share.

The calculation of the annual productivity growth rates and its decomposition into three-components using a variant of the Oaxaca - Blinder decomposition, canonical decomposition method, helped us to introduce a new measure that can account for the structural transformation that happened in the economy. The study revealed that the maximum amount of structural transformation that happened during 1998 - 2008 and the maximum productivity growth rate is observed during 2007 - 2018. The structural transformation that happened during the former years may have helped the economy to achieve the most amount of productivity growth rates in the following period. The incidence of higher levels of labour productivity growth rate after a rapid structural transformation of the economy connotes to the massive labour force movement from the traditional low productive sectors to the high productive modern sectors. Understandably, this movement has powered the economy to achieve larger strides during labour productivity growth. The three-sector and ten-sector analysis show that the results are robust and are in line. Minor inconsistencies in the growth rates reported from the three-sector and ten-sector analysis are due to small changes in the total labour force number reported from the three-sector and the ten-sector disaggregation.

For the entire study period (1983 - 2018), the sector Transport Storage and Communication (6.34%) reported the highest labour productivity growth rate. The sector Manufacturing (5.36%), Community, social and personal services (6.19%), and Finance, insurance, real estate, and business services (6.21%) reported better labour productivity growth rates than the whole economy (5.19%). The construction sector is the sector with the lowest labour productivity growth rate (0.92%). For the sector Electricity, Gas and Water supply, the labour productivity value for the year 1983 is negative, and thus, the growth rate is not calculated for that particular sector for the entire study period as well as for the pre-economic reform period (1983-84 - 1991-92).

Our STI numbers (see Table 3) show that the maximum amount of structural change happened between 1998 and 2008. During the entire study period, northeastern, north and western zones performed at better than India in terms of STI. Central (0.18) zone reported the lowest STI value (see Table 42). During the pre-economic reform period (1983-84 1991-92), the Western zone (0.30) and the southern (0.21) zone performed better than the all India (0.18) performance. Eastern zone performed at par with the all India in terms of STI. All the other three zones' performance falls short of all India performance. The least performed zone is the northeastern zone (-4.20). During the economic-reform period (1991-92 - 1998-99), all India showed a negative STI value (-0.08). The negative STI values mean that during this period, the economy suffered a job reduction as that is the only channel that permits a less than zero value for STI. A negative value for STI means the productivity increase caused a loss of jobs, and a labour force decrease happened across the country. During this period, the zonal performance shows that northeastern (1.78), and northern (0.04) have positive STI values and western (0.00) zone has zero as STI value and these zones performed better than all India. The three other zones lagged to all India's performance. The least performed zone is the southern zone (-0.19) during this period. The results are in line with India's jobless growth pattern and paradigm.

Table 3. Decomposition of the Aggregate Labour Productivity Growth Rate into three effects and STI calculation for ten sector disaggregation - India

| Period | P (CAGR %) | WSE | BSE | IE | STI |
|-----------|------------|------|------|-------|-------|
| 1983-2018 | 5.19 | 3.55 | 0.59 | 1.05 | 0.32 |
| 1983-1991 | 3.03 | 2.49 | 0.47 | 0.07 | 0.18 |
| 1991-1998 | 4.69 | 5.05 | 0.10 | -0.46 | -0.08 |
| 1998-2007 | 4.64 | 2.88 | 2.12 | -0.36 | 0.38 |
| 2007-2018 | 7.81 | 5.74 | 1.56 | 0.51 | 0.27 |

Source: Authors calculations using the sector database

We show that the contribution of structural change in the average annual labour productivity growth in India has been around 29% (31.67) during the period 1983-2018. While this contribution has declined since 2007, the remaining 71 % (68.37) of the aggregate productivity growth is originating within the individual sectors, and especially within the tertiary sector, which alone explains about 30% (23.84) of this growth. From the shares of contribution by Structural Transformation and within-sector productivity growth, we can see that the contribution of ST is significant. ST has played a major role in contributing towards the productivity growth of the economy.

The study attempted to compute the sector-wise (three sector and ten-sector) labour force share, value-added share, annual labour productivity for India as a whole and the Indian states. In the current study, we have constructed the data on labour share, productivity and structural transformation of various Indian states. The study period 1983 – 2018 has divided into four subperiods and remarkable observations found from the results. The labour force movement from the primary sector to other sectors is not at par with the relative shift of sectors with respect to the value-added share. The relative importance of the sector towards the total domestic product of India has shifted from primary sector to tertiary sector, leaving a marginal secondary sector aside. But the corresponding shift in the labour share is not significant. Resource reallocation plays a major role in the development of an economy. With not so significant labour reallocation could bring about the development that is observed in the Indian economy implies a significant reallocation of labour and capital can lead the economy to unprecedented growth rates.

In the three-sector disaggregation of the economy the primary sector labour has reduced by 24.2 percent. Still, a major share of the country's labor force is associated with the primary sector (44.3%). The labour force is reallocated to both secondary and tertiary sectors. The tertiary sector reported a higher increase among the pair and grabbed 13.2 % of labour force from the primary sector, and the remaining share of labour moved towards the secondary sector.

Punjab is the major state that reported the highest reduction in the labour share from the primary sector. Around 40 percent of the labour force of the primary sector has reallocated to the other two sectors. The labour force got reallocated to both the secondary and the tertiary sectors more or less equally. Haryana is another major state that reported a similar reduction in the primary sector labour share. Though, in Haryana, the labour force predominantly moved towards the secondary sector. Kerala is in third place in terms of the primary sector labour-force share reduction. But in Kerala majority of the labour moved towards the tertiary sector. Andhra Pradesh (15.4%) and Maharashtra (19.4%) are the two states that reported the least reduction in the labour force share. Surprisingly Andhra Pradesh has reported a reduction in the tertiary sector as well. The tertiary sector labour force reduced by 0.6% and in no other major states, such phenomenon happened. Compared to other major states, Andhra Pradesh has the highest level of primary sector labour share.

States like Gujarat, Madhya Pradesh, Punjab, Rajasthan, and Tamil Nadu along with the decline in the primary sector labour force, the secondary and the tertiary sector labour force increased equally. In states like Andhra Pradesh, Bihar, Haryana, Odisha, Uttar Pradesh, and West Bengal, the secondary sector has attracted more labour force that has moved out of the primary sector than the tertiary sector. In the states such as Assam, Karnataka, Kerala, and Maharashtra, the tertiary sector took a major part of the labour force that has moved out of the primary sector than the secondary sector.

States such as Bihar, Haryana, Kerala, Punjab, and Tamil Nadu witnessed the maximum amount of labour force movement from the primary sector to the secondary and tertiary sectors. Labour productivity of the primary sector witnesses a marginal increase while the productivity of the tertiary sector reports a phenomenal increase. The trends in the labour productivity of the three-sectors are similar in all-India as well as in the major Indian states. In the ten-sector disaggregation, the constituents, such as (i) Trade, Hotels, and Restaurants, (ii) Transport Storage and Communication, and (iii) Finance, insurance, real estate, and business services, of the tertiary sector shows remarkable labour productivity figures in all-India and all major Indian states. Another important observation from the constituents of the secondary sector is that both the Construction sector and the Electricity, gas and water supply sector reported a large increase in its labour shares. Both the sector reported an increase of more than 10% in their labour share.

During the entire period of the study (1983–2018), among the major states, Andhra Pradesh recorded the highest annual growth rate in labour productivity and the zone that reported the highest productivity growth rate was the southern zone. The other major states that recorded more than or close to 6% annual productivity rate for this entire period are Haryana, Tamil Nadu and Karnataka.

The calculation of the annual productivity growth rates and its decomposition into three-components using a variant of the Oaxaca – Blinder decomposition, canonical decomposition method, helped us to introduce a new measure that can account for the structural transformation that happened in the economy. The study revealed that the maximum amount of structural transformation that happened during 1998–2008 and the maximum productivity growth rate is

observed during 2007–2018. The structural transformation that happened during the former years may have helped the economy to achieve the most amount of productivity growth rates in the following period. The incidence of higher levels of labour productivity growth rate after a rapid structural transformation of the economy connotes to the massive labour force movement from the traditional low productive sectors to the high productive modern sectors. Understandably, this movement has powered the economy to achieve larger strides during labour productivity growth. During the entire study period and in the ten-sector disaggregation, the maximum amount of structural transformation happened in the major states such as Assam, Karnataka, Maharashtra, Gujarat and Rajasthan. The northeastern zone reported the maximum amount of structural transformation for the entire time period. The three-sector and ten-sector analysis show that the results are robust and are in line.

4. Conclusion

The STI reveals that the maximum amount of structural transformation happened during 1998 - 2007 period. The economic reforms introduced in the country during the year 1991 - 92 may have helped the economy to re-allocate the production factories across different sectors causing the country to achieve a better value for the STI. The contribution of structural change in India's average annual labour productivity growth has been around 29% during the period 1983-2017. This contribution has declined since 2007, and resource reallocation to the secondary sector is inevitable for a sustained development process.

When the world is at the doorstep of the industrial revolution 4.0, we expect a massive structural transformation to happen soon. During the early economic reform period of 1991 – 1999, the Indian economy witnessed a negative value for the structural transformation Index. Possibly we cannot expect anything else if a new industrial revolution begins. From history, we must learn. States are better-off in framing policies that facilitate the flexibility in the labour movement across sectors. We also understand that it takes a while for the overall scenario to stabilize as it took years for the structural transformation before the maximization of the growth potential.

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Informal Firm Size & Productivity: A pseudo panel data analysis*Lokesh Posti¹**¹IIM, Kashipur, Uttarakhand***Abstract**

We analyse the impact of firm size on informal firm total factor productivity (TFP) and labour productivity (LP). Using 3 NSSO cross-sectional representative surveys from India spanning between 2000-2016, we find contesting claims for TFP and LP. Our paper contributes to the debate in literature regarding the relationship between firm size and productivity and also by raising the question about which aspect of informality demands more attention – whether it is the firm or the labour.

Keywords: Informal Sector, Firm Size, Total Factor Productivity, Labour Productivity

Measuring minimum variance hedging effectiveness*Udayan Sharma¹ & Madhusudan Karmakar²**¹Indian Institute of Management Amritsar & ²Indian Institute of Management, Lucknow***Abstract**

In this study, we address whether highly sophisticated hedging models provide any significant advantage over traditional hedging models. For this purpose, we compare many models available in the literature on a dataset consisting of stock, currency, and commodity. We also propose a new GO-GARCH-Copula model that overcomes the limitations of traditional GARCH hedging models. We observe that conventional and simple model such as the error correction model performs superior to all other models considered in this study. The proposed model also performs relatively well in terms of risk reduction.

Keywords: Hedging, Copula, GO-GARCH

Why do Emerging Market Firms Issue Offshore Dollar Equity Linked Securities?

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Abstract

While depository receipts have attracted much scholarly attention, there is little research on the consequences of issuing foreign currency convertible bonds that account for a large fraction of issuance in global capital markets. We bridge this gap by examining FCCB issuance by Indian firms amounting to \$22 billion during 2000-2017. We find that FCCBs could be delayed equity or cheap debt or relax capital constraints. However, issuers experience an increase in default probabilities, a rating downgrade and a deterioration in operating and stock performance. In line with this analysis, stock markets react negatively to the issuance of offshore convertibles.

Keywords: Financing Policy, Event Studies, International Financial Markets

The Role of Contract Size in the Indian Derivatives Market

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Abstract

The contract size is one of the essential attributes of the futures contract. National stock exchange put effort on a time-to-time basis in revising and redesigning the contract size to increase liquidity and approachability of various investors in the stock market. However, our research examines the impact of downward revision of the contract size in the single stock futures. We explore the short-term price effect on the contract size revision by employing an event study methodology. The result indicates that the firms show a positive abnormal return of 3.90% in post-event windows with statistical significance on the contract size revision in the Indian derivative market. The research finding is advantageous for the regulatory bodies and the exchange for deciding optimal contract size.

Keywords: Contract Redesign, Event studies, National Stock Exchange, Market Efficiency

Introduction

Product innovation in finance literature has not been substantially explored. Nevertheless, product innovation is significantly reelevates to the stock exchange and overall economic welfare. The contract size, tick size, margin requirement, trading hours, and rest others are some of the characteristics of the futures contract that determine the success of any futures contract (Silber, 1981). The market participants prefer future markets because of the advantages, such as higher liquidity, low transaction cost, leveraged position, and others.

According to Karagozoglu and Martell (1999), the optimal futures contract size should not be too large that it restrains market participants from entering the futures market. In addition, it should not be too low that the transaction cost will be increased for the market participants. Therefore, there is a need to revise the lot size from time to time to safeguard the interest of market participants. Here, market participants include both speculators and hedgers. Designing appropriate or optimal contract size needs careful consideration of the transaction costs and trading volume. In addition, the interest of the institutional and retail investors should be considered while designing a contract size.

The existing literature on redesigning the contract size studies the impact of revising the contract size on various market quality aspects such as liquidity, volatility, and others. According to Silber (1981), the ultimate objective of the stock exchanges in optimal contract design is to enhance liquidity and make it more attractive for market participants. The revision of contract specifications is one method to revive the unsuccessful futures contract and improve liquidity (Bollen, 2003). The exchanges revise the contract size to attract more market participants or curb speculative trading. Hence, it leads to lower bid-ask spread and contributes to efficient price discovery (Zhou et al., 2014).

Previous literature on the contract redesign evidenced that liquidity increases after the downwards revision of the contract size (Karagozoglu and Martell, 1999). Bjursell et al. (2010) document higher trading volume, open interest, and volatility on the revision of the contract size. In the same line, Huang and Stoll (1998) concluded that downward revision of the contract size allows more market participants to enter the futures market. Hence, it leads to higher liquidity and smooth price fluctuations. Jena and Dash (2016) study the revision of the Nifty index futures contract and suggest that there is strong causality between volume and volatility. Hence, they provide evidence of the informational trading in the Nifty futures contract in India.

In the same country context, Kumar (2009) investigates the impact of the downward revision of Nifty futures contracts and the introduction of Nifty mini futures on market quality. The author concluded that volatility and volume are positively affected by the above mention revision in contract size. In addition, the paper does not find any significant impact on volatility and volume on the introduction of the Nifty Mini futures contract.

The existing studies mainly focus on the downward revision of the contract size of the indices in different country contexts. The Securities and Exchange Board of India (SEBI) is the capital market regulator in India. National Stock Exchange (NSE) is the largest stock exchange in the world in terms of volume. Both SEBI and NSE revised the contract size of the 40 single stocks futures on 31st March 2021. This event provides us a natural experimental setting to study the impact of the announcement of the revision of the contract size in the Single Stock Futures. Therefore, we investigate the short-term price reaction to the announcement regarding revising the contract size in single stock futures on their spot market underlings.

We find that firms are experiencing cumulative average abnormal returns of 3.90 % in post-event windows on the announcement of the revision of the contract size. The contribution of our study in the contract redesign is as follows. First, our paper is one of the few papers that studies the revision of contract size in single stock futures. Alternatively, most of the papers on the contract redesign study the changes in contract size of indices. We are the first to examine the short-term price reaction to the announcement of the revision of the contract size. The article helps the stock exchanges, regulatory bodies, and rest others on redesigning the contract specifications.

The rest of the paper is categorized as follows. Section 2 describes data, and Section 3 covers the methodology. The empirical findings are presented in Section 4. The finally Section 5, concludes the paper.

Data

In the beginning, we obtained the list of 40 companies whose futures contract size was revised in March 2021 from the NSE (National Stock Exchange) India website. We visit the NSE website to download the circular from the circular section of NSE. From NSE circulars, we get the list of companies whose contract size was revised. The contract sizes are reviewed every six months to uphold the contract value in the range mentioned above if there is a change in the underlying stock's current market price. We collect the price data for individual securities and the Nifty 50 index from the CMIE (Centre for Monitoring Indian Economy) database for the event study in daily frequency. We have used the Nifty 50 index of the National Stock exchange India as the benchmark index in our study.

Methodology

We have used the event study methodology to capture the short-term price reaction on the announcement of the downward revision of the contract size in the single stock futures. We have used the event study methodology outlined by Brown and Warner, 1980. The event date is the 31st March 2021, as the circular was publicly notified on that day. The estimation window is 250 days, and the event window is of twenty-one days. The first step in event study methodology is to calculate the expected return. We have used the market model to calculate the expected return, which is the most prevalent estimation model (Brown & Warner, 1980). We calculate the expected return as follows:

$$EXit = \beta_0 + \beta_1 R_{mt}$$

where, R_{mt} is the logarithmic returns of the Nifty 50 index.

Then we estimate the abnormal return by using the following formula:

$$AR_{it} = R_{it} - EX_{it}$$

where, EX_{it} is the normal or expected return. R_{it} is the return calculated from individual securities in day t .

Aggregation of the abnormal return across time:

$$CAR(a, b) = \sum_{i=a}^b AR_{it}$$

where, $CAR(a, b)$ is the cumulative abnormal return. The a and b are the event windows.

Cross-sectional aggregation of abnormal returns:

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{it}$$

where, N is the number of the firms that constitute our samples.

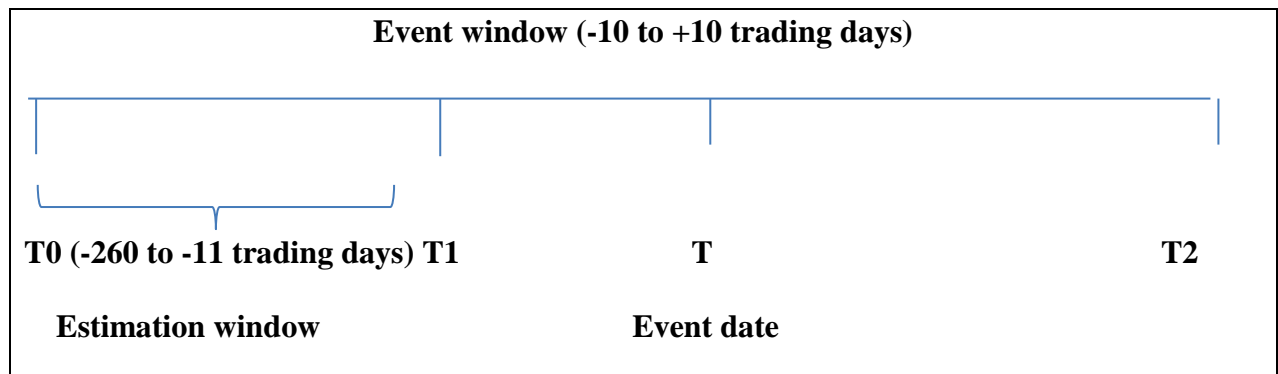


Figure: 1 classification of timeline

Then, we cumulate the AARs across time.

$$CAAR_{f,g} = \sum_{i=f}^g AAR_{it}$$

where, $CAAR_{fg}$ is the cumulative average abnormal return. The window period is f, g .

We have used brown and warner t statistic to check the statical significance of our results with the following equations:

$$tst_{AAR} = \frac{AAR_t}{\sigma_{N,e}}$$

Where, $\sigma_{n,e} = \sqrt{\frac{\sum_{i=1}^N \sigma_{i,e}^2}{N^2}}$

$$tst_{CAAR} = \frac{CAAR_{f,g}}{\sigma_{N,e} \cdot \sqrt{T}}$$

where, T is the number of days in the window period f, g .

Empirical Findings

We apply event study methodology to understand the impact of new information on the stock returns and investors' sentiments. We investigate the short-term price effect on the announcement of the downward revision of the contract size in single stock futures.

We presented the event study results in table 3. Table 3 documents the abnormal returns which are significant for the firms on various days. Hence, we provide evidence that contract redesign is positively impacting the firms. We find that average abnormal returns are substantial in most of the post-event days. New information is affecting the firms on contract redesign if abnormal returns are significant in various post-event days. We report the significant positive AARs on one, three, four, and the rest postevent days. To explore the cumulative effect of the contract design announcement in different event windows, we analyze the cumulative average abnormal returns.

We report the cumulative average abnormal returns for three event windows in table 4. The event windows are pre-event, event, and post-event windows. Table 4 shows the cumulative average abnormal returns (CAAR) for the announcement regarding exclusion from the derivatives market. N stands for the sample size, which is 40. In Table 4, we observe abnormal returns in three event windows is (-5, 1), (-1,1), (1,5) on the announcement of contract redesign. We find negative price effect -2.25 %, -2.02 %, 3.90 % in (-5, -1), (-1,1), (1,5) event windows respectively. We find that the abnormal returns are negative in pre-event and event windows because of the second wave of the covid-19. Alternatively, we find that in the post-event window, the abnormal return is positive and significant. Hence, postevent abnormal returns indicate that downward revision in contract size positively impacts spot market prices of the underlying. The result of cumulative average abnormal return (CAAR) is a measure of abnormal return found to be significant in parametric tests. Brown and Warner (1980), the crosssectional t-test is used for the parametric t-test. For better understanding and comparability, we present the event study results in the following figure 2

Table 3: Analysis of day-wise abnormal returns on contract size revision

| | Event Windows | AAR | t-stats | P-value | CAAR | t-stats | P-value |
|------|---------------|-------|---------|---------|--------|---------|---------|
| T-10 | 0.6319 | 1.48 | 0.13 | 0.6319 | 0.45 | 0.36 | |
| T-9 | 0.1990 | 0.47 | 0.36 | 0.8309 | 0.61 | 0.33 | |
| T-8 | 0.6205 | 1.45 | 0.14 | 1.4513 | 1.13 | 0.21 | |
| T-7 | -0.0412 | -0.10 | 0.40 | 1.4102 | 1.17 | 0.20 | |
| T-6 | -1.5213 | -3.56 | 0.00 | -0.1111 | -0.10 | 0.40 | |
| T-5 | 0.0691 | 0.16 | 0.39 | -0.0420 | -0.04 | 0.40 | |
| T-4 | 0.1309 | 0.31 | 0.38 | 0.0889 | 0.09 | 0.40 | |
| T-3 | 0.5168 | 1.21 | 0.19 | 0.6057 | 0.71 | 0.31 | |
| T-2 | 0.0057 | 0.01 | 0.40 | 0.6115 | 0.83 | 0.28 | |
| T-1 | -0.7285 | -1.70 | 0.09 | -0.1170 | -0.19 | 0.39 | |
| T | -0.2835 | -0.66 | 0.32 | -0.4006 | -0.94 | 0.26 | |
| T+1 | 0.7181 | 1.68 | 0.10 | 0.3175 | 0.53 | 0.35 | |
| T+2 | -1.1135 | -2.60 | 0.01 | -0.7960 | -1.08 | 0.22 | |
| T+3 | 0.9311 | 2.18 | 0.04 | 0.1352 | 0.16 | 0.39 | |
| T+4 | 1.0023 | 2.34 | 0.03 | 1.1374 | 1.19 | 0.20 | |
| T+5 | 0.5271 | 1.23 | 0.19 | 1.6645 | 1.59 | 0.11 | |
| T+6 | 0.5655 | 1.32 | 0.17 | 2.2300 | 1.97 | 0.06 | |
| T+7 | 0.2062 | 0.48 | 0.36 | 2.4362 | 2.02 | 0.05 | |
| T+8 | 1.1312 | 2.65 | 0.01 | 3.5675 | 2.78 | 0.01 | |
| T+9 | -0.1835 | -0.43 | 0.36 | 3.3839 | 2.50 | 0.02 | |
| T+10 | -3.1290 | -7.32 | 0.00 | | 0.2550 | 0.18 | 0.39 |

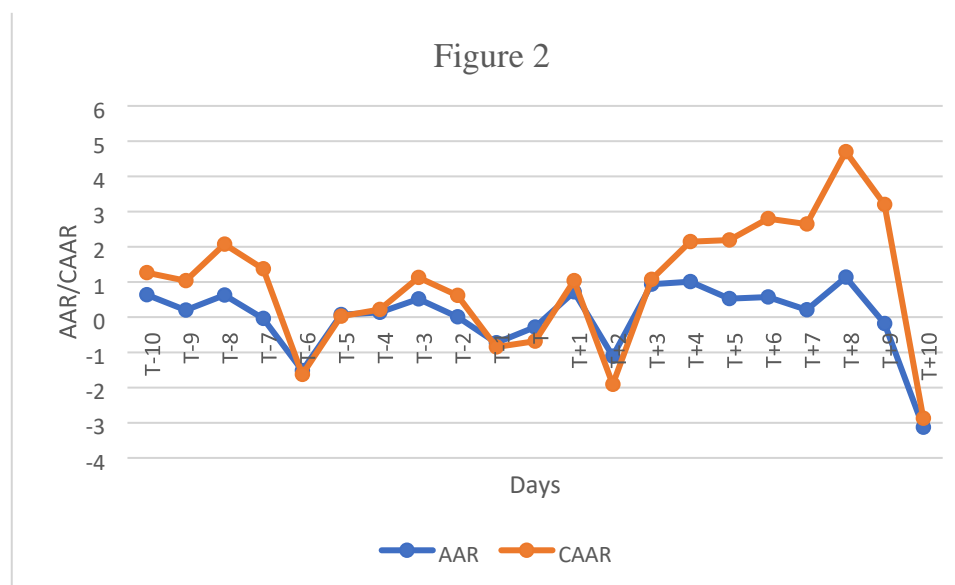


Table 4: Analysis of AARs and CAARs over various intervals

| Event Windows | AAR | t-stats | P-value | CAAR | t-stats | P-value |
|---------------|---------|---------|---------|---------|---------|---------|
| (-5, -1) | -0.4505 | -1.05 | 0.23 | -2.2527 | -2.36 | 0.02 |
| (-3, -1) | -0.0686 | -0.16 | 0.39 | -0.2059 | -0.28 | 0.38 |
| (-1,0) | -0.5060 | -1.18 | 0.20 | -1.0120 | -1.67 | 0.10 |
| (-1,1) | -0.6746 | -1.58 | 0.11 | -2.0237 | -2.73 | 0.01 |
| (0,1) | 0.2173 | 0.51 | 0.35 | 0.4345 | 0.72 | 0.31 |
| (1,3) | 0.1786 | 0.42 | 0.37 | 0.5357 | 0.72 | 0.31 |
| (1,5) | 0.7813 | 1.83 | 0.08 | 3.9066 | 4.09 | 0.00 |

Conclusion

We examine the short-term price reaction on the announcement of the downward revision of the contract size in the single stock futures on prices in the spot market in India. NSE recently, in March 2021, notified about the above-mentioned contract redesign. We employ the event study methodology to capture the price effect of the event. We find the cumulative average abnormal return of 3.90 % in postevent windows on the announcement of contract redesign. We also find the average abnormal return in post-event days with statistical significance. The study results of the event provide evidence that the downward revision of the contract size in the single stock futures causes a positive price effect in its underlying. We conduct the study to explore the question: whether contract redesign has an impact on stock fundamentals or not.

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An Empirical Analysis of Alternative Settlement Specification in Indian Individual Share Futures Contracts

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Abstract

This study aims to analyse the impact of settlement change in the Indian individual stocks and its futures contracts. Specifically, to know whether the switch from cash to physical delivery in Indian individual share futures contract would promote the information flow between the spot and futures market. The study applies Geweke [J.Am.Stat.Assoc.76 (1982) 304] measures of information flow to know the information feedback between the spot and futures market. It is observed that after the settlement change, the information flow from spot to futures market, futures to spot market and instantaneous information feedback between the spot and futures market got declined. So, after the switch to physical delivery system, both the spot and futures market become more segmented, and the physical delivery system led to poorer market performance in Indian Individual futures market.

Understanding Preference of Consumers For Logistics Services Within Online Retailing

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Abstract

In this age of booming e-commerce, logistics services has both a great opportunity as well as a huge challenge because of the different types of products, logistics service providers and e-retailers available. Companies are now a days offering various delivery services like, weekend delivery, same day delivery, evening delivery and even recyclable packaging. These lead to an increase in cost. So, it's necessary for companies to understand the preference of consumer for logistics services to get their loyalty, trust and satisfaction as well as to decrease the cost of logistics. The main purpose of the study is to investigate and identify the factors that are influencing preference of consumer for logistics services within online retailing for different products.

Keywords: Consumer preference, Logistics services, Products, Online Purchasing, Place, Time and Delivery day.

Introduction

E-commerce is generating tremendous revenues from online retailing. E-shopping is becoming a popular choice because it eliminates the travel cost, time and relevant things (Dennis, Merrilees, Jayawardhena & Tiu Wright, 2009). Preference of the consumer is also changed from traditional shop to e-commerce. As a result, their consumption habits and shopping experience have also changed quickly. Cross channel optimization offers number of opportunities to improve supply chain performance, especially relevant in the context of grocery (Hübner et al., 2016). For the Fresh products, there are few specific requirements such as food freshness, food quality and safety, continues supply, which gives the differences of fresh products logistics (Hughes and Merton, 1996). For example, to obtain consumers' satisfaction and loyalty it involves cold chain technology, short lead time and specific handling procedures (Morganti & Gonzalez-Feliu, 2015b) to provide consumer with fresh and high quality products. Online products purchase is continuously attracting a large number of consumers. From the consumers perspective last mile delivery services plays an increasingly significant role in the entire purchasing process. Particularly, fresh food products are given special attention due to their distinct circumstances.

Supply chain management is the method to perform the function of planning and controlling the logistics from suppliers to the end users in supply chain. SCM is the integration of the products, information, and finance by connecting up and downstream relationships between consumers and suppliers, As defined by Coyle (2013). Supply chain management is to increase company's efficiency and effectiveness, It means company does not get only consumers' satisfaction, but also in the whole supply chain. Management of transportation is considered as the main part to makes the supply chain model function. Coyle (2013) also illustrates "to deliver the right product, at the right time, in the right quality and quantity, at the right cost, and to the right place". Delivery plays a significant role in doing these "right" occur, The supply chain process are plan, develop, make or production, delivery and return. Product Supply Chain management includes several stages from production of the product to delivery, the different types of products are groceries, clothes, electronics and accessories, and home accessories, where each type of products has to be delivered in speculated time period for example the fresh food products has a special characteristics, and efficiency of the product is important were the whole logistics network optimization consider economic, environmental influencing, control

delivery and storage state towards the final consumer. The last stage eco-logistics model from packaging and distribution to consumption will be taken into consideration.

Research objectives

Investigation of consumer preferences on delivery options for online shopping

- To find the factors that are influencing consumer preferences towards logistics services provided by the company when purchasing the products through online mode.
- To identify the association between products ordered and their response towards delivery day.
- To find out the association between delivery day and delivery time, consumers' place and location pertains to receive products by the consumer.

Review of literature

The importance of last-mile delivery to customers has increased because of growth in online shopping, the issues in the service result in customer dissatisfaction and low efficiency. The issues occur during distribution arrangement service from the transportation to final delivery destination of the consumer's place (Han et al., 2017). From that, 45% user responded that they would never shop again with negative experienced e-retailer.

The study done by Ahn et al. (2014), consumers may switch to other physical shops or competitors if the speed of delivery is too late. The timely and reliable delivery satisfies the user so that they continue to purchase through online and through the customer loyalty companies also increases the sales and market share. Survey done by Joerss et al. (2016), the top ranked delivery option chosen by consumer is traditional delivery and Diamaria (2014) argued same day is not a realistic thing for most of the online orderings since the enough storage location of organisation should be located in the same place. Thus, Dimaria (2014) prefer multiday or next day delivery in studies.

The studies of Temando (2016), the unattended reception depends on courier reception box, the collection and delivery points and shared reception box. Morganti et al. (2014), collection and delivery points become the crucial factor in effective last-mile delivery in Europe countries. The tradition UK consumers are used to and prefers the items delivered to neighbour houses, rather than attempting to use safe box rather than unattended delivery. Huang (2015) found the options would be successful in reducing the failure problem of unattended delivery. Margansoky at 2015, found a different statement compared to above research. In his findings attempted home delivery is the first choice of consumers, while unattended home delivery and pickup from store were the least preferred choice, due to cost and security concern.

From consumer's perspective, last-mile delivery is crucial aspect in their purchase decision (Xing, Grant, McKinnon, & Fernie, 2010). Recent reports have shown that e-retailers offer delivery attributes to consumers, such as various delivery location (Edwards, Mckinnon & Cullinane, 2010; Holdorf & Haasis, 2014; Collins, 2015), delivery speed (Holdorf & Haasi 2014), and delivery time slot (Waitz & Fikar, 2018). Although there are several researches about, how the logistics impacts online consumer behavior already, research on the examining of consumer preferences for logistics services in online retailing is still rare, in e-retailing industry.

Research methodology

Type of research and sample size

The quantitative approach is most effectively applied under following circumstances: the large number of data can be effectively measured using quantitative technique, statistical method of

analysis can be used (Sunders al,2012). In this study, quantitative data is produced from the survey; so the quantitative method is best to use. Because, standardized data collected from survey sample size of 101 were analysed and appropriate interpretation were drawn. Descriptive type of research is adopted in this study, the purpose of adopting descriptive research was to find a phenomenon that is occurring specific time and place.

Sample size

The researchers distributed questionnaire to 120 target respondents with different personal profile, and the researchers have received 101 completed questionnaires. The targeted respondents are located in Tamil Nadu, India.

Data analysis procedure

The data collected from the questionnaires were entered and analysed by using statistical package for social sciences (SPSS) for analysis. Exploratory factor analysis is used to identify the factors that are influencing customer preference with respect to logistics services provided by the company and chi square test is useful to determine the association between products ordered and their response towards delivery day; Attribute based perception mapping is used to analyse important attributes of logistics services provided by the company. It also test the significance association between delivery day and delivery time, consumers' place and location pertains to receive products by the consumer.

Data Analysis and Interpretation:

Factor analysis: Exploratory factor analysis (EFA) using principal components analysis (PCA) with a varimax rotation was performed on 22 items in the questionnaire. EFA is an appropriate statistical method to determine the underlying structure of a relatively large set of variables. Any individual item with a factor loading of less than 0.5 was eliminated to facilitate the interpretation of the results. After an EFA series, 14 items were loaded on five domains. Below tables shows the domain descriptors, items, factor loadings, Eigen values, percentage of variance by individual domains.

Table 1 KMO and Bartlett's Test

| | | |
|--|--------------------|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .634 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 151.512 |
| | df | 91 |
| | Sig. | .000 |

The Kaiser-Meyer-Olkin (KMO) measure of sample adequacy tests was used for additional verification of the sample size. The KMO measure of sampling adequacy is .634. This score is a good indication that the factor analysis is useful for the items. Additionally, the result of the Bartlett test was significant ($p = .00$). This result illustrates that there are correlations in the dataset that are appropriate for factor analysis. The total number of sample size is 101 where, only cases for which electronics & accessories product ordered of sample size 55 is used for analysis.

Table 2 Factors influencing consumer preferences

| Factors | Item | Factor loading | Eigen value (Variance%) |
|---------------|----------------------------|----------------|-------------------------|
| Trust | Delivery day | 0.712 | 3.044 (21.743) |
| | Trustworthy logistics | 0.757 | |
| | Exactly what I ordered | 0.742 | |
| | pickup service | 0.553 | |
| Communication | Frequent messages to track | 0.563 | 1.896 (13.543) |
| | Subscription | 0.721 | |
| | Delivery procedure | 0.633 | |
| | Frequency of placing order | 0.769 | |
| Preference | Time slot | 0.615 | 1.412 (10.089) |
| | Delivery time | -0.52 | |
| | Packaging materials | 0.66 | |
| Location | Delivery location | 0.878 | 1.190 (8.497) |
| Fairness | Delivery speed | 0.612 | 1.323 (9.454) |
| | Delivery fee | 0.8 | |

The five factors are labelled as follows: Factor 1 = Trust (4 items), Factor 2 = Communication (4 items:), Factor 3 = Preference (3 items), Factor 4 = Location (1 items), Factor 5 = Fairness (2 items), The first factor, Trust, includes four items pertaining to the logistics trust and delivery day. This factor explained 21.74% of the total variance, with loadings ranging from .553 to .712. The second factor, Communication, including frequency of placing order with others and consideration. This factor explained 13.54% of the total variance and loadings ranging from .563 to .769. The third factor, Preference, includes packaging material and delivery time slot. three items with loadings from .520 to .660 are included in the factor, explaining 10.01% of the total variance.

The fourth, Location, had one item – Where the product need to be delivered, with loading of .878, explaining 8.49% of the total variance. The fifth factor, Fairness, included delivery fee and speed (two items), with 9.45% of variance and loadings from .612 to .8.

Chi-square test- H1: There is a significant association between products ordered and their response towards delivery day.

Table 3 Chi-square Test

| | Value | df | Asymptotic Significance (2-sided) |
|------------------------------|-------|----|-----------------------------------|
| Pearson Chi-Square | 6.213 | 6 | .400 |
| Likelihood Ratio | 5.008 | 6 | .543 |
| Linear-by-Linear Association | .157 | 1 | .692 |
| N of Valid Cases | 101 | | |

Table 4 Symmetric Measures

| | | Value | Approximate Significance |
|--------------------|------------|-------|--------------------------|
| Nominal by Nominal | Phi | .248 | .400 |
| | Cramer's V | .175 | .400 |
| N of Valid Cases | | 101 | |

From Table 3, chi-square reads a significance level of 0.400 at 95% confidence level. It is greater than the hypothetical value of 0.05. Hence alternative hypothesis is not accepted. Hence there is no significant association between delivery day and the products which are ordered. From Table 4, Cramer's V 0.175, reveals that there is no association between products which are ordered and delivery day. The asymmetric lambda value is 0.043, which infers that there is 4.3% error can be reduced in predicting the product ordered when the researchers have known the delivery day of the product to the consumer.

Discriminant analysis

H2: There is a significant association between delivery day and delivery time, consumers' place and location pertain to receive products by the consumer.

Table 5 Wikis' Lambda

| <i>Particulars</i> | <i>Function</i> | |
|--------------------|-----------------|-------|
| | 1 | 2 |
| Delivery fee | .750 | -.668 |
| Delivery time | .743 | .672 |
| Delivery location | .148 | .119 |

Table 6 Standardised Canonical discriminant function

| Test of Function(s) | Wilks' Lambda | Chi-square | df | Sig. |
|---------------------|---------------|------------|----|------|
| 1 through 2 | .965 | 3.473 | 6 | .748 |
| 2 | .996 | .391 | 2 | .823 |

Table 7 Classification Results

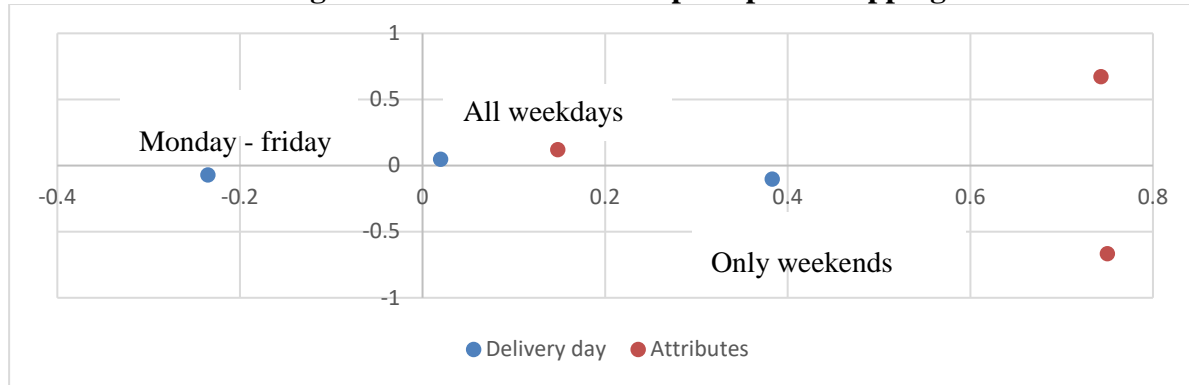
| | | Predicted Group Membership | | | Total | |
|----------|-------|----------------------------|-----------------|---------------|-------|--------------|
| | | Delivery day | Monday - Friday | Only weekends | | All weekdays |
| Original | Count | Monday - Friday | 16 | 4 | 5 | 25 |
| | | Only weekends | 3 | 5 | 4 | 12 |
| | | All weekdays | 33 | 14 | 17 | 64 |
| % | | Monday - Friday | 64.0 | 16.0 | 20.0 | 100.0 |
| | | Only weekends | 25.0 | 41.7 | 33.3 | 100.0 |
| | | All weekdays | 51.6 | 21.9 | 26.6 | 100.0 |

The classification matrix in Table 3 indicate that the discriminant function obtained is able to classify 54.7% of the 450 objects correctly. The Wilks' Lambda value in Table 1 is 0.996. It is between zero and one, also closer to 1, which evince low discriminating power of the selected variables. The probability value of the F test indicates that the discrimination between the three delivery days is highly significant. This is because $P < 0$, which infer that the F test would be significant at a confidence level up to $(1-0) \times 100$ or 100%. Hence, There's a significant association between the delivery day and delivery time, consumers' place and location pertains to receive products by the consumer.

As seen from the perceptual map in Figure 1 Delivery Fee, time and location have their unique position on the map. In addition, on the same map, plotted values of the attributes on the same two dimension (each discriminant function represent a dimension). Dimension one seems to comprise of delivery day of products. This is also evident from the standardised discriminant coefficient for delivery fee (0.750) and delivery time (0.743) and delivery location is not mattered (0.148) from Table 1. The value lies between 0 – (-0.235) customers preferred delivery day is between monday to friday. The value lies between 0 – (0.383). then customers preferred

delivery day is on only weekends and the value is between 0- (0.020) then they prefer all weekdays. The different delivery day here is Monday to Friday, only weekends and all weekdays. From the perception mapping it is clear that delivery location is the main dimension that decides for all weekday delivery of the product delivery to the customer and for only weekend delivery based on the customer preference towards delivery fee and time.

Figure 1 Attributes based perception mapping



Conclusion

This study investigated the consumer preferences for the logistics services differs for each category of product where the most preferred products to order online is electronics and accessories, based on analysing of different attributes the delivery speed may vary based on the delivery location and the product they order. Some of the consumer preference is delivery speed with the delivery charge. Delivery day is the main factor were, for week days delivery, it was decided by the delivery location and delivery fee and time was decided by the consumer on weekends. From the study it is evident that the factors that are influencing consumers are trust, communication, preference, fairness and location. So, building the trust between the consumers and logistics service providers will helps to develop the logistics service.

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Urban Mobility: An Understanding Of Critical Success Factors Of Multimodal Passenger Transport in India and Implications For Research in Analytics

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Abstract

Cities matter. They are the engine of the global economy and are already home to more than half the world's population. Passenger mobility in cities is now an important area of research in Decision Sciences and Analytics. For the urban passenger, the connectivity at the last mile with the dominant public transit system in a city has assumed critical significance. This paper aims to identify key issues related to adoption and usage of modern public transport systems in urban India. We see significant opportunities in building on from existing frameworks for solving well-known problems in shared mobility, to use a complementary approach and enhance sustainable multimodal passenger transport across urban geographies.

Keywords: Public Transit, Shared Mobility, Last Mile Connectivity, Sustainable Transport

Introduction

Population growth and urbanization across the world are driving significant changes in urban mobility. 54% of the world's population lives in cities and accounts for 80% of world GDP [Savelsbergh et al, 2016]. It is projected that by 2050, 66% of the population will be urban, and is expected to touch 85% by 2100. Mega-cities (population of 10 MM or more) across the world are growing in both population and economic activity. India is already seeing this extensively through an expansion of administrative jurisdiction of cities like Chennai, Bangalore, Hyderabad, Ahmedabad and Pune. India's own urban population is projected to double to 0.9 Bn by 2050 [World Urbanization Prospects, UN 2018]. The associated increase in population density over a wider area will present unique and diverse challenges in passenger mobility.

The increasing importance of the "sharing" economy is a significant driver in passenger mobility. This is in contrast to freight transport, where the need for faster and more reliable mobility solutions is largely being driven by e-commerce. Digital connectivity and big data being available real-time through mobile devices and platforms are seen as clear enablers in the future [Savelsbergh et al, 2016]. We are also witnessing the development of modern public shared transit systems in the megacities via Metro Rail projects and high-speed rapid transit systems like BRTS, Monorail etc. in emerging economies like India. Simultaneously, there has also been a trend of strong adoption of private shared mobility services provided by Transportation Network Companies such as Uber and Ola, impacting usage of public transit systems, such as indicated in [Acheampong et al. 2020]. This has led to some conjecture of a possible eventual decline of public transit systems. However, there is significant literature which points out otherwise. In fact, [Currie, 2018] maintains that private shared mobility itself comes with its own challenges of occupancy, sustainability and scale. At the same time, it is also interesting to note that public transit systems like the Metro infrastructure operating in urban India have also met with challenges across multiple fronts.

A deeper look at the prevailing conditions and expected trends over the medium/long term is presented in the next two sections.

Evolution Of Urban Transport

[Jones, 2014] has traced the evolution of urban transport from a policy perspective over the last fifty years across three stages as illustrated in Figure 1.

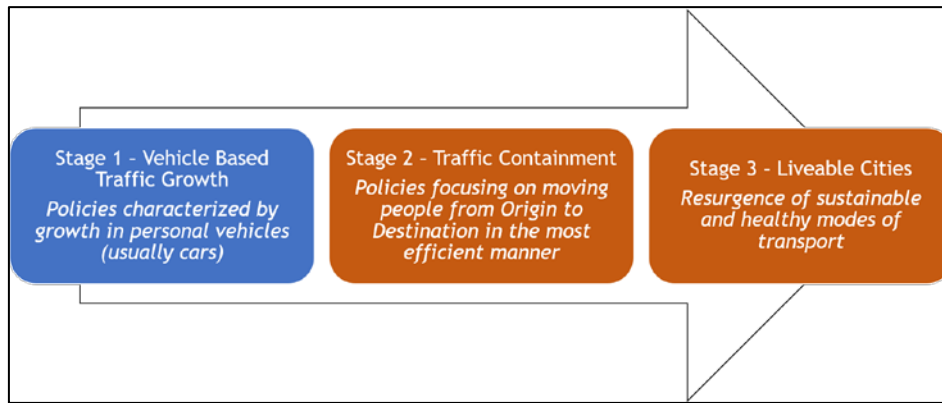


Figure 1: Evolution of Urban Mobility (Jones, 2014)

We may look at the current situation in urban India as largely passing through the second stage where the focus is still on moving passengers from origin to destination in the most efficient way possible through a combination of public and private transport. The urban metro rail infrastructure has seen a significant push from the Government of India with investments in excess of INR 2 Tn, across more than 20 cities as per [WRI Report, 2018] under the National Urban Transport Policy (NUTP). The stated objective is to build and deploy mass rapid transit systems in all cities of population 1 Million or more.

In the context of this evolution, we would like to bring in the notion of "Compressed Change" as defined by [Chandy et al, 2016] as a significant phenomenon at play, where emerging markets mimic macro trends seen in developed countries, except that the latter development leapfrogs over time and milestones. Indeed, the vision document of NITI Aayog [Moving Forward Together, 2018] itself projects a transition to shared mobility to the extent of 50% of passenger kilometers by 2040, cutting short the era of personal vehicle ownership as seen in developed markets.

Understanding Shared Mobility

Shared mobility may be defined as the shared use of any motor vehicle, bicycle, or other low-speed transportation mode, and is now one of the ubiquitous facets of the sharing economy [Shaheen et al, 2016]. Shared mobility enables users to obtain short-term access to transportation as needed, rather than requiring ownership. It could include carsharing, personal vehicle sharing (i.e., P2P carsharing and fractional ownership), bikesharing, scooter sharing, ridesharing, and on-demand ride services. Alternative transit services, such as shuttle services, paratransit, and microtransit, supplement fixed-route bus and metro rail services. Shared mobility also includes ridesourcing (sometimes referred to as "ridehailing" as well) via Transportation Network Companies or TNCs, such as Ola and Uber; ridesplitting (e.g., UberPOOL) in which passengers split a fare and ride; and e-Hail (app-enabled taxis).

Mobility can be shared either by sharing the vehicle itself, or by sharing individual rides. Modern technology allows various ways in which either can be accomplished. Some of these, such as ridesharing, bikesharing, carpooling etc. have been better accepted for a variety of socio-economic reasons across the world, while other concepts are popular in respective niches. We believe that combinations of some of these models of shared mobility hold the key to solving the problems of access and efficiency for the urban passenger.

Public Transport and Shared Mobility - The Opportunity

Given this background, we want to take a deeper look at the interaction between the public transport and shared mobility, where some of the pertinent research questions we need to answer are:

- What are the significant overarching passenger insights emerging from a deeper understanding of the interaction between these ecosystems?
- What should be some of the key focus areas for academic research from a problem-solving perspective?

Analysis and Discussion

Key Insights

There are several perspectives we need to build around the coexistence of Public Transport with Shared Mobility which can help us build a framework for building solutions to the problems of urban mobility in India.

Complementary Sustainability

A key insight that has been demonstrated in research is that the overall growth of Public Transport in conjunction with Shared Mobility can reduce personal vehicle usage while driving sustainable urban economic activity. [Tirachini 2020] has done an extensive review of the impact of ridesourcing on the use of public transport. There is ample evidence across countries to believe that multi-modal travelling is a significant phenomenon and which varies with the strength of the public transport network in the city. This is in spite of sporadic trends of a temporary decline in usage of public transit as shared mobility started growing due to possible substitution effects. Various studies have also examined the specific impact of ridesourcing on vehicle ownership.

Allied to this is the assertion that mass public transit services complement shared mobility services for the urban passenger depending upon factors like the reason for travel. This is immediately observed in behavior related to work commute, where the passenger uses public transit for the bulk of the journey with a different mode for the first-mile from the source and the last-mile to the destination. Shared mobility is additionally used for other specific occasions such as recreation, social trips etc. [APTA 2016]

Criticality of the Last Mile

A very well-researched and understood insight across the globe is that public transit systems necessarily need strong, tightly-coupled last mile connectivity for the adoption and continued patronage, regardless of passenger behaviour and demographics. Case studies in India such as the failure of the Chennai MRTS as pointed out by [Madhavan, 2010] or the relative underperformance of the Ahmedabad BRTS as indicated by [BRT Cases Studies - India, 2013] amply demonstrate this phenomenon as well.

The growth of shared mobility is seen as a possible opportunity to address this issue. There are several instances of public transport systems collaborating with TNCs in developed markets which have met with varying degrees of success [Tsay et al, 2016], and are being continuously improved upon. We are seeing similar trends in India already with partnerships such as in Bengaluru [BPAC/Uber Report, 2020]. There is also rigorous academic research around possible frameworks for public-private partnerships in urban mobility, as identified by [Luckena et al, 2020], where partnerships to address constraints around first mile/last mile connectivity have been used in developing service models providing mobility solutions. In addition, recent research from [Stiglic et al, 2018] has demonstrated that specific cases of shared

mobility, such as ridesharing, can be successfully integrated with a fixed public transit system to enhance overall mobility and increased use of public transport.

It is worth noting that experiments on improving last mile connectivity in India have yielded encouraging results albeit in very limited scope. This has been demonstrated by [WRI Report, 2018] in the case of the Bengaluru Metro under the Station Access and Mobility Program (STAMP), which evaluated pilot carpooling and bikesharing initiatives at the last mile in Baiyappanahalli. [Kathuria et al, 2019] reported a positive effect of good walkability indices for roads leading to BRTS bus stations on overall ridership in the case of the Ahmedabad BRTS.

Economic Affordability

The last major factor we believe to be critical in India is the economics and affordability of transport for the urban passenger. In the Indian context, affordability needs to be looked at from the perspective of the contribution of transport to the basket of daily spends of the citizen - this tends to be higher than in developed nations and leads to greater price elasticity. An average trip on the Delhi Metro for example could cost upto 20% of the daily earnings of a minimum wage worker. This is much higher than global benchmarks of about 10-15%. Recent research at the Centre for Science and Environment [CSE Research, 2018] has already demonstrated severe limitations on the ridership of existing Metros/BRT systems due to fare structures being out of sync with the willingness of the passenger to pay. Delhi metro, for example, actually witnessed a decline in ridership when it revised prices upwards in 2017-2018.

Implications for Research

In light of the insights summarized in the previous section, we believe the following areas need to be looked into with from an academic perspective with collaboration from key public transport entities.

Metrics and Standards

Metrics and standards for last mile connectivity of a fixed public transit operation such as Metro, BRTS, Monorail etc. While there has been some work around evaluating multimodal last mile accessibility in specific cases such as the Delhi Metro as identified by [Ann et al, 2019], there is a clear lack of understanding of what defines good last mile connectivity from a passenger perspective in urban India. Research around sustainable passenger metrics for evaluating last mile connectivity will help address this gap. For instance, [Venter, 2020] provides directional ideas around this from their technique tested on the Gautrain system in South Africa.

Pricing

End-to-end pricing strategies for an integrated multimodal passenger transit system optimizing overall socio-economic benefit will need to be developed that can be adapted for various instances. Historically, literature on pricing has focused on dynamic pricing and congestion pricing in transportation networks. While there has been some recent research on pricing in related areas such as fixed rail networks and airlines such as [Zhang et al, 2017], these look at objectives only from a firm revenue management perspective. In addition, there is not much work around pricing in the domain of flexible multimodal systems. We believe there is significant potential to build on strategies from more relevant versions of the LMTS pricing problems such as those dealt with by [Chen et al, 2018] in the case of the widely used Singapore MRT.

Current Work In-Progress

Given these implications, we are currently looking at a 2-phase survey-based methodology using stated preferences of current users versus potential users of Metro Rail systems in India. The research objective initially is to identify attributes of significance for the last mile connectivity, and their relative importance to the passenger segments. These attributes include elements of

- Proximity - distance to/from original source/destination.
- Safety - personal safety of passengers.
- Convenience - ease of access/egress, timeliness of services, multimodality.
- Affordability - absolute as well as in reference to pricing of metro rail services.
- Infrastructure - signages, walkways, parking, retail spaces etc.

The attributes will be refined and structured into a model that can be deployed to evaluate the quality of the last mile connectivity to Metro Rail systems in India.

Conclusion

The paper draws from existing research to uniquely highlight that the ecosystems of public transit and shared mobility complement each other and can be sustainably leveraged to enhance urban passenger mobility. Based on our analysis of overarching insights from existing research, current practice and public policy guidelines around these two ecosystems, we establish some critical success factors for the continued growth of urban passenger mobility in India. We finally use these success factors to identify possible research directions in analytics.

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A Case study of Perishable Vehicle Routing Problem with Time windows and Solution techniques

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Abstract

Supply Chain Management (SCM) and Vehicle Routing Problem (VRP) have evolved from a luxury to order of life due to the global competition and the challenges it causes to every organization varying from large-cap to micro. Once the techniques considered being advanced, now became a necessity to survive. A case study of a perishable milk supply chain is done in this work which can be extended to any vehicle routing problem with a time window in general. VRP comes under the category of Combinatorial Optimization Problems (COP), which requires some advanced solution techniques as the complexity of the problem increases when more practical aspects are incorporated. So solution techniques forms are as critical as model formulations in VRP. The standard solution generating techniques like Large Neighborhood Search (LNS), Particle Swarm Optimization (PSO), and Simulated Annealing (SA) used to solve VRP are used to analyze the efficacies of various techniques.

Keywords: *Routing, Perishable Supply Chain, Metaheuristics, Solution Algorithms*

Introduction

The vehicle routing problem (VRP) and its related variants have become the top research priority due to the challenges put forward by practical problems to deal with a newer set of constraints and objectives as every day goes by. For the classic vehicle routing problem, the focus of research is based on the economic components, mainly reducing transportation costs. Given the increasing global concern over environmental problems, VRP problems have recently begun to include “green” and other objectives, making the problem multi-objective, which increased the complexity of the problem and the need for improved algorithms for finding the solutions. Combinatorial optimization is one of the most researched areas in the present scenario. It combines techniques from linear programming and the theory of algorithms to solve a wide range of optimization problems. The study of combinatorial optimization has extended to a higher level with the revolution in the digital computer, which efficiently solves numerical problems of more significant complexities. Most currently accepted solution methods of combinatorial optimization problems would hardly exist some years back as there were not enough resources to tackle the computational difficulties. So all these enhanced resources opened a new world of research that will mould the global scenarios into a better perspective.

Literature review

All Vehicle Routing Problem (VRP) literature becomes incomplete without referring to Dantzig and Ramser [1], who laid the foundation for the theoretical research in this field. From the basic model illustrated in their model, VRP has grown drastically to incorporate various models and complex solution techniques that absorb both the complexities of NP challenging problems and real-life applications. Vehicle routing problem with time windows (VRPTW) is a modification to the basic VRP model in which the nodes are visited only at the specified time window [2]. The vehicle routing problem with time windows (VRPTW) applications are all around us, varying from the perishable food supply chain, delivering bank or postal goods, trash collecting, fuel distribution to the gas stations, and school bus routing.

Initial interests in academic research on the routing of perishable products are seen in the works of Tarantilis and Kiranoudis [3], Hsu et al. [4], and Kang and Lee [5]. The complexity in determining routes becomes prominent due to the quality deterioration (Sinha & Anand [6]). Due to the computational difficulties, exact algorithms find it an uphill task to solve NP-hard

problems. So heuristic and meta-heuristic algorithms are used to crack these problems requiring advanced computation, as mentioned by Sharma [7]. The heuristic has the methodology of solving the puzzle parts by parts and then joining them together to find the final solution. So whenever dealing with practical problems with lower dimensions, this method seems preferable, but for most real-life situations with wider dimensions, meta-heuristic techniques are required and thus have wide research attention due to this same practical aspect it offers. The exact algorithms used to solve basic variants of VRP are limited to a population size of 200 customers and again become less when dealing with more realistic VRP problems. Metaheuristic algorithms like Adaptive Large Neighbourhood Search (Pisinger and Ropke, [8]) and Iterated Local Search (Subramanian et al.,[9]) can handle much larger instances. Still, they can't ascertain the numerical accuracy of generated solutions. The meta-heuristic algorithms are naturally inspired algorithms, and the most popular of these among the researchers are Particle swarm optimization (PSO) (Eberhart and Kennedy, 1995[10]), Genetic algorithm (Koza and Koza, 1992[11]), Simulated Annealing (Chiang and Russel [12]), Ant colony optimization (ACO) (Dorigo et al., 2006[13]). So the methodology was framed considering one of the most practical variants of VRP and solving it with the aid of widely used solution algorithms. Both the practical aspects of model and solution heuristics efficacy are analysed in detail.

Perishable supply chain model

The perishable supply chain model used in this study is that of a Milk supply chain in Kerala. The name of the organization and the locations are encoded as per the data protection interests of the organization. The milk collection process starts from the village and ends up at milk processing units. The milk collected at the regional level is cooled using, Bulk milk cooler (BMC) system. The chilled milk is then transported to the central processing plant by insulated tankers.

Data collection and mathematical model

Currently, there are 30 BMCs, and the processing centre is mentioned as L01. The BMCs are coded as follows to ensure the data privacy aspects of the organization. Following are the codes assigned for those places, their estimated distances, and durations. Based on the data collected, there are 11 Tanker routes (each tanker having a capacity of around 9 KL) which are described in Table 1.

Table 1: List of BMCs and existing route

| BMC details | | | | Existing Route | | | BMC details | | | | Existing Route | | |
|-------------|-----------|------------------------|---------------|----------------|-----|---------------|-------------|-----------|------------------------|---------------|----------------|-----------|---------------|
| Sr No | Locations | Distance from L01 (km) | Time from L01 | Route Name | | BMC Vol in KL | Sr No | Locations | Distance from L01 (km) | Time from L01 | Route Name | Locations | BMC Vol in KL |
| 1 | L01 | 0 | 0 | L31 Route | L31 | 2 | 17 | L17 | 44.5 | 1.25 hr | L25 Route | L25 | 5 |
| 2 | L02 | 30 | 40mt | | L22 | 3 | 18 | L18 | 57 | 1 hr | L11 Route | L18 | 2 |
| 3 | L03 | 38 | 1.45 hr | | L23 | 2 | 19 | L19 | 25 | 30mt | | L11 | 2 |
| 4 | L04 | 43 | 1.5hr | L28 Route | L14 | 2 | 20 | L20 | 36 | 1 hr | | L16 | 3 |
| 5 | L05 | 26 | 45 | | L28 | 3 | 21 | L21 | 24 | 40mt | | L04 | 2 |

| | | | | | | | | | | | | | |
|----|-----|----|---------|-----------|-----|---|----|-----|-----|---------|--------------|-----|-----|
| 6 | L06 | 13 | 30 mt | L13 Route | L21 | 2 | 22 | L22 | 10 | 20 mt | L09 I Route | L06 | 3 |
| 7 | L07 | 28 | 45 mt | | L27 | 2 | 23 | L23 | 42 | 1 hr | | L24 | 5 |
| 8 | L08 | 18 | 30 mt | | L13 | 2 | 24 | L24 | 165 | 30 mt | L09 II Route | L09 | 3 |
| 9 | L09 | 38 | 1.45 hr | | L15 | 2 | 25 | L25 | 13 | 30 mt | | L10 | 3 |
| 10 | L10 | 34 | 1 hr | L02 Route | L02 | 3 | 26 | L26 | 44 | 1.25 hr | | L03 | 3 |
| 11 | L11 | 60 | 1.5hr | | L19 | 3 | 27 | L27 | 27 | 45mt | L05 Route | L08 | 4.5 |
| 12 | L12 | 39 | 1 hr | | L07 | 2 | 28 | L28 | 22 | 35mt | | L05 | 4.5 |
| 13 | L13 | 32 | 55mt | L20 Route | L29 | 3 | 29 | L29 | 28 | 45mt | L17 Route | L17 | 5 |
| 14 | L14 | 25 | 35mt | | L20 | 2 | 30 | L30 | 28 | 45 mt | | L30 | 2 |
| 15 | L15 | 24 | 30mt | | L26 | 2 | 31 | L31 | 39 | 1 hr | | | |
| 16 | L16 | 38 | 1 hr | | L12 | 2 | | | | | | | |

Mathematical model of the VRPTW

The VRPTW model is designed for a fleet of homogeneous vehicles denoted by V , a set of BMC(Bulk Milk Coolers) or nodes C and a directed graph $G=(V, C)$. The graph consists of $|C|+ 2$ vertices, where the BMCs are denoted $1, 2, n$ and the depot is represented by the vertex 0 .The set of arcs denoted by A indicates routes between the depot and the BMCs and among BMCs. No route terminates in vertex 0 , and no route originates from vertex $n +1$. With each route (i, j) , where i, j , we associate a cost c_{ij} and a time t_{ij} , which may include service time at BMC i . Each BMC i has a time window $[a_i, b_i]$ and depot al $[a_0, b_0]$. Basic assumptions laid are q, a_i, b_i, d_i, c_{ij} are non-negative integers and t_{ij} are assumed to be positive integers. The model contains two sets of decision variables x_{ijk} and s_{ik} . For each route (i, j) , where $i - j, i - n \neq 1, j - 0$, and each tanker k we define $x_{ijk} = 1$, if and only if the optimal solution, route (i, j) is traversed by tanker k and equal 0 , otherwise. The decision variable s_{ik} is defined for each vertex i and each tanker k and denotes the time tanker k starts to service BMC i . In case the given tanker k does not service BMC i , s_{ik} becomes zero Our objective is to design a set of minimal cost routes, one for each vehicle, with one and only one BMC visit. VRPTW can be mathematically formulated as:

$$\text{Min} \sum_{k \in V} \sum_{i \in N} \sum_{j \in N} c_{ij} x_{ijk} \quad (1)$$

subject to,

$$\sum_{k \in V} \sum_{j \in N} x_{ijk} = 1 \quad \forall i \in C \quad (2)$$

$$\sum_{i \in C} d_i \sum_{j \in N} x_{ijk} \leq q \quad \forall k \in V \quad (3)$$

$$\sum_{j \in N} x_{0jk} = 1, \quad \forall k \in V \quad (4)$$

$$\sum_{i \in N} x_{ihk} - \sum_{j \in N} x_{hjk} = 0, \quad \forall h \in C, \forall k \in V \quad (5)$$

$$\sum_{i \in N} x_{i,n+1,k} = 1, \quad \forall k \in V \quad (6)$$

$$s_{ik} + t_{ij} - K(1 - x_{ijk}) \leq s_{jk}, \quad \forall i, j \in N, \forall k \in V \quad (7)$$

$$a_i \leq s_{ik} \leq b_i, \quad \forall i \in N, \forall k \in V \quad (8)$$

$$x_{ijk} \in \{0,1\}, \quad \forall i, j \in N, \forall k \in V \quad (9)$$

Solution Algorithms and Results

An open source spreadsheet solver by Erdogan[12] is used to implement the LNS algorithm and PSO and SA are implemented using Python coding to obtain the results depicted in Table 2.

Table 2: Solved tanker routes by 3 algorithms

| LNS RESUL TS | Vehicle: V1 | | Vehicle: V2 | | Vehicle: V3 | | Vehicle: V4 | | Vehicle: V5 | | Vehicle: V6 | | Vehicle: V7 | | Vehicle: V8 | | Vehicle: V9 | | Vehicle: V10 | |
|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------|--------------|
| | | Stops : 4 | | Stops : 3 | | Stops : 3 | | Stops : 5 | | Stops : 4 | | Stops : 4 | | Stops : 5 | | Stops : 4 | | Stops : 5 | | Stops : 3 |
| Stop count | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load |
| 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 |
| 1 | L07 | 2000 | L25 | 5000 | L05 | 4600 | L29 | 3000 | L19 | 3000 | L14 | 2000 | L13 | 2400 | L22 | 3000 | L30 | 2000 | L24 | 5000 |
| 2 | L20 | 4000 | L06 | 8000 | L08 | 9200 | L04 | 5000 | L10 | 6000 | L09 | 5000 | L27 | 4800 | L31 | 5000 | L12 | 4000 | L28 | 8000 |
| 3 | L17 | 9000 | L01 | 8000 | L01 | 9200 | L18 | 7000 | L02 | 9000 | L03 | 8000 | L21 | 7200 | L23 | 7000 | L16 | 7000 | L01 | 8000 |
| 4 | L01 | 9000 | | | | | L11 | 9000 | L01 | 9000 | L01 | 8000 | L15 | 9200 | L01 | 7000 | L26 | 9000 | | |
| 5 | | | | | | | L01 | 9000 | | | | | L01 | 9200 | | | L01 | 9000 | | |
| Total Dist (km) | | 146.12 | | 44.38 | | 59.55 | | 144.78 | | 68.79 | | 102.47 | | 62.83 | | 102.66 | | 108.76 | | 43.48 |
| PSO RESUL TS | Vehicle: V1 | | Vehicle: V2 | | Vehicle: V3 | | Vehicle: V4 | | Vehicle: V5 | | Vehicle: V6 | | Vehicle: V7 | | Vehicle: V8 | | Vehicle: V9 | | Vehicle: V10 | |
| | | Stops :4 | | Stops :4 | | Stops :5 | | Stops :4 | | Stops :3 | | Stops :4 | | Stops :4 | | Stops :4 | | Stops :4 | | Stops :4 |
| Stop count | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load | Loca tion | Cum Load |
| 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 |
| 1 | L20 | 2000 | L30 | 2000 | L16 | 2000 | L25 | 2000 | L13 | 5000 | L19 | 3000 | L14 | 2000 | L21 | 2000 | L07 | 3000 | L22 | 3000 |
| 2 | L18 | 5000 | L29 | 4400 | L04 | 4000 | L23 | 4000 | L02 | 8000 | L10 | 7600 | L09 | 7000 | L27 | 5000 | L05 | 5000 | L15 | 6000 |
| 3 | L11 | 9600 | L12 | 9400 | L26 | 6000 | L31 | 6400 | L01 | 8000 | L28 | 10000 | L24 | 9000 | L03 | 8000 | L08 | 8000 | L06 | 8000 |
| 4 | L01 | 9600 | L01 | 9400 | L17 | 9000 | L01 | 6400 | | | L01 | 10000 | L01 | 9000 | L01 | 8000 | L01 | 8000 | L01 | 8000 |
| 5 | | | | | L01 | 9000 | | | | | | | | | | | | | | |
| Total Dist (km) | | 172 | | 90 | | 113 | | 88 | | 71 | | 67 | | 80 | | 81 | | 77 | | 82 |

| SIMULATED ANNEALING | Vehicle: V1 | | Vehicle: V2 | | Vehicle: V3 | | Vehicle: V4 | | Vehicle: V5 | | Vehicle: V6 | | Vehicle: V7 | | Vehicle: V8 | | Vehicle: V9 | | Vehicle: V10 | |
|---------------------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|--------------|----------|
| | Stops :4 | | Stops :4 | | Stops :5 | | Stops :4 | | Stops :3 | | Stops :4 | | Stops :4 | | Stops :4 | | Stops :4 | | Stops :4 | |
| Stop count | Location | Cum Load | Location | Cum Load | Location | Cum Load | Location | Cum Load | Location | Cum Load | Location | Cum Load | Location | Cum Load | Location | Cum Load | Location | Cum Load | Location | Cum Load |
| 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 | L01 | 0 |
| 1 | L20 | 2000 | L30 | 2000 | L16 | 2000 | L25 | 2000 | L13 | 5000 | L14 | 2000 | L03 | 3000 | L19 | 3000 | L06 | 3000 | L22 | 3000 |
| 2 | L18 | 5000 | L29 | 4400 | L04 | 4000 | L23 | 4000 | L02 | 8000 | L09 | 7000 | L27 | 6000 | L10 | 7600 | L05 | 5000 | L24 | 5000 |
| 3 | L11 | 9600 | L12 | 9400 | L26 | 6000 | L31 | 6400 | L01 | 8000 | L28 | 9400 | L15 | 9000 | L22 | 9600 | L08 | 8000 | L06 | 7000 |
| 4 | L01 | 9600 | L01 | 9400 | L17 | 9000 | L01 | 6400 | | | L01 | 9400 | L01 | 9000 | L01 | 9600 | L01 | 8000 | L01 | 7000 |
| 5 | | | | | L01 | 9000 | | | | | | | | | | | | | | |
| Total Dist (km) | | 172 | | 90 | | 113 | | 88 | | 71 | | 81 | | 81 | | 67 | | 77 | | 73 |

Analysis of Results

Table 3: Result Analysis

| Sr No | | Existing Model | Proposed Model |
|-------|--------------------------|----------------|----------------|
| 1 | No of tanker routes | 11 | 10 |
| 2 | Total Monthly cost in Rs | 16,22,500 | 14,75,000 |

The current result shows the existing milk collection can be carried out by one tanker less than the existing model satisfying all the load and time constraints. The current cost incurred per month for a tanker varies from Rs1.1-1.85 Lakh for various routes and an average of Rs1.475 Lakh per tanker. So a reduction in any one of the routes proposed by the solution will have a considerable cost implication as it will reduce the annual transportation cost by an average of Rs17, 70,000 for all tanker routes, as depicted in Table 3.

Comparison of algorithms

The solution algorithms are compared based on the following three parameters mainly, 1) Quality of solutions, 2) Solution time, and 3) Convergence to the solution, used in the majority of combinatorial optimization problem literature for analysis. The gap of a solution method is calculated by subtracting the best known objective value from the method's objective value and then divided by the best known objective value. Higher the gap least the method to be preferred based on the quality of solutions. The solution time of the three methods is compared. The normalized score is obtained by subtracting the least computation time from the corresponding method's computation time and then divided by the least computation time. Higher the normalized score, least the method preferred based on the solution time. For analysing faster convergence of the solution algorithms, the number of iterations is considered. The iterations done for finding the solution using the three methods are illustrated in Table 4, which compares all results mentioned above.

Table 4: Result Analysis

| Algorithm | Quality of solution | | Solution Time | | Convergence | |
|---------------------|---------------------|-------------------|---------------|--------------------------------|----------------------|------------------------------|
| | Distance minimized | Gap of a solution | Time taken | Normalized Solution time score | Number of iterations | Normalized convergence score |
| LNS | 883.82 km | 0 | 1.0803 sec | 12.87 | 14472 | 0.186 |
| PSO | 921 km | 1.04 | 0.0779 sec | 0 | 12203 | 0.000 |
| Simulated Annealing | 913 km | 0.99 | 1.0013 sec | 11.85 | 13354 | 0.094 |

The normalized score was calculated as the method's iteration time minus the least number of iterations divided by the least number of iterations. Higher the normalized score, least the method preferred based on the solution time.

Concluding remarks

Figure 1 illustrates the comparative analysis of various solution algorithms base on the gap of solutions and normalized scores, as discussed in the above section. Based on the above analysis, we found that PSO is advantageous over the other two methods based on solution time and convergence, whereas

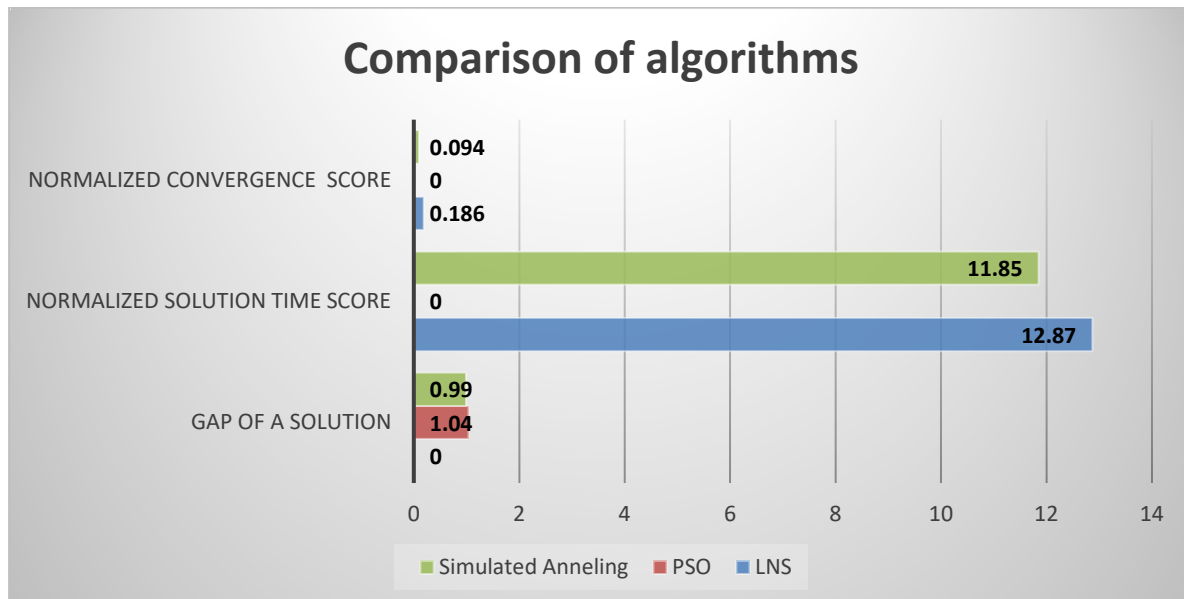


Fig 1: Comparison of Algorithms

LNS, which is more of an exhaustive search, has a better objective solution that minimizes the total distance of all the combined routes. So here we have a pay-off results, and we can choose the required algorithms based on our application and priority based on various attributes of solutions.

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Humanitarian Organisations and Countries in Need: A Social Network Analysis

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Abstract

This study uses social network analysis to understand the web of Humanitarian Organisations (HO) working in the field of primary education in developing and underdeveloped countries. Data is collected for 94 HOs working in 54 countries needing support for primary education. The bimodal and unimodal network is plotted to understand the network of different HOs providing services and countries where these HOs are operating. ERGM model is used to understand the effect of endogenous variables like in-degree, out-degree and centrality and exogenous variables like school dropout rate and GDP. Further, we examined how geography moderates the network of countries that receive aid from participating HOs. The results highlight key areas where the network is not connected, and HOs work in isolation compared to a few countries where the flocking of different HOs is present.

Keywords: *Social Network Analysis, Education, Humanitarian; SDG; UN*

'Job Performance' in Information Systems Research: Quo Vadis?*Siddharth Majhi¹, Ankur Shukla² & Arindam Mukherjee³**¹Indian Institute of Management Amritsar, ²Indian Institute of Management Bodh Gaya
& ³Indian Institute of Management Ranchi***Abstract**

Due to the broad scope of information systems (IS) research, there is often an overlap with other academic domains such as marketing, operations, strategy, and organization behavior. Specifically, in the business value of information technology (BVIT) research stream, the 'job performance' construct has been used to investigate the impact of IT use on individual outcomes, despite essentially being a core OB / HR concept. This paper aims to take stock of how this construct has been conceptualized, measured and utilized in extant IS research. By doing so, it aims to clarify potential confusion about the usage of this construct, address the debate around its measurement, and also pave way for future researchers to use this construct in the most effective manner.

A Survey of News Recommender Systems – Issues and Methods

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Abstract

News recommendation, a technology with considerable social-economic implications is a widely researched topic. A variety of algorithms have been used to address a plethora of issues in this domain. The challenges faced for generating news recommendations can be grouped into three major categories of social, technical, and behavioral. The recommendation methods can be grouped under popular categorization of content-based filtering, collaborative filtering and hybrid filtering. We list some new and infrequent algorithms that cannot be grouped under any of the three categories. Overall, in this study we provide a holistic overview of challenges and algorithms used in the domain of news recommendation. Finally, we discuss some emerging and interesting future research directions.

Keywords: news recommendation, echo bubble, fairness, content-based filtering, collaborative filtering, neural network

Introduction

News reading, an age-old practice, has witnessed major disruptions with the advent and increasing penetration of internet. From a reader's perspective, the enormous amount of content available on a topic makes it very difficult for the reader to easily find relevant news articles. To address this problem, online news providers use algorithmic decision enablers known as news recommender systems which form an integral part of the overall reader experience. A variety of algorithmic designs have been proposed to address several issues in this domain resulting in an extremely large volume of literature. Our objective is to summarize these developments in this paper.

The major issues in designing a news recommender system can be categorized into technical, behavioral and social. Broadly the recommendation algorithms used for news recommendation could be categorized into content-based filtering, collaborative filtering, and hybrid methods.

This study contributes to news recommendation research in two different ways. First, we provide an overview of the current state of the art focusing on two major aspects of news recommendation systems, namely challenges for news recommendation and recommendation designs. We develop relevant taxonomy and classification of the challenges and list various recommendation algorithms. Second, we discuss future research directions based on emerging trends in recommendation systems research.

Challenges in News Recommendation

Online news reading is a social activity, and it presents algorithm designers with its own unique set of challenges. We categorize the set of challenges mentioned in the literature into three major categories. Problems related to computation and data availability are categorized as technical. Behavioral issues comprise changes in news consumption behavior by readers and social issues include challenges related to societal influence of news recommendation.

Technical issues:

Cold start issue: Recommender systems require past data corresponding to a reader and articles to generate relevant news recommendations. However, such data may not be always available. This is known as the cold start problem. Two types of cold start situations are (a) a new reader

arriving in the system (Tavakolifard et al., 2013) or (b) a new article is entering the system (Lu, Dou, Lian, Xie, & Yang, 2015).

Data sparsity: It refers to the scenario when the amount of data on readership may not be sufficient to generate recommendations. Like cold start, two scenarios are possible. In the first case, enough user data for an article may not be available. Possible reasons for this scenario include user reluctance to share data due to privacy concerns. Readers might not be willing to log in to accounts to share their data or they might opt out of cookie-based tracking (Mizgajski & Morzy, 2019). Secondly, only a very small fraction of all available articles are read by readers (Lin, Xie, Guan, Li, & Li, 2014).

Scalability ((Li, Wang, Li, Knox, & Padmanabhan, 2011); (Okura, Tagami, Ono, & Tajima, 2017)): At any given point of time, a news recommender system might experience a large inflow of new articles or a large number of visitors to recommend which may give rise to scalability issues.

Short lifespan of articles: News articles usually have a short lifespan and quickly become irrelevant to readers ((Epure et al., 2017); (De Pessemier, Vanhecke, Leroux, & Martens, 2015)). This short lifespan is often referred to as ‘recency’ effect of news articles (Lenhart & Herzog, 2016) and recommender systems are designed so that very old articles are not recommended.

Behavioral Issues

Monotonous recommendations: Recommender systems generate recommendations based on similarity (of articles read or of users) or popularity of news items. These metrics seldom vary over a short duration of time and hence the system continues to generate the same set of recommendations. Consequently, the recommendations often lack diversity ((L. Zheng, Li, Hong, & Li, 2013); (G. Zheng et al., 2018)). Monotonicity in recommendation might lead to reduced reader engagement with the website.

User preference: Reader preference changes with time ((Caldarelli, Gurini, Micarelli, & Sansonetti, 2016); (Li, Zheng, Yang, & Li, 2014)), location (Montes-García, Álvarez-Rodríguez, Labra-Gayo, & Martínez-Merino, 2013), external events (Epure et al., 2017) and other contextual factors (Domann, Meiners, Helmers, & Lommatzsch, 2016). Incorporating all these factors while making recommendations will make a system extremely complex while completely ignoring them might lead to reduction in reader interest over time.

Feedback: Feedback is an essential component of recommender systems as it indicates user response to items recommended. For news recommender systems, feedback is usually obtained implicitly e.g. number of clicks (Lin et al., 2014). Very less explicit feedback (e.g. rating, comment etc.) is available (Lu et al., 2015) for news articles. Implicit feedback is easy to interpret. If a reader is shown an article, and she clicks it, it indicates interest to read the article and vice versa. Incorporating feedback in recommender design can allow recommender systems to respond dynamically to reader preference but will lead to an increase in overall complexity of the system.

Social Issues

Echo Chamber and Filter Bubble: Echo chambers are said to occur when a group of people connects while excluding others. Filter bubbles are created when a group of persons communicate exclusively with each other leaving out others. News personalization has been found to create situations wherein a reader is exposed to news which is in sync with her attitude

thus enhancing selective attention (Beam, 2014). News recommenders effectively create filter bubbles or echo chambers (DiFranzo & Gloria-Garcia, 2017) by recommending similar articles based on the reader's history. However, some studies have also rejected the creation of filter bubble wherein (Haim, Graefe, & Brosius, 2018) found that content diversity of news is not affected by news personalization.

Several algorithmic designs have been used to address a few of the above-mentioned issues. We discuss them in the next section.

Types of News Recommender System

News recommender systems can be classified into two categories: personalized and non-personalized systems. Personalized recommender systems generate recommendations tailored to individual user interest based on her past reading behavior and demographic profile. These algorithms are mostly used by news aggregator sites such as Google etc.

Non-personalized recommender systems are based on popularity-based metrics like views, clicks, shares etc. Non personalized recommender systems are commonly used by news content providers like Wall Street Journal, New York Times etc. Figure 1 presents an overview of the steps involved in generating personalized and non-personalized recommendations.

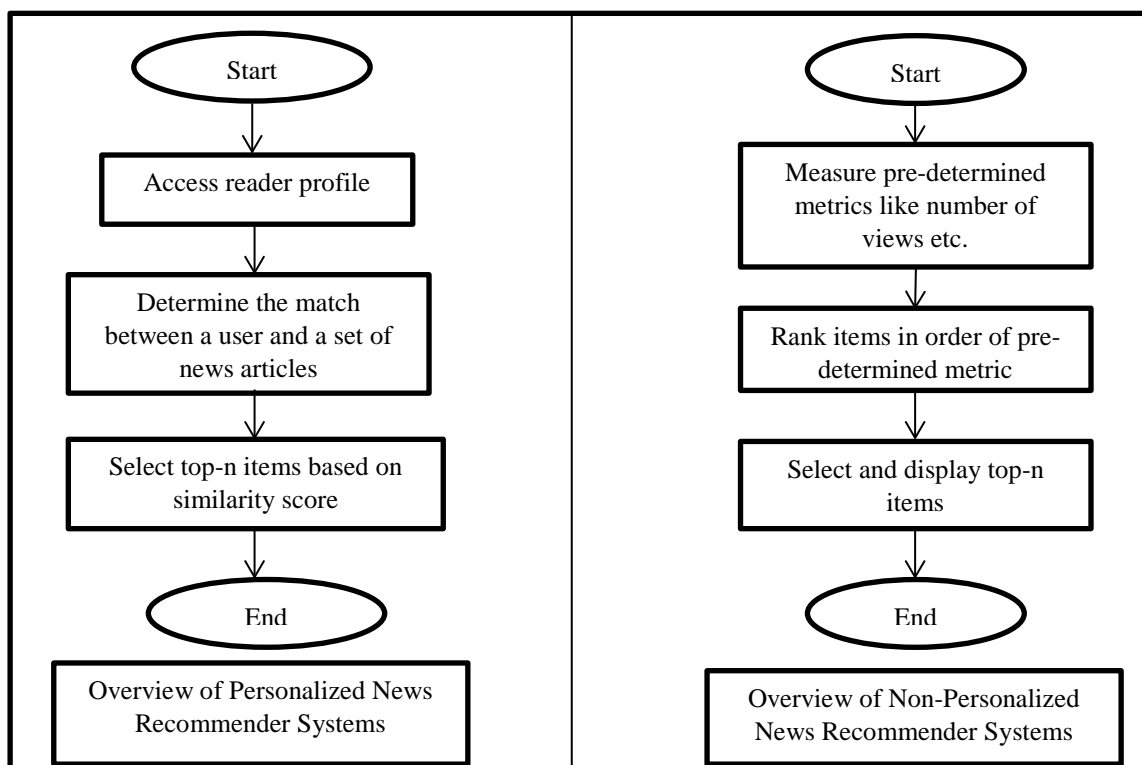


Figure 1: Basic News Recommendation algorithm

Personalized News Recommendation

The central idea of collaborative filtering is to predict articles for readers based on what 'similar' readers have read. Similarity among users is measured based on reader behavior like articles read, sequence of reading etc. Singular value decomposition is a popular model-based collaborative filtering method that has been used for news recommendations. (Wang et al., 2015) used HOSVD (Higher Order SVD) for factoring N^{th} order matrix of contextual information to N basis matrix and 1 core matrix for generating recommendations. Among memory-based methods, graphical methods are frequently used in news recommendations.

Both reader item graphs (Li et al., 2014) and item-item graphs (Trevisiol, Aiello, & Labs, 2014) have been used for recommending articles.

Content-based filtering analyzes content of articles (textual content, heading, meta-data like URL etc.) read by users to generate recommendations based on content similarity. This method can effectively handle cold start issues due to arrival of new articles as it does not require reader data. Two of the most popular content analysis methods include TF_IDF (Jntema, Goossen, Frasinca, & Hogenboom, 2010) and LDA (Hsieh, Yang, Wei, Naaman, & Estrin, 2016).

Hybrid designs combining content analysis and user profile categorization, have also been developed. Lenhart & Herzog, (2016) measured user similarity in terms of co-rating of articles while article similarity was measured using weighted sum of keywords.

Some special recommendation techniques

Multi armed bandit in news recommendation: News articles can be considered as arms of a slot machine. Selecting an article for recommendation is equivalent to pulling an arm of the slot. Click by a reader is considered as the reward. The rewards for some articles are known through previous history while for some articles they are not known. By recommending a combination of articles whose possible reward is known (exploitation) and whose reward is not known (exploration), the recommender system tries to attain maximum reward (reader clicks). (G. Zheng et al., 2018) used clicks and user activeness (measured through user return in subsequent sessions) as reward parameters. Two recommended lists are created of which one is based on known reward and the other on exploration. Using randomization, a merged list with items from both lists is created for recommendation.

Neural networks in news recommendation: Often used in classification and prediction problems, neural networks refer to a set of algorithms that are designed to mimic the working of neurons. Recurrent Neural Network (RNN) and Convolutional Neural Network (CNN) are two popular neural network architectures used in news recommendation. RNNs based recommendations exploit the history (or sequence) of reading news articles. (Okura et al., 2017) measured article-reader similarity based on reading history and then checked similarity of items in the list for generating final recommendation using RNN. CNNs are based on the idea of dimensionality reduction of data which allows us to measure similarity of items using small, reduced set of features. H. Wang, Zhang, Xie, & Guo, (2018) modified knowledge graph using CNNs wherein they create contextual embedding from news titles and match them with embeddings of articles read by a reader for making recommendations. Hybrid systems combining both CNN and RNN have also been developed. (De Souza Pereira Moreira, Ferreira, & Da Cunha, 2018) measured article content embedding based on article content and article metadata using CNN. RNN is used to predict the article embedding the user is likely to read next.

Non personalized recommendation:

Based on popularity measures, these systems are easy to design and implement. “Most popular” news recommender systems influence reader selection of articles and help increase time for reading articles by reducing time for searching articles (Yang, 2016). “Most read” news recommendations were chosen by readers due to perceived higher value as many others have read it (Lee & Tandoc, 2017).

Future research directions

In this section, we list a few emerging challenges and design directions.

Recent studies in news recommendation have focused on preserving reader privacy. (Boutet, Frey, Guerraoui, Jégou, & Kermarrec, 2016) designed a collaborative recommender system based on an “obfuscation” algorithm is designed in which the least sensitive features of articles are transmitted across network to preserve privacy. Fairness is another important aspect that is being studied in context of algorithmic news recommendation. Two major categories of fairness are individual and group fairness (Singh & Joachims, 2018). According to individual fairness, two articles that are similar in terms of popularity, sharing or other metrics of interest should be treated equally (individual fairness). In context of group fairness, unpopular news categories should have fair representation in the list.

Managing multiple conflicting objectives is becoming a key design principle in recommender systems. (Ribeiro, Lacerda, Veloso, & Ziviani, 2012) maximized a hybrid function of accuracy, novelty, and diversity in which functions are combined using Pareto evolutionary algorithm. Such approaches can be used to simultaneously maximize click rate and diversity in news recommendations. The second emerging design change is the focus on the consumer. Instead of solely relying on behavioral feedback, measuring reader internal traits like emotions can provide better clues of reader satisfaction. (Lei, Rao, Li, Quan, & Wenyin, 2014) were able to measure emotions of online news readers using articles read. Generating recommendations by incorporating such traits can result in higher satisfaction and engagement of readers.

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Systematic literature review on two decades of Agile information system literature

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Abstract

An agile information system (AIS) is known for its ability to handle extreme changes, survive unprecedented threats, and capitalize on emerging business opportunities. New-age enterprise demands and technological advancements led to agile adoption. Twenty years have passed since the agile manifesto was released. Yet, no comprehensive body of knowledge on agile exists to date, which has been the need of the hour for organizations. AIS research can help businesses attain agility, allow rapid innovation, improved digitization and thereby social transformation which leads to sustainable and responsible conduct of business. In this paper, readers are informed about the current state of research on AIS in IS through a systematic and critical analysis of IS literature. The review identifies the research foci of scholars and industry practitioners. Academic scholars are inclined to study ‘doing agile’ and industry practitioners are oriented to understand ‘being agile’. This reviews also illustrates timeline trends and dominant use of theory in research. This review paper highlights challenges that need to be addressed in understanding agile in a comprehensive manner and recommends future research questions.

Keywords: agile information systems, agility, agile, academic, practitioner

1 Introduction

“There is a way to do it better — find it!”-Thomas A. Edison

The concept of agile existed even before information system’s impacts, occurrences, and management changes were noticed, evidence of earliest practices associated with agile have been dated and founded in the 1930s, To reaffirm that agile manifesto is no discovery but a revival of old principles, Andre Gide, (1891) states that “ Everything has been said before, but since nobody listens, we have to keep going back and begin all over again” in the article “The Origins of Agile and Iterative Methods” by Whiteley, Pollack, & Matous ,2021. All this gained importance as organizations strive in the competitive world to survive by inculcating the ability to adapt to changes and perform i.e., be agile. A noted scholar, states “In today's volatile business environments, firms must be agile and be able to handle extreme changes, survive unprecedented threats, and capitalize on emerging business opportunities” (Lu, & Ramamurthy, 2011). Similar is the view of practitioners according to the 14th annual report titled “State of agile “by digital.ai.

Agility can be defined in many ways. Conboy (2009) states it as “the continual readiness of an ISD method to create change rapidly or inherently, proactively, or reactively embrace change, and learn from it while contributing to perceived customer value (economy, quality, and simplicity), through its collective components and relationships with its environment”. Stoica, Mircea,& Ghilic-Micu,(2013), mentions that achieving and maintaining agility requires agile architectures, techniques, methods, and tools, along with being able to react in real-time to change requirements. No matter how it is defined, it is quite clear that due to its varied applicability in different areas, it is studied by researchers in various contexts and was also made use of by practitioners in real-time. In information systems in specific it is observed that quite a few studies have been performed on agile, they looked at the topic exclusively either as a software developer or as a project manager. This inhibits comprehensive reflection, it is also observed that readers faced ambiguity in understanding at minute detailing level, if agile

as a topic is considered to be an approach? method? methodology or technique that is being followed?

Rapid scaled usage of agile by the real-time organizations, with very little validated knowledge available in academic literature necessitates study of it, to have knowledge about what it is? What are the consequences and developments? It is necessary to contribute to the knowledge and be prepared to understand if it is a short-term bubble or a concept to stay. Thus, this study aims to comprehensively understand more about it with a research questions as :

RQ1: How agile has been studied in existing literature till date within the field of management information systems by academicians and practitioners since 1995?

This review provides findings and contributions from the IS literature with specified inclusion and exclusion criteria to identify the topic trends, timeline trends, theoretical usage, challenges it faces currently, by covering both the academic and practitioner's viewpoint, thereby making the study unique. It fills the research gap of mirroring the existing rigor and relevance of the topic for both academicians and practitioners. Thereby help them with prospective topics that need attention.

I review a list of 110 articles, arranged by eight topic groups, from the senior scholar basket and four prominent conferences. I find that while, academicians are inclined to research topics such as 'being agile', practitioners, on the other hand, were focused on 'doing agile', i.e. to identify success factors, risk, control, governance and innovation in AIS. I find that disciplined agile, which purports to make AIS implementation successful by focusing on context-driven development may shine new light into study on agile systems in IS. Thus, the remainder of this paper describes existing literature, the design employed for data collection and analysis, key findings, and conclusion with prospects.

2 Related Work and Background

2.1 Agile Information Systems (AIS) Literature

In practice, developing information systems followed approaches ranging from being sequential (Royce, 1970) to processes which are more cyclic and iterative (Boehm, 1988). The traditional waterfall model was the mainstay of the software programming world which was also supported by Stoica, Ghilic-Micu, Mircea, & Uscatu (2016) in the paper where it states "waterfall (as sequential, linear development model) remains the most popular SDLC. This happens because its main advantages (ease of use, detailed definition of requirements and importance of documentation) easily overcome the drawbacks (lack of flexibility and partial deliverables)". But also explains the trend change in the past two decades with the advent of the Agile Manifesto by Beck, Beedle, Van Bennekum, Cockburn, Cunningham, Fowler, & Thomas, (2001), with its 4 core principles. Stoica et.al.,(2016) states it as follows "regardless of the philosophy used to approach the issues, sooner or later most businesses must reorient towards an agile model, considering the permanently changing (economic, social, political, cultural etc.) conditions in the surrounding environment."

IS Scholars who have always been keen to verify and expand the knowledge horizons have studied each principle of the manifesto for its influence, its effects (Hummel, Rosenkranz, & Holten, 2013), its role in software quality (Balijepally, Mahapatra, Nerur, & Price, 2009), and its readiness to be adopted by practitioners (Cao, Mohan, Ramesh, & Sarkar, 2013, Fitzgerald, Hartnett, & Conboy, K 2006, Lee, & Xia, 2010).

Now that agile has established itself, scholars started to focus more on the granular issues faced by practicing agile (Cao., et al. 2013, Recker, Holten, Hummel, & Rosenkranz, 2017,

Maruping, & Matook, 2009, Balijepally, et al. 2009), such as evaluating the response of organization or teams adopting it (Cao, Mohan, Xu, & Ramesh, 2009), addressing the need for tailoring the methods (Wang, Conboy, & Pikkarainen, 2012, Lee, & Xia, 2010, Karlsson, & Ågerfalk, 2009) and investigating on success and failure of methods (Fruhling, & Vreede, 2006). Further, only a few agile aggregate studies (Dingsøyr, Nerur, Balijepally, & Moe, 2012, Wiener, Vogel, & Amberg, 2010) were found that could be of ready use, a clear categorization of existing research. This established the need for a comprehensive study like this. In the next section, I would elaborate on the method with which I proceeded on this study.

3 Research Method: Systematic literature review

The aim of this study could be best achieved by following the guidelines of Vom Brocke, Simons, Niehaves, Riemer, Plattfaut, & Cleven, (2009), Levy, & Ellis, 2006, Vom Brocke, & Lippe, 2015, where they say that “literature search represents the fundamental first step that builds up the giant’s skeleton which largely determines its re-construction in the subsequent literature analysis. For the structure to be strong, the search has to be systematic, explicit, and reproducible”. Thus, to do so, I searched for article’s title, abstract, and keywords from senior scholars basket of journals, which are considered as a mirror for fields academic reflection because of their ability to recognize and inculcate the methodological, topical, and geographical diversity with adherence to stringent review processes, that helped them gain international readership and contribution along with respect and recognition.

Since the intent was to find a holistic overview as possible, to know the reflections of the practitioner’s world I choose Project management journal, Sloan Management Review, Harvard Business Review, and MISQ executive to serve my purpose to know the state of agile in Information systems. Table 1 in the appendix represents the count of articles. My keywords for search included *agile method*, *agile methodology*, *agile software development*, *agility and information systems*, *agile project management*, which aim to cover how AIS has been studied in the existing works of IS literature. Data collection is done as suggested by Webster, & Watson, (2002) with Inclusion and exclusion criteria listed in the Table 2 of appendix. The search hierarchy of how 110 relevant articles were identified is in Figure 1 (appendix), by reading through the abstracts along with introduction and conclusion in the target journals. Twelve in-scope journals are shown in table 3 in the appendix. They were further coded, analyzed, and synthesized iteratively. Initially, manual and descriptive coding has been done trying to identifying the theme of study, research question, key findings, the theory used, along with the unit of analysis. Later in the second round of coding for the uniformity and trend prediction, it was important to group relevant topics. Utilizing pattern coding for themes, from Diegmann, Dreesen, Binzer, & Rosenkranz, (2018), resulted in a total of 25 group and sub-group topics.

I categorize all articles into 2 broad themes into *doing agile* and *being agile* based on the definition provided by Eilers, Simmert, & Peters, (2020). In brief being agile refers to individual attitudes, mentalities, living through the agile principles, whereas doing agile refers to adherence to work processes while making use of agile methods. Articles were further segregated into 8 topic groups belonging to these themes. These groups follow the work of Diegmann, et al (2018) in which keywords were identified using LDA algorithm. To this list, few latest technologies and applications that are found relevant but missing are added to our dataset. This data set was analysed accordingly to identify the trends of publication which are in detail discussed in the next results section.

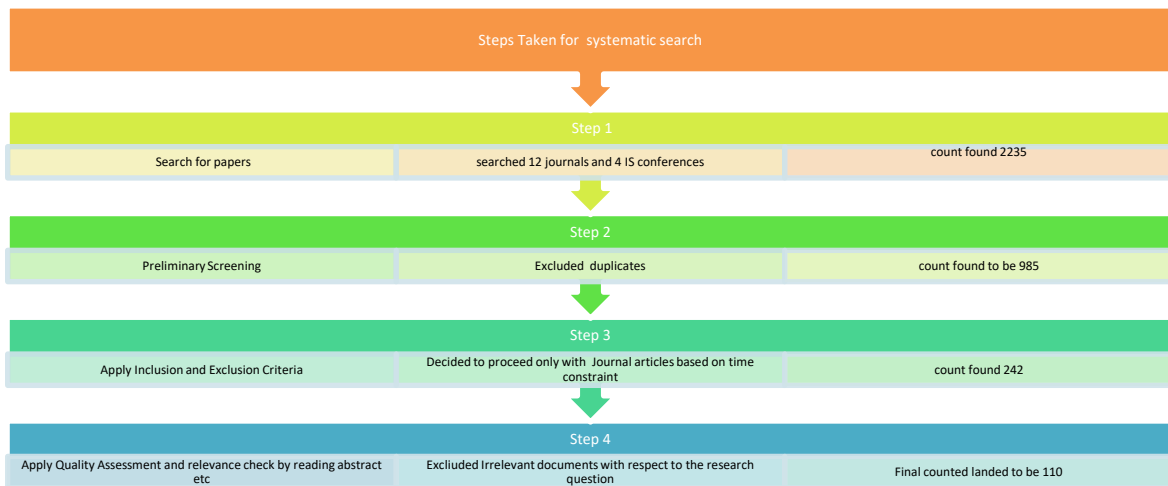


Figure 1: Steps for conducting the review

4 Findings

4.1 Trends in the research topic based on publications

The review revealed a wide variety of AIS topics that are of high relevance to IS researchers. From Table 4 in the appendix, we can see a ranking of identified group topics based on the number of relevant publications, under which it holds sub-group topics. From analysis and synthesis of the literature as in Figure 2 in the appendix, I observed that agile methodology and practices is the most studied topic followed by IT capability and agility when all works of literature are considered as a unity (academic and practitioners together). These topics can broadly come under the umbrella of ‘how to do agile?’ and ‘how to be agile’. But when observed as an academician or a practitioner the focus of the study varies, we can see the contrast from figures 3 and 4. There are many prominent findings in each topic, few of the orientations are, scaling from small to large organizations, vice versa (Goh, Pan, & Zuo, 2013, Berger, & Beynon-Davies, 2009), Team performance improvement, and success factors (Tripp, Riemenschneider, & Thatcher, 2016, Sarker, & Sarker, 2009, Huber, Huber, Winkler, Dibbern, & Brown, 2020, Venkatesh, Thong, Chan, Hoehle, & Spohrer, 2020), ambidexterity (Ramesh, Mohan, & Cao, 2012), factors for acceptance of agile in multiple papers (Hong, Thong, Chasalow, & Dhillon, 2011, Maruping, & Matook, 2020), requirements engineering in agile (Thummadi, & Lyytinen, 2020, Ramesh, Cao, & Baskerville, 2010), and being mindful about its usage (Cram, & Newell, 2016). From the focus of the above papers, I find that academicians are more inclined to research being and doing agile as defined by Eilers, Simmert, & Peters, (2020). I can say so as topics such as lean & large-scale agile, extreme programming, pair programming, test-driven development, software architecture, agile usage, and practices in different programming contexts were concentrated by academicians.

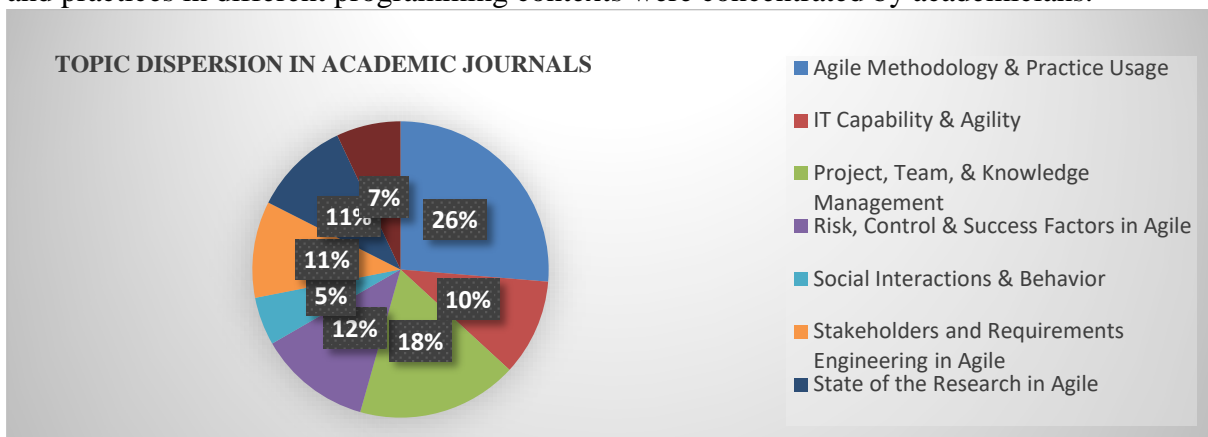


Figure 3: Percentage distribution of topics in Academic journals

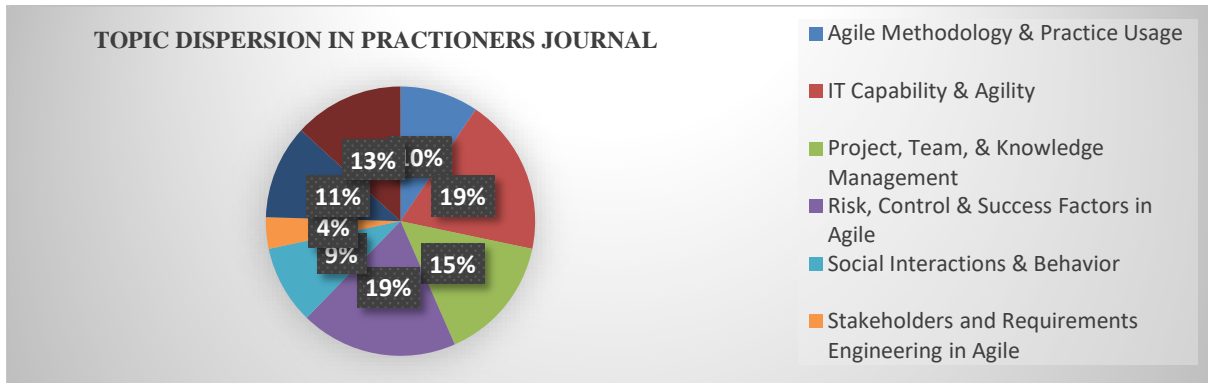


Figure 4: Percentage distribution of topics in Practitioners journals

From Figure 4, readers can observe that practitioners were equally focused in looking into topics related to IT capability and agility along with examining risks, control, and success factors of agile at 19% from all their studies. They also considered studying adoption, usage, and scaling of agile like academicians in the articles by Rigby, Sutherland, & Takeuchi, 2016, Copola Azenha, Aparecida Reis, & Leme Fleury, 2021, Gemino, Horner Reich, & Serrador, 2021. But relatively, they also studied issues of estimation, work-life balance, generalizability, leadership role, governance, innovation, project management, technology applications, etc. I can say that practitioners are keen on doing agile as defined by Eilers, K., et al 2020, thus considering agile as an approach into apply in situations accordingly. (McGregor, & Doshi, 2018, Gothelf, 2017). Topics such as what to expect from agile (Birkinshaw, 2019), risk factors associated (Gerster, Dremel, Conboy, Mayer, & Vom Brocke, 2021), need for alignment, and applying control mechanism (Repenning, Kieffer, & Repenning, 2018), to understand technological implications (Ferguson, 2014) and to know the importance of right people with right mindsets in right roles Cross, Gardner, & Crocker, (2021) are few important to mention.

4.2 Timeline trend (2004-2021) for frequency of publication

To know the rigor of the field it is important to observe the frequency of publications as shown in figure 7. I find inconsistency in publications on agile, since there is no uniform pattern over time. A rise is observed in the year 2009 due to the special issue published on “flexible and distributed ISD,” “Agile tool kit” by Journals as pointed out by Agerfalk, & Fitzgerald, (2006) and Abrahamsson, Conboy, & Wang, (2009).

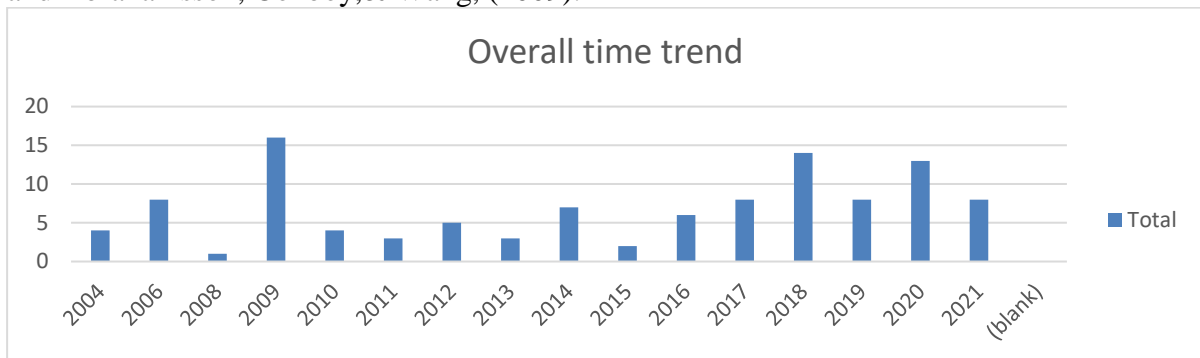


Figure 7: Overall trend in the field

According to Diegmann, et al (2018), “authors might have published elsewhere for the time being. A burst of publications in a special edition each year, might very well also lead to

flattening in the following years, as research projects might have been expedited to be included in the special issue, resulting in no publication in the following years”. Comparing figures 5 and 6 from the appendix we see the peak of publications in the year 2009 in academic journals, with consecutive years showing only a minimal level of publications. Whereas publications by practitioners in figure 6 are observed to be high since 2018 due to the Harvard business review publishing articles with scope for scaling titled, “Agile at Scale: How to create a truly flexible organization.” Another issue titled “The Agile Executive: How to balance efficiency and innovation (even in tough times like these)” was published in HBR 2020.

4.3 Theories used in articles.

Agile studies are said to lack the theory and conceptual basis as compared to other fields of study in information systems (Wang, Conboy, & Pikkarainen, 2012, Conboy, 2009). One of the reason for this could have been because of agile being an industry-driven agenda. But scholars made an effort to use different theories as in table 5 in the appendix to inquire and reflect.

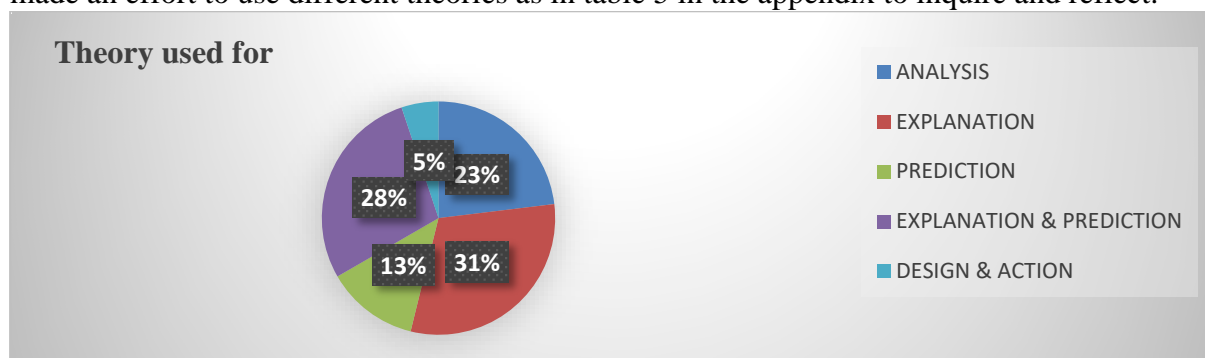


Figure 8: Purpose of theory usage

In this study theoretical contributions towards agile are analyzed using Gregor(2006) framework. Wherein, the framework aims at categorizing theory based on the primary goal it intends to address. Primary goals of theory are one among, analysis, explanation, prediction, prescription(design & action) and explanation long with prediction¹. I read each article in the dataset and see the dominant motive for using theory. Next, I classify article into one of the aforementioned goals. My classification exercise reveals the fact that the majority of studies are aimed at explaining followed by explanation and prediction as primary goals of theory . My finding is not consistent with Gregor's suggestion, that theory development in any domain begins with analysis as a motive followed by explanation and prediction. This re-affirms the need for using theories not only for explanation but also to understand what is the agile and analyse it where agile is used.

Sum count of theories in table 6 from the appendix reflects how there has been a scanty usage of theory in prediction, design, and action. Topics such as IT capability & agility, technologies & applications, need more concentration of IS researchers in the future. Another observation has been about the method of study and unit of analysis. It is observed that the majorly adopted way was a case study, leaving a lot of scope for further theoretical development and empirical validation. Unit of analysis has been either a single project or small teams making access availability an issue. As all topics have not been researched with the same rigor and intensity, it is important to know the reason why, along with simultaneously understanding the issues and challenges faced as identified in the next section.

5 Challenges

Major setback observed firstly is the diversified ways in which AIS is defined and understood by scholars. There are significant conceptual shortcomings such as a lack of clarity, theoretical

¹ table 7 in the appendix replicates the definition of primary goals from Gregor ,(2006).

glue, parsimony, limited applicability, and naivety regarding the evolution of the concept of agility in fields outside systems (Conboy, 2009). Secondly, a lot of ambiguity is noticed to exist in selecting and adapting the appropriate agile method that works for an organization, though frameworks have been proposed by Cao, et al (2009). Still, confusion persists. Appropriated practices exist based on particular assumptions and tend to address only several challenges, that cannot be generalized. According to Hobbs, & Petit, (2017) Agile is advantageous when applied in its “agile sweet spot”. i.e., small collocated teams with stable architecture to work on non-crucial projects. Whereas the project evolves to be large, multi-site, multi-customer, thus face some impediments in scaling practices dismissing the idea that one size fits all. AIS is driven by the necessity to adapt or build a hybrid agile model in ala carte fashion as highlighted in Fitzgerald, et al (2006) and supported by McBreen (2002), Gemino, et al (2021) where hybrid approaches are proved as not a poor second choice, But the dilemma exists on how organizations choose appropriate methods and design one’s approach? Yet, Project management institute claims disciplined agile (DA) as a one-stop solution. According to them, it is stated as a diagnostic, hybrid tool kit that harnesses hundreds of Agile, Lean, and traditional strategies to guide you to the best way of working (WoW). It claims to be context-sensitive, because of which it suggests fit-for-purpose WoW for a given situation with a prescribed collection of “best practices”. This is yet to be validated if true or not by making it a valid option for future study.

Thirdly, Fitriani, Rahayu, & Sensuse, (2016) highlight 30 challenges in AIS development relating to process and project management. Need for carefully evaluating the risk factors to understand if the benefits outrun the costs imposed by the seven challenges is identified. However, the existing studies do not mention how this may be achieved?

The challenges observed in literature are highlighted in preceding text. Thus, I could synthesize that there is No Uniform framework that exists to determine the success of the AIS implementation. Toolkits & tools that state to help in deciding compatibility of AIS with different technologies have no validation. Process’s effects on Employability duration, mental health and individual improvement are not deeply analysed. With rapid change in business environment verification and validity of core values and principles is necessary as its been 20 years of agile manifesto. Volume of publication differences found in conferences than in journal’s suggests lack of deep analysis.

6 Conclusion

Research on Agile information systems, holds immense value to businesses, particularly, in the information technology domain. So, one would expect, rising publications on AIS related topics. However, I find no clear pattern to in publication trends on agile. Publications seem to be driven by special issue releases in noted journals.

The role of theory in AIS research seems to be restricted to explanation and prediction, and not to analysis as the underlying motive. So, in essence research is not clarifying the *what is* of agile. Therefore, to understand what is agile will improve an understanding of where agile is used.

I find that academicians are more inclined to research topics that fall into a theme called *doing agile* and practitioners seem to be focused on topics that align with *being agile* theme. Academic journals are focused on lean & large-scale agile, extreme programming, pair programming, test-driven development, software architecture, agile usage, and practices in different programming contexts.

I attempt to form an outlook into the future research by identifying less covered topic groups and find that, in AIS research context, under researched topics include Technologies and applications of agile , Social Interactions & Behaviour, Stakeholders, and Requirements Engineering. This might help other scholars in identifying new avenues such as agile leadership, agile teams, agile mindset and further, extend the scientific community's knowledge.

A limitation of the current literature review is that it focuses on IS-centric literature and its consideration of limited journals. There is a vast resource of conference papers that when analysed, could reveal more and varied insights.

7 Future Research scope

This review could be expanded, by including more journal outlets, so as to validate the applicability and generalizability of the findings. A few of the prospective research questions are fundamental in nature, for example, What is agile and AIS ? What could be the benefits and challenges on applying AIS in HR, governance, SCM, Leadership, apart from technology. What is the impact of applying AIS on teams, organizations through a lens such as sensemaking, mindfulness, empathy, etc? What is meant by discipline in Agile? Does WOW (way of working) by Ambler,& Lines,(2019) address the ambiguity about the way agile teams work? It could be verified by empirical evaluation. Ways in which AIS contributes to innovation, technology disruption, organization agility, social transformation, and its role in improved digitization are not studied, thereby making it a topic to be addressed. IS theories must be then applied with analysis as the primary goal so as to clarify and define the what is.

Future research must synthesise the topic groupings within the broad themes of being and doing agile. This will support a comprehensive understanding of the factors involved in the success or failure of agile projects. Importantly, such research will build a knowledge base on agile, which is accessible to academicians and practitioners alike and clarify thinking on agile. Overall, more collaborative works between academicians and practitioners will be well appreciated as results may be more meaningful.

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Appendix A

| Journal / conference outlets | Total no duplication article count |
|--|------------------------------------|
| Americas Conference on Information Systems (AMCIS) | 335 |
| European Conference on Information Systems (ECIS) | 184 |
| International Conference on Information Systems (ICIS) | 132 |
| Pacific Asia Conference on Information Systems (PACIS) | 92 |
| European Journal of Information Systems | 42 |
| Information Systems Journal | 18 |
| Information Systems Research | 18 |
| Journal of AIS | 12 |
| Journal of Information Technology | 8 |
| Journal of MIS | 13 |
| Journal of Strategic Information Systems | 12 |
| MIS Quarterly | 9 |
| MISQ EXECUTIVE | 21 |
| Sloan management review | 14 |
| Harvard business review | 49 |
| Project management journal | 26 |
| Total articles | 985 |

Table 1: Distribution of Results Across Outlets

| Facet | Inclusion | Exclusion |
|----------|---|---|
| Contexts | Development of Software or information systems. Considered even if proven points relevant from non IT sector | If the articles research was oriented for business or organizational agility as opposed to agile for IS. |
| Studies | Peer-reviewed scientific papers, Peer-reviewed or curated experience reports, written in English, Practitioners journal articles full-text available. | Books & editorials, Theses and position papers, talks, Abstracts, Non-English articles and articles without full-text access. |
| Findings | The articles must have the search phrase in either the Title, Abstract or in the Key words of the study | The articles do not have the search phrase in either the Title, Abstract or in the Key words of the study |

Table 2 : Inclusion and Exclusion criteria

| Journal / conference outlets | Total count of articles without duplication |
|--|---|
| European Journal of Information Systems | 23 |
| Information Systems Journal | 15 |
| Information Systems Research | 8 |
| Journal of Association for information systems | 3 |
| Journal of Information Technology | 1 |
| Journal of Management Information systems | 4 |
| Journal of Strategic Information Systems | 0 |
| MIS Quarterly | 3 |
| MISQ Executive | 6 |
| Sloan management review | 8 |
| Harvard business review | 20 |
| Project management journal | 19 |
| Total articles | 110 |

Table 3 : Final count of papers considered

| Themes of being agile / doing agile | Topic Group | Count of studied group topic | Overall Ranking based on count of publications |
|-------------------------------------|--|------------------------------|--|
| Doing agile | Agile Methodology & Practice Usage | 20 | 1 |
| Being agile | IT Capability & Agility | 16 | 4 |
| Doing agile | Project, Team, & Knowledge Management | 18 | 2 |
| Doing agile | Risk, Control & Success Factors in Agile | 17 | 3 |
| Being agile | Social Interactions & Behaviour | 8 | 7 |
| Being agile *Both | Stakeholders and Requirements Engineering in Agile | 8 | 7 |
| Both | State of the Research in Agile | 12 | 5 |
| Doing agile | Technologies & Applications | 11 | 6 |

Table 4 : Most studied group topic

| List of theories | | |
|--|---|------------------------------------|
| Theories of complementarity and organizational ambidexterity | Contingency theory | Communication theory |
| Cultural theory | Agility theory | Grounded theory |
| Theory of individualism and collectivism | Role theory | Job design characteristics theory |
| Adaptive structuration theory | Theory of elasticity | Herzberg's job satisfaction theory |
| Home ground theory of Boehm & Turne | Social identity theory and self-categorization theory | Social Worlds Theory |
| Management fashion theory | Agile project management theory | Disruptive innovation theory |

| | | |
|---|-----------------------------------|---------------------------------|
| Acceptance theory | Analytic Hierarchy Process theory | Classic theory |
| Harvey's theory and extant theory, theory Y | Queuing theory, | Control theory |
| | Principle agent theory | Expectation–confirmation theory |

Table 5 :List of theories used in the collected data set relevant literature

Table 6 : Theoretical contributions in group topics

| Primary goal 's of theory | Questions / Attributes theory aims to address |
|---------------------------|---|
| ANALYSIS | what is. The theory does not extend beyond analysis and description. No causal relationships among phenomena are specified and no predictions are mad |
| EXPLANATION | What is, how, why, when, and where. The theory provides explanations but does not aim to predict with any precision. There are no testable proposition |
| PREDICTION | what is and what will be. The theory provides predictions and has testable propositions but does not have well-developed justificatory causal explanation |
| EXPLANATION & PREDICTION | what is, how, why, when, where, and what will be. prediction (EP) Provides predictions and has both testable propositions and causal explanation. |
| DESIGN & ACTION | ys how to do something. The theory gives explicit prescriptions (e.g., methods, techniques, principles of form and function) for constructing an artifact. |

Table 7 : replication of Gregor’s framework for theory (2006)

| Theory type | Topic groups | | | | | | | | Sum count of the theories |
|--------------------------|------------------------------------|-------------------------|---------------------------------------|--|---------------------------------|--|--------------------------------|-----------------------------|---------------------------|
| | Agile Methodology & Practice Usage | IT Capability & Agility | Project, Team, & Knowledge Management | Risk, Control & Success Factors in Agile | Social Interactions & Behaviour | Stakeholders and Requirements Engineering in Agile | State of the Research in Agile | Technologies & Applications | |
| ANALYSIS | 1 | 0 | 2 | 5 | 0 | 0 | 1 | 0 | 9 |
| EXPLANATION | 1 | 1 | 2 | 0 | 2 | 3 | | 3 | 12 |
| PREDICTION | 2 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 5 |
| EXPLANATION & PREDICTION | 5 | 0 | 1 | 3 | 2 | 0 | 0 | 0 | 11 |
| DESIGN & ACTION | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 2 |
| TOTAL IN EACH TOPIC | 9 | 1 | 6 | 9 | 4 | 5 | 2 | 3 | 39 |

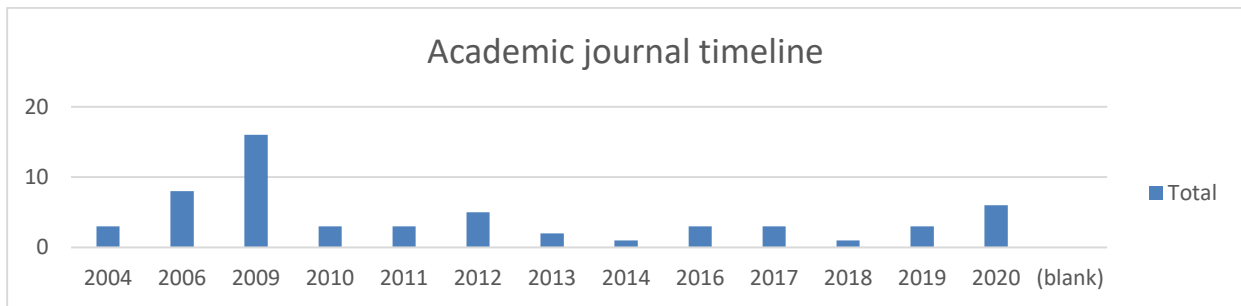


Figure 5 : Academic timeline of frequency of articles

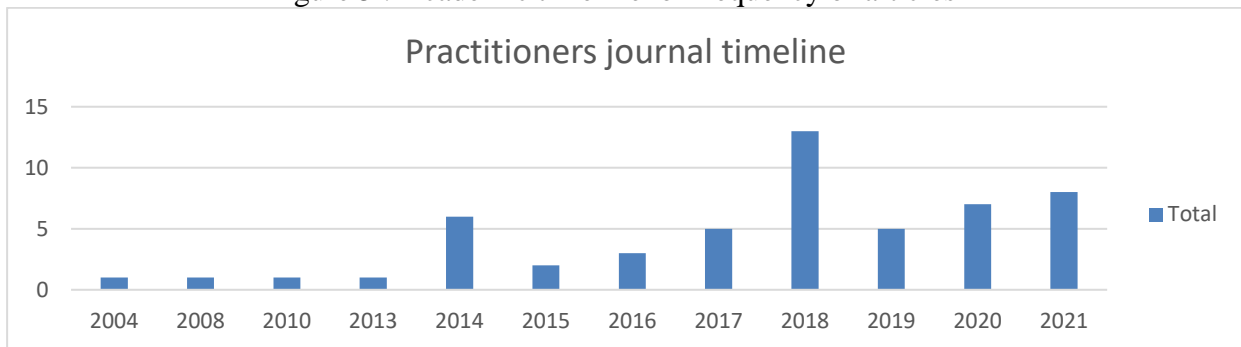


Figure 6 : Practitioner’s timeline of frequency of articles

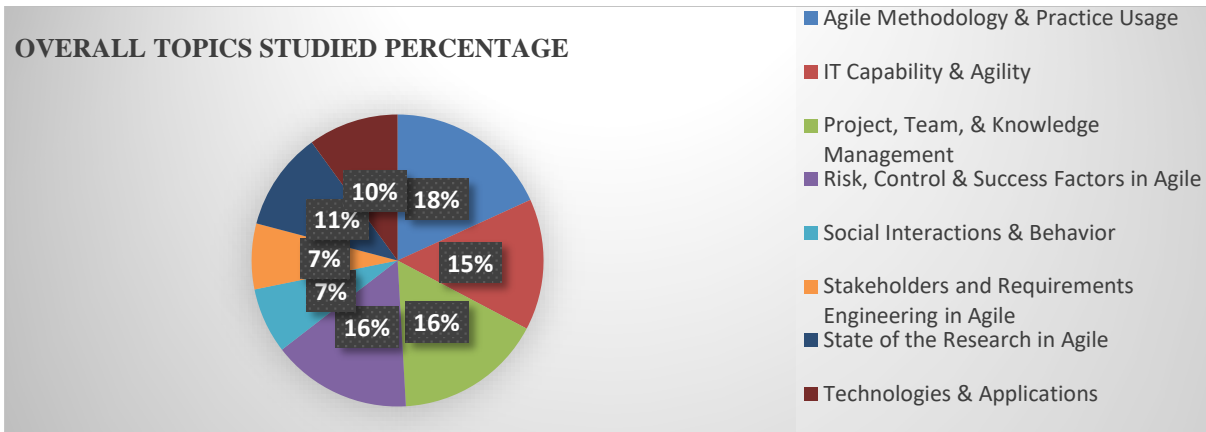


Figure 2: Overall topics studied in percentage

| Topic groups | Thematic | Academic | Practitioner's |
|--------------------------------|-------------|----------|----------------|
| Agile Methodology & Practice | Doing agile | 26.3 | 9.4 |
| IT Capability & Agility | Being agile | 10.5 | 18.9 |
| Project, Team, & Knowledge | Doing agile | 17.5 | 15.1 |
| Risk, Control & Success | Doing agile | 12.3 | 18.9 |
| Social Interactions & Behavior | Being agile | 5.3 | 9.4 |
| Stakeholders and Requirements | Being agile | 10.5 | 3.8 |
| State of the Research in Agile | Both | 10.5 | 11.3 |
| Technologies & Applications | Doing agile | 7.0 | 13.2 |

Table 8 : Segregation of topic groups by themes along with percentage of contributions by academicians and practitioners.

Innovation through Open Innovation Platforms: Review and Research Agenda

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Abstract

Using Open Innovation Platforms (OIP) as potential source of customer needs' identification and involving users for product innovation is prominent among leading organizations across the world. There are several types of OIP where users participate and help companies in idea generation. Companies choose platform based on user involvement and visibility, such as partial or complete participation by the community members, visible to the public or guarding the platform. Many companies such as P&G, Starbucks, Unilever, NASA, make use of these platforms to either receive new ideas or solve complex business problems & cases. Many factors drive the decision by companies of choosing the right OIP as their needs and requirements. Further, users are also influenced by various factors guiding their participation in such communities. Users' participation in OIP might be driven by intrinsic or extrinsic motivational factors associated with materialistic and immaterialistic benefits such as monetary rewards and recognition. To understand the OIP in the contemporary business world, this paper reviews different Open Innovation communities by exploring the factors that encourage users to participate on these platforms and their characteristics. It also explores idea characteristics that differentiate winning ideas from losing ones and web characteristics of thriving communities in terms of appeal, consistency and comprehensiveness. Further, this paper also talks about the evolution in OIP over the past few years and how it may look in the future.

Keywords: Open Innovation, User Characteristics, Web Characteristics, Idea Characteristics, Motivation, Innovation

**Personal & Professional Quality of Medical Representative and Impact on
Doctor's prescribing Behavior**

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Abstract

Pharmaceutical promotion is based on the interaction between medical representative (MR) and doctors. The objective of this paper is to identify the personal and professional qualities of medical representative that affect prescribing behaviour of doctor. To analyse self-administered structured questionnaires were distributed among doctors practicing in different specialties like General practitioner, Physician, Gynaecologist, Paediatrician, and dentist. The study was conducted in Baroda, Gujarat. Regression analysis model and ANOVA applied to the analysed hypothesis. Study confirms the positive impact of detailing, personal attire & scientific knowledge of medical representative on doctor's prescribing behaviour. Pharmaceutical companies should trained their sales team properly; starting from personal grooming to each and every aspect of brand & therapy for effective in-clinic discussion and thereby doctor conversion.

Key words: Pharmaceutical marketing, Medical representative, Detailing

Examining Employer Brand Personality Dimensions and its impact on candidate's pursuit intentions

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Abstract

Current study analyses the various dimensions of employer brand personality and its influence on job pursuit intentions. eWOM has been considered as mediator along with person organisation fit as moderator to analyse their respective influence on pursuit intentions. Structured equation modeling is used for analyzing the relationship between the constructs followed by mediation and moderation analysis. Results show the positive relationship between brand personality dimensions and pursuit intention and also eWOM and person organisation fit are also found to be effective mediator and moderator respectively. Few dimensions of brand personality were found to have stronger impact on generating pursuit intention in the candidate and others were found to be insignificant.

Keywords: pursuit intention, mediation, SEM, moderation, personality

Strategic Leader's Approach to Innovation: An Exploratory Study in Indian Private Organizations.

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Abstract

The aim of the study is to explore the strategic leader's approaches that influence innovation in private sector in India. Qualitative method was adopted using thematic content analysis to understand the leader's view on innovation in private organizations. A Long interview technique was used to collect the qualitative data from the five respondents. Our findings show that, according to leaders in private organizations, people drive innovations, and the focus is more on generating new ideas from people, inculcating creative thinking capability and mindset. Results also reveal the appropriate leadership style, leader-member exchange, decision-making capability also influence innovation (product/ process). Further, the uncertainty in the environment and the changing technology also play a huge role in innovation practices of private organizations in India.

Keywords Strategic leadership, Innovation, leader, thematic analysis, qualitative

Introduction

According to prior studies, Indian leaders are risk apprehensive and so do not proactively embrace innovative techniques (Bosma & Kelly, 2019; Rajpal & Sagar, 2003). According to the global entrepreneurship monitoring report GEM (2018) report, the risk-aversion rate in India was recorded to be 50.6% considerably higher than that of the global average rate (36.3%). Furthermore, the context and culture make it difficult to implement developed-economy innovation directly as India, as a mixed economy, comprises of both public and private sectors. Although both sectors have contributed towards the development of the country, The contribution of both of them has not been equal. E.g., the economic survey 2021 report points that the government share in gross expenditure on research and development is three times the average of the other large economies and still the country is lagging in innovation due to relatively less contribution of the private sector which accounts for just fifth of the overall R&D spent. This is the case when the country has jumped its position in global innovation index from 52 in 2018 to 48 in 2019.

Thus, with the economy in the transitional phase, and the rising uncertainty, it has become of utmost importance to understand the leader's approaches in driving innovation especially in the private organization and how it varies among leaders (Kesting et al., 2015; Slimane, 2015). Thus, the objective of the study is to understand the leader's approaches towards innovations and the current innovations practices in India in private sector organizations to understand their perspectives.

The remainder part of the study is structured as a) Background on theory b) Method and procedure e) results and analysis f) discussion g) implications and limitations.

Leader member exchange theory:

Leader member exchange theory is about the relationship between the leader and their team members (Graen & Uhl-Bien, 1995), 1995; Uhl-Bien, 2006) which develops over a period of time. The quality of relationship between the leader and the team member impacts the organizational outcomes (Martin, et al, 2018) like performance and innovation. In high quality relationships, leaders provide more confidence, resources, support, autonomy to the team members than the low-quality relationship Dansereau, Graen, & Haga, 1975; Graen & Uhl-Bien, 1995). However, very few studies have explored the relationship between LMX and

innovation taking a sectoral perspective (Tordera & Roma, 2013). This study draws from leader member exchange theory to explore the dynamics of relationships between leader and team member focusing on innovations in private organizations.

Method and procedure

Qualitative research was used for this study. The innovation orientation strategic leaders from private sector organizations and their contribution to organizational innovation were examined with the help of a long interview technique. As of now five leaders from different industries are included in the sample. The aim is to carry out a thematic analysis of the responses from five respondents and arrive at the themes. The one-on-one interview method is most suitable as the leader has a comprehensive and holistic view of the organization and can therefore provide better insights (Jamshed, 2014). The interviews were supported by an interview guide developed based on the literature review and in accordance with the recommendations of (Myers & Newman, 2007). The questions were designed based on (McNamara & Magliano, 2009) steps to focus on the characteristics of Indian strategic leaders that influence organizational innovation.

Sampling

We have limited our focus to the C-suite leader, directors, boards members, and business heads who in such cases are directly involved in the process and are the highest decision-making body and thus can offer holistic perspectives and insights into the innovation orientation of the executives in Indian organizations. To maintain the heterogeneity among the participants, respondents were selected from different industries in the private sector, having different educational backgrounds and experiences. The details of respondents are mentioned in Table 1. Thus, the purposive/criteria sampling method was used for this study by deliberately selecting participants (Guest et al., 2006).

Due to the prevailing pandemic situation, telephonic interviews were conducted for a duration ranging from 40- 70 minutes. The Interviews were conducted between May 2021 and June 2021.. All the interviews were recorded, then transcribed on the same day to avoid data loss, observations.

| Respondents | Role | Domain | Employees | Experience | Education |
|---------------|----------------|---------------------------|-----------|------------|-----------|
| Respondent 1 | Executive | Consumer goods | 7 | 4 | MSW |
| Respondent 2 | Vice president | Bank (Product management) | 78300 | 13 | MBA |
| Respondent 3 | Vice president | Bank (Digital lending) | 18000 | 16 | MBA |
| Respondent 4 | CTO | Bank (IT) | 18238 | 11 | MS |
| Respondent 10 | Executive | Insure tech | 114000 | 17 | BE |

Table 1 Sample information

Results and analysis.

Thematic analysis was used to examine qualitative data. It provides a set of systematic procedures that can generate codes and themes from qualitative data (Nowell et al., 2017). The procedure involves a multi-staged coding scheme, having first order, second order family, and a theme. The process starts with familiarizing with the data of 5 respondents by reading and re-reading the transcripts (Corbin & Strauss, 2008; Gioia et al., 2013; Glaser & Strauss, 2009). The second step involves extracting codes along with the statements from each transcript i.e.,

1st order codes. The third step involves rearranging the codes from 1st order codes to 2nd order codes or Family. Finally, the second-order codes are aggregated to form themes.

The statement and context both combined explain the importance of the statement. Thus, the statement is termed as of higher importance and the same is included in the weight column indicating the degree of importance. This becomes the 1st step. In the second step important keywords are identified from the statement like *Innovation, critical, Pandemic, changed Industries*. The 3rd step involves combining similar keywords like *innovation, innovative, innovation solutions* which become codes. The 4th step would be to calculate the frequency of the code. The fifth step involves combining similar codes to arrive at family e.g., *requirement check by team, secondary research, primary research, understand the core value*, are grouped to indicate family as the “*Research*”. Finally, the last step is to aggregate the family code to arrive at themes like e.g., *here Research, Information exploration, Leader member discussion, tackling issues during process*, are combined to form a theme called *leader member and innovation process*.

The inter-coder agreement was calculated to assess the reliability of the codes generated. It was 0.88 which was well beyond the acceptable range (An et al., 2021; Landis & Koch, 1977) The other themes evolved from Sample are “leader’s role in innovation”, “leader team member discussion”, “Innovation and firm size”, “Psychological safety”, and “Uncertain environment and innovation”. Similarly, the themes for all the 5 respondents were extracted. The themes are also presented using software “MaxQDA” for better representation of themes e.g in Figure 1 code hierarchy model of sample is displayed using MAXmap tool of MaxQDA software.

Discussion

Respondents from private organizations were more focused on “people”, i.e., on team members in terms of their roles, characteristics, and skills. Following are the themes derived from the sample.

1. **Leader’s role in innovation:** The behaviour and actions of leaders have an impact on team members in terms of their outcomes and processes (Liden et al., 2006). Therefore, it is very important that leaders align their behaviour and activities in relation to the expected outcome so that team members are also aligned on the same path and direction (Sendjaya, 2015). Therefore, executives who expect innovation results should be innovation-oriented and align their activities accordingly so that team members are also moving in the same direction. This point was also emphasized by the respondents- “*While innovation can happen later. for innovation to be your DNA, you have to start early. You cannot say that a work experience of five years is someone who can start thinking about innovation, it has to start from the beginning. that mindset*”. In addition, different leadership styles are associated with different types of innovation. E.g., product innovations support a common leadership style (Pitelis & Wagner, 2019), while process innovations support a participatory innovation style (Kesting et al., 2015).
2. **Team role and innovation:** Team and its role in innovation have gained importance since the organizations are increasingly relying on teams to implement innovations to gain sustainable competitive advantages (Ilgen et al., 2005; Leifer et al., 2001; March, 1991). A leader’s support, and encouragement for team members to take initiative and explore innovative solutions is likely to have an impact on the level of actual team innovation (Jiang & Chen, 2018; Martins & Terblanche, 2003; Zacher & Rosing, 2015). The same has been reiterated by respondents. “*It is more important to be aligned on where your focus should be. Communication and alignment are important. It is not straightforward. Senior support is important.*” (Respondent 5) Thus, it is contingent on the leaders

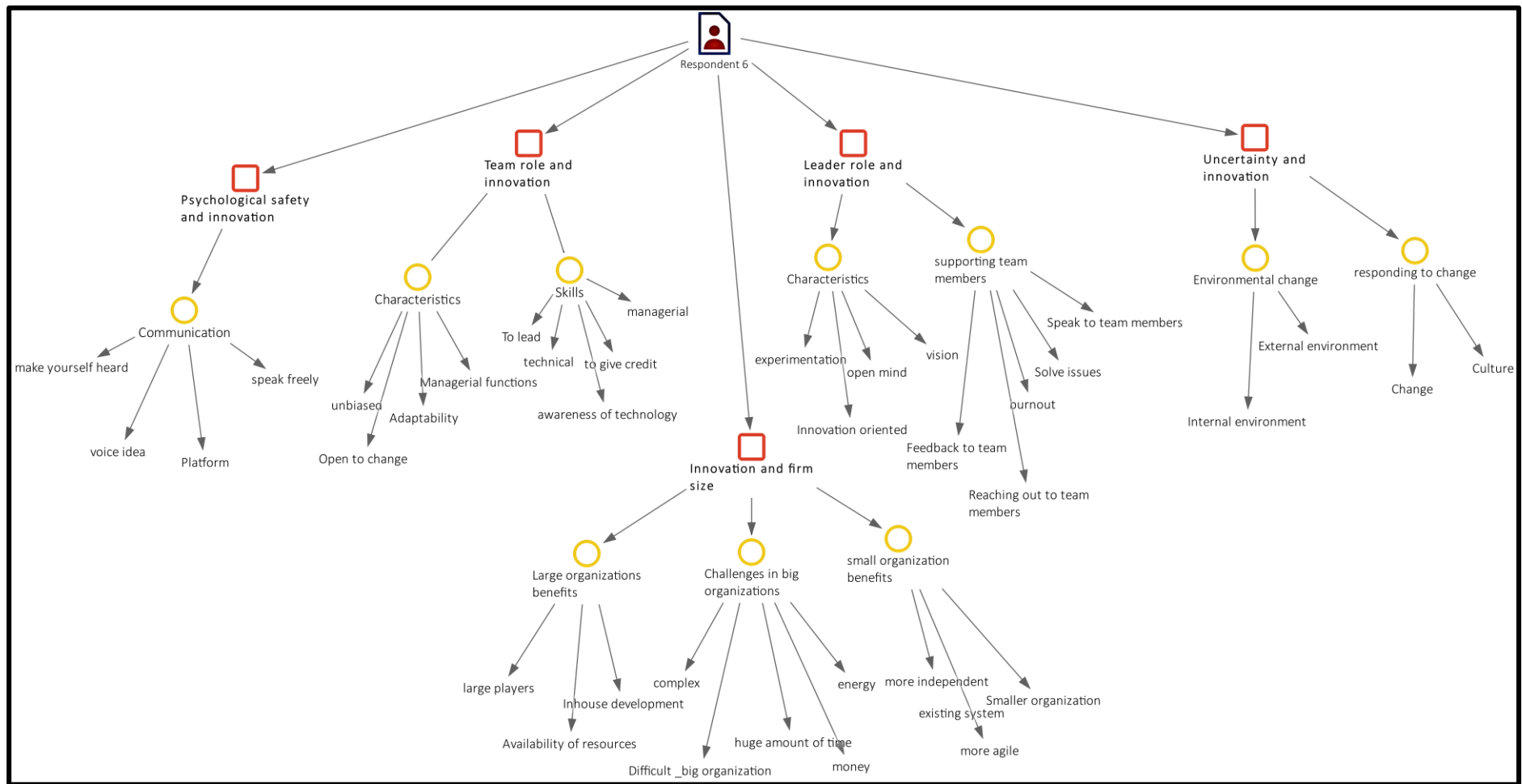


Figure 1 code hierarchy model of sample using MAXmap

| Srno | Statements | Context | Codes | Family | Theme |
|------|--|---|---|---------------------------------|--------------------------|
| 1 | In larger organizations like banks, they are well funded, and has enough resources to invest, or for development. But in case of smaller organization, they are more independent and more agile. and prefer in dealing with small players. | The way innovation is approached by leaders is dependent upon the size of the organization. | Large organization, availability of resource, In house development, Interaction with large players. | Benefits for large organization | |
| 2 | If i want to change something, it is very complex, it will take me a huge amount of time, energy, and money just to sort of you know, move out the existing system and bring in new in a completely new system | In big organizations with large portfolios, innovating or developing something new comes with a huge cost of time, money and energy. Hence, they partner with big players bring the new system from them and integrate with their system. | Complex Huge amount of time energy money new system | Challenges in big organizations | Innovation and Firm size |
| 3 | If i am a small firm, it is easier for me to sort of change my my provider, service provider | In smaller organizations, short term goals are preferred which is relatively easy to achieve. | Smaller organization more independent more agile shorter engagement | small organization benefits | |

- support as well on the team capabilities which demands the continuous realignment and focus on objectives which again emphasizes the relevance of leader member exchange in the context.
3. **Innovation and firm size.** Innovation decisions are contingent on various factors one of which is the type or organizations, big and established organizations or small organizations. Both have their own advantages and disadvantages. Big organizations have well defined process, structures and resources while small organizations have flexibility, adaptability. Big organizations involve long time-consuming process for major decisions while small organization do enjoy quick decision making but falls short in implementation due to lack of resources or support or infrastructure, connect. Thus, the innovation decisions also demand attention not just from the type of industry but also size of the firm. While the private organizations have a high quality leader member exchange, the quality is still higher in smaller firms due to the factors like autonomy, decision making authority and space which influence innovation outcomes within team as well as in organizations.
 4. **Psychological safety and innovation.** A high-quality exchange of executives leads to improved decision-making by involving both team members and executives in the decision-making process responsible and committed to a task (Tsai, 2011) *“People to take their own decision we allow them to come up with good ideas, we did not stop it, but we just prune the ideas which are not in compliance”* (Respondent 10). Further, teams can also improve the quality of their decision-making by intentionally examining issues that may conflict with their own judgments and opinions (e.g(Herzog & Hertwig, 2009). As a result, this can avoid "wishful thinking" and "group-think" in working groups.
 5. **Uncertainty and innovation:** Environmental change acquires the quality of "uncertainty" as a result of economic globalization (Teece et al., 2016). Traditional management tactics for an organization are severely hampered by dynamic properties and the uncertainty of change in the external environment (Roper & Hewitt-Dundas, 2017). Internal strategies will be transitioned when the external environment changes (Spyropoulou et al., 2018). The same has been confirmed by one of the respondents. *“Almost everything that affects an organization's ability to compete and respond successfully to changes in the external environment – ultimately, the organization's success or failure – is an aspect of that culture. The internal factors determine how the organization moves forward, both as a self-contained organizational entity and in response to its external environment”* (Respondent 2).

Conclusion

The objective of the study was to explore the strategic leader’s innovation approaches in private sector organizations using thematic content analysis. Five themes were identified viz, leader’s role in innovation, team and innovation, innovation and technology, innovation and uncertain environment and, decision making and innovation. It was found that in India, private organization emphasizes more on “people” i.e., leader and employees and the innovation is driven by the people. Further, the high quality of leader member exchange in private organizations improves the team innovation which ultimately impacts the innovation outcomes. Moreover, the increased acceptance and adoption of new technologies and innovation by awareness from credible sources facilitates the change implementation in the form of new technologies. On the other hand, in an uncertain environment, with minimal information and time pressure it is necessary to take informed decision making and the leader member exchange supports improved decision making with leaders and team members in the context of uncertain environment.

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Examining the outcomes of Environmentally specific transformational leadership: Pro-environment behavior as a mediator

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Abstract

The present study examines the relationship between environmentally specific transformational leadership (ESTL) and corporate environment performance (CEP) and the mediating role of pro-environment behavior (PEB) in ESTL and CEP relationship among employees. 310 full time employees working across different Indian organizations served as the sample of our study working at middle level management. The results revealed that i) ESTL is positively associated with CEP ii) ESTL is positively associated with PEB iii) PEB is positively associated with CEP and iv) PEB mediates the effect of ESTL on CEP. As such overall pattern of relationship supported mediation. Because of the chosen research approach, the research results may lack generalizability. Therefore, researchers are encouraged to test the proposed propositions further. Implications for the need of environmental leadership and green behavior to support better corporate environment performance is discussed.

Keywords: Environmentally-specific transformational leadership, corporate environment performance, pro-environment behavior, climate change.

Introduction

Given the significant costs of climate change, many organizations have adopted different strategies aimed at engaging in green processes and practices to enhance their corporate environmental performance (Darnall, Henriques & Sadorsky, 2008; Gotschol, De Giovanni & Esposito Vinzi, 2014). However, relying mainly on these systems is not sufficient enough to address the threat of climate change to organizations (Robertson & Barling, 2013). Research shows that the success of environmental actions in organizations depends largely on the leaders of the organization that enhance the environmental performance (Liu & Jie, 2020; Singh, et.al., 2019). Overwhelmingly, past research has focused on what we refer to as general transformational leadership, a type of leadership that is comprised of four diffusely targeted positive behaviors: idealized influence (i.e. focusing on and encouraging ethical behavior), inspirational motivation (i.e. elevating employees' motivation, passion and optimism), intellectual stimulation (i.e. encouraging and allowing employees to think for themselves in novel ways), and individualized consideration (i.e. demonstrating concern for individual's needs; Bass & Riggio, 2006). ESTL can be defined as "a manifestation of transformational leadership in which the content of the leadership behaviors is focused on encouraging pro-environmental initiatives" (Robertson & Barling, 2013, p. 177). Based on this, they demonstrated that environmentally specific transformational leaders also influence employees' voluntary pro-environmental behavior. Pro-environment behavior is defined as conscious actions undertaken by the individuals so as to lessen the negative impact on the environment (Kollmuss & Agyeman, 2002). More recently, researchers have extended the leadership literature to investigate the importance of leadership to both organizational and individual-level environmental performance (e.g., Egri & Herman, 2000; Graves, Sarkis & Zhu, 2013; Ramus & Steger, 2000; Robertson & Barling, 2013). The main goals of the firm implementing green practices are to enhance economic performance and environmental performance (Mittal & Dhar, 2016). Continuing the research stream and building on transformational leadership theory (Egri & Herman, 2000), the present study aims to examine the impacts of environmentally specific transformational leadership on corporate environment performance. While this research provides initial insight into the role of ESTL in predicting CEP, a comprehensive understanding of the processes and mechanisms through which ESTL affects CEP is lacking

(Robertson & Barling, 2015b). Furthermore, underlying mechanism of ESTL on corporate environment performance has been neglected (Norton, et.al., 2017; Robertson & Barling, 2015b). The goal of our research is to fill these knowledge gaps by examining how ESTL affects CEP. Continuing this research stream, the present study also aims to examine pro- environment behavior (PEB) a mediator in ESTL and CEP relationship. We hypothesize that the direct and indirect effects of ESTL are a function of leadership style whereby employee PEB influences corporate environment performance. Specifically, it is suggested that leaders directly affect CEP and employees' PEB through leadership style in the first instance (see Figure 1).

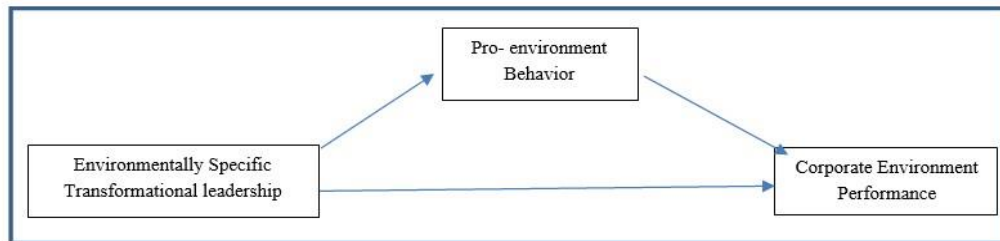


Figure 1. Hypothesized model.

Theory and Hypotheses

Transformational leadership theory

Transformational leadership theory provides an appealing framework for conceptualizing environmental leadership (Egri & Herman, 2000). Traditionally transformational leadership behavior is studied in light of the outcome across different context. The focus gradually shifted on influencing specific outcome. (e.g. Barling et al., 2002; Graves et al., 2013; Mullen and Kelloway, 2009; Robertson and Barling, 2013, 2015b). One stream of this research has and more recently, ESTL (Graves et al., 2013; Robertson & Barling, 2013). Enhancing CEP is likely to involve substantial changes in employee behavior; the values-based, inspirational nature of transformational leadership may be particularly effective in stimulating these changes (Egri & Herman, 2000; Fernández et al., 2006). In fact, Egri & Herman (2000) noted that case studies often describe environmental leaders in terms (e.g., visionary, inspirational) consistent with transformational leadership.

Environmentally specific transformational leadership and Corporate Environment Performance

Within the environmental context, environmental leaders signal to employee's environmental sustainability is prioritized, valued, and important (Ramus & Steger, 2000; Robertson & Barling, 2017a), and as a result, these leaders are considered important drivers of organizational environmental performance (Robertson & Barling, 2015b). However, environmental performance is complex and multidimensional (Hertin et al., 2008), and because organisations' have differing operations with different interactions with the environment, formal definitions are difficult to generalize.

Hypothesis 1: Environmentally specific transformational leadership is positively related to corporate environment performance.

Environmentally specific transformational leadership and Pro environmental behavior

Possibly, the attention given to pro-environment behavior at work spring from the need for employees to use resources wisely and responsibly; protect the environment; and eliminate

toxins that harm people in the workplace (Alfred & Adam, 2009). PEB at work has been defined as ‘a broad set of environmentally responsible activities such as learning more about the environment, developing and applying ideas for reducing the company’s environmental impact, developing green processes and products, recycling and reusing, and questioning practices that hurt the environment. (Graves, Sarkis & Zhu, 2013, p. 81). Within organizations, leaders typically serve as salient referent others who influence employee’s behavior through personal interactions (Kim, Kim, Han, Jackson, & Ployhart, 2017). As such, we suggest that as per transformational leadership theory, employees learn that enacting behaviors that positively contribute to organizational environmental sustainability is valued and supported. Furthermore, given their focus on CEP, environmentally specific transformational leaders likely provide employees with the necessary resources to perform workplace PEB, thereby making it easier to do so, and, consequently, enhance employees’ engagement in such behavior (Graves et al., 2013). Research have shown significant positive relation between ESTL and PEB. (Robertson & Barling, 2013)

Hypothesis 2: Environmentally specific transformational leadership is positively related to pro-environmental behavior

Pro-environmental behavior of employees and Corporate Environment Performance

Tibor and Feldman (1996) generally explain CEP as being the intended results organizations expect to achieve from undertaking a period in which they attempt to gain an understanding of the aspects of their activities, products and services that may pose significant environmental risk and impacts. Research on the relationship between PEB and CEP has been inconclusive, with previous research revealing that there are variations in the meaning and interpretation of environmental performance (Bellesi et al., 2005; Darnall et al., 2008; Zobel, 2015). Generally, organisations exhibit PEB in an attempt to improve their environmental performance. Based on this, it is hypothesized

Hypothesis 3: Pro-environmental behavior is positively related to corporate environment performance.

Role of Pro environment behavior as mediator

Although theory and empirical evidence suggests a positive relationship between environmentally specific transformational leadership and green performance at work in a variety of studies (Kim & Stepchenkova, 2018; Chen et al., 2014), little work has examined the mechanisms and processes by which environmentally specific transformational leaders exert their influence on corporate environment performance. The present study conjectured that pro-environment behavior may be a key mechanism in explaining the link between environmentally specific transformational leadership and corporate environment performance. PEB essentially contributes to promote sustainable development (De Groot & Steg, 2010). Thus, we suggest that pro-environmental behavior of employees is one of the mechanisms through which ESTL is related to corporate environment performance, and hypothesize:

Hypothesis 4: Pro-environment behavior of employees mediates the relationship between environmentally specific transformational leadership and corporate environment performance.

Methodology

Current Study Sample and Procedure

The participants were 310 employees in a wide variety of organizations in India. Of the 310 employees invited to participate in this study, 243 were males and 67 were females, whose mean age was 37 years (standard deviation = 8.67). In terms of educational qualification, 43 per cent of the participants were master’s degree holders, 37 per cent hold either diploma or certificate and the remaining 20 per cent hold bachelor’s degree holders. We distributed self-

administered questionnaires to 600 employees. In an attempt to address the common method variance, participants were assured complete anonymity of their participation in the survey. They were further assured that they could opt out from the survey at any time without affecting their career. Given that the sample frame was unavailable, a non-probability sampling technique was employed in this study. Of the 600 employees, 332 returned the survey; however, due to missing values and multivariate outliers, the final sample size was reduced to 310 for a valid response rate of 52 per cent.

Measures

To measure ESTL, we followed Robertson and Barling (2017a) and used eight adapted and modified items from the Transformational Teaching Questionnaire (Beauchamp et al., 2010). Robertson and Barling's (2013) seven-item workplace environment-friendly behavior scale was used to assess the pro-environment behavior at work. For corporate environmental performance, respondents were asked to rate the performance of their organization over the past three years in comparison with other players in their industries. Four items derived from two different instruments (Judge & Douglas, 1998; Wagner & Schaltegger, 2004) were used to measure this construct.

Results

Statistical Analysis

In order to analyse the data for the current study, structural equation modelling was used in SMART-PLS software. The software provides analysis in two stages: measurement model that examines the reliability and validity of each construct and structural model that performs the testing of the hypotheses (Hair, 2013). To test the mediation, (Baron & Kenny's, 1986) approach was used.

Measurement Model Analysis

In order to test the reliability of constructs: factor loadings, Cronbach alpha, and composite reliability were extracted. In order to test the convergent validity construct, average variance extracted were computed. The model has discriminant validity if the estimated inter-correlations among all constructs were less than the square roots of the Average Variance Extracted (AVE) values of each construct (Fornell & Larcker, 1981).

Table 1: Internal consistency reliability and convergent validity

| Construct | Items | Loadings | Cronbach Alpha | AVE |
|--|-------|----------|----------------|-------|
| Environmentally Specific Transformational Leadership | ESTL1 | 0.766 | 0.914 | 0.626 |
| | ESTL2 | 0.693 | | |
| | ESTL3 | 0.902 | | |
| | ESTL4 | 0.79 | | |
| | ESTL5 | 0.844 | | |
| | ESTL6 | 0.763 | | |
| | ESTL7 | 0.776 | | |
| | ESTL8 | 0.777 | | |
| Pro-environment behavior | PEB1 | 0.841 | 0.875 | 0.576 |
| | PEB2 | 0.729 | | |
| | PEB3 | 0.787 | | |
| | PEB4 | 0.489 | | |
| | PEB5 | 0.79 | | |
| | PEB6 | 0.803 | | |
| | PEB7 | 0.817 | | |
| Corporate environment performance | CEP1 | 0.857 | 0.873 | 0.723 |
| | CEP2 | 0.876 | | |
| | CEP3 | 0.876 | | |
| | CEP4 | 0.79 | | |

Source: The author

Table 2: Discriminant Validity

| | CEP | ESTL | PEB |
|------|-------------|--------------|--------------|
| CEP | 0.85 | | |
| ESTL | 0.732 | 0.791 | |
| PEB | 0.638 | 0.582 | 0.759 |

Source: The author

All the values obtained met the minimum threshold criteria (Hair, et. al., 2016). Thus, making the measurement model reliable and valid for further analysis.

Structural Model Analysis

The structural model analysis estimates the significant relationship between the constructs. Bootstrapping (5,000 samples) was performed to estimate the path coefficient for all. Their corresponding p values was used to make the interpretation for determining their statistical significance. The first hypothesis was analyzed by estimating direct relationship between ESTL and CEP was first calculated without including the mediator (PEB). The figure 2 shows the PLS- Algorithm for direct impact of ESTL on CEP which suggest the value of ($R^2 = 0.536$) indicating that near to 54% of variance in CEP is explained by ESTL which is substantial (Cohen, 1988). The bootstrapping results for the same showed that the hypothesis1 is supported ($t=10.408$, $p<0.05$) as the value so obtained for p statistical is less than 0.05. Thus, it can be said that ESTL is significantly positively associated with CEP.

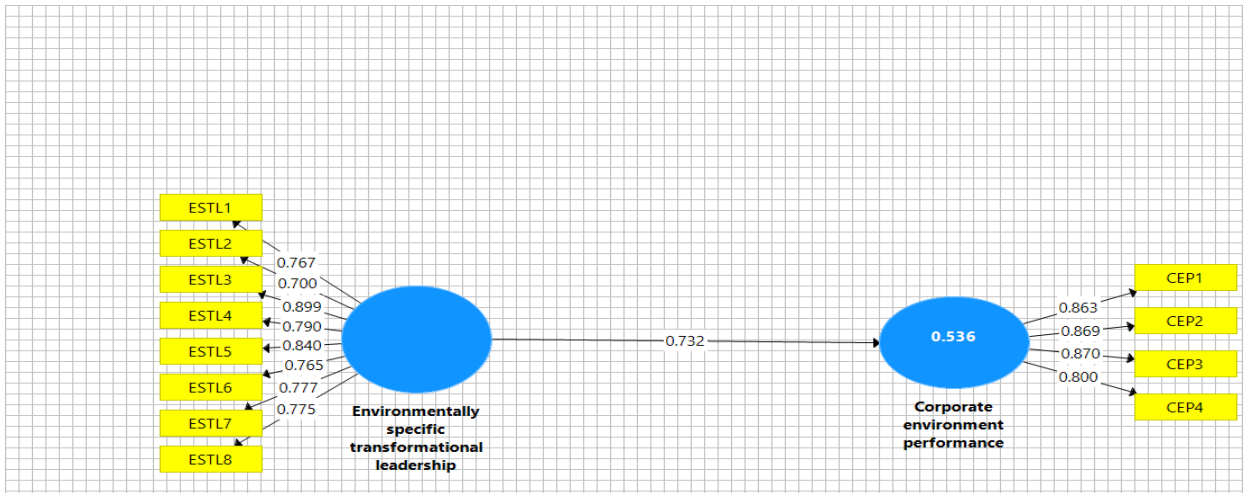


Figure 2: PLS-Algorithm results for impact of ESTL on CEP

In order to test the rest of the hypotheses, the estimates for ESTL and PEB, PEB and CEP and mediation was analyzed. The figure 3 provides the PLS-algorithm of the conceptualized model for the study. Bootstrapping was performed to test all the hypotheses. The compiled results are shown in table 3. The results shows that all the hypotheses are significantly supported. First, ESTL has a significant relationship with PEB ($t=7.351, p<0.05$). Second, PEB is statistically significant with CEP ($t=2.779, p<0.05$) and third, PEB significantly mediates the ESTL and CEP relationship ($t=3.066, p<0.05$). Moreover, it was observed that even after incorporating the mediator (PEB), the direct relationship between the ESTL and CEP still found to be significant thus making it a case of *partial mediation*.

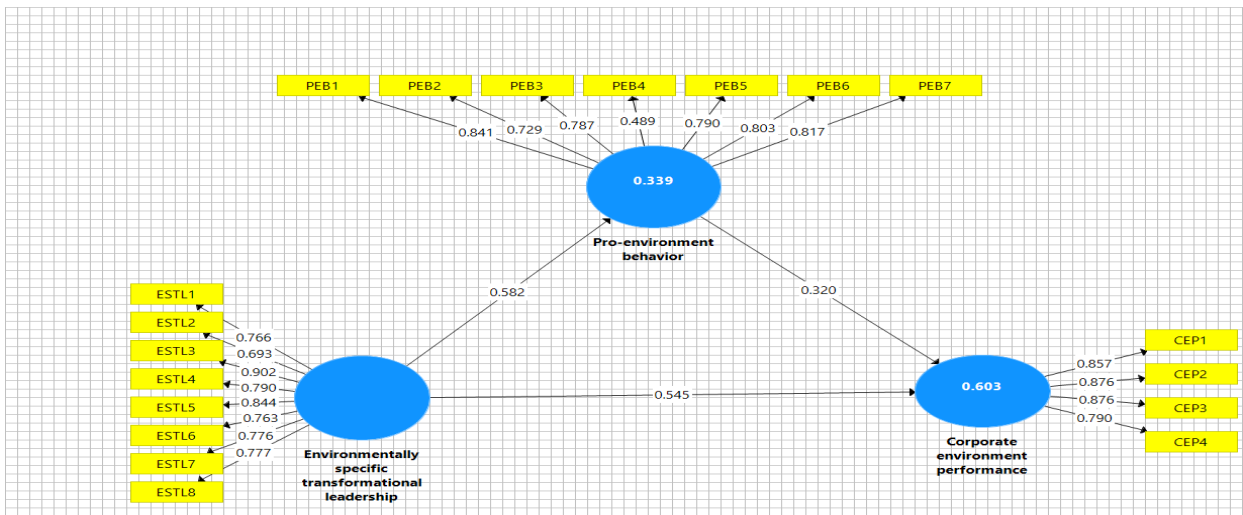


Figure 3: PLS-Algorithm results for conceptualized model

Table 3: Summary of hypotheses Testing

| Hypothesis | Path coefficient | Conf. Interval | T statistics | P values | Decisions |
|---|------------------|----------------|--------------|----------|------------------------------|
| ESTL-- \longrightarrow CEP | 0.732 | (0.596,0.862) | 10.408 | 000 | H1 Supported |
| ESTL- \longrightarrow PEB | 0.582 | (0.435,0.739) | 7.351 | 000 | H2 Supported |
| PEB- \longrightarrow CEP | 0.32 | (0.068,0.520) | 2.779 | 0.005 | H3 Supported |
| ESTL- \longrightarrow PEB- \longrightarrow CEP | 0.187 | (0.047,0.297) | 3.066 | 0.002 | H4 Supported |
| ESTL- \longrightarrow CEP (with PEB) | 0.545 | (0.338,0.793) | 4.659 | 000 | Partial Mediation |

Source: The author

Discussions

The aim of this study was to examine the effects of ESTL on CEP across different Indian organizations. This study also examined whether PEB play a vital role in enhancing the CEP. Based on empirical findings, this study provides several insights into how ESTL can contribute to CEP and PEB. Data from employees across Indian organizations supported our hypotheses. Specifically, we found that employees who rated their leaders as being high in ESTL were positively linked to CEP and PEB. We also found that PEB of employees mediates the direct effects of ESTL on CEP. Taken together, these findings shed light on how and under what circumstance ESTL is related to CEP, offer theoretical and practical implications, and provide direction for future research.

Theoretical Implications

The results of this study offer several theoretical implications. First, our results replicate and extend existing research on ESTL. Although prior research has identified green mindfulness, green self-efficacy, internal and external environmental orientation as mediators to the relationship between ESTL and corporate environment performance. (Kim & Stepchenkova, 2018; Chen et al., 2014) these studies do not provide an understanding of the contextual social mechanisms through which ESTL exerts its effects. In our research, we found that PEB of employees mediates the link between ESTL and CEP. Thus, when leaders enact the four environmental behaviors associated with ESTL, they foster an environment in which, perhaps not all, but a large portion of work group members pay attention to, show concern for, and support organizational environmental performance. Taken together, these findings point to the important role of normative social influence in the enactment of CEP. Second, our research identified a boundary condition to the indirect effect of ESTL on CEP. Furthermore, our research suggests that organizations may benefit by hiring environmental leaders. Given that pro-environmental values and attitudes have been isolated as antecedents to environmental leadership (Cordano & Frieze, 2000; Marshall, Cordano, & Silverman, 2005), organizations might well profit from assessing managerial candidates' pro-environmental values and attitudes and make selection.

Limitations and Future Research

The first limitation stems from the cross-sectional nature of our research, precluding our ability to make any statements about causality. Future research should examine the relationships reported in the current study using a longitudinal design. Moreover, future research on environmental leadership should shift its focus from traditional top-down processes to those that are bottom-up by examining the ways in which employees may influence their leader's

environmental performance. Although our research study demonstrate that the organizations adopt pro-environmental behavior to bring about a change (improvement) in environmental performance. However, there is little consensus about the meaning of environmental performance (Perotto et al., 2008; Comoglio & Botta, 2011), indicating that organizations may interpret it differently and use inappropriate indices for measuring performance. Studies focusing on investigating and describing organisations' interpretation of environmental performance are rare. There is need for a better knowledge of organisations' interpretation of environmental performance and a determination of the indicators used to measure performance.

Conclusion

Recent research suggests that ESTL plays an important role in influencing CEP. However, because this is an emerging area of research, the mechanisms through which ESTL exerts its effects and the boundary conditions to this relationship require further examination. The results from our research help fill this gap by demonstrating ESTL directly and indirectly affects CEP through PEB. These findings help create a more complete understanding of how and when leaders can influence CEP thereby shedding further insight into how organizations can mitigate their impact on the environment and contribute to environmental preservation.

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Linking Psychological Empowerment, Prosocial Motivation, Collectivism, and Proactive Behaviour-Evidence from Academia

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Abstract

Drawing support from self-determination and psychological empowerment theories, this study examines the prosocial motivation, horizontal collectivism, psychological empowerment and proactive behaviour among 178 Indian academicians. The model tested using partial least squares path modelling revealed that psychological empowerment is linked to proactive behavior through pro-social motivation by partial mediation and horizontal collectivism moderates the association between psychological empowerment and proactive behaviour. To the best of our knowledge, this study is the first to test such a model examining how psychological empowerment enhances proactive behaviour by an inter play of prosocial motivation and horizontal collectivism. The findings of this study recommend that academic leaders should take steps to improve psychological empowerment among staff in order to boost proactive behaviour.

Keywords: Psychological empowerment, prosocial motivation, proactive behaviour, collectivism, academicians, India.

Narcissism and Impression Management Motives: A Mediation Model

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Abstract

The intention of this research is to make a contribution to the literature regarding narcissism by developing and then testing a hypothesis that there is a positive association between narcissism and impression management (IM) motives. This research also examines the ways in which IM motives are engendered by narcissism. A longitudinal survey was designed to harvest responses from 404 young professionals (Average_{age} = 24.38 years; Standard Deviation = 1.72 years) which were employed to test a mediation model to find the associations between narcissism and IM motives via the mediums of social astuteness and networking ability. This empirical research adds to theories regarding narcissism by offering preliminary evidence that networking ability and social astuteness are mediators for the positive correlation of IM motives and narcissism.

How is Digital Platformization affecting the accessibility of healthcare services?. An India/South Asia context

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Abstract

Healthcare as an industry has historically been a laggard to technology adoption. Rising costs of healthcare with a limited number of healthcare players and uncertain environment, lead to a gap of affordability and accessibility. Healthcare is a complex milieu of different stakeholders. Platform players ability to reconfigure capabilities at speed and scale and offer services never imagined is bringing green shoots in the healthcare industry as well. In this research, we at a broader level, discuss how platformization is affecting the accessibility of healthcare services. Specifically, we look at both the primary data across the healthcare ecosystem and specific very pertinent secondary data at how digital transformation affects the accessibility of healthcare services. We further taking the dynamic capability and network view look at how the firms across the healthcare ecosystem to explore how digital platformization affects the friction in transactions and influence depth and width of accessibility.

DIGITAL PLATFORMIZATION-WITNESSING INCREASED ADOPTION

We are living in a world where digital technologies are becoming widespread, and our significantly influencing the ways we work, the way we act and interact with each other(Williams & Edge, 1996). Platformization recently converged on firms as a new paradigm to enable sustained competitive advantage. Digital technologies like Big data, mobile computing, artificial intelligence are becoming part of our day to day lives(Magistretti et al., 2019), fundamentally changing the way in comparison to how we used to live in the past (Nambisan et al., 2017).

Digital transformation includes a wide range of technologies such as big data, AI, cloud systems, predictive analytics, and platforms that have created both challenges and opportunities in today's firms (Schwarz Müller et al., 2018)

While the effect of these technologies is becoming pronounced in firms, managing this innovative change is becoming more and more critical(Jackson, 2017). The results of digital transformation have been encouraging with adopters benefitting significantly from the value which technology has to offer and discover previously unknown opportunities and potential to revamp firms leveraging higher level of interaction and engagement using these tools(Chesbrough & Teece, 2002).

ACCESSIBILITY & AFFORDABILITY CHALLENGES CONFRONT HEALTHCARE SERVICES

Healthcare is a need rather than a want contributing to low satisfaction level from the end consumers with almost half of them feeling lack of coordination among various parts of healthcare ecosystem is a problem(Berry & Mirabito, 2010). They are further annoyed by underuse and overuse of healthcare, at times undergoing tests not required at the first place(Brodie et al., 2009). With healthcare costs increasing at a scorching pace as compared to other consumer products, consumer spend on healthcare is comparable to routine spends like fuel or groceries each month(Wood, 2011) with increasing medical bills being a leading cause of pushing consumers into poverty. (Himmelstein et al., 2009)

Spiralling healthcare costs impact the firm competitiveness considerably and with questionable accessibility and quality of service, which remains uneven despite increased dollars allocated to enhance it(Berry & Mirabito, 2010). Healthcare inaccessibility is an even more significant concern in South Asian region as while consumers can book an airline ticket or do grocery

shopping or withdraw money from an ATM as per choice; they cannot conveniently see a doctor at the desired time.

Rising costs of healthcare with a limited number of healthcare players and uncertain environment, lead to a gap of affordability and accessibility, long awaiting fulfilment. While minimizing costs associated with resource exchange externally and within-firm as propounded by Transaction cost theory are the firm's key objectives, for healthcare service providers, environmental uncertainty and bounded rationality are further increasing transaction costs.

While a lot of other consumer-centric industries have leapfrogged digitally, this fragmentation through slow adoption of digital technology has severely impacted healthcare. Research published by (Wagner et al., 2007) paints a dismal scene with nearly 50% of chronically sick patients stating that they are not receiving proper care, and roughly 50% highlighting that physicians do not discuss treatment options and goals. For ages, healthcare has been seen as a laggard when it comes to adoption of. Complex systems, structure and culture, high stakes at times which can be a matter of life and death, with industry needing proof of success rather than a proof of concept that works often comes as a detriment as it shows lack of synergy between the firms and healthcare issues which they intend to solve (Walsh & Rumsfeld, 2017). The healthcare industry which is so vital for our society has been a laggard in adaptation and is becoming increasingly vulnerable to cyber-attacks and disruption with a digital age consumer becoming more and more demanding with respect of ease of care. The overflowing of data with research pointing out that medical data is almost doubling every 73 days is putting an extreme burden on organizations memory (Densen, 2011) and hard choices are now confronting these legacy firms, policymakers and entitlement programs.

HEALTHCARE ECOSYSTEMS: NETWORK WITHIN NETWORKS

Healthcare is not just limited to the doctors and the patients; in fact, it is a complex milieu of different stakeholders which come together to form the healthcare ecosystem. Historically, by and large, the focus has been on a subset of this entire ecosystem, which as we discussed above continues to mire the industry into issues of accessibility and affordability, with the sector continuing to languish far behind other consumer-driven industries (IBM, 2018). Closely aligned with the Network theory, the healthcare ecosystem is a convergence of separate entities that demand new ways of meeting consumer demands and expectations through contract-based actions rather than any formal hierarchy of authority.

A complex interplay in the ecosystem among ever-increasing volumes of diagnostic tests, patient behaviours and characteristics and treatments will serve to manifold increase the magnitude of information cues doctors will need to process (Pfahlert & Emminger, 2003). The inherent constraints of human cognition to process such cues means that healthcare must either rely more heavily on automated and computerized decision aids or face ever-increasing error rates (Bates et al., 2003).

ECOSYSTEMS AT THE HEART OF PLATFORMS

An ecosystem essentially is an arena in which interrelated players uniquely related to each other, accommodating each other's wants and needs within and between the various actors. The advantages are it help reduces bureaucratic costs, reduce labour costs, allowing it to grow the inorganic way (through the network). While we see digital technologies touching Primary care, Patients, Payers, wellness, we still see it only at a peripheral level, and real impact shall only come once the entire ecosystem is participating in it. The platform significantly rely on network effects on how different parties coordinated through the digital platform benefit each other, doing that reduces the fixed cost of offering services for, e.g. Uber as the number of users increases, it leads to lowering of the fixed price and further being able to provide unbeatable rates for the consumers (Bamberger & Lobel, 2017).

Platformization brings together various aspects of the digital drivers to be able to redesign the operating models on how firms create and deliver value to their end customers, in turn, making products and services much more affordable and accessible. It requires significant initial investments across skills, infrastructure, resources, and a complete revamp of existing systems. It involves an integration across people, devices, practices making it a lot more complicated. Such transformation requires seamless cooperation and dialogue between the non-digital and digital business heads, enabling them to make informed decisions about turnaround efforts (Davenport & Westerman, 2018).

Digital platforms by reconfiguring capabilities at speed and scale bringing accessibility, affordability and agility to ecosystems. While most firms attempt to leapfrog gaps coming from digital transformation, in reality, since information technology systems are archaic and rigid, resources continue to work at both ends to fulfil day to day requirements, so it is almost like redesigning and reconfiguring infrastructure while ensuring that day to day operations are not disrupted (Paul Beswick, 2017).

Firms in the digitally disrupted world, have started realizing that their role is becoming less and less significant vis a vis how they co-create the experiences, markets, services and products with their end consumer and other cooperators in the ecosystem.

As propounded by Dynamic Capabilities Theory, the firm's ability to reconfigure and orchestrate its capabilities dynamically is fundamental to sustained competitive advantage. It is important to note that it is a mix of both strategies along with the execution of dynamic capabilities which allows long term competitive advantage. Digital allows this dynamic reconfiguration of assets and capabilities at scale and speed never imagined., The platforms have significantly innovated business models and created unique ways of how consumers utilize and interact with services unleashing revolutionary services and products which have dramatically altered the landscape of social interactions, consumption. Since the competitive advantage of firms runs on unique processes (ways to coordinate and combine), shaped by the firm's asset positions, and the plan for evolution it inherits or adopts (D. J. Teece, 2017).

HEALTHCARE TRANSFORMATION THROUGH PLATFORMS IS REAL NOW AND OFFERS HOPE

As witnessed in consumer sectors like media, telecom and banking, platformization has the potential to enhance value in health care. Digital transformation can improve healthcare accessibility and affordability of services, improving efficiency and effectiveness across the value chain. Public health initiatives and self-health management can prove to be more fruitful with digital interventions.

Healthcare services though traditionally has been a slow mover is showing much action with business model innovation, operating model changes with burnout, disenfranchisement and stress is a hard reality with 15 million shortage of expected healthcare workers (Karan et al., 2016). The entry of digital natives coming from nowhere and disrupting the industry veterans further is disrupting the industry manifold. The healthcare industry which was in slumber got woken up not by an industry competitor, but digital natives whose presence from remote diagnostics to virtual pharmacies and offering innovation in patient care has left the industry no choice but to adapt and survive or perish into oblivion (D. Teece & Pisano, 2003). All of this points to a significant need to reinvent healthcare across structures, processes and professions to eliminate inefficiencies and bring it back to growth with digital empowerment of patients, caregivers and health consumers influencing care outcomes and interconnectedness to drive health strategies. While platform players Google, Amazon, Facebook have been redefining

markets and platforms, we are at this time yet to come across any meaningful impact coming from such firms in healthcare delivery. As we saw in consumer-driven sectors like banking and insurance, digital can deliver similar if not more value in healthcare services too. It can significantly help expand accessibility, thus increasing affordability of healthcare services and in doing so, improving effectiveness across the value chain.

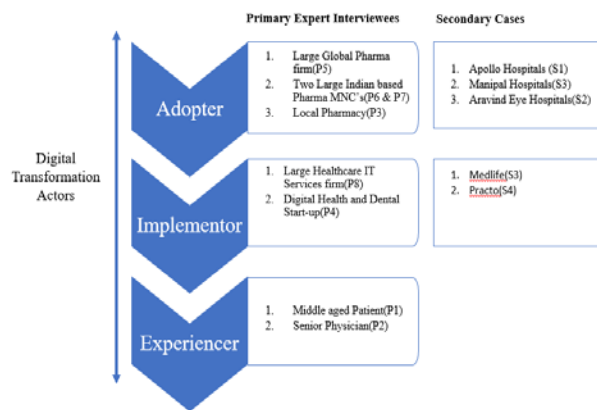
Digital transformation is helping address the gaps in healthcare accessibility with some of the digital health solutions getting to see the light of the day at some of the leading healthcare providers. Electronic medical records (EMRs) are facilitating inter-communication among physicians and the patient. Electronic registries of chronically ill patients are enabling medical practices to monitor patients remotely and intervene when care is overdue, or treatment is not meeting its end objectives or as and when new information becomes available. There is almost 8,000 separate medical diagnosis, a huge number for a physician to remember and recall (Jessup et al., 2009). Electronic clinical decision support systems, which facilitate physicians to input patient's symptoms and in turn, receive a possible diagnosis, can help expedite and significantly reduce the number of the wrong diagnosis in complex cases. Electronic prescriptions are lowering the incidence of the manual error caused by illegible handwritten prescriptions. A well-crafted patient portal allows patients to make an appointment, email their doctor, request for a prescription refill or see laboratory results as soon as possible.

In this research, we at a broader level, discuss how platformization is affecting the accessibility of healthcare services. Specifically, we look at both the primary data across the healthcare ecosystem and specific very pertinent secondary data at how digital transformation affects the accessibility of healthcare services. We further taking the dynamic capability and network view look at how the firms across the healthcare ecosystem to explore how digital platformization affects the friction in transactions and influence depth and width of accessibility.

METHODOLOGY

Qualitative methods and theorizing through induction are powerful tools when we charter into unknown territories focused on answering the 'how' question (Anteby et al., 2014). Since our topic is a multifaceted one which has several moving dimensions, we followed a mixed approach of having primary data and interviewed several experts involved in leveraging digital services in healthcare. We further did deep-diving into certain secondary cases where this phenomenon has played in the past and are best suited to answer 'how' questions and investigate to explore our research problem. Through a mix of primary interviews and a good set of secondary cases which were carefully chosen following theoretical and propositional sampling. Moreover, post empirical analysis of the results, we were able to arrive at a framework to showcase how platformization is affecting the accessibility of healthcare services and its influence on depth and width of accessibility by investigating activities happening pre and post-digital transformation. We also explored at a high-level, firms which have been able to enhance accessibility also develop better sensing through dynamic capabilities to reconfigure and seize new opportunities.

The primary expert interviewees and secondary cases were carefully chosen after doing a theoretical sampling to identify the most suitable candidates who cover the spectrum of the healthcare ecosystem and are actors in the entire platformization/digital-journey



Semi-structured interviews, along with secondary case reviews from prioritized set of sources were supplemented by multiple data sources like videos, news clipping. While we have kept data collection at the front, we continued to look for relevant data points throughout the process following the Ground Theory approach(Mitchell, 2014). Further followed a 1st order account taking informant-centric terms and leveraged researcher centric concepts and dimensions with a particular focus on emerging novel patterns(Gioia et al., 2013). Post that focused on creating a data structure, followed by open and axial coding to identify key points and relationships between data and further sorting these codes into concepts and categories with similar content and further theorized to arrive at a framework which gives relationships between these concepts and categories

FINDINGS AND DISCUSSIONS

Friction reduction and smoothness across workflow is a common observation coming across the primary interviews undertaken and case studies reviewed in detail across players who have implemented, leveraged or used the healthcare platforms. One of the managers stating that digital adoption has helped in them being able to comply much better with FDA regulations and minimize human errors and digital health startup (P4) highlighting that ease of access and saving consumer's time by bringing orthodontists on the platform is a crucial reason for widespread adoption of it as platform across Mumbai/Thane region. Shashank, CEO of Practo highlighted in one of the TED events that consumers appreciate the journey to make healthcare frictionless from the online finding of a doctor to scheduling appointment and healthcare delivery right at one's doorstep which is leading to close to 150 million searches enquires each month on its platform for transacting and taking its healthcare services online. A leading healthcare services company(P8) leveraging advanced analytics and digital dashboarding experience has reduced healthcare claim processing time reduced ten working days to 1 day enhancing the speed of the work significantly, ensuring accessibility(extended across claim types)

Platformization also significantly helps in increasing healthcare accessibility by addressing information asymmetry. One of the problems facing a global pharma major(P5)was of counterfeit drugs especially in the emerging markets, the firm commenced on a pilot and narrowed down on Blockchain as an emerging digital technology to ensure accurate information and identity across the various nodes of the supply chain. As one of the IT executives in the pharma major stated, the objective is to build it on open systems and create an open platform to ensure it is accessible to players across the healthcare ecosystems from physicians to hospitals to the end consumers.

Medlife(S3) one of the fastest-growing eHealth platforms in India/South Asia , marketing team extensively blogs about health ailments making consumers aware, publish 30-45 articles a month, personalizing them in mother language, leveraging TV and internet to spread the message across the wider audience to ensure correct information reaches consumers

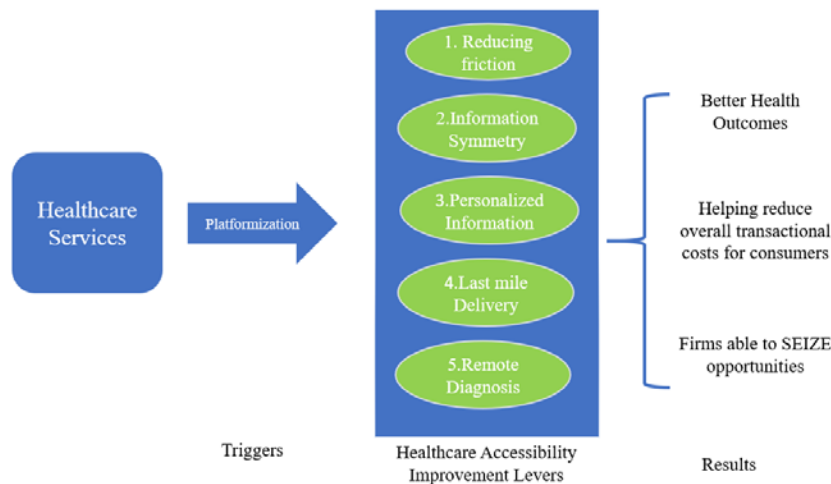
India's Aravind Eye Hospitals(S2) utilizes telemedicine to serve rural patients in localities where doctors are not in a position to travel or work thereby personalizing information leveraging the digital platform and ensuring accessibility to the remotest parts of India/South Asia. With the help of the IAPB(International Agency for the Prevention of Blindness), Aravind Eye Hospitals has set up five IT-enabled vision centres to provide consultation using telemedicine. More than 90 per cent of patients received appropriate care at these vision centres. Each centre is linked directly to Aravind's hub hospitals in Tamil Nadu, Chennai. This system has ensured that Aravind to continue to provide high-quality care without patients required to pay exorbitant charges along with helping them serve regions where specialized care previously was unavailable. Manipal Hospitals(S5) facing a daunting task of keeping pace with large quantities of data along with changing regulations and procedures in the field of oncology along with the limitations of skill availability and shortage of specialized doctors implemented IBM Watson for Oncology solution. This digital platform connects ailing patients to evidence-based, world-class treatment recommendations via online consultation or provider referral to Manipal hospitals. For the patients, this ensured that they are very conscious and aware of the treatment being given to them and can immediately relate to for the same level of diagnosis how the world's best oncologists recommend as a treatment option. This eases accessibility for the patients and at the same time provide most advanced, efficacious and cost-effective treatment to them

Dental Health startup (P4) as part of its platform besides the consumers whom they enrolled who could pick and choose the type of braces they would like, they enrolled 'Source Distributor' both from India and China and used bulk procurement of commonly used braces in the Indian/South Asian context. Further, they tied up with Orthodontist in Mumbai/Thane region, ensuring a tie-up within proximity to be able to get the braces of choice fitted at a fixed transparent cost and ensuring last-mile delivery to the end consumers. They are now focused on AI-based facial recognition to help consumers choose braces of their choice and can visualize a particular brace ensuring a much richer experience for them in general- and with features like the modelling of braces, modifying braces where consumers can see what brace looks best for them and save additional time during orthodontist visits.

Practo(S4) effort is to make entire journey frictionless as consumers pass through it and help clear information asymmetry across pharmacies and diagnostics with the platform being able to provide personalized information basis queries fed into it and with a prescription provided by doctors and medicine delivery and diagnostics provided for home delivery and home pick up. Platform act as a neutral avenue to pass through feedback to healthcare providers and enormously helps mitigate information asymmetry and friction with network effects leading to the ability to communicate and make payment facilitating the growth of the entire ecosystem.

AN EMERGING FRAMEWORK FOR ADOPTION

The data analysis of primary interviewee experts and secondary case reviews lead us to the emerging framework of how platformization is affecting the accessibility of healthcare services leading to better health outcomes, lower costs, and firms being able to seize additional opportunities



CONCLUSION

Indeed the research shows that aside from business models changes (Nenonen & Storbacka, 2018) and the possibility to adapt it to address different parts of the healthcare ecosystem, better and more in-depth knowledge of digital transformation can create value across the value chain. Further, by focusing on healthcare accessibility, firms can help make healthcare more affordable, provide better outcomes and seize additional growth opportunities. The paper is an extensive theoretical contribution, as it helps on how keeping the end consumer in mind and thinking besides just the cost factor like it was previously, focusing on accessibility can yield better outcomes. Secondly, this research enhances the literature by shedding light on the designing perspective of the creation of a platform-based approach to healthcare accessibility which has so far been somewhat neglected aspect in the literature. Third, it shows that firms can leverage and platformization differently, and by focusing on accessibility can help reduce friction, improve information symmetry by providing last-mile delivery and remote diagnosis and personalize information for the consumers. The uniqueness of cases and primary data further offers unique insights on how to unveil opportunities hidden in platformization to have better and more effective outcomes. The research can be extended to whether and how accessibility affects affordability and agility of services? And whether and how healthcare firms who have been able to enhance accessibility develop better sensing (dynamic capabilities) competencies.

Artificial Intelligence (AI) & Technopreneurship Innovation (TIN) in Retail Branch Banking (RBB) by Start-ups

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Abstract

The Retail Branch Banking (RBB) is for consumer visiting a branch for accessing Accounts, Deposits, Withdrawal, Certificates, Credit, Loans and many more personal banking products. Therefore, to automate RBB from the traditional banking practices the banks have been employing Artificial intelligence (AI) aided with Technopreneurship Innovation (TIN) by start-ups to innovate business processes like Account opening, know your customer (KYC), Credit Decisions, Risk Management, Fraud Prevention, Personalized Banking and many more. Thus, authors have delved into the AI contribution in the RBB by start-ups. The AI-based Application Modules can be integrated with smart Internet of things (IoT) devices to manage the solutions in the form of AI Face Recognition, AI KYC Verification, AI OCR, AI RPA, AI-Crowd Analytics and for acquiring information through chatbot.

Keywords: Artificial Intelligence, Entrepreneurship, BFSI, Retail Banking, Technopreneurship Innovation (TIN), Start-ups, Chatbot.

I. Introduction

Service excellence and customer satisfaction have been always the challenge along with different cases of service issues, related to RBB and Banking and financial service Industry (BFSI). The study has initiated a debate as to how humans will treat Chatbots, whether they are solving a problem of service enablement of enterprise by engaging start-ups like Haptik engaged many tech start-ups for Voicebot development for big players in the market like HDFC life. The AI Implementation in the Banking domain is possible with a combination of NLP, ML and CCs harnessed by the entrepreneurs followed by execution strategy of technological innovation by start-ups (Gustafsson et al., 2012; Hill et al., 2003) working for commercial benefit to meet the increasing demand of business innovation in Banking domain. This has given an opportunity for the new-age entrepreneurial practices in the FinTech domain working on innovative business models to create value to improve the services using innovation and operational excellence (Website of FinTechnews, 2021). The process of innovating with technologies by start-ups is named Technopreneurship Innovation (TIN). The TIN framework helps the start-ups to evolve from chimps to hyena and lion type innovative enterprise (Joshi, 2014). The Technopreneur are also accepted globally as nation-builder creating jobs and employability by harnessing the new age of innovations by use of Artificial Intelligence AI (Moor, 2006; Buchanan, 2006). The article is about the study that aims in highlighting the changing trend of the Traditional BFSI to FinTech which has been evolving with the advent of AI (Report by Deloitte, 2021). The article focusses on the AI innovation in the RBB and BFSI domains of start-ups in payments, lending, wealth-tech, personal financial management, insurer-tech, cybersecurity and more. To a large extent, the Indian tech entrepreneurs have reshaped the financial sector via evolving FinTech industry with technology and innovation which has been Harnessed by Start-ups. The start-up works in providing AI-based banking solutions for solving the problem such as Securing Digital Identity banking KYC, Reducing false positives, Automating the existing Process, Anti-Money Laundering (AML), Aiding Customer Service Representative (CSR) (backend/frontend), Pre-empting problems, Conversational Payments and Improving interactions across channels.

II. Review of literature

The review of the literature was embarked for the evolution of AI practices to resolve the communication, the generation of TIN aided with AI implementation, rise of Chatbots, limitation and future implications (Website of itchronicles, 2020; Report of drift, 2018). The review of the literature covers the important key definitions such as Technopreneurship Innovation (TIN) (Sivathanu and Pillai, 2019)'The initial review yielded 30 papers and later scrutinised 21 specific articles, 3-books, 3-reports, and 13-website reviews that were conducted to finally delve into the understanding of the true nature of AI aided with TIN practices by start-ups (Kathryn et al., 1998). These were further examined around the enterprise for product development, investment support, scaling vis-a-vie leading to the growth of both the enterprise and start-ups (Capasso et al., 2015).

III. Research Methodology (RM)

The research deploys multiple qualitative studies (Dana and Dumez, 2015) and based review theatrical background to understand the principal research question (PRQ).

| # | Theory | Cited Evidence from the industry |
|---|--|---|
| 1 | Theory of Market equilibrium by Hayek states entrepreneurs maintain the market equilibrium such that sectoral balance in the economic system is essential for steady economic development and also propounding the theory of change of traditional banking system to high advance AI automation that has encouraged entrepreneurial innovation (Joshi and Shukla, 2014). | AI enabling in the BFSI domain has disrupted a new level (Report by McKinsey, 2020). This has encouraged the FinTech start-ups to innovate with AI to solve the problems of the BFSI like know your customer (KYC) verification, Anti-money laundering (AML), Reducing false positives, Account management, Wealth Management, Asset lending, Credit Rating, Risk management, Portfolio Management Services (PMS) and more. |
| 2 | McClelland's achievement motivation theory and the evolution leibentstein's theory of evolution for a firm to achieve maximum efficiency by identifying entrepreneurs to optimize cost towards innovative practice further leading to the growth of the nation. | The lean FinTech startups are the innovator's driven by self-motivation to solve the industry-related problem with a solution to a Big company in the BFSI institutions in retail and commercial banking and to further collaborate towards the exponential growth with big companies and add value towards innovation (Arner et al., 2016). |

Table 1: Theory of entrepreneurship and cited examples **Source:** Own Adaptation

The start-up strategy must focus on analyzing the theories of entrepreneurship resulting in an innovative product in the FinTech domain. The table below represents the theoretical background towards the formation of the Principal research question and identifying the hypothesis for the Test subject of the FinTech start-ups (Website of Crunchbase, 2021).

Proposition 1: AI playing a major role in the evolution of the Banking domain

Proposition 2: AI solving the problem of RBB through AI IoT devices and chatbots

3.1. Objectives of Research

This research study intends to focus on the latest technological innovations by FinTech start-ups in product, services and processes with the right business models has led authors to narrow down the objectives.

1. To Investigate the AI implementation in RBB.
2. To identify TIN Practices for chatbots

3.2. Problem Definition: Statement of Purpose

The Authors have delved into the qualitative study and have narrowed the *Problem: Retail Branch Banking*

- a. Customer Notification for data breach
- b. KYC (know your customer) Verification
- c. AML (Anti Money Laundering) Check
- d. Omni Chanel Utilisation
- e. Outdated old technologies
- f. High demand for customer service
- g. Verification of deliverables
- h. Clarity of Product description
- i. Mismatch of customer information via customer service agents
- j. Failure to access customer data
- k. Easy routing for customer complaints, queries, and resolution

The methodology adopted was qualitative based on Discussions, Observation Interviews with CEOs, Cofounders (Grix, 2004) followed by open-ended questions with domain Experts, Business heads during Start-up forums, Pitching, Workshops, Live Seminars, and Webinars for the analysing the trend TIN. Data analysis is done based case on case pattern with divergent techniques to analyse the initial imitations and see-through proofs with multiple lenses for parsimonious (Eisenhardt, 1989) engagement of solution.

IV. AI automation in Retail and Commercial Banking

Is AI playing a major role in the evolution of the FinTech domain across various industry verticals and disrupting the Business Processes of the RBB and BFSI domain (Jewandah, 2018). As a part of strategic retention of customers (Tripathy and Jain, 2020) states FinTech innovation towards the digital banking (Dubey, 2019) especially and AI to automate the various mundane processes ensuring a technology as a key enabler to solve the business processes. The AI in RBB has been analysing the real-time analysis of the data or activities in real market conditions, the precise estimates and detailed forecasting is based on the variables necessary for the fundamental analysis as in the case of stock market trading. AI in a retail branch banking can have extraordinary benefits like KYC check, face detection, documentation, crowd control to ensure better Customer satisfaction however in case of the commercial transaction can be done using conversational bots giving accurate references using recommendation engines, Fraud detection can also be controlled using machine learning algorithms and more. The banks like Citibank, Goldman Sachs and American Express has also employed AI services in preventing financial crime like money laundering as machine recognises the suspicious activity and helps on optimising the cost of human investigation and saves time and human effort. Nearly a twenty percent reduction in workload is achieved by the use of AI services as reported by PLAID. The complex MLA can analyse interactions under different conditions, variable and pattern recognitions on a real-time basis Example: The Plaid widget integrates the bank with the client for safe and secure financial transactions (Website of FinTechtris, 2020). The start-up works in providing AI-based banking solutions for solving the problem such as Securing Digital Identity banking KYC, Reducing false positives, Automating the existing Process, Anti-Money Laundering (AML), Aiding Customer Service Representative (CSR) (backend/frontend), Pre-empting problems, Conversational Payments and Improving interactions across channels. The AI-based Application Modules can be integrated with smart Internet of things (IoT) devices to manage the solutions in the form of AI Face Recognition, AI KYC Verification, AI OCR, AI RPA and AI-Crowd Analytics as shown in the block diagram “figure 1”. The application services can be further automated with a database management system for acquiring information through chatbot and Voicebot applications ([Website of chatbotsmagzine](#), 2020). The scenario where a customer walks inside the branch and goes through a facial check at the

entrance that can easily link to the social security number like aadhaar number in India. Based on pattern recognition techniques coupled with unstructured text analysis, it is made more efficient to identify relevant customer's information from the database.

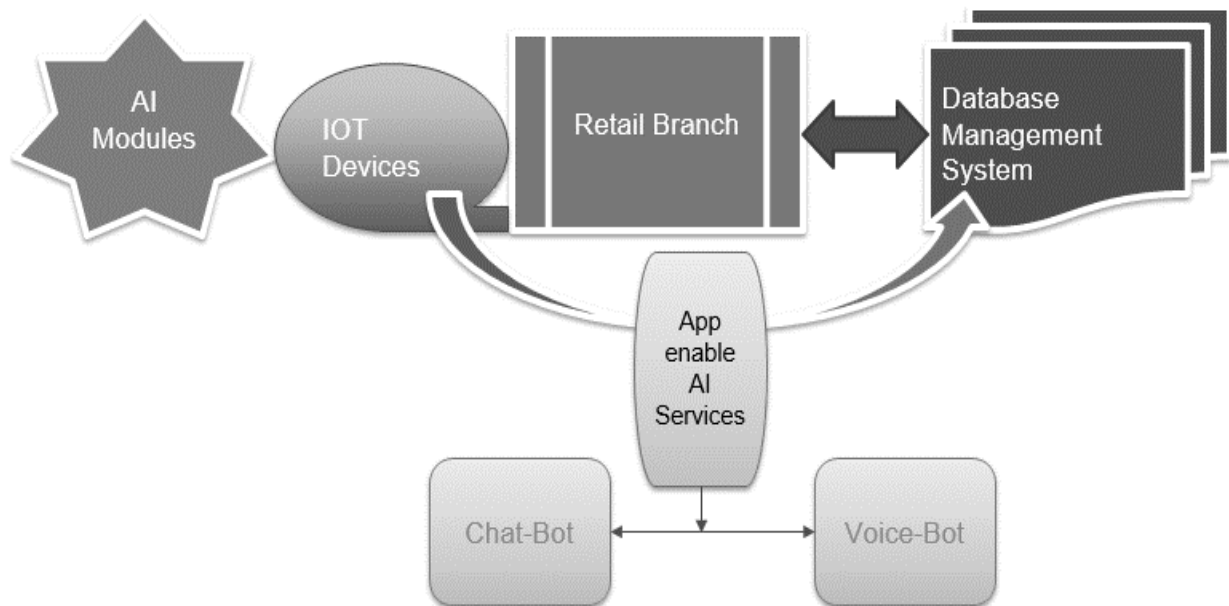


Figure 1: Banking Integration- Business Model for Retail Branch Banking **Source:** Own Adaptation

4.1. AI Face recognition: The banking Businesses are faced with complicated tasks and issues related to the safety of their employees and customers, monitoring people through cameras is a tedious process and prone to human errors with no real-time action being taken however the AI face recognition Application detects, identifies and verifies faces to improve customer service and surveillance. It accurately detects intruders and potential miscreants leaving no room for error. The features include: -

- i. **Emotion Recognition:** that maps real-time facial expressions and recognizes emotions such as sadness, joy, fear with the image processing software.
- ii. **Demographic mapping:** It determines the age and gender of people so that you can send targeted advertising messages to your customers.
- iii. **Track Attendance:** The face recognition software you can easily track the footfall of the customer.
- iv. **Threat Detection:** Identifies potential miscreants of threats and alerts to security professionals.

4.2. AI KYC Verification: The AI KYC check is done in two ways by the Face recognition system (FRS), which is internally applicable in either a close environment or an open environment. For close environments like retail Bank branches, KYC check is carried by AI smart learned device with technological innovation easily identifies the facial recognition and matches with the record and for an open environment like malls, markets, airports, metro, railway stations etc., is done by AI crowd analytics. The AIs cutting edge algorithm using computer vision verifies documents, including Aadhaar details through facial recognition, OCR and image analysis. The features include: -

- i. **Minimize Risks:** Automating labour-intensive processes increases speed, and ensures accuracy in verification, helping institutions manage risks better.
- ii. **Ensures reliability:** Verify documents using facial matching. It ensures accuracy by considering facial/hair/age changes, and variations in poses/angles.

- iii. **Maximizing the efficiency of operations:** Near perfect accuracy in OCR, and robust image analysis for facial matching increases the efficiency of redundant banking processes.

4.3.AI Optical Character Recognition (OCR): The business processes are slow and inefficient involving monotonous tasks like reading hundreds of forms and manually typing the data but with AI OCR, NLP the cumbersome manual documentation processes are transformed into seamless digital workflows. The efficient OCR application automates the process by running alongside the standardized banking system. It reads characters off scanned documents using our Browser Extension and eliminates the need to manually fill forms by auto-filling them. The features include: -

- i. **Efficient Management:** Speed up the process of account opening by reading hand-filled documents and text extraction. It also enables fast retrieval of data.
- ii. **Reduce errors:** Minimize the risk data loss due to inaccurate data entry.
- iii. **Storage:** Take the paperless approach with OCR by maintaining a copy of the scanned documents including forms and identity proofs on a centralized system.
- iv. **Security:** Avoid mishandling or stealing documents by scanning and storing them digitally and limiting access to it and reduces the risk of fraud from forged documents.

4.4.AI-Crowd Analytics: for fast-tracking the customer the AI crowd analytics helps you to make intelligent business decisions by measuring movement density and analyzing the behaviour of potential customers. It helps to address the problem of low customer footfalls by driving more customers into the retail branch. The insights will optimize sales and marketing activity to drive business growth and increase profitability by analyzing the movement of people through time. The features include: -

- i. **Crowd count:** Detects and counts the density of people in an area and sends real-time alerts for overcrowding helping infrastructure optimization and predicting potential stampede situations.
- ii. **Crowd flux:** In a particular area, it estimates the number of individuals in a crowd.
- iii. **Crowd dispersion:** Detects sudden random movement in a crowd and sends real-time abnormal behaviour warning alerts by identifying potential security threats.
- iv. **Demographic mapping:** Determines the age and gender of people in a crowd and uses this data to make your marketing efforts more targeted, personalized and effective.

4.5. Chatbot solving Complex Service issues: The Chatbot can learn complex activities and respond fast to the service-based request, queries and complains and act as a stakeholder to resolve the same ensuring customer satisfaction, real-time processing, task management and more. The experience of having a conversation with a bot is similar to the tested and proven IT-based service and upgraded handling capacity for each user individually and automation of featured e-commerce services like (Report on Chatbots, 2021)

- a. **Reduce operational costs** as they are 24/7 available for all type of users ensuring customer satisfaction.
- b. **Real time interaction** for Personalised communication for personal banking
- c. **Automating entire e-commerce** customer lifecycle creating a trend of a new purchase cycle
- d. **Immediate resolution** to customer queries through AI Conversational Commerce bot
- e. **Amazing customer experience and satisfaction** ([Website of chatbotsmagzine, 2018](#)).

V. Conclusion

The Propositions that AI playing a major role in the evolution of the Banking domain and AI solving the problem of RBB through AI IoT devices and chatbots stands truly justified as AI aided with TIN are automating Personalized Banking, Financial services, Cost optimisation , Advance Risk Management, Preempted fraud scenarios, Credit decisions, Process Automation,

Voice Assisted banking, Business Acceleration, Insight Generation and Value Proposition identified are: -

- i. **KYC verification:** The AI integrated with KYC records, OCR enables AI implementation with NLP technology simplifies the cumbersome manual documentation processes and transforms them into seamless digital workflows. The AI, Face, KYC and OCR can smartly recognize the identity of the customer and check for verification. Crowd Analytics can easily identify and direct them to welcome desk keeping track of customers.
- ii. **Decision-making processes through NLP:** NLP in banking will adopt approx 34% machine-generated and approx. 66% by the human judgement enabling reading and understanding. The AI can also be integrated into the Omni Channel for query, complaints and resolution.
- iii. **Simplified Process:** Robotic Process Automation (RPA) making banking processes much easier, faster and more precise with automated replies.
- iv. **Simplified Documentation: Optical** Character Recognition (OCR), program automates this process by running alongside the standardized banking system as It reads characters off scanned documents and eliminates the need to manually fill forms by auto-filling it.
- v. **Credit / Lending:** Machine-learning chat-bots; fully automated investment services that can transact money through global markets within seconds and the Algorithms can detect and assess the underlying trends and also detect trends that might influence lending after complete Dedupe data check.
- vi. **Fraud Detection: Machine** learning, unique activities or behaviour's ("anomalies") are detected and flagged for security teams.

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Sustainable Development in Healthcare Delivery through Patient Perception Survey

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Abstract

Patient satisfaction is a complex term that has been defined through various lenses. Assessing the impact of patient demographics such as age, occupation and income on the variation of patient satisfaction will help hospitals create an ambience based on the crowd they receive on a large scale. The main aim of the study is to enable healthcare providers to understand the gap in the healthcare service delivery through patient perception on service quality. The study is conducted based on primary data collected through a well framed questionnaire designed to obtain the considered opinions of the respondents. A descriptive study with sample size of 160 using simple random sampling. It was determined that there is a relationship between few demographic factors and patient satisfaction perception.

Keywords: Demographics, Service quality, Patient perception

Introduction

Consumer is king for any business to function lucratively and the primary consumers of healthcare services are patients. Multispecialty hospitals are one of the major providers of a diverse range of healthcare services. Patient satisfaction is a key indicator in determining the flow of patients to any healthcare provider.

Complexities of Patient Satisfaction

Defining the concept of patient satisfaction in healthcare is rather difficult owing to the lack of consensus surrounding a single definition. In Donabedian's quality measurement model, patient satisfaction is defined as patient-reported outcome measure while the structures and processes of care can be measured by patient-reported experiences. Many authors have different perceptions of definitions of patient satisfaction. Jenkinson C et al. (2002) and Ahmed et al. (2011) pointed out that patient satisfaction mostly appears to represent attitudes towards care or aspects of care. While Mohan et al. (2011) referred to patient satisfaction as patients' emotions, feelings and their perception of delivered healthcare services. On the other hand, other authors defined patient satisfaction as a degree of congruency between patient expectations of ideal care and their perceptions of real care received.

Measuring Patient Satisfaction

Measuring patient satisfaction is contingent upon several factors. Starting with answering why we should attempt to measure patient satisfaction, it is because there is a direct impact of measuring patient satisfaction on quality improvement of care provided to them. Patients' evaluation of care is a realistic tool to provide opportunity for improvement, enhance strategic decision making, reduce cost, meet patients' expectations, frame strategies for effective management, monitor healthcare performance of health plans and provide benchmarking across the healthcare institutions.

In addition to this, due to the tendency of healthcare industries to concentrate on patient-centred care; patient satisfaction reflects patients' involvement in decision making and their role as partners in improving the quality of healthcare services. Mohan et al. also deemed the significant correlation between measuring patient satisfaction and continuity of care where the satisfied patients tend to comply with the treatment and adhere to the same healthcare providers. Patient satisfaction represents a key marker of communication and health-related behaviour. In contrast, some of the literature dismiss patients' views as a wholly subjective evaluation and an unreliable judgment of the quality of care.

There are two approaches for evaluating patient satisfaction-qualitative and quantitative. The quantitative approach provides accurate methods to measure patient satisfaction. Standardized questionnaires (either self-reported or interviewer-administrated or by telephone) have been the most common assessment tool for conducting patient satisfaction studies.

Review of Litrature

According to a study by Gill and White, 2009, over the past 25 years, the role of consumer satisfaction has gained widespread recognition as a measure of quality in many public sector services. For example, assessing patients' satisfaction has been mandatory for French hospitals since 1998, which is used to improve the hospital environment, patients' amenities and facilities in a consumerist sense (Gill and White, 2009). Naidu (2009)determines that service quality in general, SERVQUAL is considered to be a strong scale for measuring service quality across the service sectors. It is supported by Naidu (2009) who pointed out that SERVQUAL and its adapted versions are suitable for measuring patients' satisfaction. Reliability, responsiveness, assurance, empathy, tangibles and credibility are those important attributes which are utilised in many sectors dealing with public goods and services. Carman, 1990, Llosa et al., 1998; Prabha et al., 2010 observe that although SERVQUAL has been widely applied in previous studies, this measure of service quality has been criticized when applying across different types of services and in various socio-cultural and/or economic contexts (Carman, 1990, Llosa et al., 1998). Past research in different service sectors have demonstrated an attempt to develop the scales measuring service quality in each specific context.

Methodolgy

The study is confined to a Multispecialty Hospital and is a descriptive study with a quantitative approach. The study is conducted based on primary data. Collection was through a well framed questionnaire designed to obtain the considered opinions of the respondents. Simple random sampling was adopted since the population was unknown. It involved data collected from patients from different departments within the hospital. Data were collected from 160 respondents through questionnaire method. Study was conducted for 3 months in a mutispeacility hospital. A pilot study was conducted with the sample size of 45 patients to check for the reliability of the questionnaire before the study.The results were obtained by statistical analysis, and the Cronbach's alpha reliability test value was 0.82 for the questionnaire. This indicated the good consistency among the test item.

Results and Discussion

Table 1 below shows the demographic variables of the respondents. Among the respondents who participated in the study there are around 48 percent male and 50 percent of them are female respondents. Majority of the respondents are in the above 30 years of age category.

Table 1 Demographic variables

| Demographic variables | No. of Respondents (n=160) | Percentage |
|-----------------------|----------------------------|------------|
| Gender | | |
| Male | 79 | 48.2 |
| Female | 81 | 50.2 |
| Age | | |
| 21-30 | 48 | 29.6 |
| 31-40 | 58 | 35.9 |
| 41-50 | 36 | 22.3 |
| Above 50 | 18 | 11.2 |

Table 2 below shows that 24.8% of the respondents are service, 36.5% of the respondents are business, 24.1% of the respondents are self-employed, 13.6% of the respondents are unemployed.

Table 2 Job profile of the Respondents

| Job profile | No. of Respondents | Percentage |
|---------------|--------------------|------------|
| Service | 41 | 24.8 |
| Business | 59 | 36.5 |
| Self Employed | 39 | 24.1 |
| Unemployed | 21 | 13.6 |
| Total | 160 | 100 |

Table 3 shows that 12.4% of the respondents are below 15,000 of income per month, 22.3% of the respondents are between 15,000 – 20,000, 16.1% of the respondents are between 20,000-25,000, 19.2% of the respondents are between 25,001-30,000 and 16% respondents are above 30,000, 13.0% of the respondent are no income.

Table 3 Income of the Respondents

| Income Per Month | No. of Respondents | Percentage |
|------------------|--------------------|------------|
| Below 15,000 | 20 | 12.4 |
| 15,001-20,000 | 36 | 22.3 |
| 20,001-25,000 | 26 | 16.1 |
| 25,001-30,000 | 31 | 19.2 |
| Above 30,000 | 26 | 16.0 |
| No Income | 21 | 13.0 |
| Total | 160 | 100 |

Table 4 below shows that hospitals should have modern facilities is the top priority has the highest weighted average (2.24) and seating facilities and other amenities should be good in appearance is reported has the lowest weighted average (2.43)

Table 4 Measuring service quality and patient satisfaction

| S.No. | Service Quality parameters | Mean value |
|-------|--|------------|
| 1. | Physical facility should be visually appealing | 1.63 |
| 2. | Physical environment of the health sector should be clean | 1.99 |
| 3. | Hospitals should have modern facilities | 2.24 |
| 4. | Seating facilities and other amenities should be good in appearance | 1.44 |
| 5. | Hospital medical records system should keep records safely | 2.05 |
| 6. | They should keep an eye on the quality and accuracy of the reports delivered | 1.83 |
| 7. | Medical and paramedical diagnosis should be of great standard and affordable | 1.79 |
| 8. | The attitude of the front office should be friendly and service-oriented | 1.48 |
| 9. | Time management and waiting time should be manageable | 1.89 |
| 10. | Hospital grievance redress system should work promptly | 1.70 |
| 11. | Staffs should have the knowledge to provide health information | 1.91 |
| 12. | Staffs' behavior to the patients should be polite and kind | 1.68 |
| 13. | Staffs should give individual attention to each patient | 1.63 |
| 14. | Staffs should involve and answer your queries related to health | 1.75 |

Chi – Square :

Hypothesis 1

H₀- There is no association between profession of the respondents and patients' perception on quality and accuracy of reports.

H₁- There is association between profession of the respondents and patients' perception on quality and accuracy of reports.

Table 5. Patient Perception on Quality and Accuracy of Reports

| | | VO | O | S | R | Total | Pearson Chi-square | P value |
|---------------|-----------------------------|--------|--------|--------|--------|--------|--------------------|---------|
| Service | Count | 16 | 15 | 5 | 4 | 40 | 17.268 | 0.001 |
| | % within accuracy of report | 25.4% | 22.1% | 21.7% | 66.7% | 25% | | |
| Business | Count | 21 | 29 | 7 | 2 | 59 | | |
| | % within accuracy of report | 33.3% | 42.6% | 30.4% | 33.3% | 36.9% | | |
| Self Employed | Count | 14 | 17 | 8 | 0 | 39 | | |
| | % within accuracy of report | 22.2% | 25% | 34.8% | 0% | 24.4% | | |
| Unemployed | Count | 12 | 7 | 3 | 0 | 22 | | |
| | % within accuracy of report | 19% | 8.8% | 13% | 0% | 13% | | |
| Total | Count | 63 | 68 | 23 | 6 | 160 | | |
| | % | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 39.38.

Since the P value is 0.001, the null hypothesis is rejected at 1% level, thus there is association between Profession of the respondents and patients' perception on quality and accuracy of report

ANOVA

Hypothesis 2

H₀- There is no significant difference between job profile of the respondent and attitude of the front office

H₁- There is significant difference between job profile of the respondent and attitude of the front office

Table 6. Attitude of the Front Office

| Statement | Job Profile | Mean | Std. Deviation | F | P Value |
|------------------------------|---------------|------|----------------|-------|---------|
| Attitude of the Front Office | Service | 2.10 | .742 | 3.624 | 0.026 |
| | Business | 2.19 | .110 | | |
| | Self Employed | 2.25 | .652 | | |
| | Unemployed | 2.40 | .520 | | |
| | Total | 2.35 | .872 | | |

Since the P value is 0.026, the null hypothesis is rejected at 5% level, thus there is significant difference between job profile of the respondent and attitude of the front office.

Correlation:

Hypothesis 3

H₀- There is no significant association between gender and patient satisfaction on report delivered

H₁-There is significant association between gender and patient satisfaction on report delivered.

Table 7. Expectation of Respondent Gender and Perception of Respondent on Report Delivery

| Correlations | | | |
|--|---------------------|---------|------------------|
| | | Gender | Report delivered |
| Gender | Pearson Correlation | 1 | 0.302** |
| | Sig. (2-tailed) | | .000 |
| | N | 160 | 160 |
| Report delivered | Pearson Correlation | 0.302** | 1 |
| | Sig. (2-tailed) | .336 | |
| | N | 160 | 160 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | |

Since the p value (.000) is less than 0.05, H₀ is rejected at 1% level of Significance. Thus there is a relationship between expectation based on respondent's gender and perception of the respondent on report delivery.

Independent T Test:

Hypothesis 4

H₀- There is no significant difference between the respondent's gender and perception of respondent in hospital having modern equipment

H₁- There is significant difference between the respondent's gender and perception of respondent in hospital having modern equipment

Table 8. Hospital Having Modern Equipment

| Independent Sample T Test | | | | | |
|--|---------------|-------------|-----------------------|----------|----------------|
| Perception of Respondent in Hospital Having Modern Equipment | Gender | Mean | Std. Deviation | T | P value |
| | Male | 1.98 | 0.930 | | |
| | Female | 2.21 | 0.897 | | |
| | | | | 3.492 | 0.012 |

Since the p value (0.012) is lesser than 0.05, H_0 is rejected at 5% level of significance. Thus there is a significant difference between respondent's gender and perception of respondent in hospital having modern equipment.

Conclusion

A total of 48.2% of the male respondents and 50.2% of female respondents are participated in the study. Of which 29.6% of the respondents are between 21-30 age group, 35.9% of the respondents are between 31-40 age group, 22.3% of the respondents are between 41-50 age group, 11.2% of the respondents are above 50 age group. The backgrounds collected showed 24.8% of the respondents work in the service sector, 36.5% of the respondents are business owners, 24.1% of the respondents are self-employed, 13.6% of the respondents are unemployed. The income breakdown of the sample showed 12.4% of the respondents are below 15,000 of income per month, 22.3% of the respondents are between 15,000 – 20,000, 16.1% of the respondents are between 20000-25000, 19.2% of the respondents are between 25001-30000, and 16% respondents are above 30000, 13.0% of the respondent are no income.

Weighted average was calculated for all the parameters used in the study and found that hospitals should have modern facilities is the top priority has the highest weighted average (2.24) and seating facilities and other amenities should be good in appearance is reported has the lowest weighted average (2.43). Chi square was calculated between Profession of the respondents and patients' perception on quality and accuracy of report and found that there is association between Profession of the respondents and patients' perception on quality and accuracy of report. ANOVA was calculate between job profile of the respondent and attitude of the front office and found that there is significant difference between job profile of the respondent and attitude of the front office.

Discussions

Patient satisfaction is the important component for the sustainable development in the healthcare service that spreads the good word of mouth and thus improving the quality of care. Hospital administrators need to focus on sustainable development by providing the quality care, proper decision making, appointment schedules, reducing the waiting time of patients which helps in improving the service quality. Especially during COVID 19 the sustainable healthcare played a vital role in treating the huge crowd of patients with COVID 19 and this will continue in the future healthcare industries. The continuous improving in healthcare service delivery by providing adequate training to the staff will enhance the quality treatment among patients which inturn will have a huge impact in the future healthcare delivery.

Demographics of the patient also influence the perception on patient satisfaction and service quality at various levels. It was found that there is association between the profession of the respondents and patients' perception on quality and accuracy of report and attitude of the front office is friendly and offer good service. Healthcare sustainability is the important factor to

restore and improve the healthcare service by leveraging opportunities this study reveals that improving service quality and patient satisfaction to provide sustainability in healthcare.

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Thrift is the new black: Analyzing thrift business model of informal entrepreneurs

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Abstract

Acknowledging the rising popularity of thrift stores and massive presence of informal entrepreneurs operating thrift businesses in India this study was undertaken. And considering the fast fashion industry's catastrophic and colossal level contribution to environmental degradation and worker exploitation, it becomes vital to establish link between informal entrepreneurs and sustainability. To understand the informal entrepreneurs in thrift business the study utilized Osterwalder and Pigneur's (2010) business model as an analytical framework by extracting data from Nagaland where thrifting was introduced many decades ago, widely utilised and not stigmatised or looked down in the society unlike in most part of the country.

Keywords: Thrift, Thrift business model, Informal entrepreneurs, sustainability

Influence of Entrepreneurial Orientation, Degree of Internationalization, and Innovation on MSME Performance: A Conceptual Model

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Abstract

This study is motivated to develop a conceptual model for firm performance in MSMEs context based on the review of literature. Literature suggests that entrepreneurial orientation across a firm has significant correlation with innovation and degree of internationalization of the firm. Also, there is significant correlation among EO and firm performance. Thus, we propose a model of firm performance in the light of EO, innovation, and degree of internationalization. Further, survey will be done using pre-validated scale taking samples from manufacturing MSMEs across India. Structural equation modeling will be used for data analysis.

Keywords: entrepreneurial orientation, firm performance, innovation, internationalization, MSME

Location: Destiny or Strategy?

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Abstract

All information about the formatting requirements is contained in this document. Agglomeration literature has predominantly focused on the geographic differences in outcomes and has offered limited insights on whether firms operating elsewhere benefit by moving into industry clusters. Using the context of the US medical device industry, we suggest that, even though the better performing firms are more likely to move to an industry cluster, their post-move performance suffers relative to their past performance and relative to comparable firms that did not move. Preliminary evidence suggests that while firms move to clusters to take advantage of Marshallian externalities, the cost of network disruption outweighs the benefits. Thus, we extend the literature by arguing that the benefits of agglomeration may be restricted to firms born there and that the treatment effects of agglomeration are harder to materialize.

Keywords: Clusters, Medical Devices, Firm Performance, Externalities

Introduction

The extensive literature on agglomeration has documented the externalities from having a large group of firms within a limited area and has predominantly focused on comparing the outcomes of firms born in clusters against firms operating elsewhere (Porter, 1998; Saxenian, 1996; Klepper, 2007).

However, the literature has offered limited insights on whether firms operating successfully elsewhere benefit by moving into regions where their focal industry is agglomerated. In this paper, using the context of the US medical device industry, we claim that, even though the better performing firms are more likely to move to a cluster, their post-move performance suffers relative to their own previous performance, and relative to comparable firms that did not move. Thus, we attempt to extend the agglomeration literature by arguing that the benefits of clusters may be restricted to the firms born there and that the treatment effects of agglomeration are perhaps harder to materialize.

Literature Review

Agglomeration economies are important for prosperity because it accounts for half of the productivity advantages of large cities (Gaubert, 2018). Extending Smith's (1776) argument that agglomerations enable specialization and division of labor, Marshall (1890|1920) proposed that agglomeration benefits firms because it enables access to specialized labor well-trained in a specific industrial domain, makes it easier for firms to access specialized inputs that are often harder to trade, and facilitates knowledge spillovers among firms. Further investigations have revealed that R&D intensity and knowledge spillovers are likely explanations for the heterogeneity in agglomeration patterns across industries (Audretsch and Feldmann, 1996; Rosenthal and Strange 2001) and that access to specialized inputs may determine which pairs of industrial agglomerations co-locate (Ellison et al., 2010). Indeed, subsequent research has also revealed that Marshallian agglomeration extends beyond productivity-enhancing activities to produce a variety of other externalities such as a reduced need for formal governance mechanisms to govern collaborations due to an increased strength of professional industry organizations (Devarakonda et al., 2018), , creation of an extensive complement of supporting industries and institutions (Bresnahan and Gamberdella, 2004), greater likelihood of within-cluster stock coverage by stock-market analysts (Engelberg et al., 2018), and a reduced need to

use alliances within a cluster as a mechanism to avoid risks of adverse selection associated with acquisitions due to reduced information asymmetry (McCann et al., 2016).

There are both supply side and demand side factors that influence the clustering of firms within a limited area. Supply side factors tend to benefit technologically advanced and/or innovation-based industries such as the auto industry in Detroit (Klepper, 2007), semiconductors in Silicon Valley and biotech in Boston (Saxenian, 1996 more), and the demand-based factors benefit service industries such as the lodging or mutual fund industries more (Canina et al., 2005). Industries with higher product heterogeneity tend to be more agglomerated (Fischer and Harrington, 1996) because it enables customers to compare products more easily and reduced the customer search costs. New firms tend to be closer to established firms in the same industry but tend to differentiate on some product dimensions (Baum and Haveman, 1997). Transport costs are often non-negligible (Krugman, 1991) and, hence, play an important role in locating closer to regions with greater demand. Transactional governance considerations may also encourage co-location of suppliers and buyers (Williamson, 2010). However, the positive externalities of cluster location may be moderated by factors such as the centrality of network location (Bell, 2005; Whittington et al., 2009), low-cost strategic orientations of other co-located firms (Canina and Harrison, 2005), nationalities of the other firms (Chang and Park, 2005), trust (Molina-Morales and Martinez-Fernandez, 2009), and entrepreneurial social capital (Kalnis and Chung, 2006). Firms in a cluster may change their structure more readily to cohere to a more collective identity of a region, and as a result, though clusters may be innovating in the beginning, they may create a homogeneous macro-culture that suppresses innovation later on (McKendrick et al., 2003; Poudier and St. John, 1996). An industry cluster may even be better for innovation because new products often emerge when knowledge can be borrowed readily from different activities (Duranon and Puga, 2001). Moreover, Shaver and Flyer (2000) point out the possibility of adverse selection in clusters because firms with poorer resources and capabilities benefit at the expense of other richer firms resulting in resource-rich firms locating away from industry clusters. Instead, such innovative firms may prefer locations with high levels of academic activity or near other firms engage in R&D (Alcacer, 2006; Alcacer and Chung, 2007). Thus, firms may also choose to cluster in a manner that allows them to benefit in some dimensions and compete on others (Baum and Haveman, 1997). Thus, the literature has presented a variety of boundary conditions resulting in heterogeneous outcomes for firms in clusters. However, missing from the discussion is an exploration of whether firms operating elsewhere should move to a cluster. If the positive effect of agglomeration on firms holds, one should expect firms to move into hubs, in the hope of taking advantage of positive externalities. For example, potential of knowledge spill overs from other firms becomes an especially important consideration in high tech industries and contribute toward the better performance of poorer firms. However, firms may perform poorly because there could be a crowding-out effect that occurs when they surround themselves with better firms. Moreover, the cost of moving itself may dissuade firms from moving and impose an additional cost on firms that actually make a move.

Indeed, the literature on firm re-location has suggested that a variety of other factors such as favorable economic conditions (Cumming et al., 2009), legal and tax benefits (Laamanen et al., 2012), stock market reaction (Chan et al, 1995; Chan et al, 2003), government compensation (Martin et al., 2014), discriminatory pricing of land (Rauch, 1993), access to venture capital (De Prijcker et al., 2019) affect re-location choices. However, this literature has not explored the likelihood of firms moving to agglomeration economies either. Given than firms can choose whether or not to move, if the treatment effect of agglomeration varies across locations, we should expect firms actively using location as a strategy and moving from one location to

another to improve their performance.

In this paper, we attempt to fill this gap in the literature by exploring the antecedents and consequences of firm relocation in general, and relocation into industry clusters in particular. This is an abductive study in which we initially engaged in data analysis with the intention of replicating the agglomeration literatures prediction that firms in a cluster outperform others, subsequently observed the anomaly that firm relocation resulted in poor performance, and then finally explored the mechanisms that explain the antecedents and consequences of firm relocation. We empirically suggest that, in the context of the medical devices industry, firms with higher sales are more likely to move to a cluster, and that after the move, their sales drop relative to comparable firms who did not move. Preliminary qualitative evidence suggests that, though better performing firms move to clusters to take advantage of the supplier network externalities, they perform poorly after the move because of the adverse effects the move has on their sales network in the form of diminished inter-personal relations with surgeons. Thus, to explore the impact of agglomeration, in this paper, we strive to disentangle between the selection and treatment effects of agglomeration.

Data and Analysis

We use the U.S. medical devices industry, worth \$173 billion with employees and firms spread across the country, as our setting. We suggest that this industry is a great context to study agglomeration because most medical device companies are small and, hence, external agglomeration effects may be more important to their survival and growth. Moreover, from a practitioner perspective, this is a critical industry to study because, the shift in demographics, i.e. the sustained greying of population in the US, has drawn a lot of interest into the challenges and opportunities of the healthcare industry. Our sample comes from a times series of the Dun & Bradstreet database. It consists of all medical device establishments, both private and public, located in the US. The panel starts in the year 1990 and ends in 2015 and is composed of 380,076 firm-year observations corresponding to 43,403 establishments tracked during the period. Of these 12,694 firms moved. Firms on average were 21 years old, had approximately 40 employees, achieved sales worth \$5.6 million, and moved 40 miles. Table 1 provides a brief description of the variables of interest, Table 2 provides the correlations associated with the first model (space consideration prevent inclusion of all correlation tables) and Table 3 presents the analysis results.

To determine the effects of moves on outcomes (sales), we engaged in a diff in diff analysis that controlled for the liquidity rating of the company, the number of kilometres between the destination and the origin, whether the firm changed state, and the age of the firm. The difference in difference analysis presented in M1, which compares the annual sales of a firm before the move to the annual sales of a firm that did not move, suggests that the annual sales dropped by 721K after the move. M2, which compares the sales of a firm before the move to a hub state from outside a hub state, to the annual sales of the same firm after the move, suggests a \$2.6 million drop in sales after moving to the hub. The difference in number of observations between M1 and M2 is due to the fact that, while M1 compares firms that moved to firms that did not move, M2 compares the performance of firms that moved to a hub to the performance of the same firms before the move. Thus the results suggest not only that firms do not benefit by moving, but that, they are worse off by moving to a hub state.

Table 1. Key variables

| Variable | Description |
|----------|-------------|
|----------|-------------|

| | |
|------------------|---|
| Sales: | Establishment revenues each year reported in dollars. |
| Post move period | The database tracks the physical location of establishment every year, which enables us to track any moves in the interim period. The relative long time period over which the firm locations are tracked enables us to observe the persistence of firms in a certain location over time on the one hand and track the incidence and frequency of moves by firms across locations on the other. This variable is used for the diff in diff analysis and is set to 1 starting the year of the firm move. |
| Liquidity | An indexing system reported on a scale of 0-100 that represents trade experiences reported to Dun & Bradstreet, which compares actual payment to terms of sale agreed upon and scores the overall manner of payment. The index is weighted by the amount of credit. A higher score indicates prompt repaying ability. |
| Distance Moved: | Distance in miles between origin and destination that takes a non-zero value whenever establishment location changes between consecutive years of reporting. |
| Change of state | Set to 1 if the firm move was out of state. |
| Age | We construct this variable based on the first year in which an establishment was active. This measure is left truncated and all establishments that were active before the starting year of our sample are assigned the starting year 1989. |

Table 2. Correlation table for Model 1

| | | Mean | Min | Max | 1 | 2 | 3 | 4 | 5 |
|---|--------------------|------|-----|------|--------|-------|--------|------|------|
| 1 | Sales (million \$) | 5.6 | 0 | 6230 | 1 | | | | |
| 2 | Post-move period | .27 | 0 | 1 | 0.002 | 1 | | | |
| 3 | Liquidity | 68 | 1 | 100 | -0.008 | -0.04 | 1 | | |
| 4 | Distance moved | 39 | 0 | 7303 | 0.013 | 0.25 | -0.022 | 1 | |
| 5 | Change of state | 0.03 | 0 | 1 | 0.013 | 0.28 | -0.018 | 0.61 | 1 |
| 6 | Age | 21 | 2 | 196 | 0.065 | 0.06 | 0.060 | 0.02 | 0.03 |

Table 3. Analysis

| | M1: Any move DV=Annual Sales ('000) | M2: Move to a hub state DV=Annual Sales ('000) | | M3 DV = 1 when the firm moved | M4 DV = 1 when the firm moved to a hub |
|------------------|--|---|---------------------------|----------------------------------|---|
| Post-move period | -721 [-1128, -213] | -2630 [-4864, -396] | Total sales prev. two yrs | 0.055 [0.05, 0.06] | 0.052 [0.04, 0.06] |
| Liquidity | -5 [-9.7, -0.8] | -43 [-98, 11] | # of emp. prev year | -0.0007 [-0.001,-0.0005] | -0.0008 [-0.001,-0.0005] |
| Distance moved | 0.8 [-0.3, 2] | 1 [-0.1, 226] | Liquidity previous year | -0.002 [-0.003,-0.001] | -0.002 [-0.004,-0.001] |
| Change of state | 902 [-91,1893] | | Age | -0.006 [-0.007, -0.005] | -0.007 [-0.008, -0.006] |
| Age | 184 [131,238] | 510 [-28, 1047] | | | |
| N (Firm-Year) | 380,076 | 5147 | N (Firm-Year) | 319,333 | 319,333 |
| # of Firms | 43,403 | 430 | # of moves | 19,682 | 7,829 |
| Year FE | Yes | Yes | Year FE | Yes | Yes |

95% CI in parenthesis; Errors clustered at the firm level; Hub states are NY, CA, FL, TX;

Similarly, probit models in M3 and M4, which controls for the number of employees, liquidity rating, and age, suggests that prior sales positively increases both the probability to moving and

the probability of moving to a hub respectively. Though the displayed results only accounts for the cumulative sales over the past two years, the results are robust for both cumulative and average sales up to the past 6 years. Put together, M1-M4 suggests that though higher quality firms choose to move, their performance suffers after the move, and this performance drop is more drastic if the move is to a hub.

Preliminary qualitative evidence was gathered through interviews to explore the mechanisms that determine the moving of firms and the post-move effect on performance. Preliminary evidence suggests firms moved to clusters following US Food and Drug Administration (FDA) approvals to firms located in clusters thereby creating specialized non-replicable resources within the cluster that firms needed to access. For example, Silicone breast implants were approved by the FDA in 2006, fourteen years after they were taken off the market (Tanne, 2006). The only two companies that make these implants in the United States are Allergan of Irvine, California, and Mentor of Santa Barbara, California. This approval which extended the breast augmentation market considerably prompted many related medical device manufacturers to move closer to the only two suppliers after the approval. While the extended timelines (over 10 years), and uncertainties associated with approval processes (9% probability of drugs moving through clinical trials to FDA approval) limit the incentives for manufacturers to move earlier, its increases the incentives to move after the approval because other related approvals may not be forthcoming in the short term.¹ Thus firms in this industry move to clusters to take advantage of Marshallian externalities. Data collection is ongoing to empirically examine the effects of FDA approvals on firm decisions to move to clusters.

¹ Approval statistics based on information from <https://archive.bio.org/media/press-release/new-study-shows-rate-drug-approvals-lower-previously-reported>

Similarly, when analysing the reduction in performance, qualitative evidence revealed that the transactions in the medical device industry, which is comprised of numerous highly specialized small firms, are heavily dependent on social network relations. The medical device industry is reliant on trust-based interpersonal relations because surgeons who make the purchasing decisions are often unable to cost-effectively determine the credibility of potential exchange partners through either monitoring or price signals (Rangan, 2000). However, such relations may not transcend locational boundaries, particularly state borders, because the localized nature of healthcare business may reduce surgeons' expectations of common interest and significant gains when the firm transitions from being a local firm to an outsider firm (Gordon and McCann, 2000). Thus, firms that moved to clusters not only struggled to establish new relations due to incumbent competitive response but also suffered losses in relations in the original location due to a reduction in trust. Moreover, the evidence also suggests that the move to clusters did not enable firms to automatically take advantage of agglomeration externalities not only because geography is not a sufficient condition for accessing a local pool of knowledge, but the firms also failed to actively participate in the knowledge exchange network by hiring employees from competitors (Breschi and Lissoni, 2003). We acknowledge that the data gathered thus far only permit us to speculate about the plausible mechanisms suggested above and wish to note that efforts are ongoing to qualitatively and statistically justify the mechanisms.

Conclusion

In this paper, we argue that superior firms select to move to agglomerated geographic clusters and that their performance suffers as a consequence of the move. We suggest that, in the context of the medical devices industry, the post-hub-move performance depletion is an outcome of losses from local network externalities from the original firm location outweighing benefits from agglomeration externalities.

Thus we suggest that, though launching firms in an agglomerated economy may be beneficial as suggested by the existing literature, if local networks are critical to firm success, it may not be advisable for operational firms to re-locate to industry clusters because the networks may neither sustain the move nor be replicable elsewhere. The paper suggests to entrepreneurs that firm founding location is a critical decision and subsequent moves may not reverse the enduring effects of the initial location.

Though the literature on agglomeration has focused on firm founding in a cluster at the expense of firm relocation into it, our findings do complement the literature that examines the heterogeneity in firm outcomes within a cluster. For example, Pe'er and Kiel (2013) suggests that the ability of firms to balance the benefits of being in a cluster over the costs depends on their resources and capabilities. We extend this argument and suggest that existing resources may lose value after a firm moves into a cluster from the outside and that it would be detrimental to assume otherwise. Similarly, Folta et al. (2006) suggest that the marginal benefits of locating in a cluster decrease with cluster size due to diseconomies of agglomeration. Our findings suggest that, for medical device manufacturers, the benefits of moving to a cluster were outweighed by competitive responses from incumbents that prevented the establishment of necessary networks with surgeons thereby resulting in diseconomies. Further, we extend McCann et al. (2011)'s suggestion that firm attributes may mitigate benefits tied to clusters and argue that industry characteristics, particularly industries where local sales networks are critical, may be relevant in predicting performance when firms move to a cluster.

It is necessary to study such firm dynamics not only to improve the literature's understanding of firm competitive advantage and the sustainability of regional competitive advantage. In a hub, if incumbents with 'poor' resources and capabilities get stronger at the expense of outsider firms with 'rich' resources who move in, firm incentives to move will fall dramatically and prevent the influx of external knowledge and innovations into clusters. Moreover, studying such firm dynamics also has implications for the broader question of why firms move. Thus, explicit efforts to disentangle the selection and treatment effects of agglomeration has important research and practitioner implications.

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The Impact of Green Finance and Fintech on Environmental Safety: Empirical Evidence from India Based on a Semi-Parametric Difference-in-Differences Model (SDIDM)

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Abstract

The paper examines the impact of green finance and fintech on the environmental protection policies in India. The paper uses the SDID model to determine the green finance policies and outcomes shows the significant impact of green finance and fintech on decrease industrial CO₂ emissions during the study period. For this paper the author has been applies the text analysis model and panel data with related to Indian 28 states and 8 union territories between 2010 to 2020. The paper found that the Fintech growth pays to the reduction of CO₂ emissions and has a positive influence on environmental protection. The originality of the paper decreasing the systematic risk in fintech, green finance facilities and improve the quality of environmental and reduction of CO₂ emission.

Keywords: Environmental safety, Green Finance, Fintech, green consumption and systemic risk

Background of the study

India's green finance business is growing speedily, converting the nation's financial segment in the process. Even though green finance has been a burning theme amongst investigators for the last 5 years, it remains theoretically unclear, RBI (2019). Green finance denotes the financial arrangements that are explicit to the use for projects that are environmentally sustainable or projects that implement the aspects of climate change, Reddy, A. S. (2018). There are three core classes of green finance that is asset, credit and investment, according to Volz, U. (2018). Green finance tries to find to engage the private division in the funding of environmental projects to link the gap left by inadequate public funds. Emerging nations are facing sundry credit restrictions that raise the prospect of unfortunate environmental performance, henceforth the need for active green finance guidelines Dikau, S., & Volz, U. (2018). It is the entitlement of governments in emerging nations to advance nations and adopt the appropriate policies that encourage green finance systems, Abbasi, F., Riaz, K., (2016). Financial market tools like green bonds are now being used to guarantee environmental ventures are funded in a supportable way. Green bonds are fixed-income tools expected at backup environmental ventures. To rise commitment and narrow the green finance gap, these green finance bonds frequently have numerous tax inducements attached to them, Danish, Ulucak, R., Khan, S.U.D., (2020).

While there is still a prerequisite for better coordination between policymakers and stakeholders, green finance in India is previously resilient positive outcomes. There is an opposite association between the green asset and Carbon dioxide (CO₂) emissions, Deng, Huang, & Cheng. (2019). Green financing without help cannot assurance fruitful environmental safety inventiveness, it has to be enlarged in size by significant assets in both human capital and technological innovation, Duchene, S. (2020). Green finance is projected to Performa significant role in the accomplishment of the climate change goal line in the Paris Agreement in France under the umbrella of the United Nations Framework Convention for Climate Change (UNFCCC) for the reduction the greenhouse gases (UNFCCC, 2016). India is at the lead of green finance initiatives with utmost receivers being emerging nations with a constant political environment with suggestively high levels of credit risk, Shen, Y., Su, Z. W., Malik, M. Y., Umar, M., Khan, Z., & Khan, M. (2021).

Research Gap - Indian Green Finance

Indian Green finance strategies play a controlling role in credit supply to new enterprises in regions with undeveloped financial environments as well as state-maintained enterprises, Pata U.K., (2018). Indian is playing a very significant role in green credit policy operation. It is significant for green finance strategy to influence the technology and established associations between banks and enterprises, Stoian, A., Iorgulescu, F., (2020). Green finance guidelines that are created on stringent CO₂ emission instruction frequently led to a triumph situation for both producers and suppliers. T. Muganyi, Y. Linnan, H.-p. Sun (2021). Green finance procedures also have a positive impact on the engineering industry. Reboledo, J. C., & Ugolini, A. (2020), disclosed a positive correlation between green finance tools and firm innovation, additional concluding that green finance can play an imperious role in India's evolution to intellectual and maintainable manufacturing. Increased examination on green bonds in capital markets is helping the expansion of a further dynamic green finance ecosystem, Gallagher, K. P., Kamal, R., Jin, J., Chen, Y., & Ma, X. (2018).

Commercial banks in India significantly value green organizations. Organizations with inclusive green organization policies can get access to suggestively larger lines of credit, T. Muganyi, Y. Linnan, H.-p. Sun (2021). Indians Public sector banks are in concert a progressively leading role in the apportionment of green finance in credit marketplaces. Public sector Banks should focus on motivating green finance battered at accomplishing green transitions created on stable prices and developed technology to attain sustainable environmental results, Zhou, K., Li, Y., (2019). To accomplish optimum outcomes, green finance strategies should also contemplate the technology inter-dependencies that stimulus the whole financial system and value chains, Hall, S., Foxon, T.J., Bolton, R., (2015). For green finance to accomplish its aims there is the requirement for robust procedures that information asymmetry and ethical hazards, while confirming an optimum equilibrium between ecology and finance, Gaddy, B.E., Sivaram, V., Jones, T.B., Wayman, L., (2017). To adjacent the green finance research gap, there is a requirement to develop sustainable investment strategies based on long-term policy perceptions, Herremans, I.M., Nazari, J.A., (2016). Indian's green evolution financing model is one of the utmost inclusive in the world and it is on the pathway to be the other nations leader in green finance, Geddes A., Schmidt T. S. and Steffen, B. (2018). Based on the theoretical examination presented in the above research gap, the paper design Hypothesis - 1: is there any significant relationship between green finance policies and positive environmental results.

Fintech Vs Green Finance

Fintech is self-assured to play a significant leading role in the Indian states of green finance through leveraging big data analytics and AI (artificial intelligence) to adoptive a green finance transition between consumers and SMEs (small and medium-sized enterprises) Macchiavello, E.; Siri, M (2020). There is a research gap concerning the involvement of fintech in environmental safety efforts in India. This research gap is accredited to various fintech firms not being dynamically participating in these efforts. Forest business model example of how fintech platforms can boost customers to dynamically participate in green finance developments. The reward-winning enterprise encourages a maintainable green finance evolution amongst customers and small and medium enterprises, Deng, X.; Huang, Z.; Cheng, X (2019). The integration of green finance and fintech makes resource apportionment more rational and resolves some problems in the expansion of green finance. As one of the significant products of the "fintech + Green Finance" exercise, the Forest business model completely validates the innovation of the business model derived from "fintech+ Green Finance". This

paper discovers the viability of the business model by examining the business model of forest from three aspects: customer value intention, profit model, and key processes.

The fintech firms are dynamically integrating “green finance” actions intended at applying science and technology to decrease CO₂ emissions and simplify competent resource operation. Fintech has been accredited with endorsing the implementation of green agricultural applies in India by confirming credit availability, speaking information asymmetry, and trust among farming communities, Marke, A, ed. (2018). As India’s fintech network continues to develop, it is probable to play a significant role in the nation’s transition to new green finance. Fintech stands to accelerate the obtaining and distribution of funds reserved for environmental developments. Schulte and G. Liu (2017). Green finance bonds can assistance the financial concert of fintech businesses while so long as a channel for long term green savings, Khan, M.T.I., Yaseen, M.R., Ali, Q., (2017). FinTech’s can accelerate India’s shift to new green finance that will encourage disinfectant production through bright manufacturing processes. Based on the above literature review and determine the relationship between Fintech Vs green Finance, the paper designed the following two hypotheses 2 and 3.

Hypothesis -2 Fintech growth has an insignificant impact on SO₂ (Sulphur Dioxide) emissions.
Hypothesis -3 Fintech growth has a significant impact on environmental investment enterprises.

Research Methodology

This paper employs the text analysis database to recognize when related green finance policies were affected across the 28 states and 8 Union India. The research paper has collected data for the period from 2010 to 2020. To classify the pertinent treatment effects, and employed the following keywords: Environmental safety, Green Finance, Fintech, green consumption, green bond, green credit, green operations, carbon finance and systemic risk. These green finance policy creativities vary across each state and union territory, though they all have the equivalent goal line which is to encourage environment safety inventiveness. Controllers in India are strong on accomplishing their temperature and environmental safety goals and green finance has been recognized as a key significance area.

A Model developed

The green finance strategies in India comprise numerous follow-up inventiveness to confirm set targets goals are met. To examine the first hypothesis an SDIDM (semi-parametric difference-in-differences model) is used. The average remedy effect (ARE) on Indian states and union territory can be denoted by equation one as given below.

$$ARE = E(x_{1t} - x_{0t}/S_t = 1) \quad (1)$$

From the equation (1). Where, x_{1t} represents the environmental variable after green finance factors associated with strategies are put into effect at time t and x_{0t} indicates the similar variable earlier average remedy effect, indicates whether states indorsed green finance-related policy issues at period t. when t is not equal to 0 after the starting point is equal to 1. To report the inconsistency of characteristics between remedy and un-remedy classes, Hougbedji, K. (2018), proposes a reweighted estimation of the ARE in the given formula no two.

$$E\left(\frac{x_t - x_z}{T(S_t = 1)} * \frac{S_t = \omega(y_z)}{1 - \omega(y_z)}\right) \quad (2)$$

Hougbedji, K. (2018), weighted estimation from the equation (2) is impartial if in the given formulas under as (3) and (4).

$$E(x_{1t} - x_{0t}/S_t = 1, y_z) = E(x_{1t} - x_{0z}/S_t = 1, y_z) \quad (3)$$

weighted estimation from the equation (2) is impartial if in the given formulas under as (4).

$$T(S_t = 1) > 0 \text{ and } \omega(x_z) < 1) \quad (4)$$

From the equation (3) and (4), the paper describes the, $x_t - x_z$ is the transformation in the environment curiosity variable between starting point z and t (time). Starting point features of the control variables are signified by y_z . The tendency score per cent which denotes the conditional probability of actuality part of the policy remedy class is represented by the following uniqueness: $\omega(x_z) \equiv T(S_t = 1)/y_z$. The linear programming probability model tendency score can be derived from the following formula (5).

$$\omega(y_z) = \beta_0 + \beta_1 * y_1 + \sum_{i=1}^c \beta_{2i} * y_2^i \quad (5)$$

From the formula (5), Where, variables are assessed applying the OLSM (ordinary least squares method) and y_1 is representing a binary value. The order of polynomial function applied to estimate the tendency score for LLPM is given as C and y_2^i is a continuous variable signified by the following illustration: $y_2^i = \omega_{j=1}^i y_2$. To evaluate the effect of green finance associated procedures this study mainly emphasizes significantly three environmental variables. The dependent variables are emphasized in the following illustration; y_z (In $SO2E_{it}$, In SDD_{it} and $VSO2_{it}$), where $SO2E_{it}$ signifies Sulphur dioxide emission, SDD_{it} signifies Smoke and Dust Discharge and $VSO2_{it}$ Volume of Sulphur Dioxide produced, the environmental interest variables are calculated in tones for every 28 states and 8 union territories, I , at time t . The time variable in the SDIDM considers the value of 1 while a green finance associated rule is affected and 0 at the starting point.

Control Variables

The paper examines the control variables are Y_{it} used in the developed model are the level of industrial development in every state and Union Territory ID_{it} , determines as a secondary industry development value-added as a % of GDP (gross domestic product). To control for the level of economic growth and size, the paper used the GDP per capita income signified by GDP_PCI_{it} .

Fintech growth effects on environmental safety

The fintech industry is growing speedily in India, the paper has framed the hypothesis. Hypothesis -2 is dependent on the expectation that the fintech industry development has contributed notably to the deterioration of industrial gas emissions in Indian states and union territories. Fintech is fundamental to a limited green initiative plus the sharing economy. To examine hypothesis two, the paper uses the econometric model stated as follow.

$$SO2E_{it} = \beta_0 + \beta_1 + \beta_{cv} \text{Control_Variable}_{it-1} + \beta_1 \text{Fintech}_{it-1} + \alpha_{it} \quad (6)$$

From equation (6), Where, the standard condition of variable $SO2E_{it}$ signifies Sulphur Dioxide Emissions in the study area, i , at time t and Fintech_{it-1} is the lagged fintech is one of the significant variables. The Index employs many Indian companies like Paytm, MobiKwik, lending kart technologies and razor pay software's etc... inclusive data on fintech practice across India as well as making digital levels, and other key factors. Lagged control variables include states GDP per capita income ($SGDPpci_{it-1}$). The next one is trade openness (TO_{it-1}) and the last one is industrial development (ID_{it-1}). To apprehension the municipal of pollution within each state and union territory and also comprise the present level of industrial smoke releasing and dust which is signified by SDD_{it} .

$$SO2E_{it} = \beta_0 + \beta_1 \text{Fintech}_{it-1} + \beta_2 \text{SDD}_{it} + \beta_3 \text{GDPpci}_{it-1} + \beta_4 \text{ID}_{it-1} + \beta_5 \text{TO}_{it-1} + \alpha_{it} \quad (7)$$

From the same order to test the third hypothesis, the study uses each state and union territory 'available data on environmental safety and investment in environment growth. Fintech is anticipated to have a positive impact on environmental safety and investment spending on forest

development, after wide discussion we have used an econometric model to assesses the outcomes with help of the following equation:

$$EOI_{st} = \beta_0 + \beta_1 Fintech_{st-1} + \beta_2 RSIW_{st} + \beta_3 GSE_{st} + \beta_4 GDP_{pci_{st-1}} + \beta_5 ID_{it-1} + \beta_6 TO_{it-1} + \alpha_{it} \quad (8)$$

From the equation (8), Where, the dependent variable is environmental obstruction investment represented by EOI_{st} . for Indian states and Union Territories, j , at time t . The level of fintech growth in each state and union Territory is given as $Fintech_{st-1}$ which is a lagged selected variable. Control variables are alike to which the study has used for the states and Union Territories. Further, the paper also develops the econometric estimation model to comprise other environmental control variables specifically, $RSIW_{st}$, which signifies the recycling rate of solid industrial wastes and the next variable GSE_{st} , signifying the gas waste emissions in each Indian state and Union Territories.

Testing for cross-sectional dependence in panel data models

The cross-sectional dependency test can examine estimation outcomes, Sarafidis, V., & Wansbeek, T. (2011). This paper will investigate by Sarafidis, V., & Wansbeek, T cross-sectional correlation dependence test which holds for the fixed values, Sarafidis, V., & Wans

$$CD_P = \sqrt{\frac{1}{N(N-1)}} \left(\sum_{i=1}^{N-1} \sum_{j=i+1}^N P_{ij} \right) \xrightarrow{d} N(0,1) \quad (9)$$

beek, T. (2011). The Sarafidis, V., & Wansbeek, T. cross-sectional correlation dependence test is calculated applying the following formula. From equation 9, the equation illustrates P_{ij} , the error term pairwise-correlation sample estimate. For a fixed-effects homogeneous panel data model with $\sum N(0,1)$.

Data analysis and interpretation

This paper uses panel data from the 28 Indian states and 8 A union territory 290 between the years 2010 and 2020. The study adopted a policy text analysis database and it has explored an inclusive compilation of green finance correlated with policies used as an active effect in this paper. The paper has used the following variables for data analysis purposes and as the policy initiation point.

Table-1: Variables and source

| Variables | Explanation | Measurement |
|-----------|---|---|
| SO2E | Emissions Sulphur Dioxide Emissions released in tones (log)- Sulphur dioxide is the chemical compound | Discharge of industrial smoke and we can measure in tones (log) |
| SDD | Smoke and Dust Discharge | Discharge of industrial smoke and we can measure in tones (log) |
| VSO2D | The volume of Sulphur Dioxide | Discharge of industrial smoke and we can measure in tones (log) |
| Fintech | Fintech Index | market-cap-weighted index |
| RRISW | The recycling rate of industrial solid waste | Divide your monthly recycling quantity by the total amount of solid waste you generate. Use the same unit(s) of measurement (gallons, yards, pounds or tons) for both recyclables and garbage |
| IWGE | Industrial waste gas emissions | Industrial waste released gas; we can measure in 100M cubic meters (Log) |

| | | |
|---------|--|---|
| GDP_PCI | Gross domestic Product-Per capita Income | Gross Domestic Product (GDP) per capita shows a country's GDP divided by its total population |
| TO | Trade openness | the ratio of the arithmetic means of merchandise exports (x) and imports (m) to GDP (y) |
| GFP | Green Finance policy | Binary variable 1 for states with policy & 0 for states without |
| Ind | Industrialization | Industrialization is the period of social and economic change that transforms a human group from an agrarian society into an industrial society |

Source: Author calculation

Table-2: Descriptive statistics

| Variables | N | Minimum | Maximum | μ | σ |
|-----------|------|---------|---------|-------|----------|
| SO2E | 1134 | 0.947 | 6.018 | 6.115 | 0.241 |
| SDD | 1068 | 3.719 | 7.347 | 6.631 | 0.274 |
| VSO2D | 8351 | 0.738 | 7.458 | 7.402 | 0.367 |
| Fintech | 1241 | 1.092 | 3.603 | 3.826 | 0.403 |
| GDP_PCI | 1492 | 1.726 | 6.147 | 6.304 | 0.614 |
| TOP | 1074 | 4.360 | 8.835 | 6.281 | 0.179 |
| GFP | 1241 | 0.831 | 2.386 | 2.526 | 0.482 |
| Ind | 1307 | 0.031 | 1.307 | 0.318 | 0.201 |

Source: Author calculation

The descriptive statistics illustrates the green finance policies and strategies are anticipated to outcome in lesser percentage releasing the industrial gas emissions and attracting more investment in climate protection developments within Indian's states. The Semi-parametric Difference-in-Differences approach pursues to apprehension how these green finance policies are affected environmental results across Indian states. Further, also table 2 explores highlights the characteristics of variables in the study sample.

Table-3: The Indian states and union territory: green finance policies issues and characteristics.

| Variables | Sample | GFP | Non-GFP | Diff. |
|-----------|---------------|--------------|--------------|-------------------|
| GFP | 0.017(0.216) | | | |
| SO2E | 5.136 (0.027) | 5.173(0.132) | 4.121(2.001) | -0.281*** (0.002) |
| SDD | 5.169(0.208) | 4.145(0.105) | 6.163(0.043) | -0.172*** (0.005) |
| VSO2D | 7.048(0.407) | 6.174(0.115) | 3.472(0.051) | -0.091* (0.010) |
| Ind | 1.094(0.137) | 1.903(0.281) | 2.301(0.381) | -0.012*** (0.015) |
| TOP | 4.284(0.739) | 4.152(0.136) | 3.193(0.037) | 0.127*** (0.006) |
| GDP_PCI | 6.157(0.147) | 5.050(0.038) | 4.210(0.428) | 0.093*** (0.007) |
| N | 1241 | 428 | 826 | 1241 |

Sources: S.E are in parentheses. Significance is represented as at *10% level, ** 5% level, and *** 1% level.

Green finance Vs environmental safety

The paper examines whether green finance policies are executed across Indian states or not, if the green finance policies implement it will be led to positive environmental results, in

this paper applies the Semi-parametric Difference-in-Differences estimator for both test the Linear Probability Model (LPM) and Series Logit Estimator (SLE) approaches. The LPM is used in order four. Dependent variables are comprising SO2 emissions and volume produced as well as discharge of industrial smoke and dust. The Semi-parametric Difference-in-Differences estimation outcomes for both test LPM and SLE are obtainable in Table 3.

Table-4: The Impact of Green Finance on Environmental Variables

| Environmental Variable - ARE | Linear Probability Model | | | Series Logit Estimator | | |
|------------------------------|--------------------------|----------------------|---------------------|------------------------|----------------------|---------------------|
| | 1 SO2E | 2 SDD | 3 VS02D | 4 SO2E | 5 SDD | 6 VS02D |
| Constant | -0.351*** (0.063) | -0.238*** (0.070) | -0.100** (0.081) | -0.270*** (0.064) | -0.170*** (0.061) | -0.188** (0.072) |
| N | 937 | 852 | 684 | 1193 | 906 | 828 |

Sources: the variables (1, 2, & 3) are stated applying a Linear Probability Model of degree. Variables (4,5 & 6) are stated applying default Series Logit Estimator. Significance is signified as follows: ***1% level, **5% level and *10% level.

The Semi-parametric Difference-in-Differences estimation outcomes confirm the hypothesis one that the green finance associated policies guide to positive environmental results. For the Linear Probability Model and Series Logit Estimator models, the climate interest variables have indicated negative substantial coefficients. Green finance associated policies executed between the duration of 2010 to 2020 in Indian states and union territory have had an inclusive negative impact on industrial gas release emissions. Inclusive, applying Series Logit Estimator outcomes, green finance-related policies have led to a 27% deterioration in SO2E, a 17% deterioration in industrial gas and smoke discharge, and an 18% deterioration in the volume of SO2E produced in Indian states and union territory during the study period.

Fintech (Financial technology) Vs environmental safety

To examine the effect of fintech development on industrial gas emissions released delineated in the design hypothesis two, the paper estimate equation from the equation 7 & 8 by applying the FEM (fixed-effects model). Further, the paper also used an alike approach to estimate from equations 8 & 9 to find the impact of fintech on environmental safety and attract investment across Indian states. The paper directed the Pesaran CSD test for both methods and outcomes are described in Table 4.

Table-5: Cross-sectional Dependency Test output

| SO2E _{it} | | ESI _{jt} | |
|--------------------|--------------------------|-------------------|------------------------|
| CSD statistic | P – Value (significance) | CSD statistic | P-value (significance) |
| 47.147 | 0.001 | -0.008 | 0.203 |

Source: Null hypothesis shows that the errors are weakly CSD~N (0,1) and the significance level indicates that the *** is at the 1 percent level, ** 5% level and * 10% level.

The Pesaran CSD outcomes show that the null hypothesis has rejected the SO2E_{it}. The demonstration that Indian states (Source: CMIE Report) panel data errors are not weakly CSD. This outcome can be accredited to structural factors and economic shockwaves that pretentious industrial gas emissions in Indian states from the year 2010-2020. To interpretation for CSD (cross-sectional dependency) in the study area, the data analysis presented in FEM (Fixed effect model) estimation outcomes with collected standard errors. The ESI_{jt} (Environmental safety investment) demonstrates that for the paper data analysis, the paper has failed due to the H0 value has been indicated insignificant. The estimation outcomes for the Indian states and union territory their data analysis is examined and represents in table 5.

Table-6: Fintech (Financial technology) Vs IGE (Industrial Gas Emissions)

| Variables | Selection criterion SO ₂ E _{it} | |
|--|---|----------------------|
| | 1 | 2 |
| Fintech _{it-1} (Financial Technology) | - 1.155***(0.151) | - 0.142***(0.138) |
| SDD _{it} (Smoke and Dust Discharge) | | 0.360***(0.141) |
| GDP_PCI _{it-1} (gross domestic produc_per capita) | - 0.061***(0.068) | - 0.721***(0.035) |
| To _{it-1} (Trade openness business) | 0.021(0.130) | 0.103***(0.107) |
| Ind _{it-1} (industrialization growth) | 0.380***(0.126) | 0.788***(0.071) |
| Indian states and union territory EFM (Fixed Effect Model) | Yes-Applied | Yes-Applied |
| Study period (year Fixed Effect Model) | Yes-Applied | Yes-Applied |
| N | 739 | 723 |
| F-Statistics | 67.147*** | 72.062*** |
| R-Square | 0.277 | 0.441 |

Source: Null hypothesis shows that the errors are weakly CSD~N (0,1) and the significance level indicates that the *** is at the 1 percent level, ** 5% level and * 10% level.

From table 6, the estimation outcomes demonstrate that fintech growth in Indian states and union territory has a substantial negative impact on industrial gas and smoke releases. If considering second step outcomes from Table 6, the fintech (Finance technology) variable has a coefficient of -0.142. This present value specifies that a 1% level upsurge in fintech progress contributes to a 14.2% deterioration (negative impact) in SO₂E throughout Indian states and union territory. This outcome is an innovative outcome and its ideas to the role fintech can play in simplifying conversion to a green financial structure. Fintech companies can play avital role in the Indian states and union territory of green finance and encourage climate approachable consumption. This outcome has been considered and confirms hypothesis second.

Conclusion

The green finance system is not an international trend, but it has become a significant frequency for technologically advanced Countries to accomplish sustainable development. India's is at the lead of green finance plan examination and execution. The financial system in India is examining how to comprise green credit at the macroeconomic policy level. The RBI is working on emerging more green finance products that will benefit and fast-track the green transformation of India's financial system. According to RBI (2016), green finance can decrease credit risk, rise financial openness, and encourage sustainable growth. This research suggests understanding how India by now executing the different green finance policy inventiveness and how that has significantly obstructed IGE (industrial gas emissions) during the study period. The paper examines the role of fintech growth in environmental safety. The paper originally that the findings illustration that fintech growth significantly contributes to reduced IGE (industrial gas emissions) and AEPII (augments environmental protection investment initiatives). The implication of paper Based on the finding the paper has drawn the following policy implications related to green finance: (1) The Indian Financial system need to accelerate the growth of green finance products and boost the capacity of financial institutions and banking industries to offer green credit. (2) There is a great need for more investment into the basic investigation on how green finance products can be executed while modifying related risks.

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What Causes Financial Inclusion? Evidence from Indian Rural Household Data

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Abstract

While financial inclusion is caused by numerous supply and demand side factors, the goal of this study is to identify the true determinants of financial inclusion by emphasizing the relevance of quality and availability factors. The research model also seeks to examine the mediating role of availability towards financial inclusion (usage of financial services). The findings reveal that out of four determinants of financial inclusion, quality and availability significantly causes financial inclusion. The contribution of awareness and accessibility in causing financial inclusion was not significant in the presence of quality and availability factors. It was found that availability fully mediates the relationship between accessibility and usage.

Keywords: Financial Inclusion, Social Development, Economic Development, Rural Households

**Board characteristics and risk disclosure quality by integrated reporters:
Evidence from Indian banks**

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Abstract

Integrated report supports organisations in managing risks, identifies opportunities, connecting risks with business strategies, developing business models and contributes value creation process. Using a content analysis on the sample of 30 banks or financial institutions listed in the National Stock Exchange (NSE) in India, the efficacy of risk disclosures, the outlook orientation (past, present and future) and approaches to risk (positive, neutral and negative) was investigated and the influence of attributes of board of directors on the quality of risk disclosure was examined. Using agency theory, results showed a positive relationship between board size, diversity, independence, meetings, and education background in accounting or finance with risk disclosure quality. Also, integrated reporters disclose more risk and ways to mitigate those risks as compared to non-adopters.

Keywords: *risk disclosure, agency theory, integrated reporting, corporate governance*

ESG Country Ratings and its Impact on Sovereign Borrowing Costs and Credit Risk: An Emerging Markets Study

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Introduction

Sovereign debt refers to the funds raised by governments of various countries. It is issued by national governments and is often denominated in foreign currency. Governments access capital markets for funds, just like corporate firms. Like private debt bonds, sovereign debt bonds are rated too by various rating agencies worldwide. In the last decade, there has been great emphasis by investors on environmental, governance, and sustainability (ESG) measures of firms for both equity as well as debt investing (Crifo, Diaye & Oueghlissi, 2017; Fatemi, Fooladi, & Tehranian, 2015; Malik, 2015; Porter & Kramer, 2011). With the threat of climate change and focus on ethical supply chains, ESG factors are becoming important determinants of a company's attraction as an investment. Along similar lines, sovereign ESG factors could be one of the determinants of a country's attraction as an investment destination. Integrating ESG into investment decisionmaking also reflects the commitment of investors to Principles for Responsible Investment (PRI).

Past studies have analysed the performance of ESG-based investing at a firm-specific level (Fatemi et al., 2015; Malik, 2015). However, ESG factors not only are impacting the value of equity for firms but also sovereign debt. Sovereign nations access capital markets to meet their obligations. However, do sovereign ESG ratings significantly impact the cost of borrowing for countries is something that needs to be studied further. If equity and debt investments in private firms are impacted by ESG considerations then so could be the case for sovereign debt. The cost of debt could be lower for sovereigns with similar economic variables but vastly different ESG scores and this needs to be examined.

Why does ESG matter to sovereign debt?

ESG factors try to capture information beyond the financials. Well governed firms are found to enjoy a healthy premium in pricing (Gompers, Ishii and Metrick, 2003).

Environmental factors help investors judge a sovereign's commitment to climate change and efficient energy usage. Extreme weather events like floods, droughts, or wildfires can lead to huge unplanned expenditures which may impact the credit quality of that country's sovereign bonds. However, environmental factors are relatively hard to capture (Crifo et al. 2017). Social factors like poverty, education, and demographic factors can also have implications for a country's economic performance. The sovereign's "governance" measures aim to capture the political and administrative standards, respect for rule of law, and other issues related to policy that are likely to impact economic performance and investment climate within the country. So rather than analysing the multitude of these factors which may impact the financial performance of a sovereign, ESG scores can be a useful way to supplement financial information for comprehensive investment decision making.

The need for ESG-based investing should be seen as a policy and market-driven response to arrest climate change. ESG-based investing can be motivated by several factors some of which have also been discussed in a Morgan Stanley study¹. One benefit is from the diversification of investments. A class of investors also prefer earning altruistic returns for various ethical

¹ The Morgan Stanley Paper titled "ESG in Sovereign Fixed Income Investing: Identifying Opportunities, Correcting Biases" is available here:

https://www.morganstanley.com/im/publication/insights/articles/article_esginsovereignfixedincomeinvesting_en.pdf?1630244970192

reasons. Another motivation is that ESG-based investing can enhance the financial performance and risk management by considering extra-financial factors. ESG-based investing can help reduce the tail risk for investors as the probability of extremely adverse price movements due to governance failure and environmental catastrophes will be lower.

Past studies have identified the role of non-financial factors in the performance of bonds and equities. The role of ESG in debt returns has also been documented but mostly for corporate bonds (Hoepner et al. 2016).

A few studies have looked at the role of governance in the repayment of sovereign debt. Reinhart, Rogoff, and Savastano (2003) their theory of “debt intolerance” i.e. the idea that some countries have a structural tendency to default, independently of other economic or financial factors. They believe that countries’ institutions and history matter in determining financial and economic crises. Presidential regimes are more likely to default as against parliamentary regimes due to considerations of political economy (Kohlscheen, 2007). Studying the impact of a large number of political and economic variables on default, Van Rijcheghem and Weder (2005) find the level of democracy (in addition to trade openness) as an important indicator of economic performance.

Although some studies have documented the impact of governance factors on sovereign debt, the contribution of social and environmental factors has been relatively less scrutinized. This could be due to limitations of comparable data across sovereigns. Also, there is a lack of a universally accepted methodology to measure and assess sovereign ESG performance. Gratcheva, Emery and Wang (2021) have discussed that environment (E) pillar scores vary the most among the providers of sovereign ESG scores whereas in the case of corporate ESG scores the highest convergence is observed in E scores for firms in comparison to other ESG pillars.

Through this study, we aim to bridge this gap by developing a sovereign ESG index using the World Bank dataset which is relatively more comparable. The study also aims to identify the nature of the relationship between sovereign ESG index and sovereign cost of borrowing using data on yield spreads. The individual impact of environmental and social and governance factors, in explaining the yield spreads, is also captured for developing markets. Finally, we also see how the sovereign risk varies with ESG index scores by using data for CDS spreads.

A limited number of studies, mostly for developed markets, have tried to explore the impact of ESG on sovereign borrowing costs. Crifoa et al. (2017) find that high ESG ratings are associated with low borrowing costs however the effect of financial ratings on sovereign borrowing cost is three times stronger than ESG. They suggest that investors may use ESG ratings to supplement financial ratings. Berg et al. (2016) reported a decrease in the cost of capital for emerging markets with superior social and environmental performance. Some studies have explored whether the sovereign ESG ratings impact sovereign risk, but they are mostly focused on developed and OECD markets (Capelle-Blancard et al. 2019).

This study investigates the role of developing countries' environmental, social, and governance (ESG) performance in sovereign debt markets. We propose the following hypotheses:

Hypothesis 1: Higher ESG scores are associated with lower borrowing costs

Hypothesis 2: Higher ESG scores are reflected in lower sovereign credit risk

In this study, we find a negative correlation between the countries’ ESG score and the sovereign borrowing cost but only on the long end of the yield curve. The countries with higher ESG scores have lower long-term sovereign borrowing costs. We find that the social factor has a

significantly negative correlation with sovereign borrowing costs. We also find a negative correlation between the countries' ESG score and the sovereign risk although the relationship is weakly significant.

The following section of this study includes a brief review of literature. Section 3 discusses the research design where we also describe the data and the methodology for developing the ESG index as well as the construction of risk factors. In section 4 we evaluate the performance of the ESG index and the individual role of E, S, and G factors. In the final section, we provide a summary of our findings and the conclusion.

2. Review of Literature

The empirical literature has documented several economic and financial variables that impact the sovereign yield spreads. Yield spreads determine the sovereign borrowing costs in international markets (Barrios, Lewandowska, & Setzer, 2009).

Several studies have identified several macroeconomic variables as explanatory variables of credit default risk. Prominent being the fiscal variables (Gruber & Kamin, 2012) and public debt levels of countries (Bernoth, von Hagen and Schuknecht, 2012).

Environmentally less vulnerable countries have lower spreads (Cevik and Jalles, 2020). The probability of sovereign debt default is significantly impacted by climate change vulnerability and this impact is higher for lower-income countries due to their weaker capacity to mitigate the adverse effects of climate change (Cevik et al. 2020). Berg, et al. (2016) confirms that social and environmental factors impact sovereign bond spreads but with a lag. Beirne, Renzhi and Volz (2021) also confirm the positive effect of climate vulnerability on sovereign bond yields for Southeast Asian countries. Higher yields lead to an increase in their cost of funds which adversely impacts climate adaptation as well investments in public infrastructure.

Hübel (2020) observed lower credit default swap spreads for countries with better ESG performance even in cases where the credit ratings of countries were similar and also that ESGbased investing need not lead to sacrificing of returns.

3. Research Design

3.1 Data

Independent Variable of Interest: Descriptions and Construction

The study aims to develop an ESG index using data from the World Bank database. The period of our study is from 2009 to 2016 as constrained by the data availability. Key indicators used for measuring E, S, and G pillars are:

Environment (E) - Air Pollution, Population density, Fossil Fuel, Forest Area, Food Production, Energy Use, Energy intensity, Energy Import, Electricity production coal, CO2 emissions

Social (S) - Unemployment, Undernourishment, Overweight, Population Ages, Mortality rate, Life expectancy at birth, Labor force, Fertility rate, Access to Electricity, Access to Fuel, Literacy Rate, Government expenditure.

Government(G) - Political Stability, Patent applications, Voice and Accountability, Government

Effectiveness, Scientific and tech. journal, Regulatory Quality, Labor Seats, Women Individuals Internet, GDP growth, Control of Corruption

We develop an ESG index (following Asness et. al. 2019) for each country using the World Bank ESG factor data for 24 emerging markets. Using these indicators, we quantify the score of environmental, social and governance pillars. For each of these indicators, the mean of the ranks and standard deviation are quantified. Using the rank, mean and standard deviation

values, z-scores of each country, for all indicators, calculated. These z-scores are then aggregated for all indicators and their mean is our score for each of three pillars. Then we use the equally-weighted mean score of E, S and G pillars to derive our sovereign ESG Index. Alternatively, for robustness check, we also derive another ESG index by assigning different weights to scores of E, S and G pillars. These weights are derived using principal component analysis (PCA) methodology.

Dependent Variable:

As a measure of sovereign borrowing cost, we use the bond yield spread over the US sovereign bonds for the sample data. We consider both 91-day treasury bill and 10-year government security as proxy for short and long end of yield curve respectively. As a measure of the sovereign risk, we consider returns on sovereign credit default swaps for the sample countries.

Control Variables:

In order to control for countries' economic characteristics, following extant literature, we use following variables: GDP growth rate, import to reserve ratio, fiscal balance to GDP ratio, trade openness ratio, current account balance % GDP, Public debt % revenue., market capitalization as a % of GDP.

3.2 Econometric Method:

In consonance with the dynamic behaviour of sovereign borrowing cost and credit risk, we employ a system generalised method of moments (GMM) estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998). The system GMM estimator is an extension of the difference GMM estimator developed by Arellano and Bond (1991). In difference GMM estimator, an equation of first-differenced variables is estimated by using lagged level values of variables as instruments. The system GMM estimator augments difference GMM estimator by building a system of two equations – the original equation with level values of the variables (for which the lags of first-differenced observations serve as instruments) and the transformed equation with firstdifferenced observations (for which the lags of level values of variables serve as instruments). By introducing additional instruments for model estimation, the system GMM estimator improves precision and reduces bias of the estimates compared to the difference GMM estimator (Blundell et al., 2001). In order to deal with the consequences of endogeneity (in the form of biased and inconsistent estimates) due to simultaneous relationships between sovereign borrowing cost and its determinants, we consider explanatory variables namely- GDP growth rate, import to reserve ratio, fiscal balance to GDP ratio, trade openness ratio, current account balance % GDP, Public debt % revenue, market capitalization as a % of GDP as endogenous in all regression models.

Suitable post estimation diagnostic tests are performed for the validity of the empirical results.

4. Empirical Results:

The scores of ESG index for developing countries are provided in Table 1.

Table 1

| Country Name | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Argentina | -0.04 | 0.16 | 0.14 | 0.06 | 0.07 | 0.04 | -0.03 | 0.02 |
| Brazil | 0.39 | 0.37 | 0.39 | 0.29 | 0.29 | 0.23 | 0.20 | 0.14 |
| Chile | 0.23 | 0.27 | 0.26 | 0.33 | 0.25 | 0.23 | 0.22 | 0.13 |
| China | 0.07 | 0.04 | 0.03 | 0.07 | 0.10 | 0.10 | 0.12 | 0.21 |
| Colombia | -0.03 | -0.06 | 0.03 | 0.03 | 0.04 | 0.08 | 0.11 | 0.01 |
| Czech Republic | 0.29 | 0.34 | 0.33 | 0.31 | 0.32 | 0.37 | 0.41 | 0.45 |
| Egypt, Arab Rep. | -0.38 | -0.46 | -0.57 | -0.49 | -0.51 | -0.50 | -0.43 | -0.42 |
| Greece | 0.30 | 0.24 | 0.23 | 0.19 | 0.28 | 0.24 | 0.20 | 0.14 |
| Hungary | 0.23 | 0.23 | 0.29 | 0.28 | 0.28 | 0.32 | 0.28 | 0.20 |
| India | -0.23 | -0.26 | -0.28 | -0.28 | -0.28 | -0.28 | -0.33 | -0.20 |
| Indonesia | -0.19 | -0.18 | -0.16 | -0.11 | -0.12 | -0.12 | -0.10 | 0.00 |
| Korea, Dem. People's Rep. | -0.32 | -0.33 | -0.29 | -0.29 | -0.32 | -0.33 | -0.36 | -0.33 |
| Korea, Rep. | 0.57 | 0.53 | 0.52 | 0.51 | 0.50 | 0.52 | 0.45 | 0.59 |
| Malaysia | 0.04 | 0.15 | 0.18 | 0.19 | 0.17 | 0.22 | 0.28 | 0.37 |
| Mexico | -0.10 | -0.07 | -0.11 | -0.09 | -0.14 | -0.17 | -0.15 | -0.15 |
| Pakistan | -0.38 | -0.52 | -0.51 | -0.51 | -0.50 | -0.46 | -0.57 | -0.53 |
| Peru | 0.23 | 0.22 | 0.18 | 0.15 | 0.14 | 0.05 | 0.10 | 0.09 |
| Philippines | -0.13 | -0.18 | -0.20 | -0.13 | -0.13 | -0.09 | -0.21 | -0.16 |
| Poland | 0.37 | 0.29 | 0.37 | 0.36 | 0.36 | 0.42 | 0.41 | 0.50 |
| Qatar | -0.04 | -0.01 | 0.00 | -0.12 | -0.18 | -0.18 | -0.02 | -0.13 |
| Russia | -0.02 | 0.05 | 0.10 | 0.08 | 0.05 | 0.03 | 0.04 | 0.12 |
| Saudi Arabia | -0.62 | -0.62 | -0.62 | -0.57 | -0.49 | -0.49 | -0.44 | -0.68 |
| South Africa | -0.34 | -0.38 | -0.40 | -0.43 | -0.43 | -0.41 | -0.46 | -0.49 |
| Thailand | 0.11 | 0.14 | 0.07 | 0.16 | 0.07 | 0.03 | 0.02 | 0.10 |
| Turkey | -0.11 | 0.01 | 0.04 | -0.01 | 0.13 | 0.06 | 0.05 | -0.11 |
| UAE | 0.03 | 0.00 | -0.04 | -0.07 | -0.05 | 0.02 | 0.15 | 0.08 |

Next, in accordance with our hypothesis H1, we find a negative correlation (refer table 2) between the countries' ESG score and the sovereign borrowing cost but only on the long end of the yield curve. It seems therefore that countries displaying higher ESG indicators are "rewarded" by lower sovereign borrowing costs as the long end of the yield curve is affected by investors' preferences, saving and investment climate and risk appetite hence is expected to be less volatile than short term debt yields. Amongst the ESG parameters, regression results document that only social factor is negatively correlated and significant with sovereign borrowing cost. For our hypothesis 2, we again find a negative correlation between the countries' ESG score and the sovereign risk though weakly significant (at 93% level of confidence). Though, the factor loadings of E, S and G were not found out to be significant even weakly with respect to the sovereign credit risk. Thus, it looks like the issuers of fixed income in developing countries with better ESG scores benefit from lower borrowing costs and credit risk. Robustness tests were performed to read into the empirical results obtained.

Table 2: Relationship between sovereign ESG performance in determining sovereign borrowing costs and credit risk

| Model | 1 | 2 | 3 | 4 |
|-------------------------------------|-------------------------------|---------------------------|----------------------|-------------------------------|
| Dependent Variable | Excess 10yr Gsec Spread | Excess 91 day tbill | CDS returns | Excess 10yr Gsec Spread |
| Variables | | | | |
| Lagged Dependent | -0.278* (0.101) | 0.3511* (0.116) | -0.1708* (0.084) | -0.3201* (0.087) |
| ESG | -16.4228* (7.169) | 1.7499 (4.675) | -3.332*** (1.819) | |
| E | | | | -5.5735 (6.956) |
| S | | | | -12.325** (5.318) |
| G | | | | 0.0919 (5.842) |
| GDP growth rate | -0.3524 (0.356) | -0.0210 (0.204) | 0.0289 (0.048) | -0.4603 (0.304) |
| Imports to reserve ratio | -0.6344* (0.153) | 0.1262 (0.188) | 0.1523* (0.049) | 0.5909* (0.137) |
| Fiscal balance to GDP ratio | 0.1098 (0.281) | 0.3191 (0.398) | -0.0985 (0.081) | 0.0772 (0.309) |
| Trade openness ratio | 0.0571 (0.059) | 0.0021 (0.027) | 0.0096 (0.007) | 0.0386 (0.051) |
| Current account balance % GDP | -0.2238 (0.117) | -0.2165 (0.144) | -0.0361 (0.037) | -0.2023 (0.136) |
| Public debt % revenue | -0.1422* (0.037) | 0.0114 (0.041) | -0.0278* (0.009) | -0.1275* (0.039) |
| Market capitalization % GDP | -0.0291 (0.029) | -0.0523 (0.056) | -0.0120* (0.005) | -0.0356 (0.026) |
| Intercept | 10.6125** (4.627) | 6.2962 (4.669) | 0.9362 (0.122) | 11.836* (4.605) |

Note: Parentheses contain standard errors clustered at firm-level

5. Summary and Conclusions

Sustainability is the buzzword in business and policy circles and this paper contributes to the emerging markets literature by evaluating the role of sovereign ESG performance in determining sovereign borrowing costs and credit risk. Using a sample of 24 emerging market countries over the period 2009-2016, we show that countries with good ESG performance are associated with lower default risk and lower sovereign bond yield spreads. The empirical results build upon the investor preferences and values which are looking besides investment decisions guided by returns and diversification to performance of their portfolio on other responsible factors i.e. ESG. Results could benefit national policymakers as they can access low-cost funds

by integrating sustainability into broader sovereign risk analysis and policy. This also stems from the view that good sustainability signals a country's long term commitment and might act as a buffer against any exogenous shocks. From the academic perspective, we provide empirical evidence of mainstreaming sustainability in conventional sovereign risk analysis by establishing relationship between country risk and sustainability performance. There are limitations of our analysis due to data availability for the various countries and time period of study.

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Sustainability: The Dilemma under the Priority Sector Lending Programme in Odisha*Smitisikha Guru¹ & Priyabrata Panda²**^{1&2}Gangadhar Meher University, Amruta Vihar, Odisha***Abstract**

The present study analyses priority sector lending of different commercial banks and how it affects their efficiency. Regression has been applied on a panel data of 34 commercial banks for the period 2010-11 to 2020-21. The results depict that advances to priority sector have a significant impact on the GNPA reported by the commercial banks of Odisha and thus, negatively affecting their efficiency and sustainability. The further analysis suggested that the economic condition of the state is a determinant factor that affected the priority sectors along with the deposits mobilised and the CD ratio of the banks. However, the non-priority sector credit is solely affected by the deposits mobilised and the CD ratio of the financial institutions.

Keywords: Priority sector lending, agriculture, MSME, economic development, bank performance, GNPA

Role of International Law in Responsible Business Conduct for Sustainable Development

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Abstract

The concept of sustainable development has been expressly set out in objectives of more than fifty binding international legal instruments. The significance of the public international law framework in context of prescribing the ideal business conduct could be explored. In this connection the paper attempts to analyse the business and human rights, and investment law perspectives in furthering responsible business conduct for sustainable development. This paper highlights issue with the soft law framework based on business and human rights framework. The soft law framework of business and human rights fails to bring effective control over the business conduct. The international investment law could act as a feasible option for the purpose of embedding responsible business conduct and pursuing the goals of sustainable development.

Keywords: Business conduct, human rights, international investment law, public international law, sustainable development

Methodology

This paper attempts to use the public international law framework to analyse the topic. Moreover, the topic could be studied with the help of discourse analysis. Similar to the Balakrishnan Rajagopal's work 'International law from below: Development, Social Movements and Third World Resistance' (Rajagopal, 2003) we attempt to analyse the policy to practice perspective of international law. This work would be using an exploratory approach.

Discussion and Findings

An Overview of United Nations Business and Human Rights Guiding Principles

The United Nations ('UN') Human Rights Council's acceptance of United Nations Guiding Principles on Business and Human Rights, 2011 (Guiding Principles) depicts a watershed moment for the business and human rights framework (*Human Rights Documents*, n.d.). The Guiding Principles was evolved by Professor John Ruggie based on 'Protect, Respect, Remedy' framework (Rights, 2010). Earlier to the adoption of 'Protect, Respect, Remedy' framework, piecemeal approach towards business and human rights framework was being adopted. The Organisation for Economic Co-operation and Development Guidelines for Multinational Enterprises ('OECD Guidelines'), (OECD, 2011) International Labour Organisation Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy, (*Tripartite Declaration*, n.d.) are soft law mechanisms which were significant efforts to evolve business and human rights framework. In this context the working group of UN Sub-Commission of Human Rights' effort to evolve a draft Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights' ('Draft Norms'), (Weissbrodt & Kruger, 2003) was an initial serious attempt to evolve a normative business and human rights framework. Non-acceptance of the evolved Draft Norms by Human Rights Council acted as a deathblow to its legal status. Nevertheless, the Draft Norms still remains as a seminal effort to evolve a business and human rights framework.

The greatest success of Guiding Principles is in ensuring that the states could be brought towards a common minimum standard regarding corporate human rights responsibility (Bilchitz, 2010). The crucial governance approach adopted by Professor John Ruggie in evolving the Guiding Principle on Business and Human Rights has helped in developing consensus amongst the member states (Mares, 2011). The Draft Norms proposed corporate

responsibility and obligation on the same line as that of state responsibility. Due to the proposal of imposing responsibility on corporates based on same parameter as of state responsibility, this Draft Norms did not get much acceptance amongst international community (Weissbrodt & Kruger, 2003).

The Guiding Principles emphasizes upon the three pillars of protect, respect and remedy and are framed to operationalize the three-pillar framework. The duty of states to protection against human rights violations by corporates forms the first edifice for the Guiding Principles. The states duty involves taking adequate steps to ‘prevent, investigate, punish and redress (Mares, 2011) any form of human rights abuse. The responsibility of corporates to ensure that they respect human rights, through due diligence in their functioning (Backer, 2015) forms the second edifice. The responsibility to respect is based on the corporate entities determining human rights standards on its own basis (Deva, 2012). The corporate entities have to ‘avoid infringing on the human rights of others and are also supposed to ‘address adverse human rights impacts (Mares, 2011). It is relevant to note that business entities having the responsibility to protect include both transnational corporations as well as national corporations. The third edifice highlights the pertinent responsibility of the state to ensure accessibility to remedies for the affected people, which include both judicial and non-judicial grievance mechanisms.

Concerns Regarding Business and Human Rights Framework

The business and human rights framework under public international law still remains soft-law based. The major concern is the state-centric obligations in the international human rights law, which leads to lack of binding norms and responsibility on corporates (especially MNC). This is indeed problematic, as the corporate interest and state interest could be quite divergent. Modern states usually adopt a welfare approach, while the corporate bodies would have vested interest of ensuring reduction in labour and production cost (Blitt, 2012).

Moreover, the corporate responsibility is limited to ‘negative obligation to avoid harm and does not instill positive obligation of ‘duty to fulfil upon the corporate entities (Bilchitz, 2010). These soft laws will not be able to effectively tackle and provide remedy for the increasing number of corporate human right violations and pose limitation in providing comprehensive solution in addressing corporate human right harms (Blitt, 2012). The business and human rights remedy framework is a weak link in many of global south states. The states fail to provide an enabling mechanism for pursuing the corporate human rights violations. Hence when state is perceived as the instrumentality to regulate the corporate conduct affecting the human rights, the state’s failure to provide remedy framework questions the viability of soft law approach.

Pursuing sustainable development concept would be difficult in this context. The soft law approach would be weak in enforcing responsible business conduct and moreover it is helpful only in case of voluntary action by corporates. The sustainable development goals can be achieved in an effective manner only if a binding treaty mechanism is devised for the implementation of business and human rights framework.

International Investment Law from the Lens of Sustainable Development

Many soft law instruments have discussed the importance of relationship between investment and sustainable development. For instance, *Agenda 21* adopted during the Rio Earth Summit, 1992 highlighted that foreign direct investment (FDI) plays a pertinent role for developing states to achieve basic needs in a sustainable manner (Newcombe, 2007). The *Monterrey Consensus* also highlighted that mobilizing FDI as one of the leading actions to achieve eradication of poverty, sustained economic growth and sustainable development

(A_CONF.198_11.Pdf, n.d.). The *Johannesburg Plan, 2002* also identified enabling environment for investment is one of the cornerstones for achieving sustainable development goals (*Report of the World Summit on Sustainable Development, 2002*).

The prominent investment law scholar *Andrew Newcombe* argued that Bilateral Investment Treaty (BIT) does not pose serious impediment to sustainable development. It appears that various sustainable development principles are slowly integrated into BITs and other international investment legal instruments (Newcombe, 2007). For instance, transparency and public participation are considered as one the key aspects of principles of sustainable development. Several changes have been brought to the North American Free Trade Agreement (NAFTA), the Convention on the Settlement of Investment Disputes between States and Nationals of Other States (ICSID), the ICSID Arbitral Framework, and the United Nations Commission on International Trade Law (UNCITRAL) Arbitration Rules to incorporate transparency and public participation related provisions (Saravanan & Subramanian, 2018). The provisions on amicus curiae participation were not seen in the NAFTA (chapter eleven) until the emergence of *Methanex* arbitration (Methanex Award, 2021). The relevant provisions were later introduced in Article 1128 of the Chapter Eleven, which expressly grants the permission to amicus curiae submissions and to access court documents. On the other hand, the ICSID Convention also amended in 2006, Rule 37(2) was added to allow the participation of non-disputing parties and to permit open hearings (VanDuzer, 2007). The similar provisions were later incorporated in the UNCITRAL arbitral framework through the UNCITRAL Rules on Transparency in 2013 (UNCITRAL, 2014).

The recently adopted Indian Model BIT, 2015 also introduced various changes in India's approach towards legal protection of foreign investment from the lens of sustainable development. For instance, the preamble adopts development-centric approach by aligning the objectives of sustainable development (Singh & Ilge, 2016). The 2015 Model BIT 2015 also ensures the high degree of transparency in arbitral proceedings by allowing written submissions (amicus curiae) from the civil society groups for interpretation of this treaty. Further, Article 12 encourages investors to adopt corporate social responsibility (CSR) principles to address issues such as labour, environment, human rights, and anti-corruption.

As international investment law has developed, there have been various efforts to fuse sustainable development goals into the BIT negotiation, structure and implementation of international investment agreements (Newcombe et al., 2010). Some lessons have been learnt from the successful implementation of sustainable development goals into BIT negotiation, but still, it remains some room for improving international investment law to make sure that it promotes sustainable development.

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Corporate elite need to change the Philosophy! A discussion on the Business-Society Relationship in Sustainable Development Context

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Abstract

Businesses negatively impacted sustainable development in society and ecology predominantly in the last two centuries. It was principally because the core ethos they followed was of “accumulation” by a small set of elites which is predominantly against the very principles of sustainable development which propounds that the current human beings irrespective of economic and societal position be able to meet their needs without compromising the ability of future generations in meeting their needs. To curb the menaces businesses have thrust on societies and ecologies, the concept of bottom line i.e., only profits have been expanded to triple bottom line (TBL) i.e., profits, people, and planet. However, this seems to be a self-serving approach for businesses. These entities need to turn towards “co-habitation” for real sustainability.

Keywords: responsible business, sustainable development, business-society, triple bottom line.

Business and Sustainable Development: A paradoxical congregation

Sustainable Development (Sachs, 2015) is a very novel and noble concept which promotes that the current generation of human race irrespective of caste, class, race, gender, geography etc. should be able to meet their needs without compromising for the needs of the future generations. This is in complete contrast to the parochial idea promulgated by the business firms which propagate the idea of “accumulation” of resources in gargantuan magnitudes for own future generation which naturally disowns other current human beings even of their needs. This causes humans with lack of real resources and inequality in society (Neckerman & Torche, 2007). Further to this, in this amassing of possessions for own future generations in enormous magnitudes absolute realities which can turn out to be useful for current generations are converted into fictional realities (Harari, 2014). This keeps the control of natural resources into the hands of certain set of individuals but leads to waste of natural resources. This is again in contradiction of the norms, principles, and values of sustainable development.

Business, the way it has been imagined and practiced especially in the past two centuries has been completely paradoxical to the very ethos on which the idea of Sustainable Development is based. The former, i.e., the business pursuits post the much-touted industrial revolution in a rapid manner as a quest of accumulation of resources for the few across geography in and across time led to breaking of the thread of both the ecological as well as the social sustainability. This issue of sustainability had not faced humanity for several centuries of existence before. The discussion on sustainable development was given rise by this uncontrolled pursuit for resource garnering by the few through their corporate endeavors.

Responsible business becomes even more ironic as there is conflict of interest between the personal benefit versus the societal and ecological protection. In these cases of stakeholder skirmish, majority of business leaders tend to act in manner and take decisions that leads to shareholder’s appeasement and other stakeholders whose bargaining power is less in the enterprise, their needs are kept at bay, even if they have contributed resources directly or indirectly. In short, businesses as practiced and sustainable development as envisaged are completely in contrast to one another in terms of its value norms and philosophical assumptions.

The Schema: Philosophical Research

It was very interesting and revelatory to investigate the philosophical, epistemological, and ontological foundations of business and sustainable development pursuits. This research aimed

to investigate the philosophical basis of management practice based on investigation of its epistemological and ontological foundations (Tsoukas, 1994). It not only took a positivist standpoint by asking what happened in the last two centuries, but also took a normative one to ask what can and should happen at this juncture to bring a new life to the business-society and in-turn ecology relationship?

This was carried out through conducting a thorough literature review of key papers and deriving the key concepts outlined in the papers which outlines, what is management? and what it envisages to do through its endeavors, strategies, and actions. In the latter part of the study, taking a normative standpoint, this study also points out flaws in past and contemporary managerial conceptualizations, operationalization, and practices. It then proposes a new untested, unverified, and unchartered conceptualization of management and managerial practice, which can be in synchronization with the philosophies of sustainable development.

Responsible Business Management – An oxymoronic Title to an acquisitive profession

The profession of management as a discipline of training in higher educational institutions and practice in companies developed in the context of businesses in the industrial age in the last few centuries. If one looks at the extant literature and the classical papers what one garners in that managerial profession and cadre was created by the rich aristocracy and the capital owners to derive efficiency and effectiveness out of labor work leading to multiplication of their capitals. In turn, the managerial class used to get substantial rewards (Tsoukas, 1994). At the turn of the 21st century this has resulted in severe inequality problems in human societies across the world (Piketty, 2014). This has been attributed to businesses and how they led to societal inequality (Bapuji, Husted, Lu, & Mir, 2018). Moreover, when humans start developing the belief that they are superior to other humans, it is only likely that other living beings and nature are also going to fall prey to this human arrogance. Though natural evils like the current COVID19 pandemic have put humanity even the most elite and powerful under the scanner of nature (Bapuji, de Bakker, Brown, Higgins, Rehbein, & Spicer, 2020), but human memory has been short-lived to cultivate humility.

Figure 1. Industrial structure and the causal powers of Management

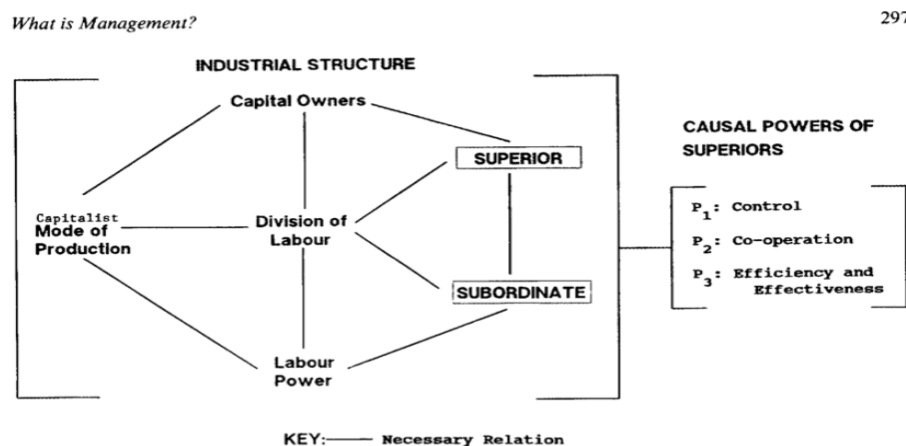


Figure 2. Industrial structure and the causal powers of management

Source: Tsoukas, H. (1994). What is management? An outline of a metatheory. *British journal of management*, 5(4), 289-301.

The profession and practice of past and contemporary business management (Khurana, Nohria, & Penrice, 2004) is in complete contrast to the principles and practices of sustainable living. The key idea to understand in this regard is that of “*accumulation for their own future*”

generations” which is totally against the idea of sustainable development which is based on “sharing with current generations irrespective of caste, creed, color, race, gender, geography etc. and protecting for future generations worldwide”. Hidden in this malicious idea is not responsibility but absolute irresponsibility both towards humanity and towards nature. The current absolute realities of nature are converted into tradable assets in markets i.e., fictional realities (Harari, 2014), which are turned into waste though there are needy humans for that. This kind of a practice creates and propagates a thinking which instead of strengthening the societal threads, weakens it and builds a culture of egocentrism. Also, a false sense of power develops in humans and a belief is instilled that they are powerful that other humans because of their material possession. Even nature is at helm and a resource for these individuals.

Contemporary Business Strategies for Societal Contribution: A Discussion on Stakeholder Theory, CSR and TBL

In response to the rising awareness regarding the harm businesses caused to societies and ecology in past two centuries, new theories, conceptual categories and strategies have been proposed to mend the wrongdoings. The stakeholder theory, Corporate Social Responsibility and Triple Bottom Line are some of the prominent and popular ones.

Table 1. Bargaining Power of Claimants Providing Productive Resources

| Factor and Claimant | Employees | Executives | Shareholders | Government | Society |
|------------------------------|-------------|------------|--------------|------------|---------|
| Legitimacy of claim | Low/Medium | Medium | High | Low | Low |
| Access to information | High | High | Medium | Medium | Low |
| Ability to take action | Medium | High | Medium | Medium | Low |
| Replacement costs to firm | Medium | High | Medium | Low | Low |
| Perceived dependence on firm | Medium | Medium | Low | High | High |
| Switching costs to claimant | High/Medium | Low/Medium | Low | Medium | Medium |
| Bargaining Power | Low/Medium | High | Medium/High | Low/Medium | Low |

Source: Bapuji, H., Husted, B. W., Lu, J., & Mir, R. (2018). Value creation, appropriation, and distribution: How firms contribute to societal economic inequality. *Business & Society*, 57(6), 983-1009.

Stakeholder Theory (Freeman, 2010) is a very interesting proposal, but it is very difficult to determine the stakes and even harder to claim the stakes. Businesses draw resources from societies and neighborhoods they are in but their ability to claim stakes is extremely low.

Government comes next whilst the top managerial cadre and the shareholders (Lazonick & O'Sullivan, 2000) have very high capacity to claim.

Corporate Social Responsibility (CSR) (Matten & Moon, 2004) not only remains a marketing strategy but a governmental mandate and regulatory norm and compliance in several countries, but the proportion demanded is very miniscule of what companies drain out of societies in terms of resources and hence appropriate measures must be in place to determine the amount to be spent on CSR. With no clear laid out compliance status, in India only amounts of the order of ten thousand crore Indian rupees remains unutilized year on year for the past few years from 2014 to 2018 (MoCA, GoI, 2019).

Triple Bottom Line (TBL) (Norman & MacDonald, 2004) i.e., financial measures that include three measures of profit, people, and planet instead of the initial Bottom Line measure of profits alone is another strategy businesses have adopted to make sense of where they are going wrong in their endeavors. The TBL at the core is based on the fundamental assumption that businesses and corporate elites are the ones who are planning not only for their companies but for larger societies and natural world surrounding them. This kind of large-scale planning endeavors is difficult to strategize, execute and are in most cases doomed for failure.

Turning the Management Philosophy Upside Down: From “Individualized Global” to “Glocalized Individual”

As discussed earlier, the conflict between the past and contemporary business management philosophies and practice of sustainability arose because of two primary reasons. *First*, a pursuit of self-centered private accumulation of resources in gargantuan extents where current and future family becomes the chief possessor without even caring for current and future public needs. This kind of a pursuit can break the societal thread of trust in public and societal institutions. *Second*, it can also instill in certain individuals a false sense of power over not only other individuals but also over nature. Thus, they start creating fictional realities tradable in asset markets in lieu of absolute realities which can go untapped (Bowman & Ambrosini, 2010), although having the ability to fulfill some need in the current generations. This kind of an “*individualized global*” business pursuit has brought perils to both society and ecology in the contemporary world.

The alternative to this is a set of “*glocalized individual*” may be geographically constrained in space but not in their thinking with regards to human race differentiation. In that respect these individuals must be global in nature i.e., non-differential irrespective of caste, creed, color, race, gender, geography etc. Moreover, there should be clarity in their minds with regards to their situatedness in ecology including the flora and fauna. Management practice construed on tenets of right situatedness of humans in ecology and non-differential human relationships at least in certain aspects without compromise can only lead to superior societal and environmental outcomes as desired.

Look Beyond the Surveillance Capitalist Architectures: A note for future leaders

It is disheartening to note that there are emergence of new tools, techniques, and technologies but the primary architecture of resource drain and accumulation remains the same. Instead of creating more distribution channels, mechanisms and modalities of sharing, there is more focus on building institutions, technologies, tools for solidifying the former. Though sharing economy and successful examples of endeavors in this direction like Airbnb, Uber, Snap, etc. and many more do exist, but challenges are many and solutions inadequate before them.

Some of the key principles on which future business leaders, interested in sustainable development and a rewarding business-society relationship, need to work on and prioritize are:

1. Act not as business leaders but redefine their roles as leaders with multi-sectoral responsibilities i.e., overall accountability of society and ecology.
2. Businesses must not think only of pecuniary benefits and profit-making for the shareholders and paying hefty salaries to their top management. They should benefit their staff at the middle and lower levels in economic terms and act for the betterment of the neighborhood where they are located. Also, business decisions should be such that minimal ecological damage in view of all stakeholders i.e., parties affected, even if there is substantial delay in such decision-making.
3. Modern digital technology must not be utilized as a panopticon to penetrate individual's pockets by businesses and persuade them for purchases leading to increased sales for companies and deepening pockets (Zuboff, 2019). It should rather be utilized in a reverse way to help destitute individuals with a basic money for daily survival from the CSR money at helm.
4. Instead of developing a penchant for scale, they must develop a proclivity towards geographical situatedness, localization, serving the neighborhood population and developing its ecology. The scale many a times turns out to be an adversary of sustainable endeavors and future leaders must pay heed to this fact (Schumacher, 2011).
5. Future business leaders must see themselves also as builders of new worthy societal norms and protector of old noble threads that have bound societies and democracies together. The key defining principle for this can be that one does not get ownership, proprietorship or custody of a certain natural asset/property based on birth or decent but on his/her gained and proven ability acquired/attained over a period through training and experience even without having any blood relation with the previous holder/guardian. If such fluidity is brought about in the way assets are exchanged, the publicness aspect of it can be increased. This can also help increase the moral thread of the society. This seems to be a very hypothetical proposal to make in a society which values blood relations especially in case of property right allocations in cases of descent (Carney & Nason, 2018). But only new thought can bring about new action.

If there are problems, there are also solutions, one needs to change the standpoint. Look at the world from a completely new perspective. There are times in the life of professionals when a paradigm shift is required, this is the time for business leaders to wake up and turn the table upside down. They need not become individualized leaders for a global world and guide the society also in the same direction. Alternatively, they need to take a pause a rethink on their profession and actions of their peers of the past. They then need to take a backward turn and understand that being a localized leader with a global outlook with a focus on the outward i.e., the society and the ecology is not only good enough but can yield great outcomes for the societies they are concerned about.

Businesses have not failed to cause harm to societies and ecologies either knowingly or unknowingly. But the time is ripe for business leaders to identify where things went wrong. It is never too late to mend and taking some backward steps sometimes is an augur of a considerable headway into the future. *"It's time to make management a true profession"* (Khurana & Nohria, 2008).

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India's Covid-19 Vaccination Policy-An Analysis of Problem, Politics, and Policy

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Abstract

The Covid-19 pandemic impacted the largest democracy in the world quite badly and despite national and state lockdowns, the country was reeling under the second wave of the pandemic. Despite one of the few countries to produce Covid-19 vaccines, there are severe supply shortages and due to the decentralized approach by the central government for vaccination of citizens between the age of 18 and 45 years, a fractured market has been created, where the states are left to fend for themselves. The paper analyzes the failure through the Multiple Streams Framework, laying out the shortfalls in the policy and politics stream that acerbated the problem stream in a convoluted manner.

Keywords: Covid-19, Multiple Streams Framework, Vaccination, Policy Analysis

Introduction

India is world's largest generic drugs manufacturer and the second largest exporter as well. Due to this distinction, it is referred to as the 'Pharmacy of the world'. The country is also regarded as the vaccine manufacturing hub of the world because it produces and contributes an impressive 60% of the world's vaccine supply. India possesses the capability to produce over 3 billion Covid-19 vaccine doses in a year (Khan S and Dhama, K, 2021); and yet, the country is reeling under the effects of poor planning, lack of foresight and a see-saw of the procurement and distribution policy.

The first phase of vaccinations for the frontline workers (healthcare worker, police force, armed forces) started from January 16, 2021 and it aimed at vaccinating around 30 million citizens. By the time second phase started from March 1, 2021, only about 14 million eligible frontline workers were vaccinated. However, from there to the second wave that hit the country in April, 2021, the country went through the worst period in terms of mortality and spike in the number of active cases.

Indian government decided to manufacture indigenous vaccines in late June 2020, about six months after the first known case in the country and three months after the nationwide lockdown. Fig.1 illustrates the timeline of the pandemic, vaccine development and the vaccination policy in India.

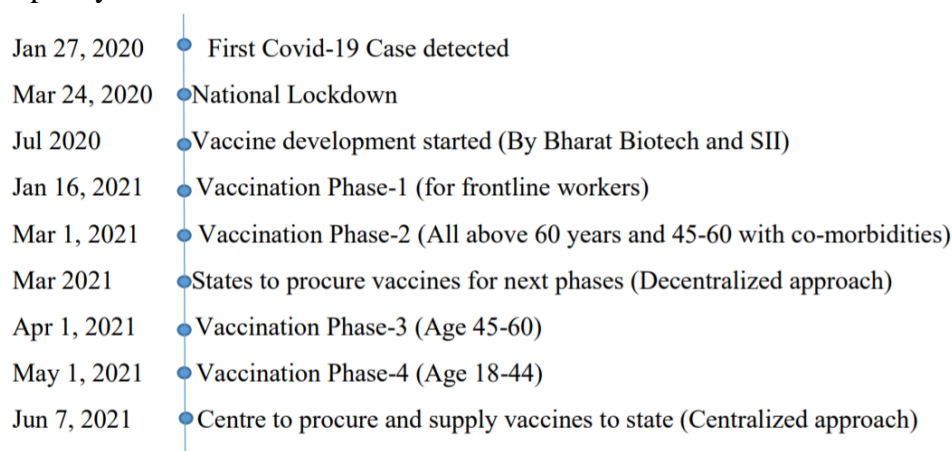


Figure 1. Timeline of the Covid-19 pandemic and Vaccination Policy

The Situation

Table 1 provides the important facts by June 10, 2021 about the pandemic and the vaccination policy of India. As can be seen, the number of infections and fatalities are still a large number. Even after five months of vaccination drive, only about 14% of the population has received at least one shot and only about 3.4% of the population has been fully vaccinated. The rate of vaccination per 100 citizens for India as of June 3, 2021 is 15.82%, while the global average is 26.4% (Statista, 2021b).

Multiple Streams Framework

The paper analyzes the pandemic and the policy decisions for vaccine development as well as the vaccination policy using the Multiple Streams Framework. It helps in understanding three 'quasi' independent streams of problems, policy and politics and analyzing their interaction via focusing events, indicators, or public opinions that translate into government decisions and activities.

The problem stream consists of larger perceptions, opinions, and attitudes as held by various stakeholders pertaining to a particular issue (Mukherjee and Howlett, 2015). This could be around the state of public health, education, transportation or any issue which demands public attention and possibly reach a tipping point in the garb of a focusing event or an external event like a war. The Covid19 pandemic surely qualifies as a problem that has impacted the whole world and is the most immediate problem that requires an immediate solution.

The policy stream is made up of the existing policy (or the absence of it), the expert opinions of scientists, researchers, advocates, analysts and others in the civil society that could have an influence on the solution to the policy problem. However, if there is no focusing event or an indicator of a problem approaching, a government is typically caught off-guard, which essentially has happened with most countries around the world.

The politics stream carries the governance aspect of the policy, where it gets influenced by national 'mood', power shifts within the legislative and executive branches of the government, etc. (Stimson, 1991). Events like elections or cabinet shuffles, judicial appointments, and even international relations would alter the course of a policy and its adoption by the government.

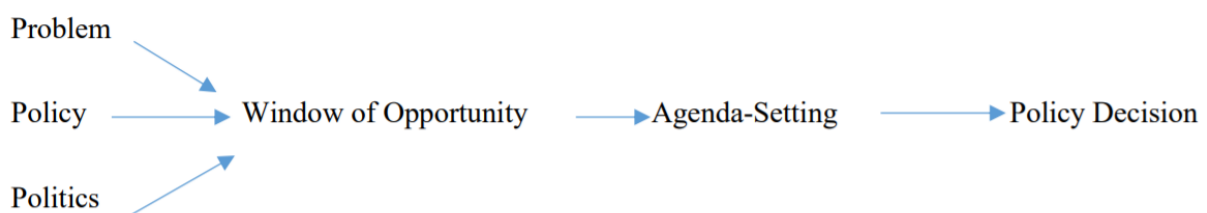


Figure 2. Multiple Streams Framework for Policy Decision (Kingdon, 1984)

Kingdon (1984) postulated that these three streams exist in a 'quasi-independent' fashion and they can interact and impact either of the other streams to open up a 'window of opportunity', which is often used by a policy entrepreneur to set the policy agenda and usher in a policy action enacted by the government.

The Covid-19 pandemic is one of the biggest problems that world has ever seen, in terms of sociopolitical as well as the economic costs in managing the pandemic. It is estimated that world has lost about \$10 trillion in forgone GDP growth (The Economist, 2021), while India has lost about \$26 billion in the period of the national lockdown alone (Statista, 2021a). Debata, B.,

Patnaik, P., & Mishra, A. (2020) have elaborated on the impact of the pandemic across different sectors in the Indian economy.

The Problem

Vaccine Production- Capacity and Gap

Indian government awarded contracts to manufacture Covid-19 vaccines to two organizations in August, 2020. Serum Institute of India (SII) based in Pune, developed Covishield with AstraZeneca, while Bharat Biotech, based in Hyderabad obtained a manufacturing licence from the Indian Council of Medical Research (ICMR) to produce Covaxin in collaboration with National Institute of Virology (NIV). Covaxin is an indigenously developed inactivated vaccine.

Before the pandemic, India had seven public sector facilities approved for vaccine manufacturing; although, three of those have been suspended since last few years. It is not clear why the central government only awarded contracts to only the aforementioned manufacturers when there more available.

Once the vaccines were developed and the accelerated clinical trials were done with desirable results, the government bought about 350 million doses from the two manufacturers at about \$2 per dose (Inamdar N. and Alluri A., 2021). This made the doses the cheapest in the world. However, the amount was only enough to vaccinate about 20% of the population, which raises question about the government's assessment of the situation and the planning to vaccinate the world's largest democracy where more than 950 million eligible citizens reside.

Vaccine Diplomacy

The government was so confident of its ability to meet domestic demand for vaccines that it allowed more than 60 million doses to be exported or donated to other countries between January and March (Slater, 2021). It was dubbed as 'Vaccine Maitri (Friendship in Hindi)' and earned India goodwill globally but a lot of ire at home once the second wave of the pandemic hit and the vaccine supply shortages could not meet up with the demand. Under the vaccine diplomacy, India exported over 66.3 million doses of indigenous vaccines to ninety-five countries, either as aid or under commercial contracts. About 7.85 million of these were provided as aids to neighbouring countries, while about 200, 000 were provided to the UN Peacekeeping forces. (Arjun K., 2021)

Delay and Supply Shortage

The government of India had approved Covishield and Covaxin for clinical trials in July, 2020. After the trials were done, the very first order of vaccines was placed in January, an amount of 16 million vaccines, that is 8 million individuals counting two doses per person. As the situation turned grim, the central government placed an order of 100 million doses from SII and 20 million from Bharat Biotech, in March which still was quite short of the requirement. Finally, an order of 160 million doses from the two manufacturers was placed in May which is supposed to be delivered by July, 2021.

If one needs to assess the time that would take to vaccinate all eligible citizens then one can turn to a recent vaccination drive conducted by the country, wherein the Measles-Rubella doses were given to 405 million children and the whole project was completed in three years (Vaidyanathan, 2020). In the pandemic, the numbers are more than double of what the government has previously achieved.

The Policy

Mass Vaccination Strategy

India has had immunization policy since a long time, which currently runs as Mission Indradhanush. The country is also a success story for eradicating polio via the Pulse Polio campaign. Thus, in terms of policy execution, the strategies exist for vaccine development and implementation. However, dealing with a pandemic of this magnitude with an urgent necessity to vaccinate all has never been witnessed. This requires capital, manufacturers and foot soldiers to drive vaccination on a war footing in addition to the infrastructure required to store the doses.

Fortunately, India possesses the capability to mass produce the vaccines. There are seven registered public sector undertakings (PSUs) that can produce the required number of doses; although, three of these have been delisted and never been revived, along with a now defunct Vaccine Complex in Chennai (Down to Earth, 2021). Despite possessing the technology to produce and export vaccines indigenously, India only asked two of the four eligible manufacturers to produce a vaccine, and that too three months after US and UK did in their respective countries. The government asked state-funded Serum Institute of India (SII) and a private firm, Bharat Biotech, while the two others were left in the dark. The inclination of the government to move away from the public sector vaccine manufacturers is evident in the National Health Policy 2017; and yet, not enough manufacturers were activated to begin with. The strategy from the beginning was to vaccinate the healthcare workers, police and armed forces, and the elderly population. A couple of months later, people above the age of 45 years with co-morbidities were eligible for shots. Finally, all Indians over the age of 18 years were eligible from May 1, 2021. However, there was no increase in the supply. It meant that around 950 million citizens were eligible with only 160 million vaccines to be supplied.

The Control of Public Health

Public Health in India is a state subject, which means that the states are the chief executives on the issues related to public health and its governance. There are national policies, programs and schemes that the states need to roll out, but with their own adjustments with the state policies. This became a stumbling block during the implementation of lockdowns after the national lockdown was lifted and states decided on their measures. This approach makes sense as the states are aware about the ground realities and can enforce local measures to contain the spread of the pandemic.

However, when it comes to vaccination, the agencies like SII are centrally funded and answer to the central government and there were other public sector entities who could have been roped in. In terms of public administration, it would have made sense if the centre would have been the sole purchaser and distributor of the vaccines. However, that did not happen and the states were left on their own to negotiate with the vaccine manufacturers. This derailed the process and allowed disparity in the times of the pandemic to creep in to the process.

The Politics

Centralization or Decentralization?

The central government made it their responsibility, in phases 1 and 2, to vaccinate the frontline workers and citizens above 45 years of age, for whom the shots are free of cost and the drive is financed out of the \$4.8 billion that the government had allocated for Covid-19 vaccines.

In the second of vaccination, when it was opened for citizens over 45 years of age, the government controlled and reserved half of the doses for continued vaccination of frontline workers. The other half was sold at higher prices to different states and private organizations to

vaccinate individuals above the age of 18 years. This was a decision ridden with faulty assumptions about the control over the pandemic and fast approaching herd immunity.

In phase-3 of the drive, the central government decided that for the people below 45 years of age, the states are free to procure the vaccines for their citizens and they would pay for the same. This was a decentralized approach which effectively created a fractured market and led to confusion and disharmony within states and the centre. The trouble was that the manufacturers could price the vaccines and pre-declare those, which effectively created a free market and a move to duopoly, where the two manufacturers would dictate the terms.

The outcome of this was that the country witnessed acute vaccine shortages and supply breakdowns. While the centrally procured vaccines costed \$2 for Covishield, in the free market, the same were priced at \$4 for state governments and \$8 for private organizations. Covaxin, whose production was one-tenth of Covishield to begin with, was priced at \$8 for state governments and \$16 for private organizations. This made the states to directly compete with the private sector and some states have to spend as much as 30 % of their health budget on the vaccination.

Many states were forced to suspend their vaccination drives. In the national capital, Delhi, state authorities had to shut down some vaccination centres as they ran out of Covaxin. The state of Mumbai suspended the drive till they procure their own stock of vaccines and implement it smoothly. At least twelve states could not procure vaccines from the indigenous manufacturers and had to seek them from global manufacturers on their own. The Supreme Court of India has been asking and reprimanding the government of India on the vacillating vaccination drive. In late May, it asked if the Centre's policy was to create a competition among the states. The apex court asked the centre to furnish a plan to vaccinate all Indians above 18 years (Mathur A., 2021). In June, it commented that the vaccination policy was 'arbitrary' and 'irrational' as the people above 45 years of age are getting vaccinated for free, while others have to pay for the same (India Today Web Desk, 2021).

The convolution in the problem begins when the states are procuring vaccines for their citizens, but the tenders floated by them need to be approved by the Central government, who has agreed to fast-track these approvals for faster procurement, but the manufacturer must have an approval by any of the international regulatory agencies: United States Food and Drug Administration, European Medicines Agency, UK Medicines and Healthcare Products Regulatory Agency, or the Pharmaceuticals and Medical Devices Agency in Japan or any manufacturer that is listed in the World Health Organization's Emergency Use Listing (Arjun, K, 2021). The caveat is that the importer or local partner for the vaccine will still need to follow India's Central Drugs Standard Control Organisation (CDSCO) guidelines in order to gain approval from the Drug Controller General of India. This, albeit making the process with checks and balances, keeps the decision with the centre and thus, delaying the procurement for the states further.

An alternate scenario could have been where the central government could have done a forecast of the demand for doses for the larger population and placed an order with the indigenous manufacturers who surely have limited capacity. To abate the expected supply crunch, India could have approached Global Alliance for Vaccine and Immunization (GAVI) for which India is eligible and has received vaccines in the past as well. However, due to the lacunae in forecasting and underestimation of the situation, India is now fighting hard to match the demand gap.

Conclusion

When the problem is analyzed from the political and the policy perspective, it becomes evident why Indian vaccination program for Covid-19 faltered despite possessing the capability to produce the vaccines. The government did not activate enough vaccine manufacturers, placed the orders late and for lesser amounts. The trouble for the vaccination drive started when it underestimated the second wave of Covid-19 pandemic. The politics of procurement and distribution further exacerbated the faltering vaccination drive. The government should have pursued a centralized approach to vaccine procurement and distribution within the states rather than the decentralized approach, which effectively created a fractured market in the times of Covid-19 pandemic. The apex court had to come in to rein the misalignment and the central government is now forced to centralize the vaccination policy.

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An Analysis of Belt and Road Initiative of China in the Context of Sovereign Debt

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Introduction

This paper aims to analyze the implications of the Belt and Road Initiative of China in the context of sovereign debt. Since, China would be investing in several developing countries, the debt implications for these sovereign borrowers is a concern. Specifically in the context of sovereign debt crisis faced by some developing countries. To this end, this paper over views the initiatives taken by China when some of its sovereign borrowers have faced debt crisis. Will China behave in the same manner or will the foreign policy be different is the primary focus of this paper.

The debt relief initiatives undertaken by China are peculiar as China is not a supporter of the Paris Club. Its debt relief programme differs substantially from the ones that are endorsed by the multilateral institutions and the Paris Club. China has not bound its beneficiaries to the conditions of the HIPC but still extends 100% debt relief to African countries. In 2007, China agreed to write off all interest – free government loans to HIPC countries that were overdue at the end of 2004 (Sukoon, 2010: 97).

Although the past decades have seen marked and significant improvement in the provision of debt relief to distressed sovereigns; the picture is not equally good when it comes to sovereign debt restructuring processes. The minimal support towards establishing a fair and equitable debt restructuring process is primarily due to the interconnectedness between debt problems and political, socio- economic conditions of the creditor as well as the debtor countries. Legislative efforts have been undertaken by few national governments like Belgium and UK, but they have been less successful than expected in motivating other governments to adopt similar legislation.

Acknowledging that these initiatives have assisted in reducing the indebtedness of countries and bring them back on the path of development, the ad-hocism perpetuates as the majority of the international initiatives are voluntary in nature. This voluntariness has created conducive prospects for various commercial lenders to decline to participate in restructuring. Often these creditors have purchased the defaulted debt instruments in the secondary market at substantial discounts. They hold out for other creditors to extend debt relief and subsequently pursue repayments aggressively (Lumina, 2011: 298).

When countries like Norway extend bilateral debt relief to a country, it is included in the calculation of the aggregate debt relief delivered under the HIPC Initiative. This makes such unilateral relief to be computed as a subset of the relief received under the HIPC instead of being an addition to it. As a consequence, such bilateral effort reduces the multilateral institution's proportionate share than it would have been otherwise, instead of being treated as an additional step towards debt sustainability (Ministry of Foreign Affairs: Norway, 2004: 31). This violates a well-established principle of the Development Committee declared in the communique of 1999. It was decided that the assistance provided by any other fund should be in addition to the aid provided under the HIPC multilateral debt relief initiative (ibid).

Initiative by China

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These initiatives do not accept the unfair and unjust manner in which most of the debt was accumulated in the first place and hence do not acknowledge any debt as unpayable and unfair debt. With no legal entity or statutory rules of procedure, the entire process is ad- hoc and left to the discretion of the creditors who most often than not refuse to agree to take responsibility for their role in creating a debt crisis. Nor do they allow indebted countries to have a say (Lumina, 2011: 298). More importantly, the debt relief initiatives have targeted mainly poorer countries. For the developing economies that have distressed debt situation, there have not been enough measures.

¹ Progressive legislations to inhibit the opportunistic behavior of rogue creditors have been adopted by a few countries but the laws of many other countries stand unaltered. In such a situation it is likely that vulture funds can pick and choose avenues that are favorable to enforce their claims. To circumvent this problem, it is suggested that the changes are incorporated into the Articles of Agreement of the IMF rather than individual countries amending their domestic bankruptcy law (Raffer, 2001: 6).

² It is a joint committee of the IMF and the Bank that meets biannually to decide upon international development agendas at ministerial level.

Moreover, debt write-off may not be the right step towards prudent financial management. Voluntary and ad-hoc debt relief is not a remedy for the myriad of problems associated with excessive indebtedness and inadequacies of sovereign debt restructuring mechanism. There is a definite deficiency of a comprehensive approach towards sovereign debt restructuring that is based on an internationally accepted framework. A piecemeal approach does not suffice and fails to deal with the various problems of restructuring sovereign debt. The initiatives do nothing to cure the root cause of the problem, of why nations become indebted in an unsustainable manner.

The impetus for developing an international regulatory framework for restructuring sovereign debt is not a recent phenomenon. The Paris Club initiative was undertaken in 1956 because the international community realized that sovereigns are facing distressed debt situation. One of the first well-crafted proposals was made in 1979. Creation of an "International Debt Commission" was proposed as the first policy initiative for sovereign debt restructuring by the Group of 77 developing countries (Rogoff & Zettelmeyer, 2002: 472). It failed to materialize because of opposition from the creditor countries.³ Later, the Group of 77 effectively championed the United Nations General Assembly (UNGA) resolution that recognized the inhibition imposed by opportunistic vulture funds seeking benefit from distressed sovereign debt and undermining a State's efforts to restructure debt. It remains an uphill battle to actually realize it as countries with major financial centers like the US, Germany, Japan, and the UK which are key players in global finance voted against it (Khor, 2015: 3); and the chances are grim that it would have had powers more than making mere recommendations (Rogoff & Zettelmeyer, 2002: 472). In 2000, UN Secretary General Kofi Annan presented Millennium

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- 1- ³ There is often an overlap between the interests of commercial creditors and creditor countries. There are few important financial centres like New York, Zurich, London, Hong Kong and Frankfurt. It is the economic interest of the creditor countries that their status as an international financial center is guarded.
 - 2- In the case of Republic of Argentina v. Weltover, Inc.³, as the case was filed in New York court, the district court held that a favorable judgment would guard New York's status as an international business center as businesses will choose New York's financial centers to have payments if they know that whenever required they can utilize U.S. courts to protect their legal rights. Hence a choice "to accept payment in New York is associated with the United States' interest in protecting its citizens" (Lew, 1993: 746). It should be borne in mind that New York law governs significant share of sovereign bonds that are still due and this decree sets a legal precedent for many more such cases to follow.
 - 3- The prominent financial centers like New York and London, will be preferred for conducting business and receiving payments if the creditors are confident ex ante that they can utilize the domestic juridical system to sue and also get a favorable judgment in these places if need arises.

Report- *We the Peoples. The Role of the United Nations in the 21st Century, 2000*. He encouraged for the creation of a debt arbitration process to strike a greater balance between the competing interests of debtor countries and their commercial creditors (Ministry of Foreign Affairs: Norway, 2004: 22).

In 2002, a similar recommendation from the IMF for an improved sovereign debt restructuring mechanism (SDRM) was made. However, it focused more on preserving asset values in case of default and protects creditors' rights.⁴ Immediately after that, the US Treasury Department proposed a framework for sovereign debt restructuring on the lines of the US bankruptcy code for corporates. In 2012, the Intergovernmental Group of Twenty- Four on International Monetary Affairs and Development Communiqué highlighted the need for further research on sovereign debt restructuring mechanisms⁵ (Reddy, Valluri, & Ray, 2014: 275). In 2012, under the aegis of Centre for International Governance and Innovation (CIGI) and Institute for New Economic Thinking (INET), a five-point agenda for global arrangements for resolving sovereign debt crisis has been proposed (Schadler, 2012). With the emergence of sovereign debt crises in developing and developed countries, the United Nations Conference on Trade and Development (UNCTAD) proposed to “improve the coherence, fairness, and efficiency of sovereign debt workouts. It established an ad- hoc Working Group on a Debt Workout Mechanism in 2013 composed of stakeholders and independent experts”.⁶ Most recently *The South Summit of the G77* in Bolivia in June 2014 called for an appropriate international sovereign debt restructuring framework (Khor, 2015: 2). Jubilee movement has proposed for Free and Transparent Arbitration Processes (FTAP) which is endorsed by the Norwegian Campaign for Debt Cancellation (SLUG) (Ministry of Foreign Affairs: Norway, 2004: 22).

In September 2015 the UNGA passed a binding resolution on the “Basic Principles on Sovereign Debt Restructuring Processes.” (A/69/L.84). It laid down the basic guidelines for sovereign debt restructuring guided by the basic principles of international law as well as customary law. The binding resolution is adopted in response to the exponentially growing concerns about debt sustainability in the backdrop of transnational economic fragility. The UNGA resolution intends to defend the fundamental human rights of the indebted countries' citizens against the “speculative interests of financial capital” (Rossi, 2016: 188). Several proposals for an international regulatory mechanism for restructuring sovereign debt have been made, but unfortunately, it remains an incomplete task.

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⁴ A detailed analysis of SDRM is presented in the section- Lopsided Institutional Efforts.

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A study on Green Practices and Compliances in Indian Companies

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Abstract

Sustainable goals have been on the corporate agenda for quite some times. Companies are trying to adopt green practices in their operation. This research is a pilot study to understand the corporate adoption of sustainability and Green practices. In this research, we have taken a survey of 35 corporate executives of the rank of manager or senior executive. The questionnaire was distributed to the respondents using Qualtrics which is an online research platform. The responses were analysed using tables obtained from Qualtrics. The results suggested that, most of the companies have started treating sustainability as a specialized task and have started integrating the green practices into their operations. Compliance to the standards like ISO 14000 has increased and companies have also started taking steps to follow the regulations laid down by Government in connection with water pollution and air pollution. Also companies have taken significant steps to reduce the carbon foot prints in their operations and have started managing wastes in a better way.

Key words: Sustainability, Green practices, compliance

Delineating Philanthropy and Responsibility in Parsi Businesses: An Analysis Across Timelines

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Abstract

Acts to social welfare (read responsibility) have been an integral to Indian ethos across different religiocultural segments. This study focusses on Parsis, a minority community but highly active in business activities. It traces their historical and cultural lineage of philanthropy and social development and the ways it has contributed to nation building.

This paper identifies the motivators of responsibility in Parsi-owned business units. It also brings out the Indian-ness of corporate social responsibility (CSR) and elucidates the role of communication in promoting responsibility in businesses owned by members of Parsi community. A systematic content analysis of biographies of leading Parsi entrepreneurs is made to bring out evidences. The paper discusses the current stance of mandatory CSR against the voluntariness of philanthropy and charity practiced earlier.

Keywords: Responsibility, Philanthropy, Communication, Indian culture, Parsi, CSR.

1. Introduction

Social welfare has been intrinsic to the Indian culture across the timelines. All the various religions practiced in India promote acts of social welfare. To mention a few, the most common religion in India, Hinduism prescribes charity as a noble deed and it finds reference in the ancient Hindu Vedas. Charity is believed to help in attaining '*moksha*' or salvation. This act of *dana* (charity) is considered an essential duty or dharma in Hinduism. Islam makes reference of *Zakat* or the act of giving alms. It is one of the 5 pillars or basic acts in Islam. '*Asha*' and '*Yasna*' exists in Zoroastrianism (Masani, R, 1977). These religious values are practiced as ways of 'giving back to the society' in the form of charity, philanthropy, etc. It is believed that social welfare is a part of an individual's responsibility and a service to God. Since most businesses in India are family-run and are highly influenced by the values of the owner, deeds of responsibility also find prevalence in commercial and business activities (Ernst & Young, 2016).

Indian business demographic shows dominance of a few communities like Chettinads and Marwaris (Hindus), Bohras (Muslim), Sikhs, Parsis (Sundar, 2013) all of which are a part of a specific religious sect. Literature indicates that all these communities have been contributing to social needs, which in the past 3 decades have been labelled as Corporate Social Responsibility (CSR).

This research is interdisciplinary in nature and draws from the field of religious philosophy, cultural studies, Indian literature, and management. It traces the culture and history of responsibility in India and analyses it from a religio-philosophical perspective through a critical review of biographies of three leading Parsi business leaders.

Philosophically, the concept of responsibility is dynamic which changes its role according to the environment (Eshleman, 2014). Palsetia (2015) refers to a study by Douglas E. Haynes' who notes that the long prevalent acts of welfare in India got different nomenclatures during colonialism. A set of new words carrying the currency for the British, like 'public good', 'good governance', 'humanitarianism', and 'loyalty' cropped up. A common current across the various terms was a high sense of morality, which was an individual's free will. (Bivins, 2006).

Social welfare/responsibility is rooted in meeting the social needs and solving them with proper resource allocation and utilization. This cumulative acts of responsibility leads to holistic development of the country in terms of civic development, education, health, etc.

2. Objectives

The three main objectives of the paper are –

1. Identifying the reasons that motivate responsible activities in business
2. The role of communication in the implementation of responsible activities in India.
3. Indian Ethos of CSR vis-a-vis the history and current practices.

3. Method

The research includes data from research papers in the domain of responsibility, Parsi businesses in India, and biographies on Parsi businesspersons. Based on the data, the content analysis was conducted using a set of key words (Appendix 1).

4. Religion, Culture, and Community: The interconnected phenomenon

India has had invasions which has left the country infused with different religions, cultures, and, community. As a result it is evident that business activities are led by different religions, to mention a few, Chettinads and Marwaris (Hindus), Bohras (Muslim), Sikhs, Parsis (Sundar, 2013). Interestingly, while business owners come from diverse religious backgrounds giving in the form of charity, donations, and other philanthropic acts remains a commonality across various religions.

Zoroastrianism or the Parsi community although a minority continues to contribute in the process of nation building (Parsi community lauded for role in nation-building, 2016). The migration from Persia to India is a sweet story of sugar in milk that continues to be one of the most enriching migration experienced by the country (Singh, 1986). The founding principles of the religion - *Humata, Hukhta, Huvarshata* (Good Thoughts, Good Words, and Good Deeds) continues to be the driving force behind any business venture. Another principle, 'Asha', inclusive of good deeds includes righteousness (Masani, 1977)

4.1 Revisiting the history: The Community's Beliefs and Acts

R P Masani, the author of the book - *The Religion of Good Life, Zoroastrianism* cites an interesting practice in ancient Persian cities:

There is a free square in every Persian city, from which commerce and industry are excluded, and contains the palace and the chief municipal buildings. There are no lessons in the curriculum but only debates and *trials* dealing with the practical events. These are conducted under the leadership of an appointed elder, and occupy the major part of the day. The children are sent to the school to learn righteousness. (Masani, 1977). Compassion and philanthropy are essential to each other. In order to map a cause to 'invest' the funds, one has to have an affinity towards or have the compassion for the cause, and that ultimately results in 'effective giving' (Lala, 2011).

5. Revisiting the history of Parsi Philanthropy in India

The community made its mark felt since the colonization in India, with its various enterprises. Parsis owned some of the prominent businesses like commodity traders, overseas traders, etc.; sharing a closer alliance with the colonizers and served as a bridge between the Indians and the British. Equally, they were an active participant in the struggle for freedom.

There are multiple factors responsible for the community to excel and flourish in trade and business, earning considerable amount of wealth of which resulted in their urbanization influenced by migration. With the possession of wealth, there was an easy access to the resources, which were often used for philanthropy. However, the other factors, which benefited were-

1. Strong economic standing in terms of geographical location
2. Higher occupational mobility (example – liquor business)
3. Shared beliefs within the religion which is also focused on the larger welfare
4. Individual's 'our' manifestations of religious sentiments and therefore often business decisions were driven by values of a specific religion
5. Open-mindedness of the religion led to successful collaborations with the colonizers. (Guha, 1970).

5.1 Philanthropy in different fields

5.1.1 Civil Development

One of the oldest recorded acts of philanthropy in India by a Parsi businessperson dates back to 1822, where Jamsetjee Jejeebhoy personally remitted the debts of all the poor in Bombay's civil jail. (Palsetia, 2015).

Jamsetjee Jejeebhoy was one of the most prominent and ardent philanthropists of the country witnessed. Born in 1783, Jejeebhoy had a life punctuated with hardships until he became a successful self-made businessperson. However, his philanthropic activities continued in spite of his struggle. He was the son of a weaver and accumulated considerable wealth through overseas trade. Orphaned at the young age of 16 years, Jejeebhoy embarked on a journey to Calcutta with his cousin with a mere amount of 120 rupees or £12 and spent a little over a year working as a bookkeeper and translating Bengali. He returned to Bombay with the money that he had earned and began trading to Bengal and China. He earned goodwill and confidence of the people, which enabled him to borrow £200. This further increased to £3500 at a premium rate of interest and led to trade more extensively with China and personally travelling to the country. He had a strong business acumen and subsequently made five voyages to China enduring many hardships. In 1807, he made Bombay as his permanent home and business.

One of the highest amounts from his records of charity was spent on the Jamsetjee Jejeebhoy hospital - £16,050, which continues to be one of the most reputed hospitals in the country. In his lifetime, Jejeebhoy donated to 125 notable charities and was estimated to have donated over £230,000 to charity. When Jejeebhoy married Avabai Batliwala in 1803, she shared his fervor for philanthropy and charity and was the motivator behind the construction of Mahim Causeway in 1845.

5.1.2 Education

Another notable Parsi businessperson is Manockjee Cursetjee. He was a judge, a reformer and a proponent of the female education in the country. A noted Anglophile, Cursetjee laid a special emphasis on the female education in English and started the first English school for Indian girls in 1859 from his own house - Villa Byculla. The staff included an English governess and his own daughters. The initiative was encouraged with support from Kharshedji Nasarwanji Cama, an ardent supporter of education, and the position of women in the society, and John Elliot Drinkwater Bethune, and Anglo-Indian lawyer who shared the same fervor. Needless to mention, the new tradition of initiating female education was preceded by education of males. Education of Parsis began with two main subjects - Gujarati and religion. In 1844, it included English and later took the form of an English school whose pioneers were Dadabhoy Pestonjee Wadia, and Bomanjee Hormarjee Wadia with the leadership of Henry Hinton. This also

encouraged many more boys' schools to come up. . Sir Jamsetjee Jejeebhoy Parsi Benevolent Institution schools, which by the year 1860 had opened eighteen schools at different locations and boasted the strength of 2000 Parsi youths of both the genders.

Cowasjee Jehangir Readymoney another trader and donated money for higher education - the University of Bombay, by providing the infrastructural support. . He was also a member of the Civil Engineering department in the university. Sorabji Shapurji Bengali, a merchant, was another Parsi reformer and who was a key supporter of female education in the community. He also invested in Parsi-Lying-in Hospital and recruited women doctors from England to treat women and children. (Palsetia, 2008)

5.1.3 Healthcare

In the 19th century, the infant and maternal mortality rate was quite high and midwives carried out childbirth. It was during 1887; Dr. Temulji Bhicaji Nariman's interest in postpartum infections led him to co-found one of Bombay's first Maternity Hospital - Parsi Lying-in Hospital (Nariman, 1941).

6. Transition of Responsibility

Philanthropy in India today, has transitioned from trusteeship to the contemporary Corporate Social Responsibility. Philanthropy conducted by Parsi merchants in the late 19th century was more of a corporate philanthropy - voluntary in nature, via donation to places of worships, social causes, and subsequent nation building. The same transformed as social responsibility during the times of Gandhi and Nehru respectively and was more of an outcome of the influence of the political leaders. Today, this has taken the form of Corporate Social Responsibility (CSR), a mandate as per the Companies Act, 2013, governed by the clause 135. i (White, 2008; Singh, A., & Verma, P. 2014) (Ref. Appendix 2) Two organizations – Godrej Group and Tata Trusts are proactive in their CSR communication on different SNSs (social networking sites) maintaining a strong social media presence. However, the strategies adopted by the two organizations differ distinctly. The two organizations often engage in celebrity endorsements and collaboration.

The Wadia group and Shapoorji Pallonji Mistry group maintain their own websites, which has a section dedicated to the CSR projects and undertakings. These two groups engage in one-way communication with their stakeholders including the public.

One-way communication here limits the interaction between the organization and the public, and the CSR section in the websites seem more like a report on the CSR projects undertaken in the past and its completion. This comes across as a strategic way of communication given the nature of interaction, the tapping of issues in which CSR is to be conducted, becomes limited due to lack of engagement from the publics. (Ref. Appendix 2)

Tata Trusts and Godrej Group have SNS presence on youth centered platforms like Twitter, Facebook, and Instagram, which provide a two-way communication (Cortado & Chalmeta, 2016). The Poonawalla group posts its updates on the handle of their, MD Adar Poonawalla. Tata Trusts often conduct celebrity endorsements and collaboration based on their appeal and reach to the audience.

Their active presence on different SNSs result in establishing an active dialogue between the stakeholders and the organization. This leads to first hand generation of ideas as to where to conduct CSR from the public themselves, utilizing the resources on the projects, rather than on

researching behind looking for the issues. Due to the pace of the communication facilitated through the internet.

With environmental and sustainability, and social issues being the need of the hour, there has been a substantial increase in the activities and campaigns within the domain. These initiatives although a contemporary taken up by the organizations. Additionally, during any natural disaster, the CSR funds are often used to mitigate the crises through donations, making the organizations proactive participants in the time of need.

7. Conclusion

Delineating and analyzing the trajectory of responsibility within the context of Parsis led organizations, the following things can be safely concluded:-

- There has been a long tradition of responsibility for almost a century.
- Acts of responsibility towards society has undergone through changes from voluntary, unorganized to mandatory, and organized.
- There has been a shift in the pertinent issues, but the final outcome of the responsibility is in sync with the growth and development of the nation
- The legacy of responsibility establishes the ethos of the organization, and helps in its projects related to CSR. However, there has to have a constant or regular interaction with the stakeholders through two-way communication, facilitated by the use of SNSs.

8. Limitations and Future Research

This study was purely conceptual in nature. It aims at identifying and analyzing the journey of social responsibility by Parsi merchants in 19th century. The analysis attempts to discern this journey of transformation in detail. The future research can be conducted from a communications' perspective. .

Additionally, instilling the idea of transformation as the foundation to conduct responsible activities. Furthermore, multiple analytical methods can be used to evaluate the CSR communication, its narrative, and its implications in the Indian context.

References will be provided upon request.

Appendix 1

Words used for search:-

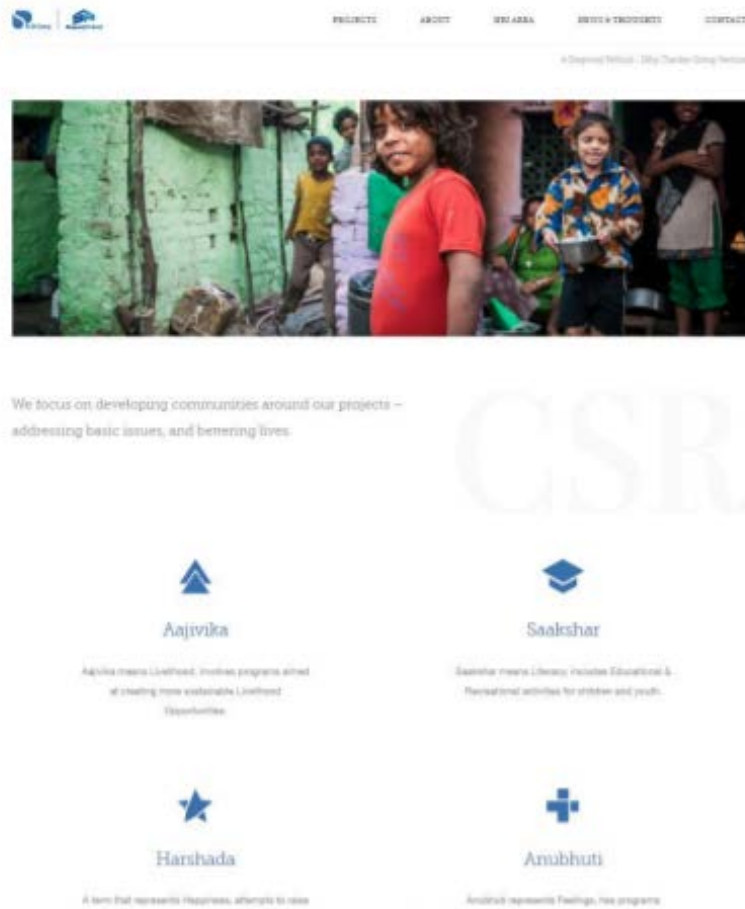
- Responsibility
- Philanthropy
- Public good
- Charity
- Giving
- Contribution
- Collective good
- Social Responsibility
- Welfare


Appendix 2



(Adapted from (White, 2008; Singh, A., & Verma, P. 2014)

Appendix 3





THE WADIA GROUP

HOME THE WADIA GROUP GROUP COMPANIES **PHILANTHROPY** CAREERS CONTACT US

Our success is rooted in our communities. As individuals and as an institution, we benefited from the contributions of those before us. We are here today because they have opened doors of learning and carved out new paths of possibilities.

In turn, we seek to enrich the community by widening portals of knowledge and extending pathways of opportunities, be it.

| HOUSING | EDUCATION | HEALTH CARE | HEALTH & EDUCATION TRUSTS |
|--|---|--|---|
| <p>>> 1908 Nowroz Baug, Lalbaug (100 yrs old)</p> | <p>>> 1932 Nowrojee Wadia College of Arts & Science, Pune</p> | <p>>> 1926 Jerbai Wadia Women's Hospital, Mumbai (300 beds)</p> | <p>>> 1969 Health & Education Trust</p> <p>read more >></p> |
| <p>>> 1924 Rustom Baug, Byculla</p> | <p>>> 1938 Cusrow Wadia Institute of Technology, Pune</p> | <p>>> 1929 Jerbai Wadia Children's Hospital, Mumbai (300 beds)</p> <p>read more >></p> | |
| <p>>> 1938 Cusrow Baug, Colaba</p> | <p>>> 1969 Hess Wadia College of Commerce, Pune</p> | | |
| <p>>> 1947 Jer Baug, Byculla</p> | <p>>> 1991 Neville Wadia Institute of Management & Research, Pune</p> | | |
| <p>>> 1956 Hess Baug, Hana Chowk</p> <p>read more >></p> | <p>>> 1999 M. E. Society's College of Engineering, Pune</p> <p>read more >></p> | | |

A Serial Mediation Model for Analyzing the Impact of e-CRM Services on Customer Loyalty in the Indian Healthcare Industry

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Abstract

The aim of this study is to examine the relationship between e-CRM and consumer loyalty in the Indian private healthcare sector with customer trust, customer value, customer satisfaction, and switching costs as mediators. As per the findings, mentioned variables in this analysis (with the exception of the relationship between customer satisfaction and customer loyalty) have a direct significant positive association with one another. In addition, customer trust and customer value are the partial mediator in the relationship between e-CRM and customer satisfaction, whereas the relationship of customer satisfaction with customer loyalty is fully mediated through switching cost. Above all, there is an existence of serial mediation in the relationship of e-CRM with customer loyalty having customer satisfaction and switching cost as mediators.

Keywords: e-CRM Service, Customer Trust, Customer Value, Customer Satisfaction, Switching Cost, Customer Loyalty

Antecedents to customer churn after service failure: Findings from fsQCA

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Abstract

Covid - 19 is the global pandemic. Except for individuals who supplied necessary services, the remaining population is working from homes. Educational institutes are running their classes and conducting exams through online mode. As a result, there was a huge demand for high-speed and reliable broadband services. In effect, The demand for fixed broadband services has gone up substantially. In this context, firms are fighting hard to retain their customers as studies show that retaining customers costs five times less than acquiring a new customer. The loss incurred from losing an existing customer for a contractual service firm is very high as it loses all the future revenues from the customer. Therefore, a deeper understanding of the factors that lead to customer churn is very important for the firms. Failure to address the customer complaints has negative repercussions on the firm profits. Through the theoretical lens of justice theory, the present study endeavors to find which combinations of perceived justice, stability attribution, switching costs, and satisfaction with service recovery lead to customer churn and the absence of customer churn. Fuzzy-set qualitative comparative analysis (fsQCA) and pls-sem are used on a sample of 216 respondents to find the recipes that lead to customer churn. Pls-sem results show that distributive justice and procedural justice are significantly related to satisfaction with service recovery. Further switching costs is found to be negatively related and stability is positively related to customer churn. Satisfaction with service recovery is found to be marginally negatively related. FsQCA results show four configurations for the presence of customer churn and two configurations for the absence of customer churn. This study broadens the customer churn literature showing that different combinations lead to customer churn. It also contributes to the body of literature through methodical contribution. The results provide guidance for the practicing managers in making effective service recovery strategies.

Keywords: *Service Failure; Service Recovery; Customer Churn; fsQCA; Switching Intention; pls-sem*

“How do We Achieve it?” A Relational View of Service Quality Enhancement in High-involvement Service

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Abstract

Discourses on service quality did not explore the underlying mechanisms through which it could be enhanced. This apparent gap calls for a study to comprehend how relational approach could help service organizations to persuade the consumers over time. Drawing on Kelman's social influence theory (SIT), I argue how service quality is enhanced in high-involvement service contexts. Building on ethnographic memoir of a large-scale consulting assignment, I show that consultants utilize compliance, identification, and internalization to gradually increase the client cooperation thereby improving their perceptions of service delivery. This study also reveals why a continuous, process-oriented, relational perspective is superior to examine the dynamic nature of consumers' expectations and their perception of performance compared to discrete evaluations of service quality at different encounters.

Keywords: Service quality, social influence, consulting, high-involvement service

Customers' Self-Service Delight in Offline Retail Industry

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Abstract

Across six stages of research, we develop and test a typology of customers' self-service delight (SSD), which is conceptualized as an intrinsic hedonic motivation to serve oneself when making a purchase. Following a mixed research design approach, data were collected in different stages from active users of SSTs. As a result, we identify nine unique SSD dimensions along with their items and finally check the scale's predictive power to measure SSD within an offline retail context. The research considerably refines our established SSD scale. Several theoretical and decisive implications have also been discussed. Both researchers and policymakers can now rely on a diverse set of SSD measures that best fit their context. At the same time, the former gets some insights into future research directions.

Keywords: Consumer delight; Self-service technology; Self-service delight; Scale development.

Fashion Influencers on YouTube: The Influence of Source Credibility on Consumer Engagement

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Abstract

The popularity of social networking sites has contributed to the rising of fashion influencers. Marketers are collaborating with fashion influencers regularly in their effort to engage potential consumers with brands. Whilst fashion influencers were studied by past researchers but were limited to a few platforms such as Instagram and Twitter. Hence, the purpose of this study was to explore how the source credibility of fashion influencers drives consumers' engagement on YouTube. This study follows both quantitative & qualitative research approaches. After identifying top fashion influencers on YouTube, data were collected in the form of followers' comments and influencers network data from these influencers' popular videos. The data were analysed by conducting social network & text analysis. Finally, results were discussed followed by the conclusion and implications.

Keywords: Fashion influencers, social media, source credibility, consumer engagement, text analysis, YouTube.

Introduction

Social media is offering marketers a go-to place for interacting and engaging with potential customers. It has led to marketers recognizing social media influencers as a medium to connect with consumers. These influencers often have a large number of followers through their creative and engaging content on their social media profiles (De Veirman et al., 2017). These contents are often about influencers' lifestyles, reviews, and experiences related to using a product and service (Delbaere et al., 2021). Feng et al., (2020) analyzed the content posted by influencers and found that this content frequently on relationships, expertise and videos combine with a selfie. Fashion has emerged as one of the fast-moving industries, where multiple influencers have flourished to stardom on social media channels like YouTube, Instagram, and Twitter.

The ever-changing fashion industry is making consumers fashion-savvy & they are consuming fashion-related content continuously. It has led to fashion influencers often influencing their buying behavior. Previous literature on social media influencers has explored influencers' characteristics, credibility, and other factors that influences consumers' attitudes towards influencers and brands (Janssen et al., 2021; Jang et al., 2021). However, only a few studies attempted to understand consumers' engagement with fashion influencers on YouTube. Hence, this study aims to examine the impact of fashion influencers' source credibility on consumer engagement on YouTube. To do so, the following were the research objectives: RO 1: To explore and examine key themes related to fashion influencers' credibility; RO2: To understand how these themes influence consumer engagement with fashion influencers. This research contributes to the existing body of knowledge in two ways. First, it provides marketers with an understanding of selecting the right influencers for fashion-related products. Second, it will enhance existing knowledge about fashion influencers and their credibility factors which finally impact the purchase intention in consumers.

Theoretical Background

Fashion influencers

Fashion influencers have been studied by past researchers in relation to their influence on purchase intentions in their followers (Chetioui et al., 2020; Shin & Lee, 2021). Consumers

often seek information from these fashion influencer's posts about products they want to purchase. Influencers are often perceived by their followers as authentic source information (Cosenza, 2015). Quelhas-Brito et al., (2020) in their research of diffusion of fashion information by influencers found that intrinsic motivation towards helping followers is a trait of fashion leadership development. Past researchers studied fashion influencers' influence on the purchase intention of their followers (Chetioui et al., 2020; Shin & Lee, 2021). Consumers often seek information from these fashion influencers' posts about products they want to purchase and influencers are often perceived by their followers as authentic sources of information (Cosenza, 2015). Quelhas-Brito et al., (2020), in their research of diffusion of fashion information by influencers found that intrinsic motivation towards helping followers is a trait of fashion leadership development.

However, very few researchers explored the characteristics of these fashion influencers that are important for persuading consumers' buying decisions (Wiedmann, 2010; McFarlane & Samsioe, 2020; Britt et al., 2020). Apart from posting endorsed content for brands, these fashion influencers also post about their experiences of using various fashion products. For example – makeup reviews videos, style guides videos, etc.

Source credibility and consumer engagement

Source credibility theory is a well-established theory that originated from celebrity product endorsement research (Koo et al., 2012; Bhatt et al., 2013; Wang & Scheinbaum, 2018). It suggests that followers perceive celebrities as trustworthy sources. This is due to their relationship with the audience over time. Social media influencers are compared somewhat to celebrities as they have large numbers of followers. Hence, source credibility theory was used by past researchers to understand the credibility of social media influencers and how it affects their followers' behavior (Cooley and Yancy, 2019; Balaban & Mustăţea, 2019; Breves et al., 2019; Wellman et al., 2020).

Many authors considered attractiveness, trustworthiness, and expertise to be sub-factors of source credibility (Wang & Yang, 2010; Ibok, 2013; Reichelt et al., 2014; Wang & Scheinbaum, 2018). Some researchers such as Lou and Yuan (2019) highlighted that influence's credibility component positively influences followers' trust. Similarly, Xiao et al. (2018) emphasized the trustworthiness of influencers as a key credibility component. Also, AlFarraj et al. (2021) investigated the impact of attractiveness, trustworthiness, and expertise on online engagement and purchase intention. While other authors extended source credibility sub-factors by proposing similarity and familiarity as new components of credibility.

Methodology and Data

This study uses Netlytic, a text and social network analyzer (Gruzd, 2016) to conduct text analysis and Social Network Analysis. Netlytic is a widely used tool in various online community research (Hampton, 2010; Martin et al., 2013; Gruzd et al., 2011; Gruzd et al., 2016). The Netlytic tool identifies popular topics in the dataset and creates words and phrases that represent broader concepts. Further, Netlytic also counts the record and categories in the dataset. For data collection, first, researchers identified top YouTube fashion influencers in India based on their number of followers, and the top five influencers (>500k followers) were selected for this study (see Table 1). Second, researchers reviewed their YouTube profiles to identify popular videos of each fashion influencer. Third, followers' comments from these popular videos were extracted using Netlytic's open-source program. Fourth, social network analysis was conducted on Netlytic to understand the relationship between influencers and their followers. Finally, a total of 11,406 comments were found and extracted from these popular

videos. The popularity of videos was decided based on the number of views, likes, and comments.

| Sr. No. | No of followers | Video category | No of likes | No of views | No of comments |
|-----------------------------|-----------------|----------------------|-------------|-------------|----------------|
| Influencer 1 | 9.51 M | Makeup tutorial | 44,000 | 1,873,142 | 2,723 |
| Influencer 2 | 2.66 M | Men's grooming | 143,000 | 3,335,183 | 3,939 |
| Influencer 3 | 1.38 M | Apparel & lifestyles | 48,000 | 1,469,911 | 1,633 |
| Influencer 4 | 983 K | Makeup & skincare | 22,000 | 705,169 | 1,817 |
| Influencer 5 | 706 K | Beauty tips | 34,000 | 2,336,201 | 1,294 |
| <i>Total no of comments</i> | | | | | 11,406 |

Table 1: Details of data collection

Netlytic's keyword extractor was used to code and analyze the comments (text). Researchers used investigator triangulation to ensure validity in the data coding process. (Leech & Onwuegbuzie, 2007). The data was coded and interpreted by both the researchers separately (Hannes et al., 2010). Further, researchers repeated the keyword extraction process for each influencer to ensure that all emerging themes are identified. The next section discusses the results of this analysis.

Results & Discussion

Text Analysis

In this analysis, Netlytic's keyword extractor revealed popular topics in the comments such as feelings, appearance, touch, sound, and time. This topics are further coded and categorized by the authors in relation to fashion influencer's source credibility themes/factors (see Table 2).

| Source credibility theme(s) | Topic(s) | Example of comments | Total number of comments |
|-----------------------------|---|---|--------------------------|
| Trustworthiness | Trust, true | "Awesome video, trust me after watching your video I really felt excited about using aloe vera" | 11 |
| Similarity | Same, similar | "i used the same last two technique with aloe vera" "I too have the same products" | 102 |
| Expertise | Talent, brilliant, tutorial, intelligent, informative, great, knowledge | "Your makeup is brilliant" "You taught me how to do great makeup and save the day." | 140 |
| Attractiveness | Beautiful, gorgeous, cute, adorable, glamorous, charming, handsome | "Your makeup is Beautiful" "You are so cute" | 467 |
| Fandom | Fan, big fan | "I am your fan" "I am your biggest fan in the world" | 65 |
| Likeability | Like, good, nice, love, lovely | "I like you very , my favourite youtuber" "I like your makeup keep it up" | 915 |
| Helpfulness | Helpful | "Nice and very helpful video" "Very helpful video...I liked it very much" | 106 |

Table 2: Themes identified from text analysis

The analysis suggested fashion influencers' likability, attractiveness & expertise as important factors of consumers' engagement. Likability is defined in the literature as a communicator's degree of friendliness towards the receiver (DeSarbo & Harshman, 1985; Giffin, 1967). This finding is consistent with previous literature on influencers' likability (Xiao et al., 2018;

Srivastava, 2021; Saima & Khan, 2020). Although, attractiveness and likability are interchangeably used in the literature. However, attractiveness in the context of influencers has been referred to as physical attractiveness. Whilst physical attractiveness may positively influence the likability of influencers. It cannot solely predict likability. Hence, this study has used these concepts separately where attractiveness has been tagged in popular keywords related to physical attractiveness and likability has been tagged as general liking/degree of friendliness with influencers. Another theme that emerged was helpfulness, which describes how followers perceived influencers to be helpful. This is because videos selected for this analysis were either product reviews or tutorials for fashion products. Additionally, consumers perceived similarity with fashion influencers was an important factor that drives consumers engagement. The perceived similarity is defined in previous literature as the resemblance between receiver and sender. The more followers perceive similarities with influencers, the more they perceive them to be credible. It may further lead to increasing the chance of engagement. Also, fandom-related comments suggested the role of fan perception in fashion influencers' communication and engagement. Lastly, trustworthiness-related topics were minimal in the comments. McGinnies & Ward (1980) defined trustworthiness as the integrity of the source and the follower's confidence that the influencer is valid (McGinnies & Ward, 1980). Hence, trustworthiness may depend on several other credibility factors such as helpfulness, expertise, and similarity.

Network Analysis

In this section, the results of social network analysis conducted on Netlytic are discussed (see Table 3). Social Network Analysis (SNA) is widely used by researchers in understanding the relationship between social entities (Toral et al., 2010; Hayat et al., 2017). SNA involves many levels of analysis such as actor level, group level, and system level. This analysis used system level which describes the overall network structure in the data.

| Account | Diameter | Density | Reciprocity | Centralization | Modularity |
|--------------|----------|----------|-------------|----------------|------------|
| Influencer 1 | 8 | 0.000517 | 0.022660 | 0.043510 | 0.965800 |
| Influencer 2 | 2 | 0.000987 | 0.000000 | 0.007886 | 0.992800 |
| Influencer 3 | 6 | 0.000729 | 0.000000 | 0.033210 | 0.978900 |
| Influencer 4 | 2 | 0.000697 | 0.000000 | 0.017470 | 0.994100 |
| Influencer 5 | 10 | 0.000338 | 0.000000 | 0.004560 | 0.996700 |

Table 3: Social network analysis (processed results by Netlytic.org)

Social Network Analysis helped in observing the relationship between influencers and followers. The influencers network has diameters respectively 8, 2,6,2,10. Diameter explains how quickly information reaches participants in a network. In this case, the lowest diameter signifies the closeness of the group that is for Influencer 2 & Influencer 4. The density of the network explains how the network is connected. These results suggest Influencer 2, 3 & 4 has a relatively higher density than that of Influencer 1 & 5. Therefore, overall the communication within the networks is low. Reciprocity explains the mutual communications amongst networks. The value 0 suggests that the communication is one-way and >0 suggests two-way communication. In this analysis, only Influencer 1 had a reciprocity of 0.022660. Centralization is low for all influencer accounts. It suggests that individual participants are not dominating information on the networks. The modularity of a network checks the connections within a community in comparison to random connections. This analysis suggests modularity is high for all influencers (>0.5) which suggests strong connections within the communities.

Conclusion

This study indicated trustworthiness, similarity, attractiveness, expertise, fandom, likeability, and helpfulness are factors of fashion influencers' credibility that affects consumer engagement on YouTube. Further, Likability and attractiveness were found to be dominating factors for engagement. Finally, Social Media Network analysis revealed that although most of the communication was one-way (i.e. followers to influencers), the participants were strongly connected. Future research should conduct a comparative study to understand how individual influencers garner engagement on social media.

Implications

The findings of this study contribute to marketing practices as it outlines the important factors for consumer engagement with fashion influencers. Marketers of fashion-related products can consider these factors to achieve influencer-related engagement objectives on social media. Further, it contributes to the existing theory by testing the source credibility theory and adding helpfulness as a new factor that may influence consumers' engagements with fashion influencers.

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E-Learning Is Not Easy Learning During COVID : A Study Focused on MBA Students in India

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Abstract

COVID 19 is not just a health crisis but a socio economic crisis that had a global impact across industries. Due to the unprecedented outbreak of the pandemic, schools and higher educational institutions were shut down globally, to prevent the spread of the infection. Although, digital transformation was already taking place in the higher education sector, the pandemic has accelerated the pace of transformation as it soon became the need of the hour! Some colleges adapted faster than others and in some cases the students faced challenges with technology usage. This study is focused on MBA students who attended online classes from towns/villages. The two focus points of this study were to understand if technology has enabled the delivery of subject knowledge through remote means and also if that effort was effective for students from towns/villages. We reached out to second year students pursuing MBA (Master of Business Administration) and management related studies in India who attended online classes from Cities (Tier 1 / Tier 2), Towns and Villages. We adopted the survey approach and a total of 149 students participated from 14 higher education institutions spread across 7 locations. The respondents attended online classes from 73 locations across the country. We also spoke to a cross section of Deans, Heads of Department and Professors from management institutes. The findings clearly highlighted the shortcomings for those attending online classes from town/villages when compared to their classmates who attended the same from a city. Recommendations were provided to ensure better preparedness should such a situation repeat in future.

Keywords: E-Learning, Technology Transformation, Information Systems, Online Classes, Covid-19

Introduction

In December 2019, the world witnessed the emergence of a new coronavirus in Wuhan, China. In a very short span of time the viral infection spread across countries. The novel coronavirus (SARS-CoV-2), the virus that causes COVID-19, has infected more than 140 million people and left almost 3 million dead as of this writing. Considering the massive impact on human life; the World Health Organization (WHO) declared Covid-19 as a global pandemic on 11th March 2020. Governments had to focus on detecting the infection, limiting mortality and preventing fresh infections. Towards this, several countries implemented a lockdown. In India, the lockdown was announced on March 24, 2020. The education sector was an early responder as many schools and colleges were shut even before the lockdown. Fearing lockdown and since hostels were closed, students moved to their respective homes. While most management institutes are located in Tier 1 or Tier 2 cities, a cross section of the students hailed from towns and villages. The pandemic forced the students to return to their respective cities, towns or villages. In a matter of weeks, entire higher education systems had to completely transform to an online teaching-learning scenario (Williamson, B. 2018)¹. Especially, in the field of management education, the classes came to a sudden halt and exams could not be held in most colleges. The first year students who were due for their summer internship/project were the worst hit. The colleges moved to an online mode of lecture delivery, exams were held remotely and they were also left with no choice but to do remote projects/internship. It was important to study the effectiveness of these classes and understand the challenges faced by students especially if they had to manage the classes from a remote town/village.

Literature Review

According to UNICEF², more than a billion children could be at the risk of falling behind on education due to school closures aimed at containing the spread of COVID-19. According to UNESCO³, over 320 million students in Indian schools and colleges are currently impacted. In the 'new normal' where everyone is forced to study and work from home, Digital Transformation is the key to ensure that knowledge transfer is not impacted. Digital transformation, is defined as transformation 'concerned with the changes digital technologies can bring about in a company's business model, ... products or organizational structures' (Hess et al. 2016, p. 124)⁴. Digital technology must be considered an opportunity for the revival of the education process. 'Easy access to news and latest developments, thematic electronic databases, and forums via different online education technologies radically change the form of study material presentation. Skype, social network, various messenger apps, and easy access to specialists in key disciplines via conference calls are conducive to achieving better understanding among students' (D V Mamaeva et al. 2020)⁵. Adapting to technology should not be seen as utility, but must be envisioned as an academic opportunity. Changing certain key processes of educational institutions is vital to this journey, for innovation to actually take place. 'It would therefore be wise to be cautious when abandoning conventional, in-person and socializing models of universities, since blindly adopting "disruptive technology" will force many to question what they know and do, making this period of change even more challenging for higher education' (World Economic Forum. 2020)⁶. A 2020 survey conducted by Barnes and Noble⁷ revealed 60% students were somewhat prepared for the switch to online classes, while the rest were less certain, saying they needed time to adjust to the transition. Maintaining focus and discipline was a concern for 64% of the students who felt that it would be difficult to motivate themselves if the situation continues for a long term. However, 42% of the students felt that learning at their own pace is a huge benefit of having remote classes. 78% of students expect to increase their use of tools for virtual interactions. Students choose electronic mail, instant messaging systems and publishing and sharing technologies to communicate with teachers (Santos et al. 2019)⁸.

Due to the slow internet connectivity, teachers agreed to have been predominantly dependent on WhatsApp instead of uploading and downloading study material on other Learning Management tools. Since many students returned to their home towns located at remote rural setups without proper internet connectivity and uninterrupted power supply, there were challenges with regard to two-way interaction (Mishra L et al. 2020)⁹.

There are plethora of technological tools and platforms to support online learning like web-based learning platforms, video-conferencing tools, Massive Open Online Courses (MOOCs), streaming conferences, instant messaging tools and other learning related applications. Providing specific technical training to professors, administrative staff, and students is required to overcome the barriers of online learning (García-Morales V et al. 2021)¹⁰.

Higher Educational Institutions in certain countries are using AI in order to personalize the student admission process, and identify which applicants are most likely to succeed in their degrees and masters. In addition, the AI technology allows the teachers to track the progress of the students which in turn allows them to amend their teaching if they see a gap in the student's understanding (Dennis, M.J. 2018)¹¹. Meanwhile, even in developed countries, colleges and universities are criticized for being highly inefficient and slow in taking advantage of available technologies for improving student performance and institutional productivity. Higher educational institutions must let go of their rigid processes and be open and flexible for investing in technologies that help serve their purpose. (Miller, Gary et al. 2014)¹².

Survey, Data Collection And Analysis

This paper aimed to study the technology transformation happening in MBA colleges during COVID-19 with special focus on students who are attending the classes from rural India. We tried to check if technology has enabled the subject knowledge transfer and its effectiveness amongst students who are attending online classes from different locations in India. The locations are clustered into Tier 1 cities, Tier 2 cities and Towns/Villages. A survey was developed on an online platform with 29 questions and circulated to students. Other than the demographic related questions and two open ended question (to understand the positives and improvement areas), the remaining questions captured ratings on the Likert Scale (5 point scale). A total of 149 responses were collected from 14 management institutions that are spread across 7 locations. The respondents attended online classes from across 73 locations that consisted of 40% of the students taking online classes from Tier 1 cities, 19% from Tier 2 cities and 41% from Towns/Villages across India. The data was analysed using SPSS v22. A Pearson's correlation was used to measure the statistical relationship between two continuous variables.

Findings

The survey had 149 students responding from 14 higher educational institutions. 52% of them are from colleges located in Tier 1 cities, 19% in Tier 2 cities and 29% in Towns. Of the total respondents, 97% of the students attended online classes during pandemic and 3% could not attend the classes. The respondents were spread across 73 locations across the country with 41% of students who attended online classes in Tier 1 cities, 19% in Tier 2 cities and 40% in Towns/Villages. The colleges managed to quickly move to online classes with 67.5% of city colleges and 83.7% of colleges in Towns moving to online classes within 15 days - 2 months. The major findings with respect to the type of electronic devices students use to attend online classes is that, 43% of the students used a mobile phone for attending classes. Interestingly, 64% of the students who are residing and attending online classes in Towns/Villages use Mobile phones.

Internet connectivity has become a basic need for education now. With regards to uninterrupted internet connectivity, 51% of the students did not have uninterrupted internet connectivity. While 17% of the students in Tier 1 cities did not have uninterrupted internet connectivity, 70% students in Towns/Villages did not have a stable internet connectivity. 51% of the students who did not have uninterrupted internet connectivity used Mobile Data.

Daily hours of online classes that students take was analysed and it was found, 85% of the colleges had more than 5 hours of classes. It was clear that students attending online classes from Tier 1 cities have good communication channel set up with their classmates via Whatsapp, Telegram or direct calls.

13.6% of students who attended online classes in Tier 1 cities could not reach their professors after class hours for doubts. However in the case of students from towns/villages, this increases to 55.7%. Students also had an issue with the professor's internet connectivity, with 69% of the students saying they were not satisfied with the professor's internet connectivity.

Only 52% of the colleges provided access to e-books through online library. 51% of the students agree presentations, group discussions, case studies, guest lectures, certificate courses, electives, club or forum activities have transitioned smoothly from traditional ways to online mode. 50% of the students have responded that it was hard finding online internships and the reasons mentioned by students were time constraints and lack of support and no response from the organisation.

It was alarming to find out that, 46% of students taking online classes in Tier 1 cities, 93% of students in Tier 2 cities and 79% of students in Towns/Villages are not satisfied with the level of knowledge they gained through online classes. The reasons could be how much of the MBA experience was being able to deliver through online classes, with respect to professor's teaching and evaluating methods, motivational factors, methodology fit for delivering the subjects through an online medium, types of assignments and self-learning tasks assigned, disconnect with fellow students etc.

Pearson's Correlation:

| Null Hypothesis (H0) | Alternate Hypothesis (H1) | p-value | r-value | Result |
|--|--|---------|---------|---|
| The overall online learning experience does not impact the feeling of satisfaction with the digital transformation that has happened with higher education | The overall online learning experience does impact the feeling of satisfaction with the digital transformation that has happened with higher education | .000 | .05 | ($r = .943, p < .05$) The direction of the relationship is positive and the strength of the relationship is Strong hence, the feeling of satisfaction with the digital transformation that has happened with higher education increases when the overall online learning experience increases. Reject null hypothesis H0. |
| Level of knowledge gained through online classes and assessment than traditional classroom learning does not impact the satisfaction with the digital transformation that has happened with higher education | Level of knowledge gained through online classes and assessment than traditional classroom learning does impact the satisfaction with the digital transformation | .000 | .995 | ($r = .955, p < .05$) The direction of the relationship is positive and the strength of the relationship is Strong hence, the feeling of satisfaction with the digital transformation that has happened with higher education increases when the level of knowledge gained through online classes and assessment increases. Reject null hypothesis H0. |
| Communication between students and professors and within students does not impact the satisfaction with the digital transformation that has happened with higher education | Communication between students and professors and within students does impact the satisfaction with the digital transformation that has happened with higher education | .000 | .919 | ($r = .919, p < .05$) The direction of the relationship is positive and the strength of the relationship is Strong hence, the feeling of satisfaction with the digital transformation that has happened with higher education increases when Communication between students and professors and within students increases. Reject null hypothesis H0. |
| Uninterrupted internet connectivity does not impact the | Uninterrupted internet connectivity does | .000 | .777 | ($r = .777, p < .05$) The direction of the relationship is positive and the strength of the |

| | | | | |
|--|---|--|--|---|
| satisfaction with the digital transformation that has happened with higher education | impact the satisfaction with the digital transformation that has happened with higher education | | | relationship is Moderate hence, the feeling of satisfaction with the digital transformation that has happened with higher education increases when uninterrupted internet connectivity increases. Reject null hypothesis H ₀ . |
|--|---|--|--|---|

36% of students taking online classes in Tier 1 cities, 93% of students in Tier 2 cities and 79% of students in Towns/Villages are not satisfied with the digital transformation that has happened with their education. It is therefore clear that when students are not satisfied with the level of knowledge gained through online classes, they will not be satisfied with the digital transformation that has happened with higher education.

Recommendations

The pandemic situation is not everlasting and students will eventually return to their respective colleges. We were just beginning to see the return of normalcy, when students were again forced to go back home in many states due to the second wave. The second wave makes it clear that colleges need to be prepared for such eventualities. Also, now that the colleges have witnessed first-hand, the benefits of leveraging technology, it is important to use it to their advantage. Based on the responses, suggestions and discussion with Deans, HODs and Professors of various management institutes, the following recommendations could be made with respect to the way forward.

First things first. Colleges need to have a Standard Operating Procedure (SOP) to deal with such emergency situations. The SOP should cover who is responsible for various activities when an emergency is evoked and how the situation needs to be handled. An audit needs to be conducted on the situation handling and all gaps need to be plugged in. This makes it important for colleges to make recordings of the class being made available to those students who had connectivity issues. Not all faculties and students were tech savvy and hence colleges need to invest in technology training of their faculties and students. Almost all colleges opted for online live classes as the only medium of knowledge transfer. There are numerous tools that could have been used to enhance the learning experience and it is important to evaluate them for future. Colleges should also explore the option of home grown applications that help in better connectivity and knowledge sharing. Access to E-Library and E-Books should be enabled which could enhance learnability from anywhere.

The biggest problem in the current situation is that everything was assumed to be equal. However, things were not the same for everyone. Students from towns and villages lacked the required infrastructure. Three main areas where rural students faced problems were: (1) Non availability of proper electronic device to handle classes, (2) Lack of internet connectivity and (3) Lack of uninterrupted power supply. Due to lack of infrastructure, these students missed many classes. The students could not make time to participate in case study discussions with their friends, they couldn't get their doubts clarified in a timely manner, remote summer internship was a challenge, accessing online resources was difficult and even the online evaluation or examination was managed with great difficulty. Though some of these points are linked to financial wellbeing of the individual (to procure a computer or subscribe to high speed internet connectivity), the majority of the problem can be addressed only by technology infrastructure development across the country. This is not a problem that colleges can address.

However, they need to ensure that in future, the students are made aware of problems faced by earlier batches during such pandemic situation. This will ensure better preparedness at the students end. Instead of opting to go back to locations with poor infrastructure, these students can explore the option of staying in a city.

The authors would be happy to consult, collaborate or provide insights for any future research on this topic.

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Responsible Business for Sustainable Development: Information Management or Knowledge Management

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Abstract

The prime function of business units is to provide value addition to meet the requirements of the society. The study seeks to address the contentious issue of information management or knowledge management for ensuring sustainable development. The study is based on grounded theory approach. The environment of the study is the lockdown period while the domain is the usage of Fintech App by consumers as well as business custodians of Fintech Apps. The findings indicate that it is knowledge management which provides sustainability of business operations. The study contributes to earlier work by linking knowledge with information and data in the pursuit of sustainable business operations.

Key Words: Data, Information, Knowledge, Responsible, Sustainability

Introduction

The pandemic jolted the business world. It forced the business units to devise new ways of carrying out business operations. Further, the imposition of lockdown by the government compelled business units to alter business models by shifting to digital platforms. This saw the emergence of several new Fintech Apps for making payments and for carrying out other business transactions. This rapid adoption by business units as well as consumers of these Apps generated tremendous amount of data. However, this period also saw the emergence of various business units as well as many of them closing down business operations. In other words, question of sustainability and responsible business operations.

The present study takes into the consideration of data, information and knowledge management in determining which of these form the drivers for sustainable business development and responsible business.

Literature Review

Business units and business houses exist to serve the needs of the society. They are able to perform this basic function by closely interacting with customers, competitors, markets and other stakeholders (Whitney JO, 1996) in an ecosystem having components which are complex, dynamic and which provides challenges and opportunities for growth. In other words, they must ensure that continual value addition remains the norm for survival and sustainability.

However, as the world has progressed significantly to Industry 4.0, business units are facing increasing pressure to operate sustainably (N.M.P. Bocken, P. Rana & S.W. Short, 2015). This necessitates the need for business units to alter modus operandi for carrying out business operations by adopting the need for deploying new approach towards sustainability challenges and issues while ensuring value addition process remains intact. All this translates to the fact business units will require the need for new business models, enhanced trust and consequently large amount of stakeholder engagement while pursuing the goals and objectives of sustainability (Krantz, R., 2010). In other words, responsible business for sustainable development which must be driven by data a prime requirement for industry 4.0.

In their quest for pursuing sustainability business units are demonstrating the application of socially responsible practices. However, currently the practices of social and ethical behaviour practices are limited and are carried out in an unsystematic manner (Leire, C., & Mont, O.,

2010). This calls for the need to have an integrated measurement, monitoring and a controlling mechanism within the organizational controlling system that enables the stakeholders to adopt a social responsibility approach which will entail social accounting and social responsibility (Durden, C, 2008). In other words data must be identified, collected and be worked upon to ensure responsible business for sustainable development.

Sustainability is closely related to another term circular economy and these two terms have gained traction in academia and business conglomerates (Martin Geissdoerfer, et. al., 2017). While the concept of circular economy is explicitly linked to sustainable development, it is often depicted as the combination of activities concerned with reduce, recycle and restore while aiming at economic prosperity and environmental quality (Julian Kirchherr, Denise Reike, Marko Hekkert, 2017; Demestichas K, Daskalakis, 2020).

Information and Communication technology has invaded every aspect of business operations including the concepts pertaining to circular economy (Demestichas K, Daskalakis, 2020). Several studies are conducted to determine the applicability of data and information in the form of data sets such as big data and Internet of things by the operational business processes and linking it to components of circular economy (Charbel Jose Chiappetta Jabbour, et. al, 2019; Aris Pagoropoulos, 2017; Shubhangini Rajput, 2019; De Pascale, 2021). Thus the deployment of Information and communications technology has provided the lead to identify and develop cross industry networks so as to derive social, environmental and economic benefits in the pursuit of meeting business objectives of sustainability. However, despite the rapid increase in data processing mechanisms, there exists a gap between the data derived from operational activities and the optimization solutions focussed on recycle, reduce and reuse components of circular economy (Ming-Lang Tseng, et. al, 2018). In other words there is an existence of gap between data and the requisite knowledge needed to arrive at the optimal solutions.

While dealing with information and communication technology, we are invariably interacting with data and information and sometimes knowledge. However, various studies have been conducted to address the vagueness and the distinction surrounding the terms data and information on one hand and information and knowledge on the other hand Boisot, M., & Canals, A. ,2004; Garud, R. (1997). With an increasing focus on the issues of sustainability and the corresponding need to slow down the pace of industrialization there is a compelling need to distinguish between these terms so that an improved and enhanced mechanisms and measures are identified, deployed and accounted for.

The current study tries to address the issues pertaining to the identified gaps between data, information and knowledge in the management of these in the context of responsible business for sustainable development..

The research Questions

Based on the literature review the following research questions are addressed in this paper

- a) What constitutes data when dealing with responsible business and its sustainability?
- b) What constitutes information and what relationship does it have with the data when dealing in sustainable development?
- c) What is constitutes knowledge? What linkage and relationship does it have with data and information?
- d) What role does information and knowledge play in the context of sustainable development?

The research methodology

The research methodology adopted in this study is based on grounded theory approach by Strauss, A., & Corbin, J., 1998). Grounded theory is based on the concepts of collecting data

and analysing the data so as to move to the process of arriving at the theory. This translates to the fact that data speaks for itself. Thus, in the present scenario, the concept of sustainability has gained much profundity due to the pandemic and the widespread destruction caused to the environment under the garb of being labelled as developed nation or developing nation. Also, due to pandemic, business operations became dependent on the digital technology for sustain the business and staying in the market. This resulted in the generation of data and as a consequent the focus shifted to seeking to answer to the question in what manner we develop sustainable solutions for business resiliency and survival. Hence the grounded theory was adopted for this study.

The lockdown period is the environment in which the study was conducted. This was the period which saw several business units closing down or was redefining business operations by shifting to contactless platform through digital technology *which means accumulation of tremendous amount of data*. The domain of the study was confined to Fintech payment apps *as this was the most plausible arena* which provided the leads for responsible business for sustainable development. Also, with plethora of Fintech apps coming up on the digital domain, the sustainability, survival and the responsible business performance was easily visible by the consumers as they switched from one app to another app.

The sample size of the study was confined to 610 though the initial target was aimed for 800 respondents. The respondents selected for the study included students, housewives, working executives and any other who were directly or indirectly connected to the usage of Fintech apps. This included working professionals who too were working in these Fintech App business units. Thus the sample composition comprised of the users of the Fintech App as well as custodians of these Fintech Apps.

The technique deployed for the collection of the data from the respondents included questionnaire by means of Google Forms, through video chats and occasionally by fixing zoom meetings. Due to lockdown no face to face data was collected.

The data after collection was verified and validated for any inconsistency, ambiguities and other aspects which may affect the findings. The statistical technique applied to the data processing included aspects of descriptive statistics and the concepts pertaining to data mining techniques comprising of association mining of predictive data analytics.

Identification of variables

The following variables were identified for the purpose of the study from the literature review

Variables pertaining to the *custodians* of the Fintech Apps

Value addition to the consumers (Vithayathil, J. (2018).

This is the prime concern of the business units. This variable is included due to the fact that business survival and sustainability is maintained as long as the business continue to provide value addition to the customers. Hence the business units must ensure that value addition process is maintained throughout the cycle

Modifications and changes according to changing business environment(Kranz, J. J., Hanelt, A., & Kolbe, L. M. (2016).

For the business units to continue in existence, the changes and modifications are needed to be carried out at regular intervals as well as at event driven happenings. Failure to adhere to this basic premise will impact the sustainability, survival and responsible parameters

Modifications and changes according to the regulatory authorities such as RBI (Scoca, V., Uriarte, R. B., & De Nicola, R. (2017, June).

This is the most crucial aspect for responsible business. This aspect provides the assurance to the customers that their data is secured as long as regulatory bindings are adhered to.

Addressing grievance and complaints of the customers (Wadhwa, B., Jaitly, A., & Suri, B. (2013, December)

Resolution of complaints and grievances is the value addition which every business unit must adhere to. In the absence of this basic tenet the business unit will undoubtedly face sustainability issues

Variables pertaining to the *consumers* or customers of Fintech App

Safety and trust of financial transactions (Khan, K. M., & Malluhi, Q.,2010)

The customer must be convinced to ensure that the financial transactions are safe and trustworthy. If this is not followed then the questions of survival of the business is always at risk

Transparency in business transactions (Pauley, W. (2010).

The consumer will always put the business unit as risk of survival, sustainability and responsibility for running business operations if the business unit fail to implement transparency of the data and financial transactions

Adhering to rules and regulations of regulatory authorities (Pathan, A. S. K., & Mohammed, M. M. (2015).

The role of regulatory authorities is to ensure that customer are assured that the financial transactions operations are being sincerely followed and implemented by Fintech Apps. If they are not then the regulatory authorities has the power and potential to close down business unit.

Findings and interpretations

The respondent's distribution

Table 1: Respondents Distribution

| Respondents Distribution | |
|-----------------------------------|--------------|
| <i>Users of Fintech Apps</i> | |
| <i>Respondent Category</i> | Count |
| Students | 153 (25.1%) |
| Housewives | 32 (5.25%) |
| Working Executives | 62 (10.16%) |
| Retail Shop Owners | 144 (23.61%) |
| <i>Custodians of Fintech Apps</i> | |
| <i>Respondent Category</i> | Count |
| Paytm | 56 (9.18%) |
| Google App | 45 (7.38%) |
| Bhimpay | 36 (5.9%) |
| Razor Pay | 26 (4.26%) |
| InstaMojo | 29 (4.75%) |
| Others | 27 (4.43%) |

Table 1 exhibits the information pertaining to the respondent's profile. It is observed that the majority of the respondents are from the student category and the retail shop owner's category. This is rationalised from the fact the retail shop owner provides the best source for the data collection as he is required to *avail the services of several Fintech App service providers* while providing value addition to consumers. On the other hand the students category of the users are more tech savvy and hence are able to provide better quality of *data* and *information* but *not*

knowledge pertaining to usage of Fintech Apps which will provide the information to custodians of Fintech Apps which they will apply to the development of sustainable and responsible business.

Table 2: Responses of Respondents pertaining to research question

| Count of Respondents on the components of Research Question | | |
|--|-----------------------------------|----------------------------------|
| Component | Custodians of Fintech Apps | Consumers of Fintech Apps |
| Concepts of Data | 93 | 301 |
| Concepts of Information | 59 | 67 |
| Concept of Knowledge | 67 | 23 |
| Relationship of Data with Information | 156 | 302 |
| Relationship of Knowledge with Data | 35 | 23 |
| Relationship of Knowledge with Information | 28 | 10 |
| Role of information in the context of sustainable & responsible business | 191 | * |
| Role of knowledge in the context of sustainable & responsible business | 28 | * |

Table 2 exhibit the information pertaining to the count of respondents with respect to the research questions components. The respondents have been segregated owners or custodians of Fintech Apps and the users of the Fintech Apps. The custodians are required to identify measures for responsible business and sustainable development based on the *inputs* given by the users of Fintech Apps. It is equally essential for the users to understand the terms data, information and knowledge and their inter-relationship so that they are able to provide input to the business owners with greater alacrity for improvisation of the business and operational processes.

Detailed analysis of the custodians reflect the fact that at the conceptual level, there is a decrease from data to information and then to knowledge. This indicates that there exists of gap in terms of conceptual level of understanding for the custodians of the business units. Moving further to the component of relationship this gap remains in terms of the relationship between data, information and knowledge. However, when analysing the role of information in the pursuit of responsible and sustainable development, there again exists a huge gap between the information and the knowledge in the context of sustainable and responsible business. All these pointers reflect the gap that these gaps must be addressed.

Coming to consumers of the Fintech Apps, the trend that has emerged is the fact users are unable to differentiate between data and information. This is true to some extent that sometimes use data to ‘*see*’ how they have transacted whereas they need information to make decisions which is based on the information available at hand.

Table 3: Data Mining Operations on the Data Set of respondents

| Averaged Count of Respondents on the components of Research Question | |
|---|-----------------------|
| Clubbed component | Averaged count |
| Concept of Data, Information and Knowledge | 73 |

| | |
|--|-------|
| Relationship between Data, Information and Knowledge | 73 |
| Role of information and knowledge in the context of sustainable and responsible business | 109.5 |

Table 3 exhibits the results obtained by the data mining operations for the purpose of seeking answers to the research questions *from the perspectives of custodians of the Fintech Apps*. Table 3 is obtained by clubbing the components of table 2 into three categories comprising of concepts, relationship amongst the concept and the role of information and knowledge in the context of responsible business and sustainable development. the values are averaged from the table 2 pertaining to the components. From the table it is evident that custodians are clear about the distinction between data and information as the centred values are the same. However, there exists a huge gap in terms of the role of information and knowledge in the context of responsible business for sustainable development. In other words, there is a need for management of knowledge which leads sustainable development.

Limitations

The failure to include the evolving concepts pertaining to big data namely velocity, volume, value, variety and veracity commonly referred to as 5V's exposed the limitation of the study. Each of these V's exercise a profound impact on responsible business operations for sustainable development. The present study can provide the base for a more detailed study covering these variables.

Contribution to Existing Literature

Several studies are conducted to address the ambiguities surrounding the terms data, information and knowledge and the role they play in the quest for implementing sustainability measures. The literature is silent on the crucial aspects of the linkage of information and knowledge and what means and mechanism are needed to define, capture and apply knowledge based components in meeting the sustainability goals and objectives. The present study has addressed these crucial aspects and hence has contributed to existing literature.

Managerial implications

The managerial implication of the study is the emergence of a clear distinction between data, information and knowledge and the need for moulding and applying the knowledge components to meet the objectives of responsible business for sustainable development.

Research implications

The research implication of the study is the identification of the variables which provide data, information and the knowledge to determine which of these variables can provide future scope of research.

Future recommendations

The future recommendations of the study are the new dimension which has been addressed and the variables which can function as new areas of research.

Conclusion

The conclusion of the study stems from the fact that data, information and knowledge though are inter-related yet they function in different dimensions and context. Data in the raw form which is provides the descriptive description of the situations at the base level. This data

generates the initial figures and can be used for commencing operations needing for planning purpose.

Information on the other hand is the result obtained by the processing of the data. In other words, it leads to another level but fails to produce any substantial leads which can enhance provide the knowledge to develop solutions for sustainability

Knowledge is a pro-active approach and comprises of processed information. It actually is responsible for action while providing insight as to the pathway for reaching the sustainability goals for responsible business.

To conclude, it is not information management but knowledge management which shows the path for responsible business leading to sustainable development.

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The Dark Side of an Online Learning Ecosystem During The COVID-19 Pandemic

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Abstract

The ongoing COVID- 19 pandemic has had a pervasive influence across the globe. To fight against the virus, a complete lockdown was imposed all over the world. Such move had impacted the education sector. Globally, most educational institutions have transformed into e-learning eco-systems, shifting away from the well-known traditional forms. This paper has two-folded aims, under the contextual setting of the pandemic. Firstly, it aims to find out the challenges faced by the students and instructors in an online learning eco-system. Secondly, will such a transformed eco-system sustain in the future? We delved into these questions through a qualitative inquiry. Semi-structured interviews were conducted among the instructors and students, in India and Maldives. We found out that both instructors and students faced plethora of challenges due to online learning such as lack of enthusiasm, less engagement, forcefully getting transformed to online learning etc. Based on these challenges through coding and thematic analysis we identified one central theme which is Failure of Online Learning Ecosystem due to the outbreak of Covid 19.

Keywords: Online Learning, COVID-19 Pandemic, Sustainable Learning Environment, Student engagement, Sudden Transition.

Future Scope of eHealth in Developing Countries

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Abstract

In recent years the usage of information and communication technologies (ICT) has increased tremendously in the healthcare sector, thus offering abundant growth opportunities. This paradigm shift is expected to improve the overall healthcare delivery process. This literature review aims to determine the readiness and acceptance of these ICT technologies with respect to developing countries. A review of the literature was conducted, which was qualitative and descriptive in nature. This research paper highlights the current adoption rate and acceptance scenario of eHealth services in developing countries. This review also discusses the major challenges associated with the implementation of eHealth services.

Keywords: eHealth, information systems, developing countries, review articles

Introduction

Information and communication technologies have emerged as a growing field in healthcare in recent years. With advances in technology, ICT help provide better accessibility and affordability across healthcare services. ICT offers many opportunities for improving the current state of healthcare services. With the help of the internet and technology, one can easily access patient information and deliver improved healthcare facilities faster (Juciute, 2009). This digital transformation has revolutionized the healthcare sector by creating value and addressing key medical practice concerns (Elton and O’Riordan, 2016).

eHealth or Electronic Health, the umbrella term used to define ICT efforts in healthcare, involves a wide range of technology initiatives for improving the quality of healthcare services. eHealth is defined as “the cost-effective and secure use of information and communications technologies in support of health and health-related fields, including healthcare services, health surveillance, health education, knowledge, and research” (WHO, 2005).

With ICT offering tremendous growth opportunities for economic and social progress, developed countries are spending a lot more than developing countries to digitalize their healthcare sector (Burney, Mahmood, and Abbas, 2010). There is always a financial constraint for developing countries or emerging economies, as they cannot spend large amounts on their healthcare infrastructure (Burney, Mahmood, and Abbas, 2010). A competent workforce and proper health education are the main attributes needed to achieve this paradigm shift in the healthcare sector. Lack of infrastructural support and technical limitations have always acted as barriers in accessing quality healthcare services for developing countries. However, the growth of the internet and wireless devices have contributed to changing the face of healthcare delivery for many countries (Omotosho, Ayegba, Emuoyibofarhe, and Meinel, 2019).

ICT is always considered a cost-effective and accessible option that can enhance healthcare delivery for developing countries. eHealth can reduce the patients’ data collection costs by almost 71% and promote healthcare services (Omotosho et al., 2019).

With the implementation of eHealth across the healthcare domain, one important parameter to measure eHealth’s impact and usage will be eReadiness or eHealth readiness. eHealth readiness refers “to the degree to which the healthcare institutions and healthcare system are prepared to participate and succeed with the implementation of eHealth” (Khoja et al., 2007). eHealth readiness assessment decreases the chances of implementation and management failures and is

a significant step to analyze the existing healthcare infrastructure and also, to assess the transformational requirements (Mauco, Scott, and Mars, 2020). An eHealth readiness assessment can also be considered as an important step in the change management of the healthcare delivery process. There have been various studies and models to assess the eHealth readiness of developed countries, but there are few studies on the readiness assessment for developing countries.

To understand the current eHealth readiness scenario and to determine the future scope of eHealth in developing countries, the following research questions (RQs) have been framed.

RQ 1 What is the focus of the current literature regarding eHealth in developing countries?

RQ 2 What is the current scenario of eHealth readiness in developing countries?

RQ 3 What are the future implications for healthcare professionals and decision-makers?

This paper is structured as follows. Section 2 explores the theoretical background of existing literature, and Section 3 discusses the methodology for this review. Section 4 outlines the main findings and results. Finally, Section 5 represents the conclusion and future implications of this review.

Background Literature

eHealth Services

The World Health Organisation defines eHealth as “the use of information and communication technologies (ICT) for health” (WHO, n.d.). eHealth or electronic health has enabled the usage of technology in the healthcare domain. With eHealth systems’ implementation, the healthcare domain will grow and enhance productivity by providing improved healthcare delivery and better recommendations.

The COVID-19 pandemic is wreaking havoc across the globe and technology usage has tremendously increased. To avoid getting infected with the virus, people tried to confine themselves in their homes and use technology for their essential tasks. From eLearning to eHealthcare, people have readily accepted many new technology initiatives.

This pandemic, however, also highlighted a major issue in many countries regarding the poor health infrastructure and lack of specialized medical staff. Many countries started mobilizing different approaches to tackle the pandemic emergency, technology usage in the healthcare sector was significantly increased to avoid direct contact with patients (Baudier et al., 2020). With the advent of this pandemic, ICT in the healthcare area radically changed how healthcare services are provided.

There are various types of eHealth services that can be incorporated into the healthcare system. Some of the eHealth services are electronic medical records/electronic health records (EMR/EHR), healthcare using mobile devices (mHealth), telemedicine, and online pharmacies (Bhatia and Taneja, 2019).

The definition of various types of eHealth services are as follows: -

- *Electronic Health Records (EHR)*

EHR refers to the electronic or computerized version of a patient's medical history. EHR is a long-term record of a patient's health history stored centrally and contains various information related to the patient like demographics, diagnosis, laboratory data, and prescriptions. With the implementation of EHR, healthcare professionals can integrate data from different sources like pharmacy, radiology, laboratory, and get a clear picture of patients' medical history and provide better healthcare services (Gutierrez, Moreno, and Rebelo, 2017). Electronic Health Records are being implemented to reduce medical errors, improve communication and information sharing among healthcare systems, manage records more effectively, and improve productivity and coordination (Kruse et al., 2016). There is, however, a level of resistance from the population and management to switch from traditional healthcare services to EHR (Gutierrez et al., 2017).

- *mHealth*

"Mobile health" or mHealth is considered a subset of eHealth in which mobile devices are used to deliver healthcare services. It includes mobile applications, multimedia technologies, and the use of wireless devices to improve healthcare delivery services (Akter, D'Ambra, and Ray, 2010). With the growing number of mobile users and decreasing cost of mobile devices, access to a mobile phone can revolutionize healthcare delivery. Mobile devices can be used to train healthcare professionals as well as to disseminate information at a faster rate (Chib, 2013). Emerging countries need to develop a more robust mobile infrastructure to deal with the challenges (Iwaya et al., 2013).

- *Telemedicine*

Telemedicine, derived from the words "tele" meaning distance, and "medri," meaning to heal, is an eHealth service that aims to deliver healthcare services and heal patients from a distance (Bhatia and Taneja, 2018). Telemedicine enables participants that are at a distance, or separated geographically, to communicate with each other. With telemedicine's help, a patient can communicate with a healthcare professional virtually through electronic media usage and can discuss their medical condition (Gutierrez et al., 2017). Covid-19 has led to a new era of digitalization in the healthcare sector. Through telemedicine, risks of clinical exposure are greatly reduced and, thus, it was readily accepted by individuals to avoid getting exposed to the Covid-19 virus. For successful telemedicine implementation, however, countries will need better infrastructural support and adequate bandwidth and internet connections (Baudier et al., 2020).

Adoption and Acceptability in Developing Countries

The adoption and acceptability rate of eHealth differs in developing countries as compared to developed countries. Need and circumstances play a significant role in the motivation to implement and use these resources to their full potential. For developed countries, eHealth can be used to improve their well-developed healthcare infrastructure and delivery processes, but for developing countries, eHealth can be seen as an opportunity to provide basic healthcare access to all. Shortage of workforce, poor healthcare infrastructure, and lack of basic healthcare access to remotely located people are a few reasons for eHealth implementation in developing countries (Mauco, Scott, and Mars, 2020).

As per a survey conducted by Health Affairs in 2013, Norway, Netherlands, and UK were among the few countries which used EHR extensively (Bhatia and Taneja, 2019). Developed

countries are readily adopting and accepting EHR to lower their healthcare records cost and improve the overall healthcare quality. With EHR, the patient's record will be electronically captured and stored in a centralized network that will be more secure and accessible by various stakeholders to exchange health information electronically (Nzuki and Mugo, 2014).

Developed countries will continually invest in ICT technologies to revamp their healthcare infrastructure. According to a survey conducted by the Global Observatory for Health, WHO surveyed around 96 countries and it was concluded that eHealth tools are extremely useful for more than 70% of non-OECD countries. The governments of many developing countries have high expectations with eHealth implementation to improve their healthcare services quality and provide better access to patients and disseminate information at a faster rate and educate healthcare professionals (Hoque, Boa, and Sorwar, 2017). Many of the European Union member states have considered the transformation of their healthcare sector as a major priority and used their approaches to achieve this digitalization journey (Nzuki and Mugo, 2014). To effectively use ICT in healthcare systems, healthcare professionals need to be trained adequately to use this digital technology. Many developed countries have started giving ICT training to their healthcare professionals to achieve this technology transformation (Nzuki and Mugo, 2014).

For developing countries, telemedicine can play a critical role in offering healthcare services remotely. Due to a lack of healthcare infrastructure, the adoption rate is still low in developing countries (Nzuki and Mugo, 2014). To achieve successful implementation of mHealth and telemedicine across developing countries, internet connectivity would play a crucial role, which is low for developing countries compared to the developed ones (Nzuki and Mugo, 2014).

eHealth can help positively impact the healthcare delivery process through its ability to track patients during the treatment as well as for follow-ups. ICT tools can increase communication effectiveness between different healthcare institutions, professionals, and even between patients and doctors. Patient records can be stored electronically in a centralized database, and hospitals can also monitor and electronically remind the patients of upcoming visits. Through these computerized systems, the chances of errors can be also be minimized (Blaya, Fraser, and Holt, 2010). Though eHealth is still at the nascent stage in developing countries in terms of adoption and acceptability, many financial, technical, and privacy concerns need to be dealt with before the large-scale implementation of eHealth across developing countries. These challenges are discussed in the next section.

Challenges in Implementation of eHealth

With the increased usage of mobile devices and internet connectivity, the adoption of eHealth initiatives is increasing worldwide. There are, however, still many concerns that can hamper the implementation and management of eHealth's success. In many developing countries ICT products and services are very scarce and unreliable. Also, the urban and rural divide in these developing countries creates social and economic disparity which is also a huge challenge that needs to be addressed (Simba and Mwangi, 2004).

Telemedicine is considered an effective eHealth tool to provide healthcare access to those located in remote areas and it also helps in engaging with doctors more frequently in a convenient and safe environment. The lack of face-to-face interaction can also hamper the diagnosis and prognosis process; there are many privacy concerns related to the confidentiality that needs to be maintained for medical processes (Ateriya, Saraf, Meshram, and Setia, 2018).

For digital data related to healthcare, security and privacy concerns will play a major role as an effective system is needed to protect the data. The traceability and interoperability requirements also need to be maintained. Cloud computing can be used as a potential solution to deal with the privacy and security concerns of data (Hu and Bai, 2014). Healthcare providers and facilities must provide adequate protection for developing ICT in healthcare (Abdul Rahim, Ismail, and Samy, 2014).

Methods

A traditional literature review was conducted, which was qualitative and descriptive. A deductive approach was used to outline the degree of acceptance and readiness to use eHealth services in developing countries. The impact of ICT in the healthcare sector of developing countries was to be determined. With the initial search, it was found that few barriers can hamper the smooth implementation and usage of ICT in healthcare of developing countries. Further review was done to determine the future scope of eHealth readiness in these emerging economies. Google Scholar and PubMed were the two sources used for identifying relevant literature. The keywords used to search articles were ICT in healthcare, eHealth, ICT, and developing countries/emerging economies. The article titles and abstracts were screened, and articles were selected based on their relevance to this study. Articles on eHealth services, ICT in healthcare in developing countries, the scope of eHealth in developing countries, and eHealth readiness were included. The literature review established the connection between the adoption of eHealth services and developing countries, it highlights the various eHealth services, the current scenario, and the acceptability rate of these services in developing countries.

Results

A descriptive analysis of the articles is given in this section, and RQs 1, 2, and 3 are answered.

RQ 1 What is the focus of the current literature regarding eHealth in developing countries?

The main focus of these articles is on the implementation and future acceptance of eHealth in developing countries; the comparison of eHealth readiness in developing countries vs. the developed countries is discussed by researchers. The challenges and barriers with eHealth implementation are an area of concern for developing countries, as financial and technical constraints will play a major role in this digital transition in the healthcare sector.

RQ 2 What is the current scenario of eHealth readiness in developing countries?

Through this literature review it can be seen that developing countries adopted and accepted eHealth services during the COVID-19 pandemic, but the adoption rate is still very low because of technical and infrastructure constraints. The healthcare infrastructure is very poor, and lack of adequate finances has also led to limited healthcare delivery. Given the urban-rural divide in terms of healthcare services, eHealth implementation has the potential to improve healthcare delivery across entire countries with adequate finances, large-scale implementation, and acceptance. People tend to be more comfortable with the traditional face-to-face mode as compared to the digital mode, and developing countries need to invest an enormous amount for the implementation of this digital change. Although, the pandemic has been seen as an opportunity to transition to eHealth services given the crises and risks associated with COVID-19, more and more people are readily accepting teleconsultation and mHealth as suitable alternatives to avoid visiting doctors and hospitals. The governments of many countries are creating and encouraging the use of healthcare apps to monitor and control the spread of the pandemic.

RQ 3 What are the future implications for healthcare professionals and decision-makers?

The future implications for healthcare professionals and decision-makers who are using eHealth services will be that overall healthcare delivery will be improved, healthcare professionals can learn and communicate with each other more effectively, the doctor-to-doctor interaction will be enhanced, geographic barriers can be removed via remote or teleconsultation services. The decision-makers can create a digital healthcare ecosystem that can be useful for the smooth functioning of the healthcare sector both during crises and normal times. Though there are many benefits of eHealth services, however, privacy and security concerns related to individuals' consent, third-party access and authorization, standardization, and storage of information need to be addressed. With increasing internet users in developing countries, mHealth and telemedicine can reach remote areas. This will improve healthcare services in non-urban settings and help reduce the burden on healthcare professionals and facilities in urban areas. The focus of these articles is also on the constraints related to introducing and managing ICT in the healthcare industry. Though eHealth's adoption rate is low in developing countries, few articles have offered a readiness framework to validate and assess the factors that can impact the overall acceptance of such services.

Conclusion and Future Scope

eHealth services can have a major impact on both developing and developed countries. While developed countries are readily accepting and utilizing these services, the adoption and acceptability are still low in developing ones. Various challenges range from social, technical, and financial aspects that hamper the progress of eHealth in developing countries. There is the issue of the digital divide which needs to be considered before the large-scale implementation of eHealth in developing countries. Our review highlights the current acceptability and adoption scenario, along with privacy and security concerns.

Though eHealth is being readily accepted during the pandemic, there are still many aspects that need to be addressed for the successful implementation of these services. There is a need to study the impact on different demographics while considering eHealth services in developing countries. The digital divide is also an important area that needs to be studied before implementing eHealth services. The adoption rate also depends on the security and privacy concerns that are to be studied more extensively before the successful adoption of these services.

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**Teachers action-inaction in E-learning during COVID – 19
qualitative inquiry into self-determination theory**

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Abstract

Teacher motivation is key to ensure learning. The purpose of this paper is to explore the teacher motivation in implementation of UNNAYAN e-learning program for class 9 and 10 during COVID-19 school closures. Using Self-determination theory as a framework in-depth interviews were conducted to have an understanding on teachers' motivation for implementation of e-learning during school closures. Based on the interviews the study conceptually establishes that recognition, emotional connect and self-development motivated the teachers to remain active. The study brought out work-life imbalance and lack of technical knowledge for non-performance of teachers. The study proposes, recognition of best performing teachers and psychosocial support for the teachers. The paper contributes to literature on self-determination theory through in-depth interviews.

Employment of Individuals with disability in India: Exploration through an Institutional Lens

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Abstract

The present study explores the representation of the individuals with disability in Indian listed companies. Our final sample consisted of 182 largest firms (based on market capitalisation) listed on the premier stock exchange of India. Relevant data was collected from the audited annual reports for the year 2019-2020. The dependent variable was proportion of individuals with disability people in the workforce. We found evidence for under-representation of individuals with disability in the listed companies, compared to their corresponding proportion in the entire workforce. Public sector firms had employed a significantly higher proportion of individuals with disability. The dispersion in the proportion of disabled individuals was also higher in public sector firms. Our results and implications are examined through the lens of isomorphism.

Keywords: Disability, Diversity & Inclusion, annual reports, India

Dark Triad Personality Traits and Entrepreneurial Intentions: Moderating Role of Resilience

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Abstract

Researches focusing on factors contributing entrepreneurial intentions mainly focused on positive aspect of personality. To reveal the importance of negative traits in contributing entrepreneurial intentions, this research introduces the role of dark-triad traits that consists Machiavellianism, Psychopathy & Resilience in shaping entrepreneurial intentions and whether this relationship is moderated by resilience. For the purpose of data analysis, hierarchal regression analysis is executed to examine causal as well as interaction effect among variables based on a sample of 183 post-graduate students. The findings suggest that all three dark triad are significantly related with entrepreneurial intentions and resilience has an interaction effect between the relationships

Keywords: Dark Triad, Resilience, Entrepreneurial Intentions.

Introduction

The practices of entrepreneurship are associated with positive statements such as, introducing innovations, offering employment, enhancing standard of living of the people, and strengthening economy (Anderson & Warren, 2011). The literature on reason to become entrepreneurs primarily focuses on positive personalities or positive psychological traits like, self-efficacy, locus of control, and proactiveness. This one-sided approach omitted to explore the other darker-side of entrepreneurship. Recently the researchers have started to explore the role of dark-triad personality traits including Machiavellianism, Psychopathy & Narcissism) in entrepreneurship (Wu, Su, Huang, Liu, & Jiang, 2020). Yet, the effect of dark-triad personality traits has not been explored thoroughly, specifically incorporating the moderating effect of variables like resilience in entrepreneurship literature. The present research study has attempts to fulfill this void. Thus, the study examines the causal effect of Machiavellianism, Psychopathy & Narcissism on entrepreneurial intentions. The study also attempts to examine the interaction effect of resilience between the relationship of dark triad personalities (Machiavellianism, Psychopathy & Narcissism) and entrepreneurial intentions. Furthermore, this study is among the initial researches of its kind in Indian context to explore the aforementioned links.

Dark Triad Personality- The term *Machiavellianism* was originally coined on the name of Italian diplomat and political theorist Niccolò Machiavelli. The personality trait Machiavellianism is been characterized as duplicity or emotional cold behavior where an individual can adopt any tactics to get their means done or a personality show cynical, immoral attitude or lacks empathy that exploit weakness in others (Christie & Geis, 2013). *Psychopathy* refers to the personality that is characterized as lack of empathy, self-centered, antisocial behavior that focuses on short-term benefits even at the expense of other's loss (Roland, 2006). Psychopaths are attracted by power and position and have no conscience on the consequences of their behavior on the surrounded environment (Marshall, Ashleigh, Baden, Ojiako, & Guidi, 2015). *Narcissism* refers to the personality trait that is exploitative in nature, dominant and manifested the feeling of superiority (Lee & Ashton, 2005). Narcissists people often overestimate their ability and highly sensitive to criticism. As described by Hambrick, (2007) people with narcissist personality have inflated feeling of self-consciousness.

Entrepreneurial Intention: Researchers have explored different antecedents of entrepreneurial behavior but intentions have emerged as best predictor that leads to an entrepreneurial behavior

(Nguyen, Do, Vu, Dang, & Nguyen, 2019). Entrepreneurial Intention can be described as the conscious planning to establish a new venture at some future point of time or self-acknowledged exploration of information that assist in venture creation (Thompson, 2009). Hence, entrepreneurial intentions can be regarded as the primary step in becoming entrepreneur. In next sections of the paper entrepreneurial intention will acronym as (EI).

Resilience: Initially the term resilience was studied by different researchers from different disciplines like psychology, sociology and medical to study the development of child behavior in challenging situations (Werner, 1995). However, there is no consensus on the common operational definition of resilience among researchers (Herrman et al., 2011) but fundamentally, resilience can be defined as the ability to maintain positive mental health despite facing challenging or adverse situation that may lead to financial, and psychological loss (Béné, 2020).

Literature Review & Hypothesis Development

Machiavellianism & Entrepreneurial Intention- In the literature of entrepreneurship, personality has been considered as the motivating factor that play an important role in forming entrepreneurial intentions (Van Gelderen et al., 2008). Recent trend in entrepreneurship is now focusing on the positive aspect of negative personality trait (Wu, Wang, Zheng, & Wu, 2019). Robie et al. (2008) stated that people high on dark-side trait like Machiavellianism might found beneficial in business because of their highly result oriented attitude and ability to draw best among alternatives for achieving their personal goals.

H1: There is significant relationship between Machiavellianism and entrepreneurial intentions.

Psychopathy & Entrepreneurial Intention-Due to the lack of feeling of empathy, psychopaths might be performed well in entrepreneurial context. As claimed by Wu et al., (2019) psychopaths play a crucial role in predicting entrepreneurial intent. First, the inability to understand emotions make psychopaths inconsiderate that leads them to insensitive towards fear of failure in uncertain entrepreneurial context (Morgan & Sisak, 2016). Second, psychopaths do not like to follow social norms and avoid working under supervision of others. Entrepreneurship gives them the opportunity to create their own norms and corporate culture (Rindova, Barry, & Ketchen, 2009). Thus, the above literature suggest that psychopaths are consistent with the entrepreneurial context that might leads them to enter in entrepreneurship. Thus, it is hypothesized that:

H2: There is significant positive relationship between Psychopaths and entrepreneurial intentions.

Narcissism & Entrepreneurial Intention-People high in narcissism may lead to entrepreneurship mainly because of two reasons. First, Narcissist people have the ability to dominate the situation as they are very fond of self-admiration; and entrepreneurship provides them platform to dominate. Second, choosing entrepreneurship is an individual level decision that satisfy narcissist to get self-admired or praised by others (Hmieleski & Lerner, 2016). Thus, traits found in narcissists people are compatible with nascent-entrepreneurs or early-stage entrepreneurs. Thus, it is hypothesized that

H3: There is significant positive relationship between Narcissism and entrepreneurial intentions.

Moderating role of Resilience-Resilience has been consistently used as a moderator in different fields of knowledge like, psychology, organizational behavior, nursing and psychosomatic. In entrepreneurship, the construct resilience is been characterized as the ability to overcome from

dynamic risky environment (Wu, Wang, Lee, Lin, & Guo, 2019). The ability to bounce back after traumatic event through high level of resilience depends upon the kind of personality an individual possessed (Campbell-Sills, Cohan, & Stein, 2006). In recent research on dark-triad personality, Wu et al. (2019), found that psychological resilience significantly moderates the relationship between dark-triad personalities (Psychopathy, Machiavellianism & Narcissism) and sustainable entrepreneurial orientation. He further claimed that resilience could weakened the negative attitude of dark-triad personalities towards entrepreneurship that conclusively motivates them to inclined towards opening new ventures. Thus, we hypothesized that;
H4: Resilience moderates between the relationship of Machiavellianism (4a), Psychopathy (4b), Narcissism (4c) and entrepreneurial intention.

Research Methods

Sample & Data Collection: The Primary data for the study was collected from post-graduate students pursuing business management course at a central university in Lucknow city of Uttar Pradesh, India. Considering the sensitivity of COVID-19, data was collected from 210 students through a web-based survey, using a web-link to all the post-graduate students pursuing business degree. During the data cleaning process in SPSS 26, it was found that 27 questionnaires were not completely filled that were excluded from the analysis. Thus, total number of samples considered for the study was 183 respondents. In the presented research study, 45.7% of respondents were male and 42.6% were female. Majority (65.1%) of the respondents were from the age group of 20-25 years, while 23.3% of respondents were from the age group of 26-30 years, and only 6.2% were from either 31-35 years or more than 35 years of age.

Measures: For measuring the *Dark-Triad Personality* (Machiavellianism, Psychopathy and Narcissism), 12 item scale, popularly known as ‘Dirty Dozen’ to measure ‘Dark-Triad Personalities’, developed by Jonason & Webster, (2010) was used but due to poor factor loading one item from Machiavellianism and one item from Narcissism were excluded from analysis. The construct ‘*Resilience*’ was measured through 4 item scale developed by “BRIEF RESILIENT COPING SCALE © Sinclair and Wallston, 2004,” (2018). It is measured on a five-point Likert scale ranging from one for ‘Does not describe me at all’ to five for ‘Describes me very well’. *Entrepreneurial intention* was measured through six-item scale developed by Liñán, & Chen (2009). Likert scale ranging from one (Strongly Disagree) to seven (Strongly Agree). One item was excluded from the analysis due to poor loading while executing EFA.

Reliability and Validity-To ensure the reliability of the constructs exploratory factor analysis was executed through using SPSS v26. Table.1 depicts the outcome of EFA. All the items factor loadings were above 0.60 that ensures validity of the constructs (Fornell & Larcker, 1981). Cronbach’s alpha value ensures the reliability and internal consistency of the constructs that is above 0.70 for all constructs except Machiavellianism (0.641) (Hair, Risher, Sarstedt, & Ringle, 2018). Furthermore, the researchers have used average variance extracted (AVE) to ensure the convergent validity of the construct. It is evident from Table.1 that AVE of all the construct was above 0.50 (Fornell & Larcker, 1981; Hair et al., 2018).

Table 1 Measurement items and reliabilities of Variables

| Variables | Items | Cronbach’s Alpha | AVE | CR |
|----------------------------------|-------|------------------|-------|-------|
| Machiavellianism | 3 | 0.641 | 0.546 | 0.782 |
| Psychopathy | 4 | 0.787 | 0.588 | 0.850 |
| Narcissism | 3 | 0.788 | 0.660 | 0.853 |
| Resilience | 4 | 0.773 | 0.551 | 0.829 |
| Entrepreneurial Intention | 5 | 0.942 | 0.795 | 0.951 |

Table 2 demonstrate the descriptive statistics and correlation among variables. Results shows significant relationship between the variables whereas causal relationship between the variables was studied through executing hierarchal regression analysis in data analysis. Ensuring divergent validity, square of the AVE of each construct was greater than the correlation with other construct confirms no issue of divergent validity.

Table.2 Mean, Standard deviation, and correlation of study variable

| | | Mean | S.D | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|----------------------------|--------|-------|----------|---------|-------|----------|--------------|--------------|--------------|--------------|--------------|
| 1 | Gender | 1.49 | 0.502 | N/A | | | | | | | | |
| 2 | Age | 1.39 | 0.675 | -0.145 | N/A | | | | | | | |
| 3 | Education | 1.79 | 0.618 | 0.139 | 0.294** | N/A | | | | | | |
| 4 | Background | 1.16 | 0.365 | -0.194* | -0.040 | 0.666 | N/A | | | | | |
| 5 | Machiavellianism | 11.61 | 3.643 | -0.241** | 0.040 | 0.664 | 0.123 | 0.738 | | | | |
| 6 | Narcissism | 10.925 | 3.389 | -0.037 | -0.076 | 0.408 | 0.073 | 0.240** | 0.812 | | | |
| 7 | Psychopathy | 11.44 | 4.234 | -0.284** | 0.068 | 0.457 | -0.112 | 0.370** | 0.453** | 0.766 | | |
| 8 | Resilience | 14.38 | 3.307 | 0.066 | -0.033 | 0.723 | -0.312** | 0.247** | 0.478** | 0.229* | 0.742 | |
| 9 | Entrepreneurial Intentions | 25.05 | 8.24 | -0.237** | -0.034 | 0.709 | 0.057 | 0.603** | 0.473** | 0.629** | 0.350** | 0.891 |

$N=183$ *Correlation is significant at the 0.05 level **Correlation is significant at the 0.01 level
 Note: (a) N/A refers to items not adaptive for analysis; (b) The diagonal elements in bold are square roots of AVE.

Data Analysis

Hypothesis Testing-For testing the causal relationships between variables hieratical regressions analysis was executed using SPSS v26 and the results are presented in Table 4. The first hypothesis confirms that the Machiavellianism have significantly positive relationship with entrepreneurial intention. Model 4 verified the relationship between Machiavellianism and entrepreneurial intention (0.548). In the model EI is used as dependent variable and Machiavellianism as independent variable. Thus, hypothesis 1 is accepted. Model 6 was executed to verify hypothesis 2 that predicts significant positive relationship between psychopathy and EI (0.573). Results of the analysis of model 6 verified the significant positive relationship between psychopathy and EI, thus hypothesis 2 is accepted. Model 8 is used to verify the relationship between narcissism and EI. Results of the analysis of model 8 confirms the significant positive relationship between narcissism and EI (0.416), thus hypothesis 3 is accepted.

Table.4 Summary of Hierarchical Regression Analysis for Variables predicting Entrepreneurial Intention

| Variables | Model 1 | Model 2 | Model 3 | Model 4 (Main Effects) | Model 5 (Interaction) | Model 6 (Main Effect) | Model 7 (Interaction) | Model 8 (Main Effect) | Model 9 (Interaction) |
|---|----------|----------|----------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Gender | -0.192** | 0.028 | 0.190* | -0.038 | -0.026 | 0.028 | -0.015 | 0.155 | -0.137 |
| Age | 0.218** | 0.260** | 0.183* | 0.217* | 0.212* | 0.230** | 0.228 | 0.230** | 0.244** |
| Education | -0.014 | 0.029 | 0.012 | -0.012 | -0.024 | 0.001 | -0.005 | 0.055 | -0.084 |
| Background | -0.006 | 0.021 | 0.035 | 0.042 | 0.031 | 0.002 | -0.004 | 0.071 | 0.053 |
| Machiavellianism | | 0.122 | | 0.548*** | -0.175 | | | | |
| Psychopathy | | 0.386* | | | | 0.573*** | -0.015 | | |
| Narcissism | | 0.229** | | | | | | 0.416*** | -0.491 |
| Resilience | | | 0.288** | 0.119 | 0.131* | 0.137** | 0.150* | 0.192** | 0.161* |
| Interaction Machiavellianism*Resilience | | | | | 0.114* | | | | |
| Interaction Psychopathy*Resilience | | | | | | | 0.078* | | |
| Interaction Narcissism*Resilience | | | | | | | | | 0.146** |
| R ² | 0.095 | 0.480 | 0.175 | 0.426 | 0.455 | 0.453 | 0.471 | 0.335 | 0.369 |
| ΔR ² | 0.064* | 0.447*** | 0.139*** | 0.064*** | 0.421** | 0.425*** | 0.438** | 0.300*** | 0.330** |
| F-Statistics | 3.045 | 14.876 | 4.888 | 14.090 | 13.486 | 15.765 | 14.372 | 9.588 | 9.441 |
| Durbin-Watson | 2.041 | 2.193 | 2.173 | 2.008 | 1.948 | 2.029 | 2.011 | 2.230 | 2.148 |

$N=183$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-tailed).

For testing interaction effect of resilience between the dark triad personalities (Machiavellianism, Psychopathy and Narcissism) and EI, Model 5, Model 7 and Model 9 were used. Results of the interaction effect of resilience between all the dark triad personalities

ensures the moderating role of resilience between Machiavellianism and EI (0.114) (H4a), Psychopathy and EI (0.078) (H4b) and Narcissism (0.146) (H4c). Thus Hypothesis 4 is accepted.

Discussion & Conclusion

The present research study sought to examine the relationship between dark triad personalities (Machiavellianism, Psychopathy & Narcissism) and entrepreneurial intentions and further probing the interaction effect between dark triad personalities and entrepreneurial intentions. In our analysis, first it is found all the three dark triad personalities are positively related to entrepreneurial intentions that validate the previous research findings (Hmieleski & Lerner, 2016; Wu, Wang, Zheng, et al., 2019). However, previous research studies considered dark triad as negative personality trait that manifested anti-social behavior but according to our findings dark triad personalities might be beneficial in entrepreneurial environment. Therefore, entrepreneurship could be the most attractive career option for dark triad people because of their ability to perform well in uncertain environment. Furthermore, we found interaction effect of resilience between all the three dark triad traits and entrepreneurial intentions that validate the past researches on resilience (Wu, Wang, Lee, et al., 2019). At low level of resilience, the relationship between dark triad traits and entrepreneurial intention found weakened. As the level of resilience in dark triad people increases the relationship between dark triad traits and entrepreneurial intentions gets stronger. Conclusively, the present research has attempted to investigate the relationship between dark triad personalities and entrepreneurial intention and further probing moderating effect of resilience. Findings of the study contribute in the literature of dark triad traits and entrepreneurship. However, the present study is not free from limitations. First, better sample size could have been used in future studies that will enhance the generalizability of the research. Second, the model could have been modified with additional exogenous or endogenous variables.

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Entrepreneurial Self-Efficacy leading Innovative behaviour among Start-ups: Mediating Effect of Entrepreneurial Passion

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Abstract

Successful entrepreneurs significantly drive economic development is the basic premise of India's startup India campaign. Understanding the human qualities that contribute to success of entrepreneurs remains a major challenge. Innovative behaviour is indispensable to being an entrepreneur and is vital for entrepreneurial success as well. Why are some entrepreneurs more innovative than others and choose chancier outcomes? Self-efficacy has strongly been driving the innovative behavior among individuals. This study empirically examines the possibility of the relationship between self-efficacy and innovative behavior. Entrepreneurial passion might mediate this relationship. The data from 200 start-up entrepreneurs will give better picture of the said relationship. The implications for practitioners and academicians will be discussed after the results.

Introduction

Entrepreneurship in transitional economies is a major engine of growth and has become a burgeoning focus of interest to researchers due to its significant contributions to economic development, job creation and individual wealth (Manev & Manolova, 2010). Indian start up industry consists of approximately 10,000 start-ups of which technology based are 4300 and Non technology based are 5700 as per the report by Grant Thornton India LLP. As per the report, India is 3rd largest start up Hub where the average age of startup founder is 28 years and 9% of total start up founders are females. India is riding a crest of start-up creation, driven by an extremely inclusive entrepreneurial landscape and easy access to capital. A blend of booming market, incubation, and mentoring ecosystem has led to an unprecedented entrepreneurship surge, which, has changed how Indians buy, pay, book, order and commute. In Indian context, the study of innovativeness of entrepreneurs assumes significance, as shifting of business towards emerging economies like China and India has become a potential game-changer (Dervitsiotis 2010; Di Minin et al., 2010).

Ongoing research is trying to unravel the cognitive underpinning involved in entrepreneurship i.e. the emotions, behavior and the accompanying psychological processes responsible for entrepreneurial actors' tendency to emphasize opportunities over threats and ensuing proximal outcome of venture creation (Baron 2008; Hmieleski & Baron, 2009). Different propensities may facilitate or hinder entrepreneurs' actions and behaviors. Therefore, we assume that traits within contexts are predictors of entrepreneurial behavior (Rauch & Frese, 2000). Since decision to be an entrepreneur is completely personal and based on two levels: Cognitive and motivational (Baum et al., 2007; Plehn-Dujowich, 2010), we argue that the attributes of entrepreneurs influences entrepreneurial process. While cognition as predictor of job performance is validated, (Chamorro-Premuzic & Furnham, 2010; Ones et al., 2007), reviews on cognitive component as a predictor of venture creation and success is inconclusive (Baron et al., 2007).

The present research strives to add to current knowledge by investigating the effects of the motivational aspects (i.e. Entrepreneurial self-efficacy and Entrepreneurial passion) on innovative behavior of entrepreneurs (i.e. cognition). These variables were selected for inclusion on the basis of a thorough review of prior research and theory.

The data from start-up entrepreneurs is collected and analyzed to prove the arguments claimed in this study. Later, academic and practical implications are discussed. The study will also give directions on the kind of support system government should create for achieving target of making India start-up champion.

Entrepreneurial Self-efficacy, Entrepreneurial Passion, and Innovative Work Behavior

The present article focuses on psychological constructs to explain an individual's entrepreneurial behavior by integrating Ajzen's (1991, 2002) Theory of Planned Behaviour (TPB) with selfregulation theory (Carver & Scheier, 1998).

TPB proposes that primary antecedent of behavior is the intent. Thus, the stronger the intention for behavior, the bigger is the success of predictor of that behavior. TPB has been frequently applied to explain mental process leading to firm creation (Krueger, Reilly & Carsrud, 2000; Krueger, 2007; Kolvereid & Isaksen, 2006; Fayolle & Gailly, 2015; Fayolle & DeGeorge, 2006).

The self-regulation theory (Carver & Scheier, 1998) posits the cognitive processes through which individuals monitor, evaluate, direct, and adjust their own behavior so as to achieve goals (Forgas et al., 2009; Zimmerman, 2006). Self-regulation processes are at the core of human agency (engagement of the self) and human coping (responses to overcome challenges). It is compatible with entrepreneurial thinking that recognizing, reshaping, and responding to opportunities lie at the nexus of the individual and the environment (Shane & Venkataraman, 2000).

Innovation is a vital feature in new venture success (Ireland and Webb, 2007). The nexus of innovative work behavior (IWB) and entrepreneurship has sparked extensive academic interest (Chen & Huang, 2010; Agarwal et al., 2010; Baron & Tang, 2011; and Piergiovanni et al.; 2012). Innovative individuals tap their ingrained tacit knowledge and implement them as foundations for launching their startups (Audretsch & Keilbach, 2007; Braunerhjelm et al.; 2010; Acs et al., 2013).

Recent research provide evidence linking innovative work behavior to predisposition to being an entrepreneur that are robust across samples and methods (Rauch & Frese, 2007b; Zhao & Seibert, 2006; Zhao, Seibert et al., 2010). Schumpeter linked 'entrepreneurship with innovation' and established that innovative behavior is the foundation for the start-ups (cited by Carland et al., 2007; Sharma & Chrisman, 2007). Role of entrepreneur calls for proficiency to detect and leverage opportunities, they have to make rapid decisions under uncertainty and in a resource constraint environment. IWB is pivotal in synthesizing new opportunities (Block et al., 2013) and is the key to leveraging new ideas and translating them into products and services (Henderson and Weiler 2009). Entrepreneurial Self-Efficacy (ESE) measures a person's belief in their ability to motivate and successfully launch an entrepreneurial venture (Wilson et al., 2007; Hmieleski & Baron, 2008). It is often included in models to explain why some individuals are more likely than others to become entrepreneurs (Barbosa et al., 2007; Zhao et al., 2005). ESE has appeared as a significant construct for appreciating entrepreneurial success, and this is supported by wide-ranging literature which emphasizes its impacts on start-up and business development (Markman et al., 2002; Segal et al., 2005; Florin et al., 2007).

Without entrepreneurial self-efficacy (ESE) the entrepreneurs will lack the wherewithal to challenge the current status and seek new ways, as well as capacity to engage in the important

entrepreneurial behaviors to start businesses or pursue new ventures (Waters and Moore, 2002). ESE thus plays a pivotal role in the entrepreneur's life.

Entrepreneurial passion implicates strong positive feelings and identification with the activities that stimulate such feelings (Cardon et al., 2009), and leading to greater persistence (Houser-Marko & Sheldon, 2006). Literature has indicated how passion influences outcomes, strength and courage (Bierly et al., 2000), mobilize energy (Brannback et al., 2006), and untiring quest for exciting goals (Smilor, 1997). Cardon et al. (2005) posits that entrepreneurial passion is about love for the venture itself. Research has validated that entrepreneurs who are passionate are seen to be more successful than those who are not (Baum & Locke, 2004; Cardon, Zietsma, Saporito, Matherne, & Davis, 2005; Breugst et al., 2012; Mooradian et al., 2016).

Entrepreneurial passion plays a crucial role in recognition of new information patterns critical to the detection and exploitation of likely opportunities (Baron, 2008; Sundararajan and Peters, 2007). It is an emotional resource to cope up with challenges in entrepreneurial endeavors (Vallerand et al., 2003). Accordingly, scholars have pressed for a deeper understanding of passion as a central element of entrepreneurial efforts (Cardon et al., 2009a; Chen et al., 2009). The extant literature suggests strong linkage between ESE and entrepreneurial outcome (Douglas & Fitzsimmons, 2013). Those with higher ESE would tend to pursue, incubate and implement innovative ideas into creating start-ups (Yang and Cheng 2009). ESE is positively associated with opportunity recognition which is embedded in Innovative behavior (Ozgen and Baron 2007). A research study by Hmieleski and Corbett's (2008) depicted that entrepreneurial self-efficacy moderately affect the relationship between an entrepreneurs' improvisational behavior and venture performance. Entrepreneurs with strong self-efficacy are often on the verge of finding new opportunities, recognize market disequilibria, and evaluate the opportunity for implementation (Tang 2008). Self-efficacy intervenes in the effectiveness of an entrepreneur's use of innovative solutions and self-efficacy beliefs moderates with entrepreneur's innovativeness for entrepreneurial outcomes (Ahlin et al., 2014).

Research body on entrepreneurial passion advocates that it enables individuals to focus on the demands of the current work task and build up resources for current or upcoming challenges (Chen, Yao, & Kotha, 2009). Since IWB involves risks, uncertainty and setbacks and can deter entrepreneurial efforts, by definition, Entrepreneurial passion stimulates the innovative behavior of entrepreneurs (Bierly et al., 2000; Brannback et al., 2008). There is evidence that passion with a diverse range of positive outcomes as well as to drive, tenacity, willingness to work long hours, courage, high levels of initiative, and persistence in the face of obstacles and fostering innovative behavior (Foo et al., 2009). Entrepreneurial passion can have a profound effect on vision and intentions emphasizing opportunities over threats, competency to integrate innovative thinking and converting it into action results in conception of ventures (Linan, 2008; John et al., 2008; Mooradian et al., 2016; Cardon et al., 2013). Passion drives entrepreneurs to be more innovative, motivated and absorbed in venture related tasks, which strongly enhances key venture outcomes (Cardon et al., 2009, 2013).

Researchers have suggested that the positive affect (Baron, 2008), especially entrepreneurial passion (Cardon, Wincent, Singh, & Drnovsek, 2009) affect persistence of the entrepreneur. The reason being passion involves positive intense feelings and strong identification with the activities that stimulate such feelings (Cardon et al., 2009). Their study by Cardon, and his colleagues (2013) has found relationship between self-efficacy and passion.

Research Gaps

Overall, the above literature review on entrepreneurship theory suggests two important gaps that need to be considered: (1) identify traits which act as motivational factors (Rauch & Frese, 2007b) and (2) empirical testing of its predicted influence on cognitions and behaviors (Baron & Tang, 2010). While cognition as predictor of job performance is validated, (Chamorro-Premuzic & Furnham, 2010; Ones et al., 2007), reviews on cognitive component as a predictor of venture creation and success is inconclusive (Baron et al., 2007). Entrepreneurs often function in niche emerging markets or disrupt established markets. By default, they take risks, tackle uncertainty and obstacles and improvise as they can't apply tried and tested heuristics to solve their unique challenges, (Markman et al., 2005; Wu et al., 2007). The literature on the key psychological mechanisms that influence on the decision to become entrepreneurs needs robust empirical support (Sánchez & Sahuquillo, 2012; Gregoire et al., 2004). Also, though literature indicates relationship between self-efficacy and entrepreneurial passion, there is sparse literature on how two of these constructs work in the context with each other as they influence the innovative behavior of entrepreneurs (Cardon et al., 2013). Also, the potential mediating role of entrepreneurial passion in the relationship between self-efficacy and innovative behavior needs attention.

Objective

The number of studies mentioned in the literature confirm the relationship between self-efficacy and innovative behavior. The purpose of present project is to develop more focused understanding of relationship between entrepreneurial self-efficacy and innovative behavior with mediating effect of entrepreneurial passion. If such a relationship is observed, it will give insights on the importance of self-efficacy influencing innovative behaviour in start-ups due to the role of self-efficacy on passion.

Definitions:

For our study, we adopt Shane and Venkataraman's (2000, p. 218) definition of entrepreneurship as the process by which "opportunities to create future goods and services are discovered, evaluated, and exploited." Entrepreneurs are those who "discover and exploit new products, new processes, and new ways of organizing" (Baum and Locke, 2004). Innovative work behavior is defined as individuals' intentional behavior to initiate, promote and realize new and useful ideas, processes, products or procedures with the objective of benefiting role performance, the group, or organization (Potočník et al., 2016). Entrepreneurial passion has been defined as involving positive and intense feelings experienced from engagement in activities associated with roles that are meaningful to the self-identity of entrepreneurs (Cardon et al., 2009). ESE is a construct that measures a person's belief in their ability to successfully launch an entrepreneurial venture. The extent to which a person believes in his/her ability to perform the tasks necessary to successfully become an entrepreneur namely, entrepreneurial self-efficacy (McGee et al., 2009).

Hypotheses

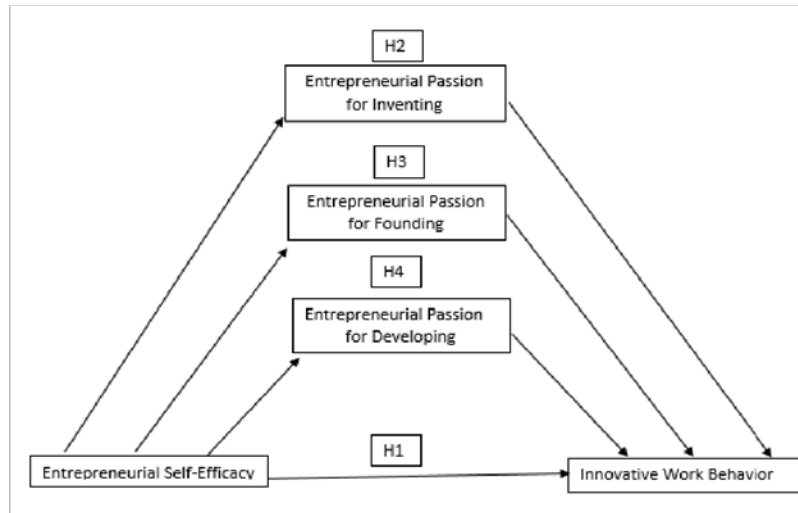
Hypothesis 1: Entrepreneurial self-efficacy predicts greater IWB

Hypothesis 2: The relationship between entrepreneurial self-efficacy and IWB is mediated by entrepreneurial passion for inventing.

Hypothesis 3: The relationship between entrepreneurial self-efficacy and IWB is mediated by entrepreneurial passion for founding.

Hypothesis 4: The relationship between entrepreneurial self-efficacy and IWB is mediated by entrepreneurial passion for developing.

Conceptual Model



Research Methodology

Convenience sampling method is used for selecting respondents. The population of research is startup entrepreneurs in India. The respondents are start-up founders who are venturing business in various sectors varying widely in age, education level and business experience. Sample size is 200 start-up entrepreneurs in India. Innovative Work Behaviour is measured with the scale given by Janssen (2000) that contains 9 items. 19 items scale given by McGee et al. (2009) is used for measuring entrepreneurial Self-Efficacy. While scale Entrepreneurial Passion is measured with the 13 items scale developed by Cardon et al., (2013). Structural Equation Modeling will be used to test the hypothesized model. 140 responses are received and 60 more are to be collected.

Implications

The findings will make several contributions to the existing body of knowledge. First, by exploring the relationship between self-efficacy and innovative work behavior, we help to clarify the processes through which entrepreneurs' self-efficacy influences innovative entrepreneurs. Current study will be one of the pioneering studies in understanding the cognitive and motivational processes in Indian start-up entrepreneurs. This research is an attempt to contribute to the body of knowledge on entrepreneurial affect by understanding the process from self-efficacy to innovative behavior through passion. The results are also expected to give insights on which element of motivational process needs more attention and or which of the elements can be imbibed among start-up entrepreneurs to make them successful.

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"Rise By Lifting Others": Role of Servant Leadership in Fostering Change Readiness Among Employees

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Abstract

Organizations undergo rapid changes and transformations in the era of prolific dynamism of the environment. Change brings in resistance, ambiguity, stress, and turmoil in the organizational settings and structure, disrupting the congenial organizational climate. It is of utmost importance to overcome these undesirable tides and progress towards scaling new heights. Servant leadership could aid in tiding over the challenges that upsurge with change. This study explores the relationship between servant leadership and change readiness to put forth a framework describing the catalytic and apriori role of servant leadership in creating a congenial environment for organizational change by fostering change readiness, founded in the perspective of appraisal theory of stress coping.

Keywords: Organizational Change, Servant Leadership, Change Readiness, Optimism, Resilience, Self-Efficacy, Ambiguity

Job Satisfaction and Burnout among Indian IT Managers: A Correlational Study

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Abstract

The Indian Information Technology (IT) industry is undergoing dynamic changes in the work culture impacting Job Satisfaction and burnout of employees. The impact of demographic variables like gender, work experience on job satisfaction and burnout in Indian context for IT professionals at managerial level or above and relationship between the two was studied. A survey was conducted using standardized scales of JSS (Job Satisfaction Survey) and CBI (Copenhagen Burnout Inventory) questionnaire with convenient random sample of 106 IT Managers (82 Males & 24 Females) and was statistically correlated using Pearson's r. Results showed a significant negative relationship between Job Satisfaction and Personal Burnout, $r(106) = -.512$, Job Satisfaction and Personal Burnout, $r(106) = -.512$ and Job Satisfaction and Client Burnout, $r(106) = -.398$ with $p=0.00$ for $\alpha=0.01$.

Keywords: Gender Difference, Work Experience, Job Satisfaction, Burnout

Introduction

The Indian IT industry has seen a drastic shift on adopting more advanced technologies in 21st century like cloud computing, analytics, mobile application, user interfaces etc. The companies are implementing more digitization and automation at workplace, resulting decline in job opportunities as companies focus on niche skillset of employees. The new startup's also pose an aggressive challenge leading to cut throat competition on new deals (Panhale, 2018). This tremendous competition in signing new deals budgetary constraints for project executions and which causes under-staffing, putting pressure on existing workforce and results in long work hours of an employee.

The present study was an attempt to find out the existence of correlation between Burnout and Job Satisfaction in Indian IT Professionals. This study also explored the impact of demographic variables like Work Experience, Gender on the different type of burnouts experienced by an employee in IT domain viz. Personal, Work & Client and also impact on job satisfaction. The correlation study analyses the inter relation between job satisfaction and burnout and its impact on the overall job satisfaction of an IT professional.

Concepts

Burnout is a state of emotional, physical, and mental exhaustion caused by excessive and prolonged stress (Smith, Segal, & Robinson, 2019). **Burnout** can also be defined as a psychological syndrome characterized by emotional exhaustion, feelings of cynicism and reduced personal accomplishment (Koutsimani, Montgomery, & Georganta, 2019). It is also stated as "a psychological response to work stress that is characterized by emotional exhaustion, depersonalization, and reduced feelings of personal accomplishment." (Halbesleben & Buckley, 2004)

Job Satisfaction is defined as "the feeling of pleasure and achievement which you experience in your job when you know that your work is worth doing" (Cambridge Dictionary, n.d.). It can also be defined as "an outcome of psychological, physiological and environmental forces that cause a person to say truthfully, I am satisfied with my job" (Hoppock, 1935). Another definition state Job satisfaction as "the favorableness or unavoidableeness with which employees view their work" (Smith. & Hulin, 1964)

Gender is defined by one's own identification as male, female, or intersex (Ghosh, 2015).

Work Experience (referred as Experience henceforth) is knowledge or skill in a job or activity which an individual gains because of continuous practice.

Sample & Data Analysis

A sample size of 106 employees belonging to IT domain who were at managerial designation or above in this study. The valid sample size comprised of 82 Male and 24 Female managers. The results obtained were put to statistical analysis using the SPSS software to get the results using t-test, One-way ANOVA, Pearson Product Moment Correlation and reported accordingly.

Objectives

The objectives of the study were two parts: The first part focused on studying the differences of burnout and job satisfaction due to age, gender & experience. The second part focused on studying the relationship between Burnout (Personal, Work & Client) and Job Satisfaction.

Results & Discussion

The primary hypothesis was whether there would not be any significant gender-based difference of burnout (Personal, Client & Work), which couldn't be rejected as the calculated values of t test for Personal burnout ($t=-1.119$), Work burnout ($t=-0.354$) and Client Burnout ($t=0.094$) assuming equal variances was much lesser than the t_{critic} 1.98 at $\alpha=0.05$.

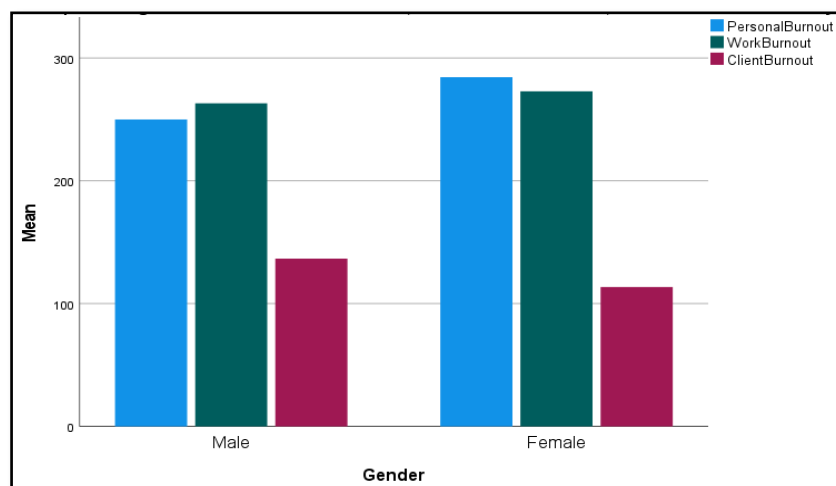


Figure 1. Simple Histogram Mean of Personal Burnout, Mean of Work Burnout, Mean of Client Burnout by Gender

A meta-analysis of the relationship between gender and burnout observed high consistency of emotional exhaustion and burnout between the male and female sample sizes from 183 studies (K.Purvanova & P.Muros, 2010). Another study conducted on 1040 respondents (549 male and 491 female) comprising of university staff no difference in the burnout level as categorized by levels of emotional exhaustion and depersonalization (Adekola, 2010). We also observe through the statistical analysis from this study that the mean scores of Personal and Work-related burnouts for female are comparatively slightly on the higher end as compared to the male counterparts. However, the mean score of client burnout was slightly higher for Male managers as compared to females. This also points that there is scarcity of female managers in client facing roles and focus should be put on increasing the count in client facing roles in IT domain. However, we can conclude that Burnout levels of Male and female managers in IT domain doesn't have any significant difference and both genders observe the same levels of

burnout owing to the time bounce job related tasks and long working hours.

Additionally, it was further hypothesized that there would not be any significant gender-based difference of job satisfaction which also couldn't be rejected as the calculated values of t test for Job Satisfaction ($t=1.069$) assuming equal variances was much lesser than the t_{crit} 1.98 at $\alpha=0.05$ indicating insignificance.

A study conducted on faculty Male & Female faculty members from The Public Authority for Applied Education and Training (PAAET) in Kuwait also found that there is no difference in Job Satisfaction and facets of Job Satisfaction between the male and female staff (Metle & Alali, 2018). Another research study conducted for huge sample of 13000 employees across various industries in US observed no difference with respect to job satisfaction between male and females in management (Mason, 1995). We also see the female sample size ($N=24$) in management layer is considerably less as compared to males ($N=82$), which also points out that efforts need to be put in by IT organization to increase the male to female ratio at job. There are some variations among males and females on the level of job satisfaction, but considering the overall job satisfaction both have the equal level of job satisfaction. Hence, we conclude in this research study that gender difference doesn't have a significant impact on the job satisfaction level of male and female managers in IT Domain.

Further the researchers formulated a hypothesis that there would not be any significant difference between burnout w.r.t experience which couldn't be rejected as the calculated values were not found to be significant at $\alpha=0.05$ indicating no role of experience towards burnout.

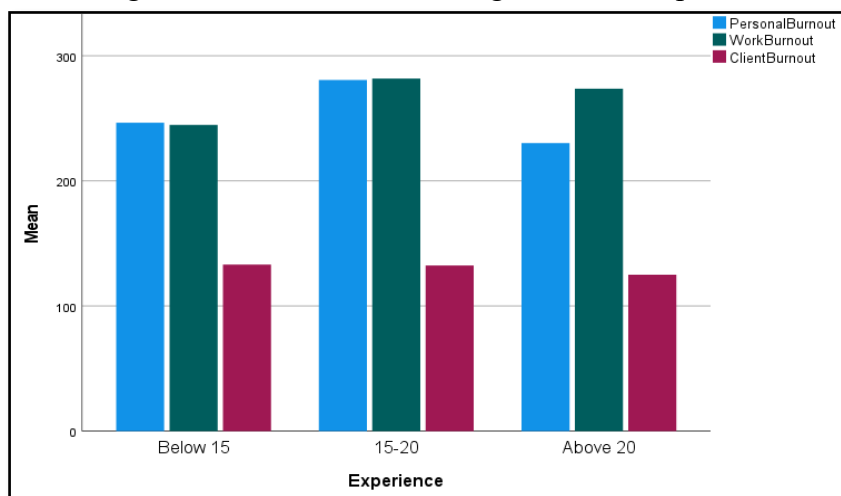


Figure 2. Simple Histogram Mean of Personal Burnout, Mean of Work Burnout, Mean of Client Burnout by Experience

From the mean score statistical analysis, we see that Personal, Work & Client burnout increases from across the three segments of experience. It increases from below 15 yrs. of experience to 15-20 years and reduces at above 20 years of experience. Also, the Personal burnout mean is also comparatively less for above 20 years of experience as compared to the other two experience segment which leads to an observation that with increase in number of years of experience, the higher experience IT employees are able to reduce the personal burnout level while maintaining the work and client level burnout also similar to other experience categories. As the significance level in one-way ANOVA analysis was much higher above the assumed significance level of 0.05, thereby we can conclude that difference in experience level of managers in IT Domain is not affected by the level of burnout they observe.

It was hypothesized that there would not be any significant difference between Job Satisfaction w.r.t experience which couldn't be rejected as the calculated values were not found to be significant at $\alpha=0.05$ indicating no role of experience towards Job Satisfaction.

Job satisfaction in this study was analyzed through the 9 underlying factors which promote overall job satisfaction as presented by Paul Spector in JSS Scale. We observe that the level of significance for eight of nine factors was high above the significance level of 0.05. However, job factor such as coworker observed a low significance level much below 0.01 level of significance. These statistical output reveals that for Indian IT Managers there is a significant positive correlation of coworkers w.r.t experience. Coworkers in any environment play a critical role of maintaining a healthy work environment. A fine balance of experience level of coworkers not only promote a healthy work environment but employees also observe a healthy competitive environment which helps in promoting the growth of the employee as well as the organization. With a hybrid combination experience level of coworkers, learning in the environment is high. However, we observe that the overall Job Satisfaction score doesn't bear any statistic difference with levels of experience of employees where $p = 0.142$ is much higher above 0.05 significance level.

It was hypothesized that there would not be any significant co-relation between Burnout and Job Satisfaction which was rejected as the calculated values Personal Burnout and Job Satisfaction ($r=-.512$), Work Burnout and Job Satisfaction ($r=-.571$), Client Burnout and Job Satisfaction ($r=-.398$) were found significant at $\alpha=0.05$ indicating negative relationships.

Table 1. Correlation Analysis Using SPSS Between Burnout (Personal, Work, Client) and Job Satisfaction

| Correlations ^c | | | | |
|--|-----------------------------------|------------------|--------------|----------------|
| | | Personal Burnout | Work Burnout | Client Burnout |
| JSS Score | Pearson Correlation | -.512** | -.571** | -.398** |
| | Sig. (2-tailed) | 0.000 | 0.000 | 0.000 |
| | Sum of Squares and Cross-products | -96830.660 | -96781.604 | -57927.358 |
| | Covariance | -922.197 | -921.730 | -551.689 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | |
| *. Correlation is significant at the 0.05 level (2-tailed). | | | | |
| c. Listwise N=106 | | | | |

Additionally, the visual inspection of the Scatter Plot indicated that Personal Burnout, Work Burnout & Client Burnout Scores were Linearly Correlated with Job Satisfaction Score and a negative relationship exists between them for the given sample size of $N=106$

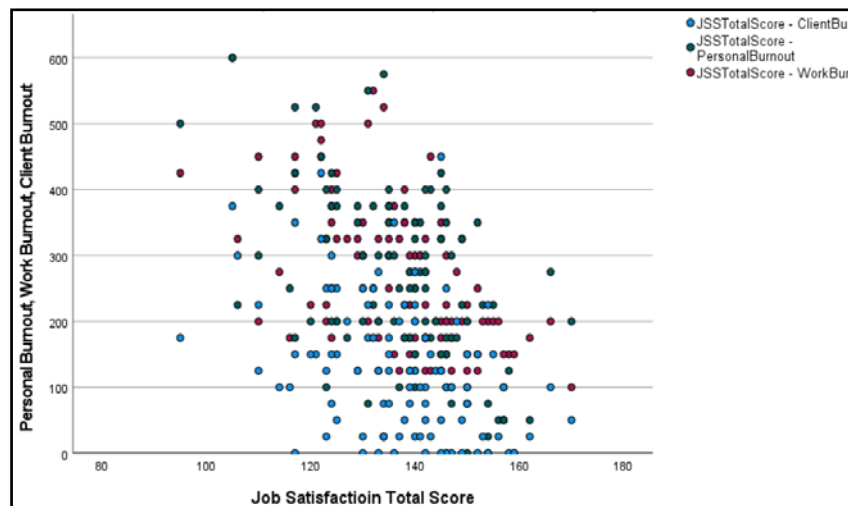


Figure 3. Scatter Plot of Work Burnout, of Personal Burnout, of Client Burnout, by JSS Total Score

A study of 250 emergency health professionals, in two public hospitals in Turkey also found that there is a significant relationship between burnout and job satisfaction (Yorgancıoğlu, Menderes, Tarcan, & Top, 2016). Job satisfaction is inversely related to experienced burnout another study on a sample of 75 human services professionals in USA found (Penn, Romano, & Foat, 1988).

Burnout is negatively correlated to job satisfaction as pointed in a research study conducted on a sample of 131 full-time teachers at various engineering colleges from Tamilnadu (J & M, 2018).

If we compare across industries, we also see that the three subscales of burnout i.e., exhaustion, cynicism, professional inefficacy are negatively related to job levels and job satisfaction but act as a mediator between job levels and job satisfaction, states a sample study of 342 Korean workers from banking, chemical, electronics, energy, and retail industries (Kim, Ra, Park, & Kwon, 2017).

The statistical analysis in this study also reveals that the three types of Burnouts viz. Personal, Work & Client and are negatively correlated to Job Satisfaction score at a significance level of 0.01. Thereby, it is observed that owing to stressful work environment, pressure of delivering quality work on time work, long working hours are few of the common factors observed in IT domain which are key contributor to the observance of burnout in professionals and thereby negatively impacting the overall job satisfaction of Indian IT Managers.

Conclusion

There is a significant relationship between Job satisfaction and burnout, where Job satisfaction is negatively affected by the burnout observed in IT Managers, which iterates the importance of Job Satisfaction at work place. This study represents the scenario in India focused upon employees at managerial or above level in IT Domain. There is a need for future study and it may also be useful to conduct similar studies in other domains within India.

Implications

The study provides a reference to senior management, HR professionals in IT domain about impacts of the three types of burnouts on an employee and how it impacts the job satisfaction levels. Mostly employee wellbeing programs are focused upon improving the job satisfaction

of the employee, however sometimes the burnout angle remains unnoticed which ultimately leads to job dissatisfaction and thereby causing loss of talent through attrition. The findings in this study can contribute to devise programs/initiatives which also effectively focusses upon improving the burnout levels of an employee.

Delimitations

This study is limited to Indian IT Professionals who are working at managerial or above level. The study also considered three categories of experience of managers only below 15 years, 15-20 years and above 20 years. The sample collected were demographically situated in Pune & Gurgaon city only in India.

Limitations

The major limitation of the study was the sampling size. There is an uneven sample of male and female responders to the survey. There are three primary reasons for the same

1. The survey was comprising of 59 questions as full scale of JSS, CBI were used which took more than 15 mins of each responder and created will full default due to demanding nature of work-position. Multiple reminders had to be given to complete the survey.
2. There is an uneven distribution of Male & Female managers in IT industry itself and that's the reason Gender Equality Initiatives are at boom in each organization and seen with high importance to make a gender diverse organization. This uneven sample is witnessed by the smaller number of female responses registered as compared to male responses which is almost three times.
3. Since the questions were not mandatory to respond a substantive chunk of 16 responses registered were discarded.

Future Suggestions

The research study focused on a topic which is quite niche considering not many research studies were observed on the same context. However, future research scope can be still explored considering below dimensions

1. Including an even sample size for study, comprising of both male and females.
2. Scope of research can be expanded beyond managerial cadre and can include the entry level employee or workforce as a whole.
3. The questionnaire needs to be more skewed and should include more focused questions instead of full scale. This will increase participation as will take less time for each participant to respond.
4. The sample population can also be expanded to include PAN India locations and not specific cities which will further boost the number of responses for the survey and would be demographically rich sample.

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Ethical Leadership and Complexity of Innovative Work Behavior: The Mediating Moderating Mechanism

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Abstract

Individual Innovative work behaviour (IWB) which includes generation, promotion and implementation of novel and useful ideas is critical for organizations aiming for competitive advantage. Prior research is scant in knowing the motivational mechanism that engender ethical outcomes of IWB. This study aims to examine the linkage between ethical leadership and IWB. Moreover the mediating motivational role of personal engagement is tested. Furthermore, a boundary condition in task significance is examined. Findings of the data analysis supported the proposed hypotheses. There are useful implications for managers and employees in organizations while aiming for IWB.

Venture Creation and Survival of Hyperlocal MultiSided Platforms in India Through Effectuation Theoretical Lens

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Abstract

Recent studies acknowledge contributions of hyperlocal platform businesses to an economy. Ernst & Young evinces 27% CAGR in Indian E-commerce over 2019-2024.

Notwithstanding the fact that Indian start-ups have emulated global business models, IBM & Oxford's study exposes a large share of Indian tech start-ups failing within first five years due to lack of formal mentoring and unique business models. This calls research attention. We put forth the well adopted effectuation theory; an extension of Herbert A Simon's bounded rationality, as a potential solution. In this study we explore how effectuation logic helps hyperlocal multi sided platforms to survive uncertain period of their venture creation. The study gives cue into the context in which key activities of effectuation gets unfolded which is largely unexplored.

Keywords: Multi Sided Platforms, Hyperlocal entrepreneurship, effectuation theory

Understanding the Changing Role of Business Angels in Relation to the Stages of the Start-ups: Using the Lens of Resource Dependency Theory

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Abstract

More than three decades old, the domain of Business Angels (BA) within the startup ecosystem has now been researched intensively. The most intriguing and frequently researched area has been the value-added contributions of BAs post-investment in the startups. Nevertheless, the knowledge and understanding of this area remains scattered and misses theoretical underpinning. Stocking and organizing the role of BAs and substantiating it with theoretical brace borrowing insights from Resource Dependency Theory is needed. With this objective, they have systematically classified the roles of BA into financial and intellectual capitals with the perspective of Resource Dependence Theory. Based on which the authors identified how these roles and capitals shift in relation to the stages of the startup. The paper discusses factors affecting this shift and its implications to BA, startup founders, and policymakers.

Keywords: Angel Investing, Startups, Resource Dependency Theory, Early-Stage Venture

Introduction

Post pandemic, the need to focus on creating agile business has become primal. India is becoming the pivot for startup unicorns and angel investing. Even though a lot of startups fail, the splurge in the startups demand the procuring of the right resources. Interestingly resource procurement remains to be a primary challenge (Taji, 2014) and more so, these resilient times adds to the complexity. The availability of resources in terms of finance or skills in overall operations of startups are constrained by various parameters. Business Angels (BAs) are known to offer resources that help startups deal with financial as well as non-financial resource challenges. Prior researches that have attempted to add more clarity to BA's roles (Macht and Robinson, 2009; Politis, 2008). Despite this, there is a need to research on the role of BA's exhibiting more empirical rigor.

Further, existing research does not comment on how this role and dependency change as the startup shifts its stages and advances into the next stage of growth. Therefore, this paper identifies the gap and attempts to understand the change in the roles of BA across different stages of startup. The factors triggering the changes have also been identified to understand why the roles of BA change. The researchers used qualitative method to undertake research and address the gap. In-depth semi structured interviews have been transcribed and manually coded to understand the research questions. The findings indicate that the role changes as the start of startup changes, we contribute to the Resource Dependence Theory (RDT) and also offer practical implications to the BA and startups as well as the policy makers.

Literature Review

BAs have an important place in the informal finance market and are known as providers of 'smart money' (Tenca, Croce and Ughetto, 2018). Prior literature identifies the reasons for the same. One, BAs offer financial resources to the new ventures i.e., startups at a stage when the risk attached is very high. Second, BAs are valuable as they help in active development of the new venture, leveraging their prior experience and know-how as an entrepreneur (Freear and Sohl, 2001). Therefore, they build the financial as well as the knowledge gap for such early stage startups (Macht and Robinson, 2009). However, the need for these resources does not remain constant and is dependent on the stage of the startup. Although both financial and non-

financial resources are not only beneficial but also important for survival, the fact that at every stage a startup has a different set of problems amplifies the need for the right kind of resources. Prior literature on BA and startup financing provides a foundation for this study. It states that when BAs provide resources beyond finance they are 'active' (Politis, 2008). The literature that discusses the resources and roles of BAs can be divided into two categories. The first category is that of early research which only identified the roles and resources of BA. However, the second category of research clustered these roles into categories. A study by Mason and Harisson (1996), classified under the first of the above categories reaffirmed that the BAs provide strategic advice but also pinpointed the specific contributions like help in accounting, marketing and financial model structuring. Mason (2006) stated that it is the know-how and contacts which are furthered to the startup by a BA. Collewart and Manigart (2016) aligned BA's contribution with human capital stating that their knowledge and experience helps add value to the startups. As an increasing number of researches discussed the roles of BAs, it was identified that it is scattered and misses organization one must cluster the similar roles. Lumme, Mason, and Suomi (1998) classified the contributions of BA into 5 categories namely strategic management and control, assistance in operational management and control systems, networking, industry knowledge, and resourcing new dynamic business structures. Politis (2008) was more structured as he classified different roles under mentoring, monitoring, resource acquisition and strategic roles. Fili and Grunberg (2014) classified the post-investment activities of BA into boundary spanning, structuring, leadership, doing, and monitoring. Post-investment involvement has been described as a black box (De Clercq and Manigart, 2007) and the growing research in the BA's domain pertaining to the role of BAs has led to accumulated but fragmented knowledge (Politis, 2008). A more structured classification of the resources was therefore called for.

Although startups can have their own resources, they are heavily dependent on BAs not just for financial but for non-financial resources (Harrison and Mason, 2000; Wasserman, 2014). The resource dependency (Pfeffer & Salancik, 1978) thus created offers insights into how BAs and startups view the relationship with each other. Politis (2008), Macht and Robinson (2009) and White and Dumay (2017), have repeatedly acknowledged the need to investigate the nature of the relationship between BAs and startups. Startups unlike established firms are woven with a lot of unpredictability, making such dependencies even more critical. While BAs and startups are not competitors, the information asymmetry is certainly prevalent. With the rapid growth that startups offer, its need for resources is likely to change. Despite this, the change in the resources brought by BAs over the different stages of startup have not been unexamined. Therefore, addressing how the resources bought by BAs change according to the stage of the startup is of relevance and needs to be empirically researched. Previous research also has looked at BA's involvement from either the perspective of startup founders or from the perspective of startup but not a dyadic perspective in the same research. Our research also aims to address this gap by capturing the dyadic perspective of BAs and startup founders in the research. Further, there is a need to bring BA-founder dyadic perspective to BAs resource offering and identification of the factors affecting the role change (Politis, 2008). This research aims to address the gap by identifying the factors that affect the change in the role of BA.

Research Methodology

As the study intended to capture the experiences and its description, we undertook qualitative research methods (Cresswell, 2003). The study being inductive in nature echoes grounded research (Strauss and Corbin, 1994). To encapsulate the same, a semi-structured interview approach (Hofer and Bygrave, 1992) was adopted in this research. This approach facilitated an understanding of the problem from the perspective of the participants under investigation i.e.,

of BAs and startup founders. 15 BAs and 15 founders were interviewed. The sample size in this research borrows justification from Sandelowski (1995) and Patton (1990) stating that the “logic and power” of the various kinds of purposeful sampling used in qualitative research lie primarily in the quality of information obtained per sampling unit, as opposed to their number. As the nature of the BA market is less organized and informal (Mason and Harrison, 2000), researchers used non-random sampling where in the first data point was through a BAN i.e. purposive sampling (Campbell et al., 2020) and remaining data was collected through snowball sampling (Marshall, 1996), thus combining two sampling methods (Harrison and Mason, 1992). Respondents were contacted telephonically first, briefed on the objectives and then mutual convenient time was decided for an interview. The interview was conducted at the preferred location of the respondent and lasted for 45 minutes on average.

This process was repeated for all the 30 respondents after which theoretical saturation was observed as no new category or data emerged (Lincoln and Guba, 1985; Strauss and Corbin, 1990). Out of the 30 semi-structured interviews conducted, 15 BAs and 15 startup founders were interviewed. The BAs interviewed had not necessarily exited the firm and they could very likely be associated with multiple stages of startup in their portfolio simultaneously. Thus, an inquiry was made on their general understanding of the roles they played. The BAs and founders were based in Ahmedabad (commercial hub in India) and Mumbai (financial hub in India). The BAs interviewed included the serial as well as first time BAs. However, it was made sure that startups interviewed were from the different stages (startup, development, growth) to meet the objective of the research. The startup represented different industries ranging from fintech, e-commerce, SaaS. To ensure dyadic view, data was collected from 2 matched BA-founder pairs. It was ensured that respondents were given the opportunity to talk without interference from the interviewer. This was done to capture their insights and reduce biases. However, occasional probing was done to make sure the answers do not stray (Curran and Blackburn, 2001). All the interviews were digitally recorded followed by verbatim transcript and research note. We coded the transcripts at two levels. Level one was a broad coding of the entire transcript to understand the perspectives of BAs and startups and to make the study more inclusive. This research paper integrates three measures for determination of stage of the startup: sources of funds, production stage, number and types of employees, user growth to determine the stage of startup (Cvijanović et al., 2008; Maurya, 2012; Paschen, 2017). Stages of startup are termed as pre-startup, startup, development, growth and maturity in this research. The paper focuses only on startup, development, and growth stages as pre-startup and maturity tend to comprise bootstrapping and venture capital and/or IPO respectively. The second stage of coding included focused coding for the roles played by BA in the transcripts of BA and startups. First order codes like recruiting key personnel, negotiating on behalf of startups, mentoring, handholding, organizing were determined. After coding all the transcripts, second order codes like structural capital, relational capital, human capital and relational capital were assigned and further categorized as financial and intellectual capital (Fig.1). The change in the role of BA was identified with signaling words like “Initially-Later on”, “when the startup is launched.... when it is stable”, “When I joined - now”. Both the BAs’ and startups’ transcripts were coded to understand the role change to capture a dyadic view. The factors causing this change were then identified from the transcripts.

Findings

To interpret the changes in the roles of BAs, we classified these roles identified in the interviews conducted and assigned them first order codes. This is to address the gap of unorganized presence of value-added roles/non-financial roles of BAs. (Fig. 1). We investigated that the financial role of BAs also comprises BAs being the ethical watchdog for their investments and

in turn the startups they invest in. Previous research discussing the financial and economic role of BAs does not discuss this role. As a resource, the presence of an ethical watchdog aims to reduce dyadic information asymmetry, agency risk and conflicts arising from them (Collewaert and Fassin, 2013). The research also confirmed that bridging the early-stage financing gap still holds paramount importance when we discuss the role of BA. The fact that BA brings more than finance holds a secondary placement with reference to the ecosystem under study.

Under the intellectual capital, the findings reveal that BA’s role as a motivator has not been acclaimed in prior research. More focus in prior research has been given to what BAs have to offer in terms of mentoring, coaching and handholding. This study also established that human capital due diligence is of paramount importance to establish long term relationship and mutual trust. The ‘shared personal characteristics’ (Boulton et al., 2018) forms a base for the BA’s roles under Human Capital. While a lot of emphasis has been made on conducting a financial and general due diligence, the current study indicates that human capital due diligence should not go unfocused, especially in the developing startup economy.

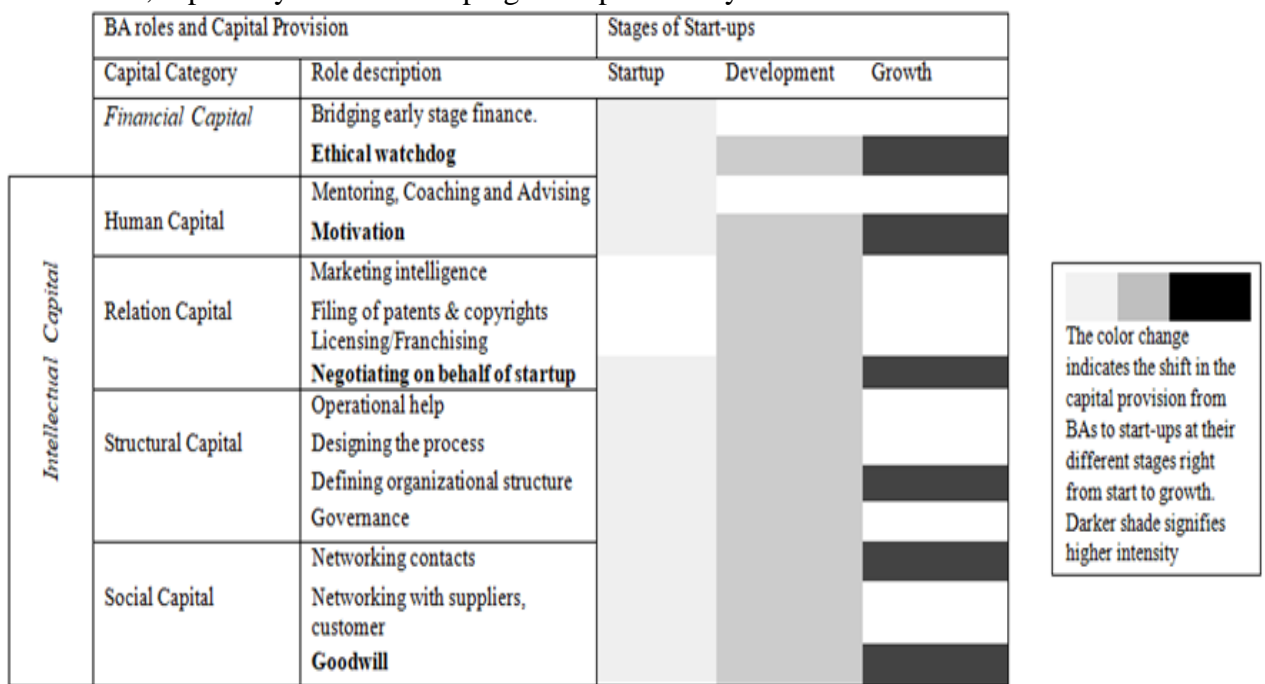


Figure 1. RDT resources and change in roles of BAs with change in the stages of startups
*The bold role description indicates that those roles are novel to this research.

The interviews confirmed that BA’s not only leverage their market intelligence to the startup they invest into, but they also help startup avail license or intellectual property like copyrights trademark. This holds relevance in startups, because the pillar of startup is innovation, which needs to be protected. Startup founders interviewed also confirmed that they lack resources to avail such intellectual property rights. Negotiating on behalf of the startup emerged as a powerful resource brought by BA. BAs ‘leveraged their entrepreneurial skills’ to negotiate deals for startups. BAs interviewed stated that startups lacked office resources and that organization of systems takes up 30 to 35% of the time. BAs therefore design and organize for startups. For example, BA, who is also running his own business in addition to investing, provides his own accounting staff and software to the startup so that books of account are maintained. Interestingly, our research offered contrary views on this role of BA. While a couple of founders found such an intense level of BA involvement to be positive, others indicated that this counts as an ‘unwelcomed interference’. The BA interviewed had a similar dichotomous view about operational level with the startup. The founders who had previous

entrepreneurial experience or had the startup escalated to growth stage did not need intense involvement from BA. On the other hand, the BAs who had prior entrepreneurial experience, especially in the same industry as they are investing, insisted on involvement at micro levels with the startup. The last category of resources which BAs brought were more social in nature. It included offering network, credibility and goodwill earned by BA over his professional journal to the portfolio startup. The research revealed that the benefit of such goodwill is not limited to current association but helps BA raise finance for subsequent fund raises.

Using this BA's resource category classification, the qualitative evidence indicated that in the startup stage, BA's resources like the seed finance and mentoring hold preference. In the startup stage, founders seek to leverage the experience of BA in terms of entrepreneurship as well as the domain. This '*mentor driven capital*' offers an edge to the startup and reduces the need to experiment firsthand thereby saving on time and resources. Financial and Human capital therefore holds precedence in the startup stage. As the founder might have in-depth knowledge of their capabilities and developments, BA can complement by bringing to the table insights from his own experience/knowledge i.e. human capital. The research identified that the role of BA's shifted to bringing operational resources during the development stage of the startup. The role of BA now shifts from bringing in financial capital and human capital now to structural capital as development of startup required structuring operations and policies. Words like "Initially-later on", "when I had joined- but now" words were taken as base for deciding the shift in the role of BA. This kind of resource and role shift also is evident as the startup transits from developmental to the growth stage. During this transition, BA's focus on recruiting key personnel for the growth stage, extending help for further finance, and acting as a broad member/lead angel himself. Here the need of being operationally involved reduces as the setup of organization and process have been established. One of the BA's stated that the role broadly shifts from founder's hat to now wearing investor's hat, therefore social capital taking precedence. The BA interviewed also looked at this in terms of time invested from being heavily involved time wise to just overwatching. Table.2 summarizes the role and capital change over the stages of startup.

The research identified the factors which affect the role change of BAs. We classified this reason into internal and external factors. Internal reasons constituted factors related to startup characteristics, background of BA, BA's resource and involvement, external included maturity of the ecosystem. In the analysis we concluded that it is not a driving factor but a set of factors which come together to mark the shift in the resources of BAs and subsequently their roles in the startup. For e.g. The angel investor who had an entrepreneurial background stated that he contrasted the general notion that BA's experience in the industry helps to bring important resources to the startup. Rather he claimed that the more unaware he is about the domain, the more he would allow the founder to take risk (which is the requirement in many cases). According to him, the prior domain knowledge may lead to reduced liberty for the founder. Table 3 outlines the classification of these factors.

Discussion

Prior literature has discussed the roles BAs play beyond finance. This paper however has empirically looked at organizing the roles into capitals and then examining how these roles change over the stages of startup with RDT lens. The attempt is to thus organize the heterogeneity of the roles of investors and at the same time comment on it. The paper also offers insights into what factors affect this change in roles. Our work contributes to the developing countries literature on startup and BA. Our contributions to RDT are centered around its extension, where we highlight resource dependence into a context of entrepreneurial firms rather than in established firms. This is of significance as entrepreneurial firms do not have the

luxury to follow traditional resource dependence strategies like merger, acquisition, or joint venture (Hallen, Katila, and Rosenberger, 2014). In this way the study re-examines the complexities of dependence and external environment attached to RDT. Another contribution to the RDT is that, in the context of startup and BA, resource exchange and dependence is bidirectional (Huang and Knight, 2017) and interdependent. BAs are in search of startups which can enhance their portfolio, goodwill and offer them opportunities to grow as an angel. However, as the ecosystem develops, it is bound to be well connected and therefore BA bringing goodwill is treated at par as the one bringing finance.

Table.2 The role and capital change over the stages of startup

| Stages of startup | Startup | Development | Growth |
|-------------------|--|--|---|
| Priority Roles | Bridging early-stage finance, Mentoring, Motivation Networking with suppliers, customers, | Helping in creating organizational structure, legal assistance, Mentoring, Filing of patents, copyrights | Strategic advisor, consulting, facilitate further funding using BA's network, using BA's network to bring key personnel on board, Goodwill of BA. |
| Priority Capital | Financial, Human, Social | Human, Structural, Relational | Social, Human |

Beyond RDT, the paper also has managerial implications. It is important that resource dependence is analyzed at the time of tie-formation stage. Our findings indicate that resource analysis during the tie-formation stage would help startups and BAs to make best use of the resources that are brought to the table. While seasoned BAs are aware about conduction, it is the first-time founders and BAs who need to diligently undertake this process of being much more aware and diligent. We emphasize that startup founders must also undertake BA's due diligence to have an estimate of the resource fit. While BAs are valued because they bring more than finance, the disputes also arise for the same reason. Doing this diligently will reduce the agency costs for both stakeholders. To the policy makers, we suggest that the taxation policy can incorporate the difference in tax liability when the BA has brought financial and non-financial resources (intellectual capital) v/s the BA who has only provided financial resources. Search costs are of biggest concern especially with developing economies where the information centers are not still very organized. Policy makers must put into place interventions which reduce the search costs for both the demand and the supply side. It can range from building network platforms, creating arenas where it is easier for both the BAs and startups to meet, creating funds to something as extensive as co-investment.

Table 3: Classification of factors affecting the change in BA's roles

| Nature | Category | Factors |
|----------|-------------------------------|-------------------------------------|
| Internal | Startup Characteristics | BAs resources and involvement |
| | | Representative industry of startup |
| | BAs resources and involvement | Affiliation and Network |
| | | Amount of investment by BAs |
| | | Number of startups in BAs portfolio |
| | Background of BA | Education of BA |
| | | Experience of BA as an investor |
| | | Entrepreneurial background of BA |
| | | Personality traits and values of BA |
| | External Factor | Ecosystem |

This research is crucial for current times as startups are budding more than ever, and it is vital to understand how they are dependent on BAs at various stages. With a growing ecosystem and awareness of Alternative Investment funds (AIFs), the number of startup investors have also increased. However, the changing diaspora needs more sustainable policies. To frame them, it is paramount that such dependency is identified and analyzed. The startup investing needs to be more responsible and inclusive. Our contribution to understanding the change in role of BA during different stages of startup comes with its limitations which offers direction for future research. One of the limitations is that we do not apply gender narrative to the research. A growing number of research indicates that the BA fraternity is looking into gender inclusivity. Future studies can compare the role with the lens of gender to understand if gender plays a role in the resources which BAs bring to the startup. Future researchers can also undertake longitudinal studies to consider the exit timing and its duration on the resources brought by BAs. While impact investing is gaining more popularity in western and evolved startup economies, our research contributes to establishing the pedestal how this relationship change can contribute towards sustainable investing. Future researchers can offer empirical deliberations.

Conclusion

We examined how the roles of BAs and resources brought by them differs at every stage of startups using the RDT lens. It thereby offers to answer the gap of how the relationship of BA and startup changes, what causes it and what can be done to leverage it. The findings reveal that financial, human and social capitals are priority capitals in the startup stage. Development stage demands more human, structural, and relational capital in the form of resources. Social and human capital holds precedence as a resource in the growth stage. It therefore offers deeper insights into how resource needs are different at various stages of startup. The new venture development is surrounded by eccentricity that is also translated into the resource requirements. One cannot deny the fact that the changes in startup resource requirement is a complex

phenomenon guided by more than one factor. Nevertheless, it is important for startups to gauge their stage, relevant resource requirements and then approach BA, and vice versa.

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A Study on Impact of Sustainable Entrepreneurship on Subjective Success of Ecopreneurs

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Abstract

In the last two decades, a tremendous level of advancement in technology had led to environmental degradation, thus business houses across the globe have recognized that protecting the environment and producing eco-friendly products are of paramount importance. This study investigates the relationship between different factors of sustainable entrepreneurship across gender. A parametric test has been carried out to compare the business performances of male and female ecopreneurs, the result of which indicates a significant difference in them. The study inferred that there exists a positive relationship between business performance and different factors of sustainable entrepreneurship across gender. Multiple regression models have been used to model the relationship between business performance and different variables relating to sustainable entrepreneurship for both, males and females.

Keywords: ecopreneurship, exploratory factor analysis, multiple regression, statistical test of hypothesis, sustainable entrepreneurship.

Introduction

Over the last two decades, advancement in businesses and technologies has intensified environmental degradation. Global Economic Linkages model proposed by International Labour Organization (2012) that in a typical business framework, it is expected that by 2030 the productivity levels would be reduced by 2.4%, by 2050 it will be diminished by 7.2%. Brundtland Commission (1987) laid down the definition of sustainable development as evolution that strikes a balance between serving existing and future generation needs. Further, the commission believes that sustainable development can be evident if there is a correspondence between population growth and the productive capacity of the ecosystem.

For the last two decades, there has been extensive research conducted on sustainable entrepreneurship (Konys, 2019). Researchers have used distinct expressions to delineate green entrepreneurship, of which mention may be made of ecopreneurship, eco-entrepreneurship, green entrepreneurship and environmental entrepreneurship (Schaper, 2010). From the research of Stefan et al. (2021), it was found that relatively internal factors, i.e., strengths and weaknesses, that stimulate women entrepreneurs to take up sustainable entrepreneurship, have more effect than external factors, such as opportunities and threats. Sustainable entrepreneurship may be considered the blueprint to provide and secure economic, social, environmental, and cultural sustainability.

Sustainable entrepreneurship has mostly been limited to qualitative research only and almost no study has been found that analyzes the relationship between subjective success of sustainable entrepreneurs and gender in the context of West Bengal. Thus, this paper aims at exploring the background of sustainable entrepreneurship and typologies of ecopreneurs to fill a research gap by linking the relationship between distinct facets of sustainable entrepreneurship and the business performance of ecopreneurs across gender.

The research paper has been organized in the following way: the next section reviews the extant literature on sustainable entrepreneurship and ecopreneurship, which will serve as a base for a contextual approach to research and identifying the research gap. Methodology for data analysis has been presented in the subsequent section, after which results of data analysis have been

discussed. Finally, the paper concludes with a discussion and shows a future direction of research.

Review of Literature and Research Gap

The literature review includes the study of past research relevant to the area of sustainable development, sustainable entrepreneurship, and ecopreneurship. Sustainable development is inferred to economic growth in harmony with protection of environmental quality, and it has been interlinked with the economy, environment, and the society with its culture, as these facets constitute unprejudiced as well as the linkage between generations, countries, and as well as inhabitants of the earth. Sustainable entrepreneurship (SE) is the blueprint to provide and secure economic, social, environmental, and cultural sustainability. It prioritized increasing both social and business significance.

Linnanen (2002) classified ecopreneurs on two yardsticks: firstly, the need to change the world and to improve the quality standard of the environment and as well as life and secondly, the yearning to make money and grow their business. The typological classification of ecopreneurs is as follows: self-employers, non-profit businesspersons, opportunists, successful idealists (Linnanen, 2002).

The virtuous cycle of ecopreneurship proposed by Linnanen (2002) is shown in Figure 1.



Figure. 1 The virtuous cycle of ecopreneurship

The triple-bottom-line concept was laid by Elkington (2004). The three main factors in sustainable development are economic prosperity, environmental quality, and social justice. Young and Tilley (2006) developed a new sustainable entrepreneurship model to take sustainable entrepreneurship towards an integrated approach that links business with social and environmental aspects.

According to Majid and Koe (2012), entrepreneurs are commercial entrepreneurs who mainly owned businesses to makes a huge profit for their growth and survival. Crals and Vereeck (2004) stated that a sustainable entrepreneur needs to evaluates and reports the social impact as per the goals and values of its shareholders and considered “people” as one of the factors in sustainable entrepreneurship. He also mentioned that eco-friendly products, sustainable technology, eco-design, environmental care are requisite, as sustainability is crucial in safeguarding the planet earth. According to Nurse (2007), culture also has a big role in sustainability, as it shapes the development and ascertains how people react in the world.

Integrating all the four facets, viz., economic, social, environmental, and cultural facets will lead to accomplishing sustainable entrepreneurship.

No research has been found in the literature as to how sustainability in entrepreneurship impacts the subjective success of ecopreneurs in context to India. The present study aims at assessing that impact and compares it for both genders.

Methodology

This section includes the research methodology used for collecting and analyzing data. A descriptive research design has been employed to gather data using a questionnaire consisting of 23 items from a sample of 204 ecopreneurs across West Bengal, of which 104 respondents are male and 100 females.

The economic factor of sustainable entrepreneurship is measured through a seven-item measurement scale. Second, the social factor is measured with five underlying items. Third, an important factor of sustainable entrepreneurship is the environment which is measured on a six-item scale, while cultural factor is measured through a five-item scale. The subjective business performance is considered the dependent variable, which is measured primarily by two factors, business profitability, and business effectiveness. To measure sustainable entrepreneurship factors, respondents were asked to rate their response on a scale of 1 to 5 (1: strongly disagree and 5: strongly agree). In addition, business performance and all four factors of sustainable entrepreneurship were also measured in percentages (on a continuous scale) for making parametric tests valid.

Exploratory factor analysis, multiple regression models, Shapiro-Wilks test of normality, parametric *t*-test for testing equality of means (in two independent samples) have mainly been used for data analysis during the study, the details of which are discussed in the subsequent section.

Results and Discussion

Out of 104 were male and 100 female ecopreneurs included in the survey, most male respondents (59%) and women ecopreneurs (65%) are between 31-43 years of age. The education level of both male (47%) and female ecopreneurs (54%) are mostly graduated. Most female respondents (93.7%) mentioned that they already own their company for the last 1-5 years. On the other hand, the majority of male ecopreneurs (53.7%) had owned their business for the last 6-10 years. Regarding investment, 53% of women ecopreneurs agreed to started capital with Rs.2.5 lakh-5 lakh, followed by more than Rs.0.5 lakh-2.5 lakh (35%). On the other hand, 43% of male ecopreneurs had confirmed to started their ecopreneurs venture with Rs.5 lakh-10 lakh.

Exploratory factor analysis (EFA) has been performed using varimax rotation to examine basic details of constructs (viz., economic, social, environmental, and cultural) of sustainable entrepreneurship (SE). Table 1 presents Kaiser-Meyer-Olkin (KMO) measurement that reports the sampling adequacy and Bartlett's test of sphericity was significant at (p -value < 0.005), evincing sufficient correlation among items to proceed with the analysis.

Table 1. Kaiser-Meyer-Olkin measure of sampling adequacy and results of Bartlett's test across gender

| KMO measure of sampling adequacy | | | | Male | Female |
|----------------------------------|--------------------|--|--|--------|----------|
| | | | | .845 | .812 |
| Bartlett's test of sphericity | Approx. chi-square | | | 3008.9 | 11852.74 |
| | Df | | | 376 | 253 |
| | Sig. | | | .000 | .000 |

In EFA, the total variability explained for male ecopreneurs is presented in Table 2 (table not shown for female ecopreneurs).

Table 2. Total variance explained in EFA

| Total Variance Explained | | | | | | | | | |
|--------------------------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| Component | Initial eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 6.814 | 45.424 | 45.424 | 6.814 | 45.424 | 45.424 | 3.806 | 25.375 | 25.375 |
| 2 | 2.004 | 13.359 | 58.783 | 2.004 | 13.359 | 58.783 | 3.130 | 20.867 | 46.242 |
| 3 | 1.187 | 7.914 | 66.698 | 1.187 | 7.914 | 66.698 | 3.068 | 20.456 | 66.698 |
| 4 | .913 | 6.089 | 72.786 | | | | | | |
| 5 | .810 | 5.400 | 78.186 | | | | | | |
| 6 | .795 | 5.300 | 83.486 | | | | | | |
| 7 | .582 | 3.883 | 87.368 | | | | | | |
| 8 | .453 | 3.018 | 90.387 | | | | | | |
| 9 | .413 | 2.753 | 93.140 | | | | | | |
| 10 | .272 | 1.816 | 94.956 | | | | | | |
| 11 | .194 | 1.293 | 96.249 | | | | | | |
| 12 | .185 | 1.232 | 97.481 | | | | | | |
| 13 | .144 | .963 | 98.444 | | | | | | |
| 14 | .137 | .913 | 99.356 | | | | | | |
| 15 | .097 | .644 | 100.000 | | | | | | |

Extraction Method: Principal Component Analysis.

The analysis reveals that for male ecopreneurs, three factors (viz., economic, environmental, and social) in initial solution have larger eigen values (>1), as shown in Table 2. All these factors contributed 66.698% to the total variance, which is sufficient for further analysis. As only 15 items (out of 23) have been found to explain the total variability (100%), they have been retained in the analysis and remaining 8 items have been removed. In the case of women ecopreneurs (table not shown), out of 23, eighteen items explained the total variability (100%) and remaining 5 items have been removed from the analysis. All four factors (viz., economic,

environmental, social and cultural) have been found to have large eigen values (>1) in case of women ecopreneurs, and they together explained 67.71% of the total variance.

The study shows that the rotated component matrix for male ecopreneurs exhibit that the first factor of sustainable entrepreneurship is the economic factor, as the Cronbach alpha for this factor comes out to be 0.783, indicating higher internal consistency in the questionnaire. This factor includes six items (viz., sales growth, increase in profit, better return on investment, more customer satisfaction and loyalty, higher brand value, and increase in employee size) and explains 25.375% of the total variance. The environmental factor (with Cronbach alpha value 0.763) consists of five items (viz., proper care towards energy conservation, reduction of negative impact on environment owing to the introduction of new technology, producing eco-friendly goods, proper sewage disposal system, and gas emission reduction) accounting for 20.867% of the total variance. The five items of this factor are indicative of the awareness levels of the entrepreneurs of their responsibility to reduce the adverse effect on the environment. In addition, the four items of social factor (viz., contribution towards charitable organizations, creation of social values through products and services, improvement of safety and hygiene issues of both customers and employees, and attention to the wellbeing of employees and their families) having Cronbach alpha value of 0.810, explain 20.456% of the total variance. Thus economic, environmental and social factors together explain 66.698% of the total variability in the data for male ecopreneurs.

For female ecopreneurs, four factors (viz., economic, environmental, social, and cultural) have been extracted from 18 items, which explain 67.71% of the total variance, of which economic factors explained 24.48%, environmental factor 17.43% and social factor 15.01%. The cultural factor has three items, viz., maintaining family tradition in business, dealing with a tangible aspect of culture, and promoting cultural activities, which together explain 10.79% of the total variability. The presence of cultural factors here indicates that the women ecopreneurs have managed to treasure and preserve the cultural aspect also in their venture.

The study reflects the responses of ecopreneurs across gender towards the impact ecopreneurship have had on business performance. The study shows that 49% and 78% of female and male ecopreneurs, respectively, agreed that ecopreneurship positively affects their firm's market share. Around 41% of female ecopreneurs agreed that owing to ecopreneurship employee turnover has been reduced considerably, while about 57% of male ecopreneurs agreed on that. Subsequently, the study indicated that overall, 59% and 79% of women and male ecopreneurs respectively agreed that through ecopreneurship their business experiences growth in sales. Additionally, 55% and 81% of women and male ecopreneurs, respectively, agreed that through ecopreneurship their business successfully created a brand value. Considering the above results of the study, it can be fairly said that ecopreneurs can achieve high business performance through ecopreneurship across gender. Yet, it can also be inferred that male ecopreneurs' businesses performed better as their mean value is greater in most of the variables as compared to their female counterparts.

Table 3 presents the observed value of F -statistic (obtained through analysis of variance) in the multiple regression model, which signifies a good model fit, as the p -value is less than 0.05 for both males and females. The R -values of 0.751 and 0.582, suggesting that there is a strong positive relationship between ecological sustainability and business performance for male and female ecopreneurs, respectively. The R^2 -values indicate that 56.4% and 43.8% of the variation in the business performance of male and female ecopreneurs, respectively, can be explained by sustainable ecopreneurship.

Table 3. Multiple regression model summary

| Gender | R | R-Square | F value | Sig. |
|--------|------|----------|---------|------|
| Male | .751 | .564 | 62.324 | .000 |
| Female | .582 | .438 | 23.121 | .000 |

Results state that higher economic, environmental, and social factors will lead to an increase in their positive impact on business performance. It has been found that the cultural factor is not a significant predictor of business performance, though it was found to be an important factor (for women entrepreneurs) in respect of sustainable entrepreneurship, as found in factor analysis. Based on Table 4, the multiple regression models have been formulated as follows:

i) $BP(\text{male}) = 0.120 + 0.210 EC + 0.015 EN + 0.108 SO$

ii) $BP(\text{female}) = 0.194 + 0.208 EC + 0.179 EN + 0.112 SO$,

where BP: business performance, EC: economic factor, EN: environmental factor and SO: social factor. It has been found that the impact of economic factors is maximum on business performance, for both males and females. The model has been validated with another sample of size 10, each for male and female entrepreneurs, which produced good results with small estimation errors.

Table 4. Multiple regression model coefficients

| Gender | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|--------|---------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| Male | (Constant) | .120 | .046 | | 2.600 | .010 |
| | Economic | .210 | .062 | .352 | 5.565 | .000 |
| | Environmental | .015 | .035 | .370 | 6.525 | .000 |
| | Social | .108 | .024 | .219 | 3.527 | .001 |
| Female | (Constant) | .194 | .061 | | 3.179 | .002 |
| | Economic | .208 | .042 | .238 | 3.434 | .001 |
| | Environmental | .179 | .032 | .254 | 3.841 | .000 |
| | Social | .112 | .003 | .304 | 4.429 | .000 |

The result of Levene's test indicates equality of variances for percentage scores on business performance of male and female ecopreneurs, as the p -value ($=0.337$) > 0.05 (Table 5). Shapiro-Wilks test has been performed from which normality of the data has been confirmed. Accordingly, a t -test (for two independent samples of males and females, considering equality of variances based on Levene's test) has been done on the percentage scores to see if there exists any significant difference between business performances of ecopreneurs across gender. Since the p -value is less than 0.05, there exists a significant difference between the performance of ecopreneurs across gender. From Table 5, it is evident that the overall business performance of male ecopreneurs is better.

Table 5. Independent sample test for equality of variance and mean

| | Levene's test for equality of variances | | Two independent sample-test | | |
|----------------------|---|------|-----------------------------|-----------------|-----------------|
| | F | Sig. | T | Sig. (2-tailed) | Mean Difference |
| Business performance | .925 | .337 | 5.402 | .000 | 8.07873 |

The above analysis explores the relationship between business performance and sustainable entrepreneurship for male and female ecopreneurs.

Conclusion and Discussion

The study analyzed the impact of factors of sustainable entrepreneurship (viz., economic, social, environmental, and cultural) on the business performance of ecopreneurs across gender. Factors for women ecopreneurs were different from male ecopreneurs. Women ecopreneurs exhibit all factors of sustainable entrepreneurship economic, environmental, social, and cultural factors. Women ecopreneurs scored high on environmental factors. The study shows that irrespective of investment size, women ecopreneurs can reduce negative impact in respect of the environmental factor. The study also concluded that sustainable entrepreneurship practices significantly and positively affect business performance across gender. This research reveals that businesses that practise sustainable entrepreneurship have not only impacted society and the environment positively but also make a profit.

The study is limited to the ecopreneurs of the state of West Bengal only. As a future scope of this research, the situation in other Indian states can be explored. Comparisons can be made between rural and urban areas, across various sectors (for example, manufacturing, trading, service sectors etc.), which can open new dimensions to sustainable entrepreneurship research.

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COVID 19 and experience of women entrepreneurs in India

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Abstract

The paper aims to explore the factors that motivates or demotivates women entrepreneurs for continuation of their businesses amidst COVID-19 in the context of Indian environment. The study has employed qualitative research methods (thematic analysis) for the data collection and data analysis. The researcher conducted in-depth semi-structured interview of the participants to collect the required data for the study. The study highlighted various motivating and demotivating factors for women entrepreneurs to continue their business in India during the pandemic period. The factors that that motivated women entrepreneurs amidst COVID-19 to continue their business are identified as support from family and society for enhanced homely responsibilities, favorable nature of business in which women are operating, considering adversity as an opportunity, and self-assessment of their skills because of unprecedented situations of COVID_19. But the lack of family support and unfavorable nature of business having high risk of infection from COVID-19 demotivated them to continue their business. The study will help the government and other policy makers to devise strategies and policy frameworks to enhance the motivation level of women entrepreneurs for continuation of their business. The study will also help gain deeper insights into the problems associated with women entrepreneurship.

Keywords: India, Developing Country, Women Entrepreneur, COVID 19

Socio-Cognitive Analysis of Female Social Entrepreneurship and the Role of Entrepreneurial Ecosystem

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Abstract

Entrepreneurship research in recent times has seen the growth of research in areas of social entrepreneurship and women entrepreneurship. Similarly, the concept of entrepreneurial ecosystem (EE) has gained substantial academic attention. However, a single study examination remains warranted even with a strong correlation of all three theoretical aspects. We investigate female social entrepreneurship (FSE) in Asian emerging economies using the Global entrepreneurship monitor data. We use Social cognitive career theory (SCCT) and institutional theory to explore the impact of cognitive attributes on FSE. Further, by building a multilevel model, we examine the moderating impact of EE in our study setting. Using a gender lens in an emerging country context, our research helps throw new light on social entrepreneurship by extending the SCCT.

Keywords: Social entrepreneurship, Entrepreneurship ecosystem, entrepreneurial self-efficacy, Hierarchical linear modelling

Inter-dependence of Work-Family Conflict and Earnings over Different Growth Stages of Enterprise

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Abstract

India has encountered a unprecedented small firm size of women entrepreneurs. Previous studies have exemplified how the negative and positive impact of women's work-family conflict plays a pivotal role in driving their firm's growth. Bearing this in mind, the present study aims to dig deeper to establish a relationship between earnings and work-family conflict (WFC) of women entrepreneurs by unfolding various cases on (1) the impact of earnings of women entrepreneurs over work-family conflict and (2) the impact of work-family conflict of women entrepreneurs over earnings. This interplay of earnings and work-family conflict is further used to map the varying magnitude of the conflict at different growth stages of the enterprise such as inception, survival, and growth.

Keywords: women entrepreneurs, work-family conflict, growth, earnings, stages

Political connections, firm leverage and cost of capital: Evidence of listed firms from India*Kousik Ganguly¹, Ajay Kumar Mishra² & Pankaj Jain³**^{1&2}Indian Institute of Technology (IIT) Kharagpur &**³Fogelman College of Business & Economics, The University of Memphis***Abstract**

This study examines the influence of political connections on firms' cost of capital and leverage. Our sample includes listed Indian firms for period of 2009 to 2019 that covers three general elections held in 2009, 2014, and 2019. We observe that politically connected firms enjoy preferential debt financing on credit and access lower cost of debt. Moreover, the cost of equity for politically connected firms are lower in comparison to non-connected peers. Furthermore, we find that politically connected firms significantly have higher leverage due to have lower cost of debt. Finally, we test the pecking order theory under the presence of political connections for any firm. We do not find any substantive evidence in favour of pecking order theory for politically connected firms.

Keywords: Political connections; political Donations; firm leverage; interest expense, firm investment, Pecking order theory; Electoral trust, Electoral bond.

Agency Costs and Corporate Governance: Same Solutions for Different Problems?

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Abstract

We study the impact of board governance interventions, viz. board independence, duality and independent director busyness in the context three types of agency costs: agency cost of debt, principal-agent cost and principal-principal cost. We study their association in two different firm settings: promoter-controlled firms and firms with diversified ownership. Our results indicate that impact of governance interventions differs for different agency costs and ownership structures. These findings are of regulatory significance: the regulatory strategy of emerging economies to adopt US-UK styled corporate governance framework to control agency costs and improve investor protection may not be effective where most firms are promoter-controlled.

Trade Credit and the COVID-19 pandemic: Role of country connectedness and work from home amenability

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Abstract

Given the operational disruptions caused by the COVID-19 induced crisis, we study the impact of country connectedness on trade credit obtained by firms during the COVID-19 period. We also explore the impact of work from home amenable industries on the trade credit obtained by firms in the post-pandemic period. We find that interconnectedness among nations and work from home amenability of firms result in higher trade credit of firms during the COVID-19 period.

Keywords: COVID-19, trade credit, country connectedness, work from home amenable

1. Introduction

The infectious COVID-19 induced crisis proved to be a macroeconomic shock to the economy worldwide (Altig et al., 2020). Strict lockdowns and social distancing norms were imposed worldwide to reduce the spread of the virus (Hale, Petherick, Phillips, & Webster, 2020; Moosa, 2020). It affected the global supply chain adversely and resulted into reduced cash flows of firms and working capital (Boissay, Patel, & Shin, 2020). However, Hyun, Kim, and Shin (2020) show that global connectedness between firms during COVID-19 reduced the exposure by providing international diversification. It is likely that inter-firm lending in the form of trade credit (TC) would be reduced during the pandemic (Gropp & Boissay, 2012). In this study, we examine how interconnectedness among countries impacted TC obtained by firms during COVID-19. Moreover, in light of the pandemic, work from home (WFH) emerged as the 'new normal' for continuing firms' operations. We also examine whether WFH amenable firms were able to obtain more TC during the pandemic.

The objective of our study is as follows. First, we study the impact of global connectedness among countries on obtaining TC by firms during COVID-19. We posit that firms in countries that have high mutual dependence with other countries obtain TC during the pandemic. Next, we aim to study the impact of teleworkability of industries on obtaining TC by firms during the pandemic. The operational disruptions caused by lockdowns created a huge demand for the teleworkable firms. WFH emerged as a new culture for the survival of business during the pandemic. Accordingly, we expect WFH amenable firms to obtain higher TC during COVID-19. We test our hypothesis using a difference-in-differences method and employ a sample of 110,885 firm-quarter observations consisting of 8,787 unique firms from 104 countries.

The findings of our study are as follows. We find that an increase in the mutual dependence among countries increases the payables and net payables of firms in the post-pandemic period. It shows that if the countries are deeply mingled with each other, the risk during COVID19 is substituted with the depth of connection among countries. Next, we find that firms in teleworkable industries were able to obtain TC during COVID-19. The lockdown and social distancing restrictions resulted in operational disruptions for firms (Organisation for Economic Co-operation and Development (OECD), 2020). It is likely that the ability of WFH amenable firms helps them to survive during COVID-19. Consequently, WFH amenable firms, which are able to carry out their operations during this period are able to obtain TC in the post-pandemic period. Furthermore, we show that the WFH amenability of industries also mitigates COVID19 negative sentiment. This suggests that WFH amenability of industries helps to modify the risk and uncertainty caused by COVID-19.

Our study contributes to the existing literature in the following ways. First, we study the impact of global connectedness among countries on TC during COVID-19. We show that the ‘too connected to fail’ argument holds during COVID-19. Our findings are consistent with the results of Greenwood-Nimmo, Nguyen, and Shin (2021) and Scalera, Perri, and Hannigan (2018) that countries’ openness to trade help in smooth credit allocation and risk diversification. Next, we contribute to the literature that explores the factors that determine the survival of firms during COVID-19. Buchheim, Dovern, Krolage, and Link (2020) show that weaker firms in the pre-COVID-19 period are hit harder by the pandemic. The global production and export networks help to reduce firms’ susceptibility to domestic shocks by providing international diversification (Hyun et al., 2020). Moreover, the demand for WFH amenable jobs has increased intermittently during COVID-19 (Bartik, Cullen, Glaeser, Luca, & Stanton, 2020; Sostero et al., 2020).

2. Methodology & Data

2.1. Methodology

We employ difference-in-difference (DiD) method to study the effect of country connectedness and work from home amenability of industries on TC obtained by firms during COVID-19 period.

$$Y_{i,t} = \beta_0 + \beta_1 X_c * COVID - 19_t + \beta_3 Z_{i,q-1} + \gamma_{q'} + \delta_{iy} + \alpha_{cjq} + \epsilon_{it} \quad (1)$$

Equation 1 shows the baseline estimation equation of our study. Here, Y represents the dependent variable of our study. We use two variables: payables and net payables as a proxy for TC. Our main independent variable is $X_c \times COVID - 19$, where X equals industry-level variables and country-level variables. We include *Country connectedness depth* and *Country connectedness breadth* as a proxy for connection among countries. For industry-level variables, we include *Teleworkable employment median*, *Teleworkable wage median*. Our choice of WFH amenability variables is based on Dingel and Neiman (2020).

We define *COVID-19* as 1 for the post-pandemic period and 0 for pre-COVID-19 period. Z represents a vector a quarterly firm level variables. We use year-quarter fixed effects represented by γ_{q0} in the baseline estimation equation. δ_{iy} represents the firm year fixed effects for firm i and year y to control for unobserved heterogeneity that id firm-specific. We also control for any other time-variant unobserved heterogeneity by by α_{cjq} where c, j and q represent country, industry and quarter, respectively. These variables account for reducing the bias caused by omitted variables ((Gormley & Matsa, 2014)).

2.2 Data

We utilize a panel of 110885 quarterly firm observations consisting of 8048 unique starting from January 2016 to December 2020 in our study. We define January 2016- March 2020 as pre-COVID-19 period and April 2020-December 2020 as post-pandemic period. We obtain data from Refinitiv Eikon database for our study. We use *Payables* and *net payables* as our dependent variables. *Payables* is defined as accounts payables scaled by assets of the firm (Petersen & Rajan, 1997). *Net payables* is defined as the difference between accounts payables and accounts receivables scaled by assets of the firm.

The control variables include *Liquidity*, *Age*, *Tangibility*, *Profitability*, *Leverage*, *Size* and *Sales growth* of the firm. We winsorize all the financial variables at 1st and 95th percentile to deal with the outliers in the sample. Moreover, we exclude countries with less than 5 observations in the sample. We also include *COVID-19 Negative Sentiment* as a proxy for

COVID-19 based on Hassan, Hollander, Van Lent, Schwedeler, and Tahoun (2020)¹. These variables are constructed using textual analysis of quarterly earnings conference calls of around 11,000 firms in 81 countries.

We use *Teleworkable employment median* and *Teleworkable wage median* as a proxy for WFH amenability of industries based on Dingel and Neiman (2020)². *Teleworkable employment* is defined as the jobs in industries that can be performed at home. *Teleworkable wage median* equals the proportion of wage of remote working jobs. In our study, *Teleworkable employment median* and *Teleworkable wage median* take the value of 1 for above median values of respective variables and 0 otherwise. We use *Country connectedness depth* and *Country connectedness breadth* as a proxy of country connectedness³. *Country connectedness depth* is defined as the size of the international flows of a country compared to the domestic level of a variable, for instance, trade (Ghemawat & Altman, 2014). *Country connectedness breadth* measures the relative diversification of a country in terms of flows across other nations (Uzuegbunam & Geringer, 2021).

3. Results and Discussion

We discuss the economic and statistical significance of our results related to baseline estimation of Equation 1. Table 2 shows the results related to country connectedness and work from amenability of industries on TC obtained by firms during COVID-19. Table 3 shows how COVID-19 negative sentiment is mitigated by the WFH amenability of industries and its impact on TC during COVID-19.

3.1. Country connectedness and trade credit

Table 2 presents the results related to country connectedness and TC obtained by firms during COVID-19 period. We use *depth score* and *breadth score* of a country as a proxy of country connectedness. Columns (1)- (4) show the results related to country connectedness. The results show that a one-unit increase in the mutual dependence across countries increase the payables and net payables of firms by 0.02% and 0.01% respectively in the post-pandemic period. However, the results of estimation based on *breadth score* is not statistically significant. Our results suggest that interdependence among countries helps them to survive during the pandemic. The international linkages between countries increase their appetite to extend credit to firms located in other countries (Greenwood-Nimmo et al., 2021). The tighter interdependencies among nations and the openness to trade increase their efficiency by smoothing credit allocation and risk diversification (Scalera et al., 2018). The ‘too connected to fail’⁴ argument holds during the pandemic as the more strongly connected nations continue to obtain more TC during the COVID-19.

3.2. Teleworkability of industries and trade credit

Table 2 presents the results related to teleworkability of industries and its impact on TC obtained by firms during COVID-19. Columns (5)-(8) show the results related to WFH amenability of industries and its impact on TC obtained by firms. Our results show that a one-unit increase in the WFH amenability of industry results in 50.8% and 93.2% increase in firms’ payables and net payables respectively in the post-pandemic period. In addition to this, a one-unit increase in the proportion of wages of teleworkable jobs results in 0.026% and 0.027%

¹ <https://www.firmlevelrisk.com/>

² <https://doi.org/10.1016/j.jpubeco.2020.104235>

³ Source: <https://www.dhl.com/global-en/spotlight/globalization/global-connectedness-index.html>

⁴ see Stern and Feldman (2004) for details.

increase in payables and net payables during COVID-19. The results show that WFH amenable firms were better able to survive during the pandemic and hence, are able to obtain more TC. Severe lockdowns were imposed in most of the countries in order to reduce the spread of virus (Glaeser, Gorbach, & Redding, 2020; Moosa, 2020). The demand for teleworkable jobs increased intermittently during COVID-19 period (Bartik et al., 2020; Santo Milasi, August 2020). It is likely that the ability of these firms to continue their operations during COVID-19 with maintaining social distancing helps them to obtain more credit (Sostero et al., 2020).

3.3. COVID-19 negative sentiment and trade credit

Table 3 shows the result of COVID-19 negative sentiment and its impact on TC of the teleworkable firms. Our results suggest that TC increased for WFH amenable firms even if these firms have a negative sentiment towards COVID-19. The results show that a one-unit increase in the teleworkability of industries increases payables and net payables by 0.16% and 0.27% respectively even with a one-unit increase in COVID-19 negative sentiment. Our results suggest that COVID-19 negative sentiment is mitigated by the teleworkability of firms. This finding is consistent with the results shown in ??.

Conclusion

COVID-19 induced crisis and resulting lockdown proved to be the worst downturn in the economy after the great depression. Trade credit has proved to be a resilient source of funding during crisis. But COVID-19 has proved to be a storm for maintaining global supply chains. It has affected the buyers and suppliers simultaneously as it is more synchronised across sectors and countries. We show that interconnectedness between countries helped to obtain higher trade credit by firms during COVID-9. Moreover, the firms that are able to cope with the operational disruptions (WFH amenable firms) obtain higher trade credit in the post-pandemic period.

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Table 1: Summary statistics of key variables

| Variable | N | Mean | SD | Min | P25 | P50 | P75 | Max |
|---------------------------------|--------|--------|--------|----------|--------|--------|--------|---------|
| <i>Payables</i> | 110885 | 9.077 | 8.917 | 0.037 | 2.927 | 6.485 | 12.157 | 53.217 |
| <i>Net payables</i> | 110885 | -3.415 | 9.139 | -69.016 | -7.729 | -3.031 | 0.521 | 88.814 |
| <i>COVID-19 sentiment</i> | 26803 | 0.123 | 0.412 | 0.000 | 0.000 | 0.000 | 0.000 | 10.218 |
| <i>Country depth score</i> | 97844 | 21.248 | 7.935 | 5.277 | 17.305 | 18.786 | 25.696 | 49.579 |
| <i>Country breadth score</i> | 97844 | 41.576 | 5.251 | 14.548 | 38.178 | 43.814 | 44.335 | 49.300 |
| <i>Teleworkable emp median</i> | 110885 | 0.419 | 0.493 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 |
| <i>Teleworkable wage median</i> | 110885 | 0.508 | 0.500 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 |
| <i>Liquidity</i> | 110885 | 0.150 | 0.150 | 0.000 | 0.039 | 0.104 | 0.210 | 0.745 |
| <i>Age</i> | 110885 | 35.491 | 24.359 | 1.000 | 18.000 | 27.000 | 48.000 | 107.000 |
| <i>Tangibility</i> | 110885 | 0.306 | 0.230 | 0.001 | 0.112 | 0.264 | 0.460 | 0.909 |
| <i>Profitability</i> | 110885 | 0.021 | 0.036 | -0.322 | 0.010 | 0.022 | 0.036 | 0.134 |
| <i>Leverage</i> | 110885 | 0.739 | 1.455 | -4.581 | 0.054 | 0.386 | 0.952 | 9.295 |
| <i>Size</i> | 110885 | 12.855 | 1.938 | 6.538 | 11.526 | 12.862 | 14.368 | 15.937 |
| <i>Sales growth</i> | 110885 | -0.008 | 1.788 | -449.480 | -0.001 | 0.000 | 0.001 | 0.010 |

Table 2: Impact of country connectedness & work from home amenability on trade credit during COVID-19

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <i>Country connectedness depth</i> × COVID-19 | 0.029*** (0.005) | 0.013** (0.006) | | | | | | |
| <i>Country connectedness breadth</i> × COVID-19 | | | -0.012* (0.007) | -0.001 (0.010) | | | | |
| <i>Teleworkable emp median</i> × COVID-19 | | | | | 0.188*** (0.072) | 0.296*** (0.095) | | |
| <i>Teleworkable wage median</i> × COVID-19 | | | | | | | 0.157** (0.070) | 0.325*** (0.090) |
| <i>Liquidity</i> | -0.820** (0.328) | 0.903** (0.453) | -0.830** (0.329) | 0.893** (0.453) | -0.708** (0.315) | 0.653 (0.417) | -0.709** (0.315) | 0.650 (0.417) |
| <i>Age</i> | 0.047 (0.103) | -0.108 (0.159) | 0.053 (0.103) | -0.107 (0.159) | 0.041 (0.102) | -0.114 (0.158) | 0.040 (0.102) | -0.116 (0.158) |
| <i>Tangibility</i> | -0.321 (0.450) | 0.776 (0.592) | -0.364 (0.450) | 0.759 (0.591) | -0.225 (0.430) | 0.719 (0.564) | -0.227 (0.430) | 0.710 (0.564) |
| <i>Profitability</i> | -4.806*** (0.885) | 1.830 (1.220) | -4.789*** (0.885) | 1.839 (1.220) | -4.738*** (0.840) | 2.077* (1.168) | -4.740*** (0.841) | 2.064* (1.168) |
| <i>Leverage</i> | -0.003 (0.019) | -0.019 (0.023) | -0.003 (0.019) | -0.019 (0.023) | 0.005 (0.018) | -0.008 (0.021) | 0.005 (0.018) | -0.008 (0.021) |
| <i>Size</i> | 0.642*** (0.138) | -0.506*** (0.174) | 0.656*** (0.138) | -0.501*** (0.175) | 0.641*** (0.134) | -0.479*** (0.170) | 0.641*** (0.134) | -0.483*** (0.171) |
| <i>Sales growth</i> | 0.002 (0.005) | 0.005 (0.005) | 0.002 (0.005) | 0.005 (0.005) | 0.002 (0.005) | 0.005 (0.005) | 0.002 (0.005) | 0.005 (0.005) |
| <i>Constant</i> | -0.659 (4.056) | 6.527 (6.180) | -0.828 (4.054) | 6.467 (6.178) | -0.346 (3.982) | 6.432 (6.074) | -0.323 (3.983) | 6.531 (6.073) |
| Observations | 97,657 | 97,657 | 97,657 | 97,657 | 110,885 | 110,885 | 110,885 | 110,885 |
| Year-Quarter fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Firm-Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country-Industry-Quarter fixed effects | Yes | Yes | Yes | Yes | | | | |
| Adjusted R ² | 0.951 | 0.921 | 0.951 | 0.921 | 0.953 | 0.923 | 0.953 | 0.923 |

Notes: The dependent variable in model (1), (3), (5) & (7) is payables and (2), (4), (6) & (8) is net payables. The standard errors are shown in parenthesis which are clustered at the firm level. ***, **, * denotes significance level at 1%, 5% and 10% respectively.

Table 3: Telworkability & COVID-19 Negative sentiment

| | (1) | (2) | (3) | (4) |
|---|----------------------|---------------------|----------------------|--------------------|
| <i>Teleworkable emp median × COVID-19 Negative Sentiment</i> | 0.163** (0.079) | 0.279*** (0.104) | | |
| <i>Teleworkable wage median × COVID-19 Negative Sentiment</i> | | | 0.160* (0.085) | 0.158 (0.105) |
| <i>COVID-19 Negative Sentiment</i> | -0.199*** (0.069) | -0.171** (0.081) | -0.215*** (0.082) | -0.132 (0.088) |
| <i>Liquidity</i> | -0.914 (0.584) | 1.481** (0.701) | -0.915 (0.584) | 1.482** (0.702) |
| <i>Age</i> | 0.029 (0.108) | -0.087 (0.179) | 0.026 (0.108) | -0.089 (0.179) |
| <i>Tangibility</i> | -0.737 (0.636) | -0.790 (0.881) | -0.735 (0.636) | -0.775 (0.880) |
| <i>Profitability</i> | -6.947*** (1.932) | -2.718 (2.295) | -6.948*** (1.932) | -2.721 (2.297) |
| <i>Leverage</i> | -0.008 (0.018) | 0.001 (0.022) | -0.008 (0.018) | 0.001 (0.022) |
| <i>Size</i> | 0.467* (0.259) | -0.567 (0.351) | 0.467* (0.259) | -0.566 (0.351) |
| <i>Sales growth</i> | 0.002 (0.005) | 0.006 (0.005) | 0.002 (0.005) | 0.006 (0.005) |
| <i>Constant</i> | 0.208 (4.772) | 6.900 (7.856) | 0.284 (4.764) | 6.910 (7.845) |
| Observations | 26,318 | 26,318 | 26,318 | 26,318 |
| Year-Quarter fixed effects | Yes | Yes | Yes | Yes |
| Firm-Year fixed effects | Yes | Yes | Yes | Yes |
| Country-Industry-Quarter fixed effects | Yes | Yes | Yes | Yes |
| Adjusted R ² | 0.966 | 0.946 | 0.966 | 0.946 |

Notes: The dependent variable in models (1) & (3) and (2) & (4) is payables and net payables respectively. The standard errors are shown in parenthesis which are clustered at the firm level. ***, **, * denotes significance level at 1%, 5% and 10% respectively.

Determinants of Capital Structure and Speed adjustment of firms in Pre-Post Financial Crisis period: Evidence from India

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Abstract

This paper focuses on a comparative analysis of the target capital structure of the selected 171 Indian non-financial firms listed in the National Stock Exchange. The time period has been divided into 1998-2007(pre-crisis) period and 2009-2018(post crisis) period. The study uses System GMM method for the purpose of analysis. The results of the study reveal that the adjustment speed to achieve the target capital structure is faster in the post crisis period (58% p.a) as compared to the pre crisis period(52% p.a).Profitability, Growth and Non dent tax shield are the three most important determinants that has a significant impact on leverage during both the pre and post financial crisis periods. Additionally, unemployment rate and governance index have shown a significant impact on leverage in the post crisis period.

Keywords: Dynamic capital structure, Speed of adjustment, financial crisis period, pecking order theory

Mandatory Auditor Rotation And Earnings Management

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Abstract

Earnings management is an area of interest for different stakeholders to understand if the financial reports present a true picture of the business or not. The auditors are expected to control the managerial discretionary practices to ensure a true picture is presented to the stakeholders. The Companies Act, 2013 sought to increase auditor independence by mandating a change of auditor after a defined time period. This study examines if the new regulations have resulted in lower earnings management. We find that auditor change does help in reducing earnings management. We also find that the interaction variable supports the new regulations that mandate auditor change. Our study finds evidence in support of the new regulations that ask for mandatory rotation of auditors.

Business Email Communication: A Genre Based Approach

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Abstract

This paper aims to analysis business email communication genre in Indian IT workplace and provides pedagogical implication for management, science technology & law institutions in India. Business communication deals with the communication that happens within business, in which people use communication for doing business. Email communication in business context is inevitable in modern technology driven workplaces. To have a successful business transaction employees and managers should use effective business email communicators in the organization. In this study, genre approach influenced by functional linguistics theory is used to discuss email pedagogic possibilities. In this study email pedagogy is discussed using Louhaila and Kanakaanranta's (2005) classification of three email genres they are 1) dialogue genre 2) postman genre and 3) noticeboard genre. In this study five function of dialogue genres: a) appreciation, b) criticism, c) work allotment d) information seeking and e) information providing are discussed in detail. These functions are predominantly used for internal email communication within the company. In this study, pedagogic aspects that need to be focused in classroom instruction and types of tasks that can be designed for effective learning of these email functions are discussed in detail.

Key words: Business communication, Email pedagogy, and Managerial communication

Understanding Concepts of Management through the Lens of Literature

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Abstract

Recent trends within Indian management education have aimed to promote excellence and prepare humane and socially responsible managers for the new millennium. Hence premium management institutes now promote interdisciplinary studies to enrich the curriculum with knowledge and insights from other disciplines and social sciences. Many instances from literature can offer wonderful case studies that can uncover uncharted avenues of reflection and insights into one's core areas of the study of management. This exploratory research attempts to contemplate how concepts of management can be studied through the study of literature and how this may be best achieved in management education.

Keywords: Case-study, discussions, instructional design, curriculum, learning styles, lectures

Introduction

If music be the food of love, play on. –William Shakespeare

Students learn only when they enjoy it. If education is not sufficiently entertaining, let learners learn from entertainment (here, literature) itself. Drawing case studies from literature is one of the best forms of such entertainment. The study of Management applies directly to one's professional life. To become a manager, the need for efficient and effective management skills is self-evident. At every workplace, one is expected to become a partner in managing one's organization through participative management. Although Management education in India is more than five decades old, it is still at crossroads. It is yet to grow out of the shadow of American Management education. Despite the large strides that management education has taken so far, the innovation in such education, particularly concerning content, pedagogy, assessment and quality assurance is very limited. Field research and industry-institute interface also demand innovations to capture the complex realities of Indian business. There is hence a need to deliberate upon the status of management education, its relevance and its relationship with its different constituencies. Innovation should make management education more relevant and helpful to the students and other stakeholders.

Discussion

Recent trends within the field of management education in India have aimed to promote excellence and prepare humane and socially responsible managers for the new millennium. To achieve this end, most premium management institutes have begun to promote interdisciplinary studies to enrich the curriculum with knowledge and insights from other disciplines and social sciences. In this light, many instances from the study of literature can offer wonderful case studies that can uncover uncharted avenues of reflection and insights into one's core areas of the study of management. This exploratory research attempts to contemplate how concepts of management can be studied through the reading of literature and how this end may be best achieved in the discipline of management at both the undergraduate as well as post-graduate levels. The focus of this paper is more suggestive rather than prescriptive.

One is required to keep pace with the latest developments in the techniques and resources for management teaching, and the changing needs of the learners, management teachers need to update their knowledge and skills periodically. Specialized training needs to be imparted to management teachers to increase their expertise and knowledge of modern resources and strategies which can be incorporated into the class. Taking into account the mixed abilities of the students in the management classroom, an instructor should focus on participatory

approaches to management teaching. They should make continual attempts to update their knowledge of the current approaches and modern techniques in management education. From time to time numerous blueprints are generated for delivering premium quality education and remaining life-long learners. Education prompts learners to think whereas the trainer encourages its trainees to do.

The case study as a mode of instruction used in management education is quite distinct from most of the methods of teaching used at school and undergraduate course levels. It normally contains a narrative about an incident or how a business manager or entrepreneur has handled or should handle that situation or incident. It contains a factual description of the situation prevailing in an organization, “commonly involving a decision, a challenge, an opportunity, a problem or an issue faced by a person or persons in an organization”. (Kumar, 2010) The case method enables a teacher to sensitize learners about real-life situations that they might face in an organization. A case study is an excellent tool for assessing the theoretical understanding of the subject among students. The theory is often regarded as concrete and practice is abstract. The focus of teaching has shifted from learning theory to learning theory through the study of cases. Moreover, Madtha rightly points out,

A business case analysis overcomes most of the disadvantages of the lecture method and facilitates learning outcomes that are aligned with the expectations of corporate management. The major advantage of the case method is that it attracts participants' attention, transforms it into enthusiasm and ensures students' involvement in the learning effort. The case method also focuses on students' level of understanding and facilitates ongoing feedback from students about what they get. (Madtha, 2009)

However, many teachers, researchers and scholars have expressed their concern over the dearth of case studies for every topic of study.

Through a case, the teachers or trainers can attempt to establish the practical application of theoretical knowledge in encountering organizational and managerial issues. It helps students to reflect upon such cases and engage in a self-learning process. Unlike a traditional lecture-based teaching method, where the participation of students in the classroom is minimal, the case study method demands active learning, which requires students' participation, involvement through interaction and discussions. For students who have been exposed only to traditional teaching methods, this solicits a major change in their approach to learning. Huczynski defines a case as "a written or a filmed description of the actual or imaginary situation which is presented in some detail. It is also viewed as an intensive or complex examination of a facet, an issue, or perhaps the events of a geographic setting over time." as quoted in (Kumar, 2010)

The use of case studies in management education is highly relevant to the theories and practices of business across the world. Despite cultural distinctions, the basic purpose of business ventures, people, machines and materials from the basic recourses of a business and customers at the relevant marketplace can be scrutinized under the banner of a case study. Each business or entrepreneurial venture is supported by the necessity of its sustenance and the generation of wealth by the stakeholders. It is a blend of needs, action and results in a continual series and cycle of which consume and recreate themselves for the stability of life on this earth.

The case studies used in any management education are dependent upon the ‘virtual’ nature of their contents and the actual and real-life demonstration of business situations that they bring to the classroom in encouraging the students of management to co-relate the theoretical aspects of business management. Case studies should generate motivated curiosity

in the students' minds. The use of cases to offer a variety or to reduce monotony is perhaps an underutilization of such resources. A case method can place participants into real management circumstances, encourage them to reflect upon it, take decisions and defend them. In due course, the students internalize the related concepts that surface in the cases, develop skills and are exposed to different attitudes. Such case analyses encourage situational thinking and problem-solving approach. By frequent questioning of one's own decisions through the cases, learners can refine their problem-solving, decision-making and administered skills like observing, listening, communicating effectively, diagnosing and intervening. Discussions of such case studies should be conducted in such a way that they become effective tools that translate "real-life business scenarios to classroom discussion topics". (Kulkarni, Pachpande, & Pachpande, 2011)

Cases are usually based on material gathered about real organizations but in some cases, prefabricated cases are also developed. Such prefabricated cases may be found from the study of other disciplines like literature and social sciences. Although no course can be conducted solely based on these hypothetical cases, they can be treated as a possible alternative to learning topics for which no case is available.

The role of interdisciplinary studies in management education is indispensable. This may provide learners with a holistic approach to the enrichment of their knowledge. One of the best disciplines through which management education may be fortified is the study of literature.

It is possible to learn the basic principles of management through Literature by using them as case studies. Literature is often categorized to be a part of humanities in terms of education and discipline. 'Human' perhaps refers to that faculty of every human being that sensitizes one to the subtle nuances of life. It offers an awareness of life's intricacy, mystery and meaning in a way that is not available anywhere else. It is based on the firm belief that literature gives not only a reflection of life but also insight into its complexity by showing us how human beings have felt, acted, lived and died in different situations. In the process it makes us more open, generous, receptive to new ideas, more tolerant, less judgmental and less narrow; it widens our sympathies and kindles the imagination, and leads us by the hand in a search for meaning. In short, it humanizes us. Apart from practical knowledge it offers images of beauty, love, sadness and courage thereby equipping future managers with a more humane as well as socially responsible and morally sensitive attitude. Literature brings to the fore language used with such power and skill as to move us, and read words that make us stop and ask ourselves what meaning life holds for us.

When such a course is incorporated into management education it should aim at demonstrating that literature, far from being an easy alternative in management education, puts forward new perspectives and fresh insights in the light of managerial skills like planning, organizing, leading, controlling, team building and decision making. In short, it makes us more humane. With the help of such a course, participants may receive the opportunity to experience and explore the power and skill of literature and language and read words that help to reflect what meaning life and correlate it with the management skills that they have learnt as a part of their MBA Programme.

Pedagogy

To conduct this course, readings may be assigned and students could be expected to have read and thought about the reading to participate in classroom discussion. There could be an introductory lecture for each component. Thereafter, the students could make presentations of set pieces, followed by a guided discussion. There should be a questionnaire for obtaining

feedback for each session to gauge the degree to which these "literary case studies" have successfully illustrated the concepts in management that the participants may have studied so far.

Literature can become one of the most powerful disciplines which can offer the best reserves for hypothetical prefabricated case studies in the form of fiction, particularly through novels, short stories, plays, prose—essays in particular and poems. The suggestions of literary texts given below may be implemented at both the undergraduate as well as the post-graduate curriculum and learners can gain knowledge of various facets of the basic principles of management in practice through a thorough study of the given text by treating them as case studies.

For instance, William Shakespeare's celebrated play *The Merchant of Venice* can give the learners practical insights into business ethics from the viewpoint of a Jew or anybody belonging to a business class and negotiation skills. A popular speech by the character Portia "The Quality of Mercy is not strained..." reinforces her role as a woman who has strong persuasive communication skills, thereby shattering the glass ceiling of gender stereotypes.

Similarly, *The Lord of the Flies*, a novel by William Golding is a classic in its own right. While the characters in the novel are largely children rescued from the violence and destruction of World War II, it can give students of management some important lessons in group formation, team building and leadership strategies, motivation and controlling. It elaborately probes into questions of power politics and what pitfalls should be avoided as a leader or a member of a group. In Saki's short story "The Open Window" the writer talks about what one should not do by demonstrating a prank played by a young teenage girl. Apart from its significance of "omission by commission" (revealing what one should omit doing by showing what one has committed) the story also brings to the fore important lessons in ethics and social responsibility particularly towards senior or ailing citizens. The story also evinces the merits of strategies persuasive communication, presence of mind and effective storytelling. Debatable questions like "Should Vera have narrated such a story, taking advantage of Mr. Nuttle's ignorance?" can be raised and participants can attempt to answer it with justification using managerial concepts particularly keeping issues of ethics in mind.

Arthur Miller's magnum opus *Death of a Salesman* is a play that has managerial significance in terms of organizational goals and effectiveness and planning. It also probes into the psychological make-up of an employee who has been rendered redundant in the organization partly due to his ineffectiveness at the workplace. The textual discussion could be supported by Peter Drucker's explanation of concepts like effectiveness and efficiency. (Stoner, Edward Freeman, & Gilbert Jr, 2009) Issues like how the protagonist in the play, Loman, could bring on the ability to determine appropriate objectives—"doing the right thing". This could be distinguished by learners from efficiency, which is the ability to minimize the use of resources in achieving organizational objectives: "doing things right" (Drucker, 2006) which perhaps Loman's supervisor attempted to do by relieving him of his duties. Although the play centres around the post-war disillusionment and the American Dream its significance can transcend the boundaries of its immediate context, time and place and has universal appeal and relevance.

In the same way, the poignant story of *David Copperfield*, a popular novel by Charles Dickens can instigate lively discussions about the roles and responsibilities of a manager. R. K. Narayan's short story "Half a Rupee Worth" can be a brief case study on Crisis Management. A. K. Ramanujan's famous poem, "Small scale reflections upon a Great House" can be regarded

as a study in organizational culture. Aravind Adiga's Booker Prize-winning novel *The White Tiger* puts forth inevitable issues on entrepreneurial ethics and a "utilitarian approach in terms of judgement". (Daft, 2009)

Robert Frost's poem "Nothing Gold Can Stay" can provoke important reflections on planning and organizing. George Orwell's novels *Animal Farm* centres on issues like planning, team building and strategic management, particularly some key distinctions among levels of strategy and corporate portfolio approach. *1984* which is also written by Orwell can help students to ponder on control, organizational behaviour, organizational hierarchy, diversity at the workplace and leadership skills.

At the undergraduate level, while teaching the various schools of management varied literary pieces or excerpts may be borrowed from World literature and treated as case studies. Each of these could become a hypothetical example for reflecting upon managerial skills. For instance, from Greek literature, excerpts may be taken from Plato's *The Last Days of Socrates*

- I. introductory lecture
- II. the piece called the *Apology*, the speech Socrates makes at his trial as recorded by his pupil Plato
- III. the dialogue called *Crito*, in which Socrates refuses to escape from prison.

Similarly, Christian Europe gave rise to works like *Julius Caesar* by William Shakespeare and can serve as a case study for organization effectiveness. A few lyric poems like those given below can also instigate discussions relating to the various principles of management:

1. *Shall I Compare Thee to a Summer's Day* and
2. *Since Brass nor Stone nor Earth Nor Boundless Sea* by William Shakespeare
3. *Spring and Fall* by G. M. Hopkins
4. *Nothing Gold Can Stay* by Robert Frost
5. *Ode to a Nightingale* by John Keats
6. *The Love Song of J. Alfred Prufrock* by T. S. Eliot

Here the role of the instructor may be limited to being 'a guide by the side' and facilitator while students may be allowed to take the centre stage and discover the significance of the management concepts, they study in the light of the case study in question. Dayal observes, "Given the scenario in which a student is likely to function, a teacher has to be clear about what aspects of the subject are important". (Dayal, 2009) Students can learn about governance through the Europeanization of the World: Colonialism through works like:

1. The Enlightenment
2. The Rise of Science and Capitalism
3. *A Passage to India* by E. M Forster, a novel

Machiavelli's treatise *The Prince* can offer important insights on strategy. This can liberate students from the agony of continuous lectures and can promise a more andragogical approach or student-centred learning environment instead of a teacher-centred or pedagogical approach. The motivation of the learners to participate in such case discussions may be ensured by awarding each learner with an appropriate grade as a part of the concurrent evaluation. The criteria for grading may be governed by factors related to the quality of the content of the case, the potential of the average students and the emphasis on analysis jointly agreed upon by the students and instructors. This can also ensure that the students strike a healthy and fruitful balance amongst innovative ideas, practical outlook and critical analysis of any given situation. This would give students the opportunities for experiential learning through second-hand experiences of literature and sharpen their cognitive skills.

Conclusion

Course objectives or outcomes can be shared with the learners at the outset. The course should enable the students will develop a higher level of sensitivity for literature and will realize that literature can widen our general perspective which can become a base for understanding not only beauty, social and cultural ethos but also management and life. It may refine the analytical skills of the participants and give them a keen sense of observation about the subtleties of the life of a manager at the workplace. If at the end of the course, participants realize, as Socrates once said, that the unexamined life is not worth living, the objective of such a course will have been attained.

If such a course is appropriately administered then it could make its mark on contemporary management education by equipping graduates with relevant knowledge, managerial, analytical, interpersonal and communication skills, as well as attitudes with proper emphasis on values. Creativity and innovation can also be inculcated through other forms of art like paintings, sculpture, music and so on if they are deployed accurately. It is only when such courses with a novel approach are implemented that we can bring about caring individuals, contributing to the well-being of society.

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Communication Dynamics: A Gendered Perspective

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Abstract

Proliferation of a globalised world has led to a culturally dynamic and diverse human resources worldwide in any work place. A diverse workplace usually offers the people to augment adaptable behavior to become more accommodative. As a result, potential employees get an opportunity to utilize the available resources, ultimately resulting in immense contribution for the growth of the respective company, they would be working with. As a diversified culture and dynamics of gender assemble, it facilitates a platform of various perspectives in achieving the desired goals and meets the ends. So naturally in such a multicultural and variegated workforce renders a conducive environment, where the rate of acceptance of difference increases rather than decreases. Highlighting on the distinctive features of genders, helps unravel certain and specific cues of the concept of gender and communication. Consequently, it assists in getting the job done. As well as it provides a smooth functioning work environment. Effective communication becomes the need of the hour in order to have a successful work culture amidst diversity. To achieve this, it becomes vital to emphasize on the gender differences in the network of communication. If this pattern goes unnoticed, it may lead to confusion and uncertainty, which would actually cause loss on the organizational outcome. Understanding the communication issues related to gender differences, may help reduce in miscommunication. Finding out symmetry between the genders would have a positive impact, so as to reduce any gap further. A conducive work environment can be dreamt of, when the polarity and variance is traced. Then, modes can be developed to bridge the gap between male and female workforce pertaining to communication related issues.

Keywords: gender, communication, work force, report talk, rapport talk.

Introduction:

Due to the boom in MNC scenario, discussion related to gender and communication is at the apex, specifically at workplace. It is witnessed that more women are emerging as leaders and managers, taking top positions at the corporate. Simultaneously, with the increasing number of female joining the workforce and being absorbed at the managerial level, it stimulates a challenging situation for the communication context inside the organization. As a result, communication between the employees of both the genders turns out to be crucial at this juncture, for a favorable outcome.

Since early childhood, the communication differences relating to gender is practiced. In case of the girl children, inculcation of mannerisms is given utmost importance. They are expected to adopt specific 'feminine' behavior to become socially more acceptable. Being quiet, sobriety, and passivity are some of the adjectives associated with the girl for better social approval. Girls can expect their emotions through crying where as boys are supposed to abstain from crying. Being tough, lacking emotions are the desirable traits in a boy. So accordingly boys and girls cannot separate themselves from the process of acculturation. So they have to internalize different style and pattern of communication. A girl usually follows a relational style to communicate where as a boy adapts to a more competitive pattern. So while drawing similarities and differences in the communication pattern, no one style can be analyzed as a better option than the other. Men are assumed to have a more direct approach where as women depend on a more people oriented approach, including their work environment. In this regard Nancy Clark points out:

When men communicate they're concerned with conveying information and establishing status. When women communicate they're concerned with conveying information and building connections..... When men are not successful, they tend to attribute it to external factors. The opposite is true for women. When women have a failure, they tend to attribute it to their own shortcomings. And when they succeed, they tend to link it to external factors, such as teamwork and luck.... Since men's gender culture is hierarchical, their main concern is ensuring that they get up the corporate ladder. So they express, and are expected to express, their accomplishments and their strengths. Women are in an egalitarian gender culture so they tend to downplay their own role in the success. Women see any attempt to put oneself up as disruptive to building connections".

In this context, Baron-Cohen(2003) has also suggested the variations due to biological differences, that male and female brains have evolved differently, and today female brains can be categorized as E-brains(empathizing brains) while male brains can be categorized as S-brains (systematizing brains). More aggression can be an outcome of diminishing empathy. On the other hand an aggravated state of empathy results in better communication skills. It was also been suggested by them that the element of empathy and systemic can be found in different individual at different proportion. As per Kimura(1999), of course there are differences owing to hormonal levels, in case of male the spatial and mathematical skills are better where as females outshine on verbal memory and fine motor skills.

Gendering communication

There are both similarities and differences pertaining to oral, written and non-verbal communication from a gender perspective. Understanding these differences turns out to be crucial as at times they overlap with each other. Finding out the authenticities of these elements would lead to a better communication context in work culture.

The gender specific discourse is considered as genderlect. This genderlect can be explored from relational and as well as task oriented view points. As Tannen(1990,1995,2002) writes that men and women use different genderlects or gender-specific dialects. She has also emphasized on the specific modes of communication by both, rapport talk and report talk. Women usually get absorbed in rapport talk, which is more of building or maintaining relationship, more empathetic in nature. Whereas men incline more towards report talk, which is more task-oriented, mainly it deals with finding solutions to problems. She also mentions about synonymy between inter-gender and inter-cultural communication. Due to these different approaches to communication, at the same workplace, if individual mode is not identified, then there is every possibility, it may result in miscommunication. Both the parties would conclude that their message was conveyed properly, whereas still there would be a gap. At this juncture it become quite vital to have parity, it should not go unnoticed. As per John Gray(1992), men belong to Mars whereas Women from Venus. It reflects the communication difficulties arising without understanding the variations in both their cases. Due to the challenges in the workplace, it may fuel the complexities to a larger extent. Gray quotes,

There is a commonplace barrier because male and female hormones are different. In the workplace there are different reactions to stress. There are certain things that make men feel comfortable, certain things that make women comfortable. It's as if we come from planets with different languages. Men and women share the same words, so they think they are being heard, but they are not. So they might feel disappointed and betrayed when they don't get what they want. A woman on her planet will share feelings as a way of bonding or relieving stress. (Gray in Casison 2002)

Oral communication:

After much discussion, even the research proved to be limited yet, they have reached to some conclusive generalizations regarding speech differences in men and women.

| | |
|-------------------------|--|
| Voice pitch | Usually women tend to have higher-pitched voice. |
| Expressive forms | Women may use more expressive forms like divine, beautiful, lovely etc. |
| topic | Men may be more tend to discuss activities like sports, job etc. whereas women may be inclined more towards relationships, cloths etc. |
| Indirect/ expression | direct Women are believed to be more indirect in approach while communicating where as men might go for a more direct approach. |
| Anger release | Men might be more easily yell, shout to release anger where as women may cry. |

Source: Adapted from Lakoff(1990); Glass(1992);Tannen(1990,1994); Gray(1992); Dolan and Kropf(2004); Lizzio, Wilson, Gilchrist and Gallois(2003); DeCapua and Boxer(1999); Siegel(2002);Holmes (1995).

Non-verbal communication:

Non verbal communication has a vital role to play, as the chances are always high regarding wrong interpretation of the non-verbal cues, and in this gender-communication context , the difficulties may be multiplied. Areas like proximity, haptics, hand gesture, body postures may be taken into account. In case of haptics or touch as a form of communication, women tend to rely more on touching while in a conversation with same-sex interlocutor, where as in case of men, this tendency is less. Another area of non-verbal type proximity , also offers diversity in different gender. Men usually occupy more space than women, like sitting in a sofa, they prefer to spread their entire body, which is not the case of women.

Written communication:

Gendered writing also reflects the differences. Just like oral communication, this form for communication is also separated in case of women, they tend to make it more relational , studies have shown in case of email-writing. Green (2003) has shown this idea in graffiti, that graffiti in female toilets tend to be more polite and interactive, while that in male toilets is more argumentative and negative.

Juxtaposing the poles to have an inclusive communication:

Bringing about a change in certain linguistic feature would certainly result in an effective workplace communication without offending any of the genders. Adopting gender neutral language can be a pathfinder. For conflict resolution relating to gender and communication, a close study and implication of male-female communication is inevitable. With utmost care, the developments in the area of professional communication would be fruitful. Entities like the concept of power play have to be interpreted in the work environment alongside gender. Mapping the similarities and differences is another aspect to neutralize this state. Proper understanding of the difference would certainly be imperative. The complex fabric of entire human communication should be understood at the first place. Last but not the least imparting training leaves a lasting impression on all. Their understanding becomes unbiased, and they can work together for a better professional environment to achieve the desired goals. So accomplishment lies in collaboration and not competition.

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Alternative Conceptualizations of the Body: A study of Ayurvedic Discourse in India*Hari Sreekumar¹**¹Indian Institute of Management Tiruchirappalli***Abstract**

In this paper, I draw on postcolonial theory to highlight discourses of alterity employed by Ayurvedic practitioners in Kerala, India. Using semi structured interviews among Ayurvedic practitioners, I demonstrate the stylistic projection of Ayurveda as a field that emphasizes holism as opposed to the Cartesian dualism that underpins Western medicine. Further, Ayurveda is portrayed as distinctly Indian in contradiction to Western medicine which ostensibly relies on treatment philosophies that do not suit the Indian context. I suggest that, in employing these alternative discourses, Ayurvedic practitioners resist hegemonic Western medicine, albeit in a limited way, and attempt to fashion distinct identities for themselves. Further, these discourses may aid us in moving toward more sustainable lifestyles.

Keywords: India, Kerala, Ayurveda, postcolonial theory, resistance

A descriptive study to measure Entrepreneurial Intent (EI) among final year engineering students.

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Abstract

This research endeavours to understand the entrepreneurial intention among engineering students by applying Ajzen's Theory of Planned Behaviour (Ajzen, 1991). The relationship between its three main antecedents, individual's Attitude towards entrepreneurial behaviour, Subjective Norms regarding approval/disapproval from friends/family related to behaviour, and Perceived Behavioural Control suggesting individual's self-efficacy, and one's intention to be an entrepreneur is examined. This quantitative research is based on a sample of 132 final-year engineering students of Rajkot. Findings suggest that about 30% of students have strong entrepreneurial intent while more than 67% desired a high-paying job. The study also examined the significance of various demographic variables consisting of gender, associated branch of engineering, and parent's occupation with determinants of the theory of planned behaviour.

Keywords: Entrepreneurship, Theory of Planned Behaviour, Attitude, Subjective Norms, Perceived Behavioural Control, Entrepreneurial Intent,

Introduction

Entrepreneurship is one of the main catalysts for a nation's economic growth and development. In this period of globalization, Entrepreneurs are the prerequisites for the country's competitive force as it will be defined through their determination and innovativeness.

Zaidatol Akmaliah (2009) found a necessity for universities to advance their strategies of teaching to polish entrepreneurial self-efficacy and desire amongst their students to follow entrepreneurship as a career choice which becomes undoubtedly essential in secondary and tertiary education systems along with the fields of finance, management, and marketing competencies.

Entrepreneurship has become such a fascinating subject that has not just been discussed and studied by economists but also by sociologists and psychologists.

As per Hisrich, Peters, and Shepard (2005), "*Entrepreneurship is the capacity of an individual to form and manage an enterprise or venture which usually involves considerable risk and reward.*"

Entrepreneurship is also defined as a dynamic process of vision, change, and creation. An application of energy and passion towards the creation and implementation of innovative ideas and creative solutions, willingness to take risks, dexterity to cater to required resources, investing time and capital is required.

Many Economists have addressed entrepreneurship as the solution to cure several complex economic problems such as low rate of growth, poor innovation, and high rate of inflation, high inefficiency, and extensive unemployment. "*The growth can be seen as indicative of a widespread governmental belief in the positive impact that entrepreneurship can have on the socio-economic and political infrastructure of a nation*" (Matlay, 2008)

Historically, scholars in the field of entrepreneurship are found to predict innovative models to capture the young mind's psyche behind entrepreneurial motivation. Moreover, the process of nurturing entrepreneurial behaviour is found to be directly linked with Entrepreneurial Intention (Ajzen 1987; Krueger et al. 2000). In studies of human psychology, intention has turned out to be the best predictor of planned and actual behaviour. The Theory of Planned Behaviour (TPB) explains that intention is analyzed by attitudes, subjective or social norms, and perceived behavioural control (Grigorios, Virginia, Javier 2019). Also, 39% and 27% of the variation

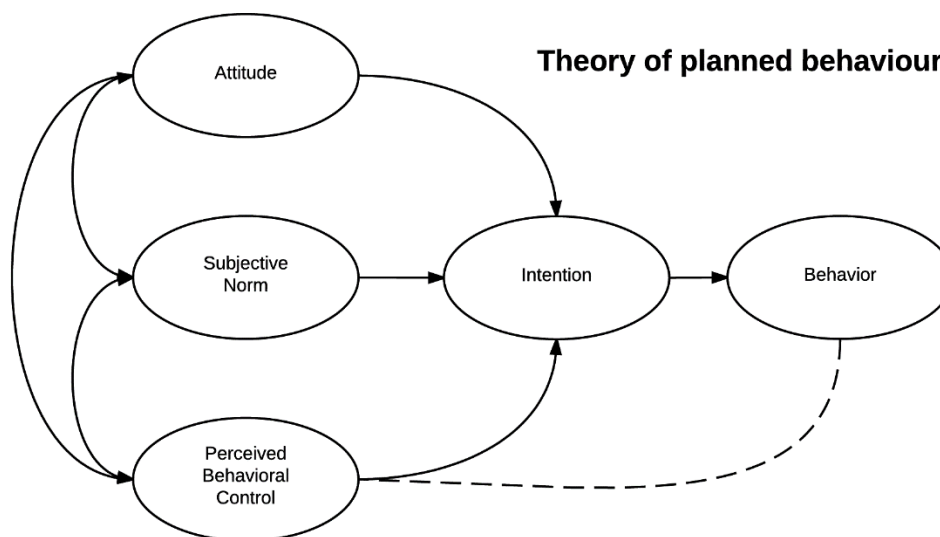
between behavioural intention and behaviour itself can be explained using The Theory of Planned Behaviour (Armitage & Conner, 2001).

Theory of Planned Behaviour (TPB)

The Theory of Planned Behaviour was proposed by Icek Ajzen (1991). According to him, actions are controlled by intentions, but all the actions are not carried out. He has defined Intention as "a person's readiness to perform a given behaviour."

The link between an individual's beliefs and its corresponding behaviour is generally provided by the intention. Among all the predictors of behaviour, intention to perform a behaviour is the most effective one according to Ajzen and Fishbein (1977). This theory also infers those specific actions are leading up to the conscious intention of acting in a specific manner. According to this theory, the intention is determined by Attitude towards behaviour, subjective norms, and perceived behaviour control. These determinants are formed by an individual's behavioural beliefs, normative beliefs, and control beliefs.

Figure-1. Theory of Planned Behaviour



Source: Wikipedia

Attitude Towards Behaviour (ATB)

Attitude toward behaviour generally refers to the degree to which a person thinks for performing a particular action and directly influences an individual's behavioural intention. It becomes one's general evaluation of behavioural beliefs. It also implies the degree of desirability and includes the expectations regarding the results of behaviour. (Ajzen, 1991).

Subjective Norms (SN)

Subjective Norms consist of the opinions of the social reference groups which generally include family and friends concerning their approval or disapproval which ultimately affects whether an individual should or should not engage in a particular behaviour. Thus, it generally includes the social and cultural pressure associated with performing the behaviour.

Perceived Behavioural Control (PBC)

Perceived Behavioural control represents the perceived ease or difficulty regarding performing the behaviour. It is a measurement of an individual's perceived ability to perform that behaviour (Krueger Jr. et al, 2000). This concept also overlaps Bandura's theory of Self- Efficacy wherein

he defined self-efficacy as an individual's beliefs in his/her abilities to accomplish a task. Ajzen (1991) considered Perceived behavioural control as the only component which was directly related to the actual behaviour. If one possesses strong control beliefs and perceived power, it will allow him/her to believe that he/she can perform the behaviour, However, weaker control beliefs and perceived power may hinder his/her performance.

Intention measured through the theory of planned behaviour predicted that actual behaviour in other settings in the range of 60% to 82% (Kermit, 2008). This theory can be simplified in a mathematical formula:

$$BI = ATB + SN + PBC$$

Behavioural Intention (BI), Attitude towards behaviour (ATB), Subjective Norms (SN), Perceived Behavioural Control (PBC)

Intention mediates the outcomes of attitude and subjective norms on the behaviour as Perceived Behavioural Control tends to play a dual role in the theory of planned behaviour. When an individual has a very high degree of control, the intention is enough as a predictor of efforts and actions to acquire the goal (Ajzen, 1991) so the effect of perceived behavioural control is mediated. On the other hand, when there are difficulties with control, perceived behavioural control contributes to predicting the behaviour.

Thus, these three determinants are interlinked with each other and determine the intention to carry out a particular behaviour, in the context of entrepreneurship, they are linked to predict the entrepreneurial intentions of any individual. Gelderen, V. and Brand M, et. al. (2008) suggested that as the intention is the most reliable predictor of behaviour, more attention is paid to its rigorous studies. Although the propensity of a new venture does not assure the formation of a new enterprise, there is an outstanding affiliation between Entrepreneurial Intention and Entrepreneurial Outcomes.

Entrepreneurial Intent (EI)

As Low and MacMillan (1988) defined "Entrepreneurship" as "Creation of new Enterprise", Entrepreneurial intention can be termed as the intention to start a new business or create a new firm or a new element within the existing organizations.

According to Bird & Jelinek, (1988) "*Entrepreneurial Intent refers to the inclination an individual has to form or create new ventures*". Krueger & Brazeal (1994) defined Entrepreneurial Intention as "*An individual's intended desire to a certain upcoming way of behaving that is designed, to begin with, a business or an organization.*"

X Quan (2012) divided Entrepreneurial Intention into two categories as Impulsive and Deliberate.

Bird's version of (1988) further modified by Mazzarol et al in (1999) stated that Intention is mainly determined by environment and personality. The environmental factors such as economic, social, cultural, political, and so on and the personality factors which consist of an individual's character and background, self-efficacy, and need for achievement (Indarti and Rostiani, 2008) and Luthie and Franke (2003) included risk-taking propensity and locus of control.

Hence, the theory of planned Behaviour applied to study entrepreneurial behaviour can be used to measure Entrepreneurial Intent.

Theory of Plan Behaviour (TPB) and Entrepreneurial Intent (EI)

The theory of planned behaviour (Ajzen, 1991) was applied for the first time to the field of entrepreneurship by renowned scholars Krueger and Carsrud in 1993. Since then, it has been used by many researchers and scholars. Measuring intentionality is the core of all entrepreneurial research because it precedes action and direct attention toward a specific goal to create new ventures or starting own business (Bird 1988; Krueger and Carsrud 1993). It is

also familiar that intention to carry out particular behaviour as starting a new business will depend on an individual's attitude towards that behaviour (Ajzen 1991) so possessing a favourable attitude towards action will ultimately make the intention easier and more feasible to follow.

Subjective Norms as a determinant in the theory of planned behaviour act as a social influence that compels an individual to make certain decisions (Park 2000; Conner and Armitage 1998). As it links with the normative beliefs, an individual is concerned about the perceived probability regarding the reaction of an individual's referents on the performing the particular behaviour like entering in the field of entrepreneurship.

Perceived Behavioural Control as a factor of the theory of planned behaviour represents those control beliefs of an individual which are associated with his/her perception to either accelerate or obstruct the behaviour. It is also related to the level of people's self-control and ease or difficulty in engaging in certain behaviour. Therefore, Entrepreneurial Perceived Behavioural control can be defined as the specific evaluation of one's entrepreneurial ability, access to required resources, and the probability of achieving entrepreneurial success with their perceptions regarding their skills and abilities to be entrepreneurs as those who have a positive perception will tend to discover opportunities whereas some may find huge risks and tend not to indulge in entrepreneurial behaviour.

Research Hypotheses

This study intends to contribute to this area of research by accessing the relationship between The Determinants of TPB with Gender, Branch of Engineering, and Parent's Occupation in the context of Engineering Students. The research will thus test the following hypotheses:

H1: There is no significant difference in the EI across the gender of engineering students.

H2: There is no significant difference in the EI across the branch of engineering students.

H3: There is no significant difference in the EI and Parent occupation engineering students.

Research Methodology

A. Objectives of Research

- i. To measure the Entrepreneurial Intent among engineering students.
- ii. To identify the influence of various demographic variables on Entrepreneurial Intent. To examine the effect of the demographic variables on the attitude towards entrepreneurial behaviour.
- iii. To study the influence of the demographic variables on the Subjective Norms.
- iv. To access the impact of the demographic variables on the Perceived Behavioural Control of the students.

B. Research Method

An exploratory research method was used to examine the Entrepreneurial Intent among the final-year Engineering students of Rajkot.

C. Data Collection

The study was carried out based on the primary data obtained through a survey using an online questionnaire.

D. Research Instrument

A modified form of (Fawwaaz D 2017) Questionnaire has been used as a research instrument to collect various data through an online survey. The questionnaire consists of various statements to capture Entrepreneurial Intent, Subjective Norms, Attitude towards Behaviour, and Perceived Behavioral Control of the respondents.

E. Sampling Population

The targeted population for the study was the final year engineering students from 5 Engineering Institutes – RK University, Marwadi University, Atmiya University, VVP Engineering College, and Gardi Vidyapith of Rajkot.

F. Sampling Techniques

Convenient and Judgment Sampling were considered to examine students' entrepreneurial intent and the effect of various demographic variables as gender, associated faculty of engineering, and parent's occupation.

G. The Sample size of the Study

192 responses were received out of which the incomplete and biased responses were not taken into consideration. 132 responses were considered for the study.

H. Tools used for Analysis

Several tools were used to analyze the data collected through questionnaires. A normality test was used to check whether the data is suitable for the parametric test. Based on the results of the normality test, non-parametric tests like the Kruskal-Wallis test, and Mann Whitney U test were used to test several hypotheses of the study.

Results

Entrepreneurial Intent (EI):

Table No.1 Results of Hypothesis testing Gender and EI

| Gender | | | |
|---|---------|--------------|--------------------------------|
| Statements | p-value | Significance | Hypothesis |
| How desirable do you think it would be for you to start your own business within the next 5 years? | .182 | No | Fail to reject null hypothesis |
| How likely is it that you will start a new firm of your own or with friends on a full-time basis within one year from now? | .148 | No | Fail to reject null hypothesis |
| How likely is it that you will start a new firm of your own or with friends on a full-time basis within five years from now? | .056 | No | Fail to reject null hypothesis |
| How likely is it that you will start a new firm of your own or with friends on a part-time basis within one year from now? | .517 | No | Fail to reject null hypothesis |
| How likely is it that you will start a new firm of your own or with friends on a part-time basis within five years from now? | .163 | No | Fail to reject null hypothesis |
| How likely is it that you will move into a corporate career (working for a large, established, private-sector employer)? | .616 | No | Fail to reject null hypothesis |
| How likely is it that you will move into a civil service career (working for a government agency or other public agency)? | .524 | No | Fail to reject null hypothesis |
| How likely is it that you will move into an entrepreneurial career (starting up and or managing a business of your own or with family or friends, self-employed)? | .151 | No | Fail to reject null hypothesis |

Table 1 shows the results of the hypothesis testing of *H1*. It is evident that gender does not have a significant relationship with the determinants of Entrepreneurial Intent.

Table No.2 Results of Hypothesis testing Branch of Engineering and EI

| Branch of Engineering | | | |
|---|---------|--------------|--------------------------------|
| Statements | p-value | Significance | Hypothesis |
| How desirable do you think it would be for you to start your own business within the next 5 years? | .452 | No | Fail to reject null hypothesis |
| How likely is it that you will start a new firm of your own or with friends on a full-time basis within one year from now? | .891 | No | Fail to reject null hypothesis |
| How likely is it that you will start a new firm of your own or with friends on a full-time basis within five years from now? | .613 | No | Fail to reject null hypothesis |
| How likely is it that you will start a new firm of your own or with friends on a part-time basis within one year from now? | .338 | No | Fail to reject null hypothesis |
| How likely is it that you will start a new firm of your own or with friends on a part-time basis within five years from now? | .412 | No | Fail to reject null hypothesis |
| How likely is it that you will move into a corporate career (working for a large, established, private-sector employer)? | .063 | No | Fail to reject null hypothesis |
| How likely is it that you will move into a civil service career (working for a government agency or other public agency)? | .098 | No | Fail to reject null hypothesis |
| How likely is it that you will move into an entrepreneurial career (starting up and or managing a business of your own or with family or friends, self-employed)? | .981 | No | Fail to reject null hypothesis |

Table 2 demonstrates the results of the hypothesis testing of *H2*. It is evident that the Branch of Engineering does not have a significant relationship with the determinants of Entrepreneurial Intent.

Table No.3 Results of Hypothesis testing Parent's Occupation and EI

| Parent's Occupation | | | |
|--|---------|--------------|--------------------------------|
| Statements | p-value | Significance | Hypothesis |
| How desirable do you think it would be for you to start your own business within the next 5 years? | .515 | No | Fail to reject null hypothesis |
| How likely is it that you will start a new firm of your own or with friends on a full-time basis within one year from now? | .431 | No | Fail to reject null hypothesis |

| | | | |
|---|------|----|--------------------------------|
| How likely is it that you will start a new firm of your own or with friends on a full-time basis within five years from now? | .622 | No | Fail to reject null hypothesis |
| How likely is it that you will start a new firm of your own or with friends on a part-time basis within one year from now? | .547 | No | Fail to reject null hypothesis |
| How likely is it that you will start a new firm of your own or with friends on a part-time basis within five years from now? | .288 | No | Fail to reject null hypothesis |
| How likely is it that you will move into a corporate career (working for a large, established, private-sector employer)? | .231 | No | Fail to reject null hypothesis |
| How likely is it that you will move into a civil service career (working for a government agency or other public agency)? | .060 | No | Fail to reject null hypothesis |
| How likely is it that you will move into an entrepreneurial career (starting up and or managing a business of your own or with family or friends, self-employed)? | .795 | No | Fail to reject null hypothesis |

Table 3 illustrates the results of the hypothesis testing of *H3*. It is evident that Parent's Occupation does not have a significant relationship with the determinants of Entrepreneurial Intent.

Attitude towards Behaviour (ATB):

The results show no signs of parents' occupation with attitude towards their behaviour while gender and branch of engineering proved to be significant to an extent concerning the statement describing that their life could be determined by their actions.

Subjective Norms (SN):

Results demonstrate that subjective norms have a significant relationship with the Branch of Engineering and not with gender, and parent's occupation.

Perceived Behavioural Control (PBC):

Perceived Behavioural Control does not show significance with Parent's Occupation while gender and branch of engineering are observed to be significant in terms of their confidence and ability to recruit and hire employees and delegate tasks and responsibilities to them.

Conclusion

The principal purpose of this research was to measure the Entrepreneurial Intent among the youth of India who is the ultimate future of the Nation. Entrepreneurship is one of the key evolving branches for the growth and development of the country, entrepreneurial intentions of the students can serve a major role to boost the nation's economy and overcoming several drawbacks issues such as unemployment. So, a purposive study was carried out on the final year engineering students of Rajkot. Various branches of engineering were targeted because every year, more than 1 million engineers graduate from India out of which only 0.25 million students secure proper jobs in technical fields so their entrepreneurial intentions could be measured and further entrepreneurial education can be imparted to them in the Universities. For this purpose, Ajzen's (1991) Theory of Planned Behaviour was applied to test the relationship between its three determinants as attitude towards entrepreneurial behaviour, subjective norms as the approval or disapproval of family and friends towards starting a new enterprise and the perceived behavioural control including an individual's self-efficacy and perception regarding carrying out the particular business. The findings suggest that the demographic factors such as

gender, the branch of engineering, and parent's occupation of the students showed to play a significant role in Subjective Norms while Attitude towards entrepreneurial behaviour, perceived behavioural control and entrepreneurial intent demonstrated to be relatively less significant with them. It is observed that around 70% of students intended to look for a job, 12.1% showed their curiosity to continue with further studies while 11.4% exhibited their keen intention towards creating a new venture corresponding to their response towards a statement regarding their planning for the upcoming year. When they were asked regarding their interest in having their enterprise, 30.3% showed strong desire while more than 67% preferred doing highly paying jobs.

Limitations of Research

Just like any other study, this research is not excluded from limitations. The research was limited to the 5 Engineering Institutes of Rajkot city in the Gujarat state of India. The information presented here is obtained from a limited sample of responses from 132 students. The responses received from final year engineering students through an online questionnaire might be biased. The questionnaire (Fawwaaz D, 2017) might have its limitations. Being a cross-sectional study, this research mainly emphasizes the data collected during a specific period.

Further Scope of Research

Out of the total 4722 engineering seats in Rajkot, about 50% remains vacant that confines this study to measure the Entrepreneurial Intent of approximately 5.59% of engineering students which can further be carried out in other engineering institutes of India. Studies can also be conducted among students of different faculties such as management, commerce, science and humanities. India produces around 1 million engineers every year out of which about only 20% of engineers acquire jobs in their core field while on the other hand, being a developing economy, Entrepreneurship plays a crucial role in a nation's development. Thus, there tends to be a further scope of research for imparting entrepreneurial education in the engineering institutes of India.

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Questionnaire

Personal Information

1. Name
2. Your Gender
3. With which engineering faculty are you associated?
4. What is your plan for next year?
5. Parent's Occupation

Entrepreneurial Intention

6. How desirable do you think it would be for you to start your own business within the next 5 years?
7. How likely is it that you will start a new firm of your own or with friends on a full-time basis within one year from now?
8. How likely is it that you will start a new firm of your own or with friends on a full-time basis within five years from now?
9. How likely is it that you will start a new firm of your own or with friends on a part-time basis within one year from now?
10. How likely is it that you will start a new firm of your own or with friends on a part-time basis within five years from now?
11. How likely is it that you will move into a corporate career (working for a large, established, private-sector employer)?
12. How likely is it that you will move into a civil service career (working for a government agency or other public agency)?
13. How likely is it that you will move into an entrepreneurial career (starting up and or managing a business of your own or with family or friends, self-employed)?

Attitude Towards Behaviour

14. My life is mostly determined by my actions.
15. I generate creative ideas.
16. I investigate and secure the funds needed to implement ideas.
17. I am innovative.
18. I like to increase my status and prestige.
19. I have high ambition.
20. I like to achieve something and get recognition for it.
21. I become easily discouraged by failures.
22. When my performance does not satisfactory, I start to question my abilities.
23. I take risks regularly.

Subjective Norms

24. If I became an entrepreneur, my family would consider it to be desirable.
25. If I became an entrepreneur, my friends would consider it to be desirable.

26. If I became an entrepreneur, other people close to me would consider it to be desirable.

Perceived Behavioural Control

27. How much confidence do you have in your ability to identify the need for a new product or service?
28. How much confidence do you have in your ability to design a product or service that will satisfy customer needs and wants?
29. How much confidence do you have in your ability to estimate customer demand for a new product or service?
30. How much confidence do you have in your ability to estimate the number of start-up funds and working capital necessary to start your business?
31. How much confidence do you have in your ability to get others to identify with and believe in my vision and plans for a new business?
32. How much confidence do you have in your ability to recruit and hire employees?
33. How much confidence do you have in your ability to delegate tasks and responsibilities to employees in my business?
34. How much confidence do you have in your ability to organize and maintain the financial records of my business?
35. How hard do you think it would be to start your own business?
36. How overworked would you be if you started your own business?

Wise Leadership - Lokasamgraha and Rajarshi Revisited

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Abstract:

In this paper, we revisit two Indian conceptions, Lokasamgraha and Rajarshi which were brought into mainstream modern management by S. K. Chakraborty. They constitute an alternative view of wise leadership from a Vedantic perspective. Lokasamgraha is about the well-being of society and the various stakeholders. It is a conception of general well-being of the world, as expounded in Gita (Chakraborty and Chatterjee, 1999). This concept can help us to arrive at a Vedic conception of the modern stakeholder theory developed by Edward Freeman. We arrive at an Indian construct of wise leadership (LR Model) that combines Lokasamgraha with the concept of wise king (Rajarshi) given by ancient Indian political economist, Kautilya in his famous treatise, Arthashastra.

Keywords: *Lokasamgraha*, Stakeholder theory, Vedic, Gita, Leadership

Determinants of Buying Organic Fruits and Vegetables: A Study Among the Regular, Occasional and Potential Organic Buyers

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Abstract

It is a general principle of marketing to cater to the needs of different sections of consumers differently. Within the community of consumers who are interested to buy organic food products, there are different types of buyers such as regular, occasional and potential buyers and the motivating/hindering factors which make them to purchase organic food products will also differ, therefore through this study, the researcher is trying to identify the differentiating factors. A sample of 632 valid responses were collected. Results show that, production process, trust and convenience is the most important factors for regular, occasional and potential buyers respectively. Further, convenience, perceived price and willingness to take effort which was significant factor for potential buyers, were insignificant for regular and occasional buyers.

Keywords: Organic food, Regular buyer, India

Food marketing to children: A review and future research agenda in light of well-being of children

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Abstract

The WHO Commission on Ending Childhood Obesity aimed to reduce food marketing that unequivocally has detrimental effects on children. Yet, childhood obesity has been in epidemic proportions globally, despite the multifarious studies on children's health due to food marketing. The present study seeks to review the literature on food marketing to children to structure the literature, understand the research gaps and prepare a future research agenda. This review analysed 127 articles and found 232 impelling factors elevating our understanding of food marketing to children. The future implications of this study are discussed based on theory, context, and methodology (TCM), which could serve as fertile ground for continued development on food marketing and children's well-being.

'Hello! Where is my ordered food? Exploring Continuance Usage Intentions Towards Food Delivery Apps Using ECM & Trust Commitment Theory'

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Abstract

All information about the formatting requirements is contained in this document. Please review it carefully. You may use the document as a template and copy/paste your paper content here – this is probably the easiest option. Several styles have been included in this template to facilitate formatting – you may find it easier to use them instead of formatting each segment differently. Note that it is important to adhere to the requirements exactly, as this will form the camera-ready version that will be used to produce the Proceedings. The limitations on the length of the document are as follows. For all types of papers (completed research, research in progress, and teaching cases), the abstract should not exceed 125 words.

Keywords: continuance usage intentions, food delivery apps, ECM, trust-commitment theory, user satisfaction, relationship commitment, deal proneness

Introduction and Proposed Framework

Bhattacharjee (2001) discusses the importance of studying consumers' intentions towards IT products and/or services from a continuance usage perspective, rather than an initial adoption perspective. Studying continuance usage is considered superior because continued usage reflects a stronger impact on the service provider's long-term profits (Gupta, Yousaf, & Mishra, 2020; Thusi & Maduku, 2020). In the traditional ECM, it is associated with continuance usage intentions directed through consumption-driven satisfaction and usefulness (Thusi & Maduku, 2020; Shen, Li, & Sun, 2018). The satisfaction is the users' evaluation of their overall experience with the technology, while perceived usefulness is the post-adoption behavioural belief in a product's/service's usefulness, after the assimilation of expected and actual consumption values (Bhattacharjee, 2001). Compared to other technologies examined through the ECM lens, the food delivery platforms are unique. The consumption of new technologies fulfils user gratifications, beyond basic functionalities.

The online food delivery is the system in which customers can order food and receive desired food products at the doorstep. It involves software that allows restaurants to accept and manage orders placed over the internet. Customers have the option to choose from a wide variety of cuisine's options of different restaurants while browsing the website sitting at home. Indian online food delivery industry is going through a revolutionary phase. It is forecasted that the Indian online food delivery market will reach \$ 21.41 Billion by 2026, from \$ 4.66 Billion in 2020, with a staggering CAGR of 28.94% during 2020-2026. The industry has shown a huge potential and heavy investments are made by investors. For example, Zomato was valued at US\$ 5.4 Billion, up from \$ 3.9 Billion in December 2019 after the \$ 250 Million new investment. Swiggy, another food delivery platform, has raised funding from SoftBank worth \$ 450 Million which peg its valuation to US\$ 5 Billion. Such investments make this industry among the few industries growing at double digit CAGR. Factors that are propelling India's online delivery market are changing lifestyle and eating habits, hectic schedules and growing disposable income pushing people towards online food delivery platforms. Getting it quickly through one-click has popularized food delivery options, especially in urban areas. Besides, rising digitalization among millennial and increasing proportion of working women in India are also driving the online food delivery trends in India. Furthermore, COVID- 19 lockdowns have also positively impacted India's online food delivery industry by the full-filling urge of

¹ <https://cutt.ly/vQ4QC76>

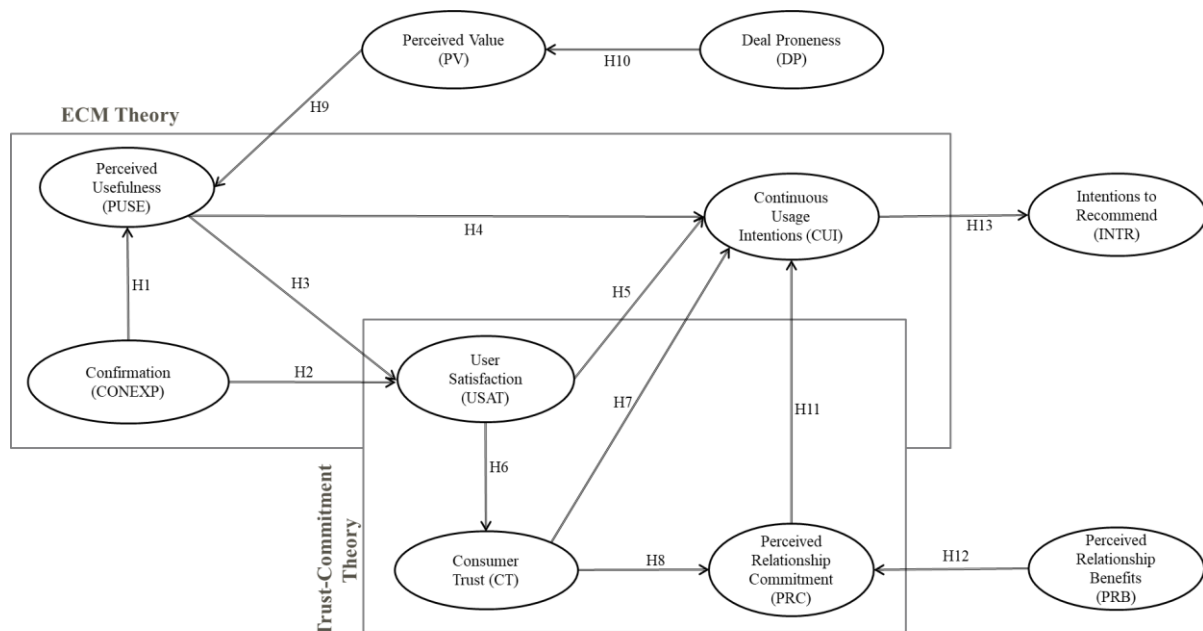
eating outside.

The shifts in the evolution of online food delivery platforms have led to a proliferation of studies examining its implications for both firms and consumers. A few studies have evaluated the use of online food delivery platforms to predict adoption or consumers' satisfaction. However, none of these focus on the post-consumption dynamics for this technology, whereby consumers not only continue using the service but also recommend the platform to others. Understanding the post-adoption behavior of consumers towards new technologies/platforms is relevant to researchers and practitioners (Gupta, Dhiman, Yousaf, and Arora, 2020; Gupta, Yousaf, and Mishra, 2020). Through the food delivery platforms, the amalgamation of digital technologies with convenience is rapidly disrupting the market. Such emerging platforms have strong influence on consumer lives and enable delivery of consumer-focused orders. The rise of such platforms has not only evolved the approach of ordering food, but has also created a transition in the consumer adoption and consumption journeys (Gupta, Yousaf, and Mishra, 2020). In this regard, the application of the expectation–confirmation model (ECM), with suitable augmentations, in this study is appropriate, since in the post-consumption domain, ECM has been applied in various high-technology contexts, but not for food delivery platforms.

Research Model and Hypotheses

In this study, we combine ECM theory and TCT to understand the determinants of continuance intention and intentions to recommend food delivery platforms. This work extends the ECM by adding dimensions of ECM and TCT and additional contextual determinants, namely perceived value, deal proneness, and perceived relationship benefits. The proposed model is presented in Figure 1.

Figure 1: Proposed Framework



Research Methodology

The measurement items, anchored on a scale from 1 (strongly disagree) to 7 (strongly agree), were developed from previously validated instruments. The draft questionnaire was reviewed by two professors and two doctoral scholars at a premier business school in India to ensure content validity. The questionnaire was also subjected to a pre-test with a sample of 15 respondents to identify the language and/or typographical errors. For data was collected online over a time period of eight weeks from users who use food delivery app(s) once a week. The

online survey was designed in and participants who did not meet the qualifying criteria were dropped following the initial screening. After removing outliers using Cook's method, a final sample size of 568 respondents was obtained. The sample comprised 58.6% males; 68.2% aged 18–25 and 17.3% aged 26–35 (rest above 35 years); 78.2% who had been using food delivery apps in the last six months or more; and 83.6% who used either Zomato or Swiggy. The collected data was randomly split into two equal parts. The first dataset was used for the measurement model and the second for path modelling to ensure higher validity of the measures and overall model.

Data analysis

Partial least squares structural equation modelling (PLS-SEM) with SmartPLS 3.0 was used to evaluate the measurement and the path models. PLS-SEM has been used for multiple studies since it is suitable for data with even non-normal distributional. According to Wetzels et al. (2009), PLS-SEM is more suitable to evaluate complex models since, compared to CBSEM, it is a partial-information method and only estimates a subset of parameters. PLS algorithm procedures was performed with bootstrapping of 5000 samples. The measurement model was validated first, followed by the structural model in accordance with the two-step procedure suggested by Anderson and Gerbing (1988). The convergent validity was examined by assessing the factor loadings, composite reliability (CR) and average variance extracted (AVE). It was found that all the item loadings exceeded the recommended value of 0.70, the CR values exceeded the recommended value of 0.70, and the AVE values exceeded the cut-off point of 0.50, thereby indicating that the latent variable experienced sufficient variance of its indicators (Hair et al., 2016). Convergent validity and discriminant validity were checked and confirmed using appropriate methods. The results are as shown in Table 1.

| Table 1: Inter-construct correlations, discriminant analysis & descriptive | | | | | | | | | | | | |
|---|-----------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|------------------|-----------------|
| | CO N | PU SE | PV AL | DP | CT | PR C | PR B | US AT | C UI | IT R | Me an | S. D |
| CO N | .87 7 | | | | | | | | | | 5.5 14 | 1.2 32 |
| PU SE | .65 1 | .81 5 | | | | | | | | | 5.6 81 | 1.2 55 |
| PV AL | .79 2 | .69 9 | .84 9 | | | | | | | | 5.6 78 | 1.1 88 |
| DP | .58 2 | .48 2 | .57 5 | .77 9 | | | | | | | 5.8 76 | 1.3 01 |
| CT | .64 3 | .54 8 | .66 7 | .56 9 | .79 1 | | | | | | 5.2 28 | 1.4 97 |
| PR C | .59 6 | .50 4 | .57 2 | .57 0 | .63 0 | .89 4 | | | | | 5.4 86 | 1.2 47 |
| PR B | .60 3 | .50 7 | .57 2 | .59 2 | .60 8 | .62 9 | .88 5 | | | | 5.5 07 | 1.3 57 |
| US AT | .63 6 | .50 2 | .64 9 | .59 0 | .67 9 | .65 3 | .62 6 | .91 5 | | | 5.7 15 | 1.1 56 |
| CU I | .61 9 | .54 3 | .58 9 | .55 2 | .65 9 | .65 8 | .65 0 | .78 0 | .84 5 | | 5.6 14 | 1.2 86 |
| IT R | .59 6 | .49 1 | .60 0 | .57 5 | .66 8 | .68 0 | .65 2 | .78 0 | .62 8 | .90 0 | 5.5 59 | 1.2 88 |

Note. The square root of AVE in every multi-item construct is shown on the main diagonal; lower-diagonal values are inter-construct correlations

In addition, using the values of average AVE and average R^2 , the goodness of fit (GoF) is found to be 0.62, indicating a reasonable model fit. The path values of the model and the respective effect sizes for each relationship were found to be satisfactory. From the path values and their respective significances, it is evident that all the hypotheses are supported. The results are as shown in Table 2.

| Hypotheses | T Statistics | P Values | Decision |
|--|--------------|----------|----------|
| Confirmation -> Perceived Usefulness | 3.823 | 0.000 | Accepted |
| Confirmation -> User Satisfaction | 8.185 | 0.000 | Accepted |
| Consumer Trust -> Continuous Usage Intentions | 2.278 | 0.023 | Accepted |
| Consumer Trust -> Perceived Relationship Commitment | 4.135 | 0.000 | Accepted |
| Deal Proneness -> Perceived Value | 12.440 | 0.000 | Accepted |
| Perceived Relationship Benefits -> Perceived Relationship Commitment | 15.166 | 0.000 | Accepted |
| Perceived Usefulness -> Continuous Usage Intentions | 2.814 | 0.005 | Accepted |
| Perceived Usefulness -> User Satisfaction | 2.206 | 0.028 | Accepted |
| Perceived Value -> Perceived Usefulness | 7.285 | 0.000 | Accepted |
| Perceived Relationship Commitment -> Continuous Usage Intentions | 3.219 | 0.001 | Accepted |
| User Satisfaction -> Consumer Trust | 14.830 | 0.000 | Accepted |
| User Satisfaction -> Continuous Usage Intentions | 5.563 | 0.000 | Accepted |
| Continuous Usage Intentions -> Intentions to Recommend | 37.936 | 0.000 | Accepted |
| <i>Notes: $p < 0.05$</i> | | | |

General Discussion & Implications

The current paper proposes a framework using ECM and Trust-Commitment theory to define the factors that influence user continuance for food delivery platforms. The findings suggest that user satisfaction towards the food delivery apps is strongly impacted by users' confirmation of expectations and perceived usefulness which, in turn, impacts continuance usage of intentions towards these apps. In addition, deal proneness and perceived value strongly impact perceived usefulness. It was also found that perceived relationship benefits has a significant impact on perceived relationship commitment which, then, impact continuance usage intentions for these apps. User satisfaction also impact user trust which strongly impact perceived relationship commitment and continuance usage intentions. Continuance usage intentions is significantly impact users intentions to recommend these apps to others.

The current research provides valuable academic insights. First, this work proposes an enhanced ECM, with tenets of Trust Commitment Theory integrated to it, that examine determinants of continuance and recommendation intentions for online food delivery platforms. This work adds to the extant literature that attempts to enrich the ECM through the addition of context-specific variables (e.g. Bhattacharjee, Perols, & Sanford, 2008; Thusi & Maduku, 2020). In the case of emerging technologies, most information systems literature focuses on the initial acceptance of a new product/service, supported primarily by pre-adoption theories and limited focus on the post-adoption consumption process. This work focuses on the post-adoption dynamics of such technologies. This paper offers important implications for practitioners. Our model demonstrates that a food delivery platform that meets adequacy expectations can generate user satisfaction and continued usage intention for the platform's content. Thus, platform managers should focus on exploring and meeting user expectations of basic attributes. Next, owing to the proliferation of multiple food delivery applications, service providers should emphasize the provision of better deals on their platforms to create perceived value among the users. By customizing deals to the users, platform managers can be confident that their customers might feel it useful and reengage, as well as recommend the platform to others.

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What and How Luxury Brand Loyalty is Influenced in Indian Gen. Z Consumer Segment: An Empirical Investigation with PLS SCM Approach

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Abstract

India's Gen. Z population is more than 472 million. Due to the mentality, affordability and the big volume, of this consumer segment, it is essential for luxury brands operating in India to understand what appeals to this segment to expand their businesses. The study obtains an integrated framework to understand the impact of 22 attributes that can potentially influence Gen. Z's luxury brand attachment, brand trust, and in turn, achieve their brand loyalty. The proposed model backed by empirical research represents how trust acts as the mediator between attachment and loyalty. It portrays the effectiveness of the attributes, inclusive of CSR and sustainability attributes, and the importance of each of them in influencing the three facets. These, along with suggestions to make CSR and sustainability attributes to instill brand trust, will help luxury brand professionals to make prudent decisions.

Keywords: Luxury brand, luxury brand trust, luxury brand attachment, luxury brand loyalty, gen. Z, PLS-SEM

Introduction

The spectrum of luxury goods/services has widened across the years and is based on various consumption areas of human beings like hospitality, automobile, fashion, food, beverage, and others. Owing to the mentioned attribute, globalization, increased affordability of people, several brands producing luxury products, and other reasons, the spectrum of consumers of luxury products has widened and expanded from the rich to the less affluent ones (Jung-Hwan Kim, 2019). India has one of the leading luxury consumers in the world. The Indian luxury market is forecasted to increase from approximately 4.2 lakhs to 7 lakhs INR from 2021-2025, after a slump in 2020 due to covid-19. The biggest players will be the fashion, hospitality, dining, beverages, tourism sectors as people are set to venture out of their houses. Sustainability measures will play a key role in this luxury business. It will include moves like usage of solar power, paper packing, reduction in single-use plastic, recycling, and others (Euromonitor International, 2021). Gen. Z consumers of India are emerging as the biggest consumers of luxury products/services in India. They have different values and ideas than Gen. X and Y (Bakir et al. 2020). India has a whopping 472 million Gen. Z population (Kataria, 2020); hence, it is a promising segment for luxury brands operating in India.

Many research articles have been written on what drives Gen. Y (Rolling & Sadachar, 2018; Jain, 2019); however, fewer articles have been written on Gen. Z, especially Indian Gen. Z, about what drives them to make luxury purchases. The present research concentrates on factors related to luxury brands that lead Indian Gen. Z consumers to develop attachment, trust, and loyalty. Previous works have considered one, two, or maximum of three attributes related to luxury brands like Qiu et al. (2017) have concentrated on the country of the brand, Sanyal et al. (2021) on reference groups, Kim & Ko. (2012) on a collection of social media attributes. Still, there is a lack of articles that consider maximum attributes and draw how they lead to a luxury purchase. There is a dearth of researches that reflects the effect of several attributes in an integrated manner. There is a lack of an integrated framework that can connect maximum factors and better interpret the consumer behavior related to luxury brand loyalty. The present research considers 22 attributes related to luxury brand purchase that can potentially lead Indian Gen. Z consumers towards the luxury purchase and represents their effect on luxury brand loyalty with the help of a proposed integrated model. The attributes include CSR and

sustainable attributes as well, whose influence on luxury brands and purchase intentions have grabbed the eyeballs of many researchers. There are no research articles that focus on sustainability attributes like no-cruelty, green initiatives, and non-toxic chemicals and whether they have any role in influencing luxury brand attachment, brand trust, and brand loyalty. The present research caters to that.

Literature review

Luxury Brand Attachment, Brand Trust, and Brand Loyalty

Brand attachment is an emotional connection between an individual and a brand that portrays his feelings for the brand (Petračiūtė et al., 2021). It is indicative of the closeness of the relationship between the two identities (Li et al. 2020). It creates a commitment between them that evolves into a long-term relationship. It enhances consumer lifetime value and brand profitability (Lin and Ku, 2018). Aesthetics portrayed through various brand elements helps develop brand attachment in individuals (Dolbec and Chebat, 2013). This can be attributed to luxury brands to a considerable extent. Lin and Ku (2018) view that social influence, individual value, and luxury brand image influences luxury brand attachment in individuals. High involvement with a luxury brand results in the same (Sreejesh et al. 2016). Thomson et al. (2005) assert that luxury brands that reflect an individual's ideal self and aspiration successfully create brand attachment in him. Luxury brand attachment helps an individual pick a brand to purchase from, from a collection of brands, hence making his decision making easier. It plays the mediating role between purchase intention and actual purchase (Shahid and Farooqi, 2019).

Trust is defined as the confidence that an individual can expect to find in what is desired from another, over what is feared (Deutsch, 1973). Brand trust refers to the high expectancy from a brand that it will yield positive results for the customers. A trusted brand possesses particular qualities that make it honest, competent, consistent, and responsible. It is consistent in the value it promises to its customers through product development, production, selling, service, and advertisement (Delgado-Ballester and Munuera-Alemán, 2005). Brand trust comes from interaction and prior experience with the brand (Garbarino and Johnson, 1999). The extent of familiarity with the luxury brand, degree of involvement with the brand helps build an individual build trust in a brand. It leads to enhanced purchase intention and increased WOM (Kuo and Nagasawa, 2020). Brand trust leads to development of brand equity (Khadim et al. 2018). Gen. X and Gen. Y of India purchase luxury products from brands based on the brand's trustworthy performance, quality, and attractive design accompanied with good rating of the brands on social media (Gupta et al., 2019). Higher perceptions of brand authenticity results in higher brand trust perceptions in consumers. The consumers necessarily see a brand as more authentic than its competitors, feel safe, and develop trust in it. This helps the brand to develop better relationships with the consumer and extract higher customer lifetime value (Hernandez-Fernandez and Lewis, 2019).

Brand loyalty refers to biased choice behavior concerning branded merchandise. It is the relative frequency with which a customer chooses one brand over the other. It can be evoked due to quality, color, shape, and brand name or their combination (Tucker, 1964). It leads to repurchasing of products from a brand, uninfluenced (Park et al. 2011). It helps brands achieve repeat purchase and attitudinal commitment (Chaudhuri and Holbrook, 2001). From the consumer perspective, brand loyalty helps him get functional benefits (consistent product quality and reliability), social benefits (enjoyable, social approval, self-expression), and experiential benefits (variety, cognitive stimulation, sensory) (Huang et al. 2016). In the case of luxury brands, brand loyalty is evoked due to conspicuous, unique, social, hedonic, and quality values (Fariba, 2015). Intimacy and interaction with luxury brands are directly proportional to the development of luxury brand loyalty (Kim and Ko, 2010). Higher brand

loyalty earns increased brand choice, customer satisfaction, and higher spending (Chung and Kim, 2020).

Luxury Brand Attributes (LBA) and Luxury Product Attributes (LPA)

Over the years, researchers have associated several attributes to luxury brands. Keller (2009) mentions that a luxury brand should possess ten characteristics, namely premium image, intangible brand associations, pleasurable purchase experience, brand elements (logo, symbol, packaging), secondary brand associations (linked personalities, countries, events), selective channel distribution, premium pricing, quality, and trademark. Phau & Prendergast (2000) view that a luxury brand should stimulate exclusivity, have a brand identity, increase brand awareness and perceived quality, and retain sales level and customer loyalty. Its products should be held by only a few so that the luxury component of the brand stays intact. Country of brand (COB) plays an essential role in consumers' perceived value and paves the way for their intention to purchase (Qiu et al. 2017). COB builds inner-self expressive value, prestige value, and social-self expressive value in individuals (Qiu et al. 2017). Arora (2013) has obtained an 8-P model of luxury brand marketing. It finds mention of craftsmanship, brand pedigree, natural paucity, informative entertainment form of advertisement, and promotion as essential attributes to build on emotions in the audience's minds regarding a luxury brand. Besides these, premium price and rarity of materials are considered important attributes behind the development of exclusivity of luxury products (Arora, 2013). For example: In the gem and jewelry industry, rare gemstones play the role of perceived rarity (Pereira et al., 2019). Wuestefeld et al. (2012) have put forward that customers prefer brands with a heritage as they are perceived to be trustworthy, credible, and reliable.

Customization of luxury products contributes to the uniqueness of the luxury product/service and enhances the degree of exclusivity (Moreau et al., 2020). However, degrees of freedom in customization is inversely proportional to the perceived prestige of the brand (Fuchs et al. 2013, Moreau et al., 2020). Psychological factors, namely conspicuous consumption, self-esteem, symbolic value, pride, and other psychological factors, determine luxury products' purchase. Craftsmanship, aesthetics, luxury service, authenticity, and innovativeness are attributes of luxury products that impact customers' progress towards luxury purchases (Dhaliwal et al. 2020). Luxury services (Dhaliwal et al. 2020) are superlative hedonic experiences that encompass exclusivity. The exclusivity can be monetary, social, or hedonic in nature. The luxuriousness can be combinedly determined by subjective customer perception and objective service features (Wirtz et al., 2020). A luxury brand's perceived value, perceived quality and uniqueness are components behind the willingness to pay a premium price for a product (Sjostrom et al. 2016)

Social Media Attributes (SMA)

Social media presence, website design, brand advocacy, and CSR have emerged as essential luxury brand factors that influence purchase (Dhaliwal et al. 2020). Social media reviews, recommendations, and comments (Agnihotri, 2020) persuade the audience about the luxury brand and curate word of mouth (WOM) influence among consumers. As it passes on from individual to individual, the brand loyalty regarding the brand keeps on enhancing (Colella et al. 2019). Perceived social media marketing activities of luxury brands include five constructs namely interaction, trendiness, WOM, entertainment, and customization (Kim & Ko, 2012). The concept of customization refers to provision of customized information hunting and facilitation of customized services to customers. These constructs positively affect relationship equity, value equity and brand equity (Kim & Ko, 2012). Informative entertainment has emerged as an important motivational factor in customers' engagement with luxury brands on social media (Bazi et al., 2020).

Customer integration helps customer engagement, and it can be done by means of invitation to exclusive events, giving exclusive offers to particular customers, launching new media campaigns, and doing customer surveys about the latest trends. Encouraging interactivity with the brand as well as moderating interaction among fans also adds to productive customer integration. Brand interaction boosts the supreme image of the luxury brand (Jahn et al., 2012). Integration of offline selling and online marketing (social media, mobile app, and others) of luxury brands has given customers a wholesome luxury purchase experience. Social media “buzz” leads to in-store purchases (Dauriz et al., 2014). A capturing and engaging mobile presence by mean of targeted use of social media indulges customers in doing online research before venturing further. They often view the products on tablets and mobile phones and conduct their research before physical purchase. Information in the form of significant brand announcements, promotional campaigns, and discounts act as facilitators of purchase experience (Dauriz et al. 2014). The Burberry store in Shenzhen, China (Inside Retail Asia, 2020) and the luxury brand Chanel (Drettmann, 2020) have set great examples of online and offline integration by luxury brands, facilitating smoother luxury purchasing.

Corporate Social Responsibility Attributes (CSRA) and Sustainability Attributes (SUA)

The effect of corporate social responsibility (CSR) and its benefit for luxury brands have drawn the attention of management scholars over the years (Dekhili & Achabou, 2016). Sipilä et al. (2021) have obtained that customers perceive luxury companies have superficial motives behind CSR activities; hence CSR activities are detrimental to the brands’ loyalty intentions. Carefully crafted CSR strategies that align more to the luxury context can reap benefits for the brand. However, in the view of Janssen et al. (2017) and Franssen 2017, if a brand’s products are scarce and enduring at the same time (product made of materials like diamond), then consumers develop a good perception towards the compatibility between CSR and luxury. Janssen et al. (2017) and Sen & Bhattacharya (2001) further posit that luxury brands’ CSR activities to overcome issues congruent with the brand’s core business or the brand’s reputation evoke a positive response from the customers CSR. There is a strong relationship between consumer self-image and brand image (Jacob et al., 2020). Pinto et al. (2019) suggest that consumers hold CSR focuses consistent with the respective luxury brand personalities in great consideration. According to Sen & Bhattacharya (2001), if there is a unity between a customer’s personality traits and the socially responsible luxury brand, then the CSR activities undertaken by the brand are perceived well by the customer. Pencarelli et al. (2020) suggest that millennials (in Italy) have a reasonably strong sustainability habit in terms of luxury product consumption. They consider CSR activities along with their clear communication in great appraise. Luxury brands contribute towards environmental pollution, but they can achieve sustainability (Godart & Seong, 2017). Green initiatives strengthen consumer satisfaction and leads to positive WOM (Amatulli et al., 2020) hence luxury brands should make it a point to report them (Bendell & Kleanthous, 2007). The Indian Gen. Z accepts shared luxury consumption, which is a method to attain sustainable luxury (Jain & Mishra, 2020). Several luxury brands have started to take active steps in achieving sustainability through their products; some of the reputable examples are Stella McCartney, True Botanicals, Follain, Matt and Nat, Osea Malibu, Forrest Essentials, and others. These brands have stepped away from using animal skin, fur, toxic chemicals in their products.

Proposed Model for the Current Research

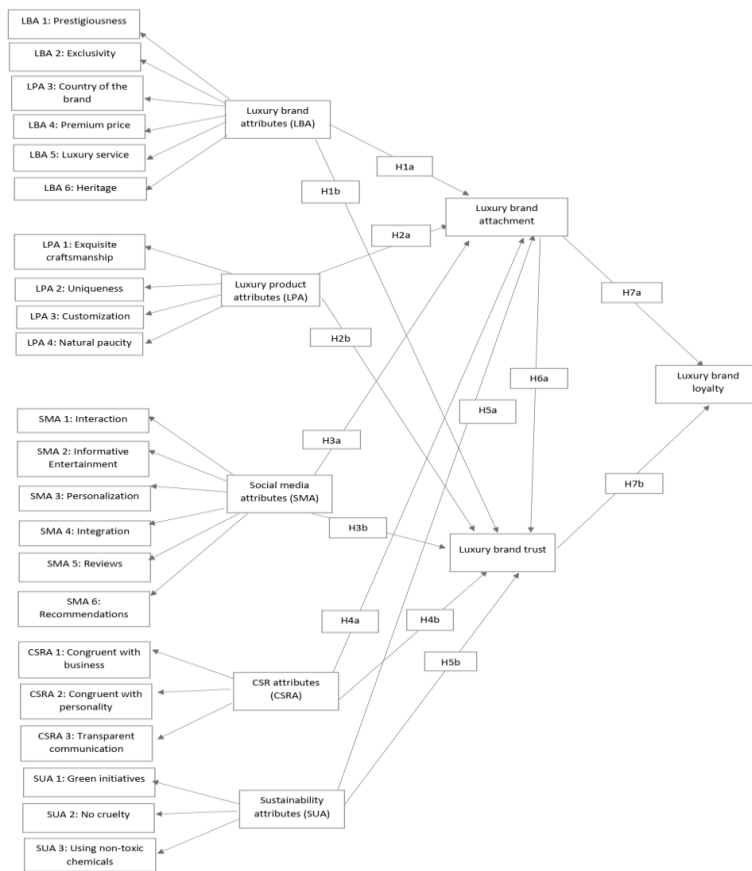


Figure 1 The proposed conceptual model on luxury brand loyalty for Gen. Z consumer segment

The proposed framework presented in figure 1 tries to explain how luxury brand attachment and trust are framed, and luxury brand loyalty is built within the Gen. Z segment. It tries to investigate how luxury brand attachment and trust can influence loyalty. The model investigates the mediation role of luxury brand trust in strengthening the relationship between attachment and loyalty.

Methodology

The research is based on empirical data collected specifically from Indian Gen. Z crowd. In order to collect data, convenient sampling was mostly used, along with snowball sampling. A total of 238 samples were collected and 230 are used for the research, wherein male population is 54.8 percent and female 45.2 percent, and majority of the target sample are students from premium business schools with good family background. All the participants answered all the questions present in the online questionnaire. It had a qualifying question requiring the participant to mention a luxury brand whose products the participant had used or if he/she had not used any then mention his favorite luxury brand, one which he follows. Eight responses were not considered part of the research since the participant did not correctly answer the qualifying question. Structural equation modeling and path analysis with SmartPLS software are used to analyze the conceptual model and hypothesis in the current research.

Data Analysis

From the statistical analysis shown in table 1, it can be obtained that all the constructs have Cronbach’s alpha coefficients values greater than 0.70. It indicates that the required reliability

of the model is achieved. All the factor loading values are greater than 0.50, indicating the convergent validity of the model. All the composite reliability values of all the factors are greater than the minimum average value of 0.70 indicating that the model's internal consistency is supported. The Dijkstra–Henseler's rho (ρ_A) values of all the factors are above 0.70, assuring the higher internal consistency reliability of the model.

Table 1 Measurement model parameter estimation

| Factors | Items | Factor loading (Standardized value) | Cronbach's Alpha coefficient | Dijkstra–Henseler's rho (ρ_A) | Average Variance Extracted | Composite Reliability |
|-------------------------|---|-------------------------------------|------------------------------|--------------------------------------|----------------------------|-----------------------|
| Luxury brand | Prestigiousness (LBA 1) | 0.741 | 0.770 | 0.781 | 0.521 | 0.867 |
| | Exclusivity (LBA 2) | 0.735 | | | | |
| | Country of brand (LBA 3) | 0.686 | | | | |
| | Premium price (LBA 4) | 0.754 | | | | |
| | Luxury service (LBA 5) | 0.682 | | | | |
| | Heritage (LBA 6) | 0.726 | | | | |
| Luxury product | Exquisite craftsmanship (LPA 1) | 0.672 | 0.707 | 0.716 | 0.536 | 0.821 |
| | Uniqueness (LPA 2) | 0.724 | | | | |
| | Customization (LPA 3) | 0.810 | | | | |
| | Natural paucity (LPA 4) | 0.715 | | | | |
| Social Media | Interaction (SMA 1) | 0.637 | 0.772 | 0.784 | 0.502 | 0.858 |
| | Information entertainment (SMA 2) | 0.560 | | | | |
| | Personalization (SMA 3) | 0.677 | | | | |
| | Integration (online and offline) (SMA 4) | 0.718 | | | | |
| | Reviews (SMA 5) | 0.746 | | | | |
| | Recommendations (SMA 6) | 0.744 | | | | |
| CSR | Congruent with business (CSRA 1) | 0.790 | 0.737 | 0.747 | 0.653 | 0.849 |
| | Congruent with personality (CSRA 2) | 0.813 | | | | |
| | Transparent communication (CSRA 3) | 0.820 | | | | |
| Sustainability | Green initiatives (SUA 1) | 0.745 | 0.705 | 0.705 | 0.630 | 0.836 |
| | No cruelty (SUA 2) | 0.827 | | | | |
| | Using non-toxic chemicals (SUA 3) | 0.806 | | | | |
| Luxury brand attachment | Willingness to pay premium price (Attachment 1) | 0.743 | 0.708 | 0.717 | 0.611 | 0.824 |
| | Meeting emotional and functional purpose (Attachment 2) | 0.784 | | | | |
| | Overall willingness to purchase (Attachment 3) | 0.816 | | | | |
| Luxury brand trust | Willingness to recommend (Trust 1) | 0.850 | 0.713 | 0.724 | 0.635 | 0.839 |
| | Willingness to discuss (Trust 2) | 0.782 | | | | |
| | Overall trust (Trust 3) | 0.756 | | | | |
| Luxury brand loyalty | Overall satisfaction (Loyalty 1) | 0.710 | 0.774 | 0.775 | 0.597 | 0.855 |
| | Overall expectation (Loyalty 2) | 0.790 | | | | |
| | Willingness to buy new product category (Loyalty 3) | 0.786 | | | | |
| | Willingness to buy newly launched product (Loyalty 4) | 0.802 | | | | |

It can be seen that items namely “customization”, “congruent with personality”, “transparent communication”, “no cruelty”, “overall willingness to purchase”, “willingness to recommend”, “willingness to buy newly launched product” have higher factor loading values indicative of higher contribution to the proposed model. The R square value of the outcome latent variables can be considered acceptable, as their values are above 0.5, as shown in table 2.

Table 2 Results of R Squares and Adjusted R Square

| Latent Variables | R Square | R Square Adjusted |
|-------------------------|----------|-------------------|
| Luxury brand attachment | 0.538 | 0.524 |
| Luxury brand trust | 0.607 | 0.592 |
| Luxury brand loyalty | 0.668 | 0.647 |

Table 3 PLS-SEM Model Fit Indices

| | Saturated Model | Estimated Model | Model Fit Criteria |
|------------|-----------------|-----------------|--|
| SRMR | 0.0792 | 0.083 | At <95% bootstrap quantile (SRMR < 0.08) |
| d_ULS | 3.521 | 3.819 | Should be less theoretical model (After bootstrapping) |
| d_G | 0.947 | 0.953 | Should be less theoretical model (After bootstrapping) |
| Chi-Square | 1227.718 | 1234.643 | Should be less theoretical model (After bootstrapping) |
| NFI | 0.814 | 0.781 | NFI > 0.90 |
| RMS_theta | 0.072 | | Close to Zero |

From table 3 it can be said that the model fit indices have demonstrated the model fit and validated the model as an acceptable one.

Table 4 Structural Model

| Hypotheses and Relationship | Std. Beta | P Values | T Value | Decision | 2.50% | 97.50% | VIF | F square |
|---|-----------|----------|---------|---------------|-------|--------|-------|----------|
| H1a: Luxury brand attributes -> Luxury brand attachment | 0.271 | 0.000 | 7.243 | Supported | 0.270 | 0.469 | 1.501 | 0.397 |
| H1b: Luxury brand attributes -> Luxury brand trust | 0.096 | 0.000 | 5.184 | Supported | 0.433 | 0.593 | 1.597 | 0.287 |
| H2a: Luxury product attributes -> Luxury brand attachment | 0.041 | 0.000 | 3.226 | Supported | 0.062 | 0.224 | 1.607 | 0.493 |
| H2b: Luxury product attributes -> Luxury brand trust | 0.042 | 0.000 | 3.518 | Supported | 0.238 | 0.786 | 1.61 | 0.309 |
| H3a: Social media attributes -> Luxury brand attachment | 0.102 | 0.000 | 6.328 | Supported | 0.032 | 0.258 | 1.569 | 0.233 |
| H3b: Social media attributes -> Luxury brand trust | 0.055 | 0.000 | 4.028 | Supported | 0.075 | 0.356 | 1.583 | 0.162 |
| H4a: CSR attributes -> Luxury brand attachment | 0.142 | 0.000 | 6.957 | Supported | 0.229 | 0.503 | 1.467 | 0.274 |
| H4b: CSR attributes -> luxury brand trust | 0.023 | 0.682 | 2.058 | Not Supported | 0.325 | 0.616 | 1.493 | 0.487 |
| H5a: Sustainability attributes -> Luxury brand attachment | 0.083 | 0.000 | 4.827 | Supported | 0.244 | 0.478 | 1.333 | 0.074 |
| H5b: Sustainability attributes -> Luxury brand trust | 0.003 | 0.831 | 2.149 | Not Supported | 0.268 | 0.723 | 1.342 | 0.356 |
| H7a: Luxury brand attachment -> Luxury brand trust | 0.563 | 0.000 | 11.264 | Supported | 0.062 | 0.317 | 1.302 | 0.402 |
| H8a: Luxury brand attachment -> Luxury brand loyalty | 0.377 | 0.000 | 8.158 | Supported | 0.105 | 0.254 | 1.66 | 0.121 |
| H8b: Luxury brand trust -> luxury brand loyalty | 0.463 | 0.000 | 8.759 | Supported | 0.259 | 0.482 | 1.66 | 0.196 |

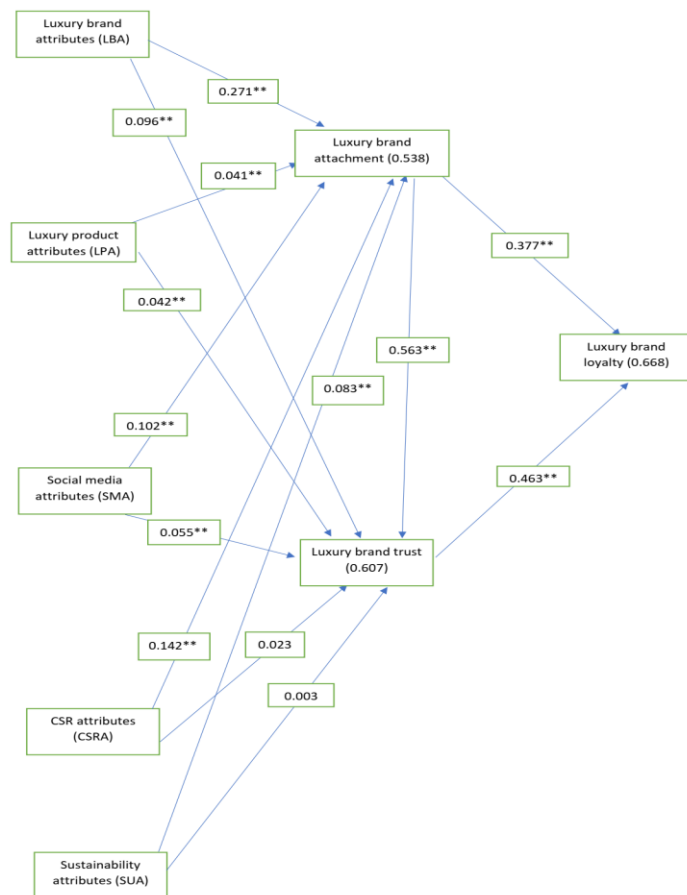


Figure 2 The estimated model on luxury brand loyalty for Gen. Z consumer segment

Table 4 and figure 2 show that all the hypotheses are supported except H4b and H5b as they have P-values greater than 0.05. H4b and H5b talks about CSRA and SUA and their influence on brand trust. CSRA and SUA have not been able to develop brand trust in Indian Gen. Z individuals. The possible reason for CSRA could be that the CSR activities of the brands have not been able to connect with the personality of the individuals. The brands may need to design dedicated campaigns to attain it. It may also be due to the CSR activities not being aligned with the respective brand personalities or the core businesses of the brands, giving the impression of show-off CSR. It may so be due to lack of trust in the authenticity behind the CSR activities, which may be due to inappropriate communication. The possible reason for SUA could be the lack of adequate projection of the sustainability measurements to penetrate the audience's mind and convince them. The brands may be using sustainable materials and manufacturing processes. Still, they cannot convince the audience of the much-coveted quality and esteem of the luxury brand or the products, through their sustainable products.

The table and the figure convince us that luxury brand trust significantly plays a mediation role in strengthening the relationship between luxury brand attachment and loyalty. If we consider the mediation analysis, the indirect effect is 0.255 (significant at 1% level), the direct effect is 0.377 (significant at 1% level), but the total impact is 0.664 (significant at 1% level), that demonstrates that the total effect is higher than the direct effect.

Table 5 Discriminant Validity: Heterotrait-monotrait (HTMT) criterion

| | CSR attribute (CSRA) | Luxury brand attachment | Luxury brand attribute (LBA) | Luxury brand loyalty | Luxury brand trust | Luxury product attribute (LPA) | Social media attribute (SMA) | Sustainability attribute (SUA) |
|--------------------------------|----------------------|-------------------------|------------------------------|----------------------|--------------------|--------------------------------|------------------------------|--------------------------------|
| CSR attribute (CSRA) | | | | | | | | |
| Luxury brand attachment | 0.488 | | | | | | | |
| Luxury brand attribute (LBA) | 0.526 | 0.541 | | | | | | |
| Luxury brand loyalty | 0.335 | 0.503 | 0.440 | | | | | |
| Luxury brand trust | 0.370 | 0.480 | 0.482 | 0.495 | | | | |
| Luxury product attribute (LPA) | 0.632 | 0.463 | 0.653 | 0.378 | 0.434 | | | |
| Social media attribute (SMA) | 0.399 | 0.442 | 0.585 | 0.485 | 0.385 | 0.753 | | |
| Sustainability attribute (SUA) | 0.556 | 0.413 | 0.414 | 0.292 | 0.264 | 0.471 | 0.538 | |

Table 5 shows that all the HTMT values are less than 0.85 that indicates the discriminant validity of the proposed PLS-SEM model.

Discussion and Implication

Gen. Z is the largest and the most growing segment of luxury consumers in India. Luxury brands should focus on LBA, LPA, and SMA, with the changing time, with proportionate concentration on each factor to target this segment and earn business in India. A significant contribution towards the development of luxury brand attachment comes from LBA, SMA, and CSRA. The brands should invest in CSR and at the same time communicate them to the audience (Pencarelli et al., 2020) as it can potentially help earn trust in luxury brands, by means of CSR activities, in the target segment. SUA along with LPA emerges as a contributor to the luxury brand attachment. The Indian Gen. Z consumers are educated to perceive and understand the importance of CSR in luxury and sustainable luxury (Indiaretailing Bureau, 2020). The bridge of trust remains to be attained. Fast fashion in luxury fashion contributes to wastage of tons of materials, leading to environmental pollution (Cooper, 2018). Sustainability should be achieved by innovating products and processes to produce fashion items that are creative and sustainable. It preserves luxury fashion and does not hamper fashion cycles (Godart & Seong, 2017). These should then be projected and communicated, as mentioned in the previous section. Some Indian brands like Forrest Essentials, No Nasties, Upasana have started to develop eco-friendly products, but the numbers need to increase. Like in fashion, sustainability should be ensured in luxury hospitality (Amatulli et al. 2021), dining (Ahed, 2015), and other segments as well.

The luxury brands should involve in CSR activities and involved in CSR activities that are congruent with their respective core businesses (Sen & Bhattacharya, 2001; Janssen et al., 2017) or brand personalities (Pinto et al. 2019) and communicate the same. They should design campaigns so that the CSR activities of the brands connect with the dedicated personalities of the individuals (Sen & Bhattacharya (2001). Luxury brand trust is important as it increases the credibility of the brand. There are a lot of luxury brands that do CSR activities merely to show off and grab attention (Sipilä et al., 2021). Hence, it is all the more important to gain the trust of the audience. This can be done by the dedicated campaign, focusing on dedicated communication, and maintaining transparency of the CSR activities. Brand loyalty leads to

repurchase and brand advocacy (Chung & Kim, 2020). The brands should invest in higher-value customers first (Blattberg & Deighton, 1996), in this case the Indian Gen. Z and try to retain them as it is expensive to earn new customers than retain them (Morris, 2016). Hence, any luxury brand operating in India should focus on grabbing the loyalty of Gen. Z. Luxury brand trust plays a huge role in it. If trust is combined with luxury brand attachment, it is obvious that luxury brands can achieve loyalty. This article will help the luxury brand managers, marketers, and marketeers have a deeper insight into how they can invest in LBA, LPA, SMA, and CSRA and SUA and achieve luxury brand attachment and trust and, in turn, loyalty.

Conclusion

Loyal customers repurchase and champion the brand products, services, and developments hence helping it to sustain. The present research article has put forward this dimension of consumer behavior in the luxury brand sphere. It shows a proposed model, comprising CSRA and SUA along with several other attributes, backed with analysis that can help luxury brands achieve brand loyalty of the Indian Gen. Z customers. The research is empirical, and the model is comprehensive in nature hence promises to be a great fit to adhere to latest requirements and at the same time earn great luxury products or services business in India.

Limitation of the Research

The research article has a few limitations. The research is conducted only on the Indian Gen. Z consumers, and the same can be done on consumers of other countries. The research can be done considering a larger sample size, in which case the statistical outcomes may slightly vary. The study has considered the mediation role of luxury brand trust in solidifying the relationship between luxury brand attachment and luxury brand loyalty. The same can be extended to check the mediation role of other attributes.

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“I want to break free”: Definition, Antecedents and Consequences of Revenge Travel

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Abstract

As soon as the world emerged from the strictest lockdown ever, an unprecedented number of travellers opted to take vacations. This phenomenon, termed Revenge Travel, filled the travel industry with hope. This paper looks at the definition, antecedents and consequences of revenge travel through 21 in depth, semi structured interviews with people who had taken a vacation post lockdowns. Thematic analysis of the findings revealed insights, some that were in line with previous studies – viz. compensatory consumption, mortality salience and mood alleviation and some that were unique to this instance – viz. lockdown fatigue. Putting the findings together, a conceptual model has been proposed. The study will be a novel addition to extant literature. It will also be of immense value to industry practitioners.

Keywords: Revenge travel, lockdown fatigue, compensatory consumption, mood alleviation, terror management theory, mortality salience.

Introduction

The travel & tourism industry, once thriving and showing impressive growth trends, was brought to a complete standstill due to the Corona induced global lockdown. As late as March 2020, the Indian Travel and Tourism industry exhibited a robust demand and was expected to grow at a rate of 6.7% accounting for 9.2% of India’s total economy (IBEF, 2020). As a response to Covid -19, 100% travel restrictions were imposed by April 2020. In May, 2020, The United Nations World Tourism Organization (UNWTO) estimated that the Corona crisis could lead to an annual decline of 290 – 440 million international tourists and up to a 5-7 years lost in number of tourists (UNWTO Report, 2020). It has been observed that the travel industry is especially sensitive to health scares primarily because of restricted mobility and social distancing (Gössling, Scott & Hall, 2020). International travel, especially international leisure travel, took a severe hit. The fear of being quarantined in an in a foreign country or indeed of being infected in a foreign country continued to keep travellers at bay.

However, as soon as the lockdown measures were relaxed, there were reports of strong travel revival trends. Many leisure destinations began seeing weekend occupancy spikes as early as in August 2020. Though initially it was only leisure destinations within drivable distances that attracted tourists, but by the end of 2020 the more popular tourist destinations witnessed robust demands. Travel was kick-started by the less risk averse. A survey indicated that travellers from the hardest-hit states were the most eager to travel within the following four months (Shadel, 2020). This trend of heightened travel demand post an artificially created blockage has been termed ‘revenge travel’ by newspapers and online travel sites. In extant literature, we found established theories that have explored an increase in consumer spending in adverse mental and physical conditions, though none of them have been explored the context of travel. This paper shall attempt to explore the phenomenon of revenge travel in the above light. Specifically, the paper proceeds with the following two objectives:

1. Provide a definition for Revenge Travel
2. Identify the factors/ motives that are associated with revenge travel intentions

Revenge Spending as a concept

The term revenge spending or revenge buying was first used in the context of China where a heightened consumer demand was observed post the poverty and hardships of the Cultural Revolution. A similar phenomenon was observed after the strict lockdown measures were

lifted in 2020-21. The Chinese economy witnessed heightened spending on luxury goods. This revenge or retaliatory spending is defined as ‘the desire of the consumers to indulge in hedonistic purchases which make them feel better in this stressful period’ (Darshan & Krishnegowda, 2020, p. 7). The concept of revenge spending has been extended to explain the heightened travel demands post lockdown. Though the term ‘revenge travel’ has been widely covered by news dailies (Shadel, 2020, Sharma, 2021), there is as yet negligible mention of the term in academic literature.

Theoretical Background

In an attempt to provide an explanation of this phenomenon we looked towards some established theories.

Compensatory Consumption Theory

Compensatory Consumption (CC) has been described as consumption in response to some kind of under privilege, suppression or privation (Gronmo in Woodruffe-Burton & Elliott, 2005). Whenever people experience adverse circumstances, psychological states, self-threat or stress, they seek to alter these conditions by exhibiting increased consumption patterns (Kim & Rucker, 2012; Rucker & Galinsky, 2008; Ruvio, Somer, & Rindfleisch, 2014). Revenge travel as a means of compensatory consumption has as yet not been explored much (Zhang, *et al.*, 2021).

Terror Management Theory - Mortality Salience and Consumption Patterns

The Terror Management Theory suggests that a reminder of their own death leads consumers to heightened materialistic pursuits (Kasser & Sheldon, 2000). Mandel and Smeesters (2008) observed that exposure to death-related stimuli lead to an increase in the amount of purchasing and consuming by consumers. Post 9/11 attacks in the US, the Americans exhibited a heightened consumption pattern. The fear of death makes consumers more amenable to spending on expensive and luxury items (Mandel and Heine, 1999). During the Corona pandemic, one was daily bombarded with global statistics of the number of deaths in each country. Many people experienced the loss of family members and friends, hence their exposure to death was at much closer quarters. Based on the Terror Management Theory, there is a higher possibility of these consumers spending on luxury goods and services including leisure travel.

Mood Alleviation Theory

Loumala (2002) examined behaviour that lead to mood alleviation. It was found that to counter negative moods like irritation, dejection and stress, consumers adopt a series of different behaviour. Of the various techniques discussed by Loumala (2002), we find three of special relevance to us - distraction, self-indulgence and retreat. Distraction helps in thinking about the future, especially if there is negativity all around. Self-Indulgence in the form of shopping, eating, buying for oneself helps to minimize negative moods. Retreat helps in alleviating stress. “Travelling, vacationing, and a mental change of scenery...are consumer behaviours having therapeutic power to overcome negative emotions”(p.15). The author states that it is mentally taxing to be responsible for important things. Travelling to a resort or to a retreat helps get a temporary but complete relief from being responsible. During the lockdown period, people were burdened with lots of additional work pressure. Hence, travel was a getaway from daily chores and responsibilities.

Methodology

An exploratory research design using a qualitative approach was adopted. Data was collected

through in-depth, semi-structured, telephonic interviews. An inductive analysis revealed trends which were put together to develop a conceptual model. A total of 21 respondents participated in the study, 11 females and 10 males. Their ages ranged from 30-60 years. All participants were educated, at least an undergraduate. Occupation wise, there was a mix of full time office goers, business people, free lancers, self-employed and working from home or full time home makers. While most respondents had nuclear families, with husband-wife and 1-3 children, there was also a representation of single parents and DINKs. Each respondent was allotted a serial number R1 –R21 to enable discussion.

An interview schedule was prepared based on literature review of similar and related texts and newspaper articles. It consisted of demographic details and open ended questions. For the current study, snowball sampling technique was adopted which is one of the sixteen purposive sampling techniques for qualitative studies identified by Patton (2002). A purposive sampling technique leads to information rich sources that add robustness to the study (Hoepfl, 1997). Personal links and travel updates on social media were used to identify initial members and their links led to the recruitment of further participants. Data was collected in the month of July-August, 2021. By this time, India had witnessed two waves of COVID19 infections and both the times there had been a surge in travel once the waves receded. On an average each interview lasted for 31 minutes. The interviews were carried out in English, but sometimes the local language Hindi was used to capture nuances. The interviews were recorded after taking permission from the participants. Effort was made to transcribe verbatim on the same day after listening to the recording more than once to ensure adequate data richness. Since the sample size was small (less than 30), manual coding was carried out (Saldana, 2009) followed by a thematic analysis. The transcripts were read and coded. This was followed by classifying, comparing and labelling. Next attempt was made to relate it to existing knowledge followed by finalization of emerging themes.

Findings

Reasons for Travel

Two main reasons could be identified for travelling post lockdown. First, a break from monotony. Having a family of three or four members, confined in a small flat for long spells of time, especially when there was uncertainty as to how long the lockdown would last, created stress. The second main reason that emerged was for reassurance that things are getting back to normal. Some coupled the vacation with a secondary motive, visiting family from whom they had stayed away, celebrating important life milestones, a tenth anniversary, an eighteenth birthday, expressing gratitude at a shrine and so on. Attractive offers from hotels also triggered the vacation in some cases.

Choice of destination

Most respondents chose destinations that were at short drivable distances. Some went for destinations that were off beat to avoid crowds. People travelling by air opted for destinations which were on direct routes to avoid waiting at the airport and changing aircrafts. They chose weekdays to travel and took flights at odd hours to minimise crowds.

Choice of accommodations

Accommodation preferences varied across respondents. Some opted for five star properties as established brand names offered a sense of security. One respondent chose a five star property as it was situated some distance from the main city and hence was away from crowd. Some wanted the assurance of a brand name but wished to avoid common hotel areas like lobbies, corridors etc. For them the villa-only properties from five star hotel chains provided a good alternative. Some respondents chose to stay in private properties, avoiding regular commercial

hotels for the fear of crowds. They chose homestays, ensuring that there were not many families staying at the same time, AirBnB properties, stand-alone bungalows rented for the duration of the stay, or resorts having their own private beaches.

Precautions taken when travelling

Precautions taken while travelling by road included carrying adequate eatables to avoid stopping for food en-route. All kind of street food was avoided. Even if they did stop, they kept away from outlets which were crowded. They actively tracked the number of Covid cases in the cities that they would pass through, and if necessary took a detour to avoid cities with more serious conditions. For those travelling by air, precautions included observing all Covid protocols as laid down by the airlines such as wearing a mask, face shield and using sanitizers.

Lockdown Fatigue

When the lockdown was first implemented, most respondents enjoyed and even welcomed the break. For most it was a change from the daily routine. But after the initial euphoria wore off, they began to feel helmed in. They began to experience signs of lockdown fatigue. Lockdown fatigue for the respondents manifested itself in several different ways. The more pronounced were one or more of the following: boredom, monotony, exhaustion, frustration, anxiety and fear.

Boredom – Respondents used to full days of office work, found the lack of a routine boring.

Monotony - For participants who made conscious efforts to establish a routine early on in the lockdown, found the monotony of the routine difficult.

Exhaustion – The absence of any kind of house help laid a lot of additional burden on the house members in general, and the females in particular. “*Exhausted yes, bored, no.*”

Frustration – Frustrations were largely due to lack of ‘me’ time or because of the blurring boundaries between personal and professional life during work-from-home. For others it was related to functional difficulties like non availability of adequate internet connectivity.

Anxiety. A number of respondents reported feeling anxious due a pervading fear of job loss. Self-employed respondents faced similar anxiety levels due to a lack of income. Those running businesses saw their factories shutting with no clear date of them reopening.

Fear – Lastly there as a feeling of fear, for themselves, for their loved ones and of the unknown. In addition to the above, participants also admitted to feeling irritable depressed, restless and lacking concentration.

Compensation

Overall it was observed that after the initial few weeks, most respondents could manage to procure groceries and daily requirements with ease, their purchasing was restricted to necessities. Purchasing decisions of non-essential items were cancelled or postponed and almost all missed experiences more than products. They missed going out with friends, eating out, going for movies, “*breathing in fresh air, feeling the breeze on my face.*” More than actually stepping out, the freedom of choosing to go out was missed.

Mortality Salience

Most respondents kept a close watch on the daily number of Corona cases during the early period of the crisis which they discontinued after the initial few months as it added to their anxiety levels. All twenty one respondents had either been exposed to the Corona Virus personally or through immediate family. Some had lost immediate family members. The impact mortality salienc on them varied. Some began to value themselves more, prioritize themselves, some turned towards religion and spirituality. Others invested in health insurance

for themselves and their family members. Some begun process of writing out their will to prepare for any eventuality. A respondent who lost his father and sister ten days apart decided to “...stay positive and enjoy every moment as ‘kal ho na ho’” (the name of a popular Bollywood movie loosely translating to ‘for there may be no tomorrow’).

Mood Alleviation

Each participant described their vacation as mood uplifting, rejuvenating, liberating, or providing a sense of freedom. It was described as a “*break from prison*”. For others it was more of peace and solitude after being confined to the house in close quarters with the family. The vacation was a time for unwinding and freedom from chores “*where I was not responsible for organizing meals*”. Incredible, amazing, perfect, and peaceful were some other words that were used to describe the vacation experience. A respondent described it as “*as a small moment in time where everything felt normal again.*” It filled another one with hope that things “*will get back to normal, maybe not today, may be not tomorrow, but soon.*”

Definition of Revenge Travel

The subtle cues and feelings of respondents during the interviews and the news articles related to the influx of the travellers in tourist places gave insights to the phenomenon of revenge travel. Based on them, we define revenge travel as a ‘*phenomenon of a sudden peak in travel due to a pent up craving for the same, following a period of confinement or deprivation, resulting in a sense of freedom.*’ This craving is so strong that they are ready to take any risks associated to travel at such times. During the two waves of Covid19 (2020 and 2021), the lockdowns and the scare of infection gave them a feeling of being trapped, making them restless, intensifying their desire to travel. Motives of travel changed from leaving behind work stress to leave behind lockdown or Covid19 stress.

Conclusion

This study explored the concept of revenge travel. It attempted to provide a definition of the term and identified, isolated, and explored the factors that motivate and contribute towards revenge travel intentions. The findings reveal that post a period of forced restricted movement, stress and deprivation, there is a heightened tendency for consumers to look for travel options. Exposure to death and an enhanced awareness of self-mortality also acts as an important push factor for travel. A vacation at this time leads to mood alleviation as well as compensation for the difficult times undergone. Hence, we can conclude that lockdown fatigue and mortality salience lead to the desire of travelling, which in-turn leads to compensation and mood alleviation. A conceptual model was developed putting these facts together. Refer. Figure 1

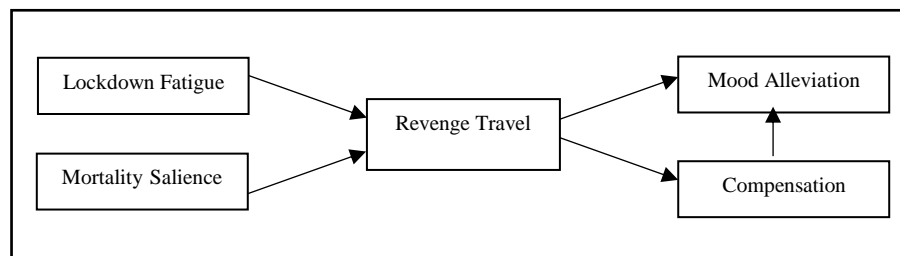


Figure 1: Revenge Travel – Conceptual Model

This study has implications for both theory and practice. It explores an interesting but rarely studied phenomenon of revenge travel. It enriches literature and initiates future exploration of the topic. The study provides an insight into the travel consumers’ behaviour following periods of withdrawal which could be because of health scare, political volatility, economic concerns

or others. It is of immense value to marketing professionals, tourism scholars, industry and travel service providers.

From an industry perspective, the study found takers for all types of accommodations. Each property should focus on its unique selling proposition (USP). The bigger brands should capitalize on their brand equity and offer their guests the assurance of quality. Smaller establishments and homestays in remote destinations could focus on relaxation, proximity to nature, safety and solitude. All respondents mentioned that they had researched extensively both online and offline to check for Covid19 protocols adopted by the hotel. All hotels should thus constantly update their web pages with the safety measures and precautions instituted to make their premises Corona safe. If these early adopters of travel feel reassured they would create a positive Word of mouth (WoM) which would encourage the fence sitters to opt for vacations as well. WoM as well as eWoM have a bearing on the hotel bookings at all times but can make-or-break in these sensitive time. While it is customary to request feedback from guests, at this time a positive WoM would have a larger impact, just as a negative one would prove to be more detrimental than otherwise. Since most travellers seem to skip en-route eating, this is a wonderful opportunity for providing safe packaged snacks with stress on safety and hygiene. Eateries along the highway could offer pre-packaged food items, prompting guests to “take a Covid Safe break”.

Domestic tourism is going to be preferred over outbound (Zhang et al., 2021). This is a wonderful opportunity for the lesser known destinations, especially those within drivable distances from major urban clusters, to actively promote themselves. Alternative tourist spots can be developed with promises of natural environment and minimal crowds. It is for the government and tourism departments to work in tandem with the officials of these destinations to attract tourists.

Since this is an exploratory qualitative study on a limited number of participants, the results cannot be generalized. Empirical testing and validation of the proposed model should be carried out. Impact of additional constructs on revenge travel should be explored like the frequency of travel pre-covid19, risk-propensity etc. Cross cultural studies can be carried out to study how culture impacts revenge travel.

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Fun(va)cation: Communicating Millennials' Expectations of Tourism Experience post COVID-19

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Abstract

Tourism experience has been the backbone of tourism and hospitality industry. COVID-19 came as a big blow to life in general and tourism in particular. This study explores the millennials' definitions of fun(va)cation and proposes a framework of tourism experience for revival of the industry post COVID-

19. Based on the mind maps created by the respondents, and drawing from the extant literature which has no definition of fun(va)cation, this study is a preliminary attempt to communicating millennials' expectations of tourism experience, and the first step to developing a scale measuring tourism experience on the basis of fun(va)cation.

Key words: Fun(va)cation, millennials, communicating, tourism experience

Introduction

Tourism and hospitality industry has been badly affected by the COVID-19 (Dube, Nhamo, & Chikodzi, (2020). The revival of the industry post the pandemic will come with unique tourism experiences on the domestic and the international front. With the skepticism involved in travelling, tourists might as well limit their travel duration and distance for health and safety purposes. Hoarau and Kline (2014) and Wang et al (2012) indicated that tourism experience is not just the outcome of service providers, it is also rooted in physical and social context. Therefore it is crucial that Destination Management Organizations strive to boost favourable tourism experience (Zouni and Kouremenos, 2008).

Tourism experience has been researched over more than 30 years now. While Ritchie and Hudson (2009) talked about the basics of tourism experience, Kim and Ritchie (2013) emphasized tourism experience through engagement within the destination. Studies have explored tourism experience through diverse themes: wine (Galloway et al., 2008); sport (Shipway & Jones, 2008); backpacking (Noy, 2004); shopping (Yu & Littrell, 2003); heritage (Ram et al., 2016). None of the studies has catered to the definition of fun(va)cation.

This study aims at filling this gap and is the first step to developing a scale of fun(va)cation by identifying the characteristics of the term as understood by millennials. It is based on tourism experience as defined by Pine and Gilmore (1999), who propagated that experiences harbour in the minds of the tourists and are affected by their engagement: physically, emotionally, intellectually and spiritually.

As there are no definitions of fun(va)cation, the purpose of this study was to analyze the participants' self-made, free-flowing definitions of fun(va)cation, and to develop a framework for the tourism industry to design tourism experiences based on fun(va)cation post COVID.

Methodology

Qualitative method has the potential to examine indistinct issues and to generate general hypotheses (Laws and McLeod 2006). This method would give a broad empirical understanding of how business school students define fun(va)cation. Asking the respondents to define fun(va)cation by writing it down on a paper or typing on a computer screen would have limited their creativity. As a substitute of requesting the respondents to write their definition of fun(va)cation in a conventional manner, I required them to link the topic to every potential idea that might surface through mind maps for the word, 'fun(va)cation'. Mind mapping, developed

by Buzan (1989), is an excellent technique for encapsulating ideas with words, drawings and shapes involving thought and creativity. In order not to influence the students, nothing was explained to them in detail. Only the exercise was explained just before they created the mind map. They were given ten minutes to develop a mind map on the basis of their perception of fun(va)cation.

Sample

Our study focused on a population of business school students who are millennials in the age group 25–30 years. This is because as indicated by OECD (2018), millennials give top priority to travel and tourism. Eighty students took part in a cognitive drill: creating a mind map to define fun(va)cation. All students are pursuing Masters in Business Administration from a highly-ranked AMBA accredited b-school of India. The study chose convenience sampling due to the physical availability of the respondents (given the restrictions with regard to COVID-19 where only few students were available physically in the hybrid classes). These 80 mind maps were analysed for the preliminary research.

Coding

The 80 mind maps (sample mind maps in appendix 1) were coded on the basis of the three aspects laid by James Paul Gee (2009): The utterance-type meaning, the situated meaning, social practice inclusion (Levinson, 2000; Gee, 1999). Five main classifications emerged out of the process:

1. Health
2. Adventure
3. Natural World
4. Cuisine
5. Entertainment

To verify the validity of our analysis, we presented and confirmed our results to a group of students.

Findings

The results obtained from the mind maps disclosed many characteristics indicated by the respondents focused on fun(va)cation. HANCE framework is based on the five derived themes (Fig. 1).

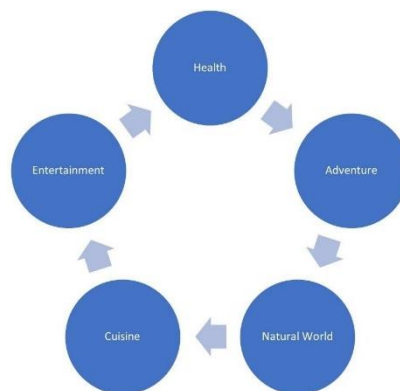


Fig. 1: HANCE Framework

Health

The first component of the HANCE framework is the theme of Health. This theme is based on the respondents' use of words related to health: physical and psychological. These include words like: spa, massage, workout, meditation, relaxation, serenity, swimming, yoga, sleep, and rest.

Adventure

Next in the framework is the theme of Adventure. This theme is based on the respondents' use of words related to adventure. These include words like adventure sports, trekking, paragliding, scuba diving, bike drive, and car drive.

Natural World

Next in the framework is the theme of Natural World. This theme is based on the respondents' use of words related to natural world. These include beach, mountain, wild life, nature, star gazing, forest, and greenery.

Cuisine

Next in the framework is the theme of Cuisine. This theme is based on the respondents' use of words related to cuisine. These include food, wine, cooking, tea/coffee.

Entertainment

Next in the framework is the theme of Entertainment. This theme is based on the respondents' use of words related to entertainment. These include words like: party, chill time, shopping, dance, music/songs, Netflix/Prime, movies, bonfire, play, sports and games with family and friends.

Discussion

Majority respondents (nearly 85%) had at least four of the five components listed in the HANCE framework (Table 1) The framework provides insights into the way millennials re-design the tourism experience. Several tourism experiences have been studied in isolation, however catering to this framework has the potential to affect destinations, hotels, resorts, and the entire tourism and hospitality industry as they re-shape what and how the millennial tourists desire from tourism after the pandemic is over.

Table 1: Dimensions and Frequency

| Dimensions | Frequency (/80) | Percentage |
|---------------|-----------------|------------|
| Health | 63 | 78.75 |
| Adventure | 65 | 81.25 |
| Natural World | 64 | 80 |
| Cuisine | 68 | 85 |
| Entertainment | 67 | 83.75 |

Fun(va)cation, from the millennials' perspective, can be defined as a combination of experiences in terms of health, adventure, natural world, cuisine and entertainment. Health component could be catered through providing facilities for nurturing physical and mental health like silent zones, gym, swimming pool at the accommodation/stay. To bring the adventure component to the vacation, adventure sports like paragliding, bungee jumping, and trekking could be arranged. The natural world experience could be given through landscaping, waterfalls, star gazing spaces, and a garden. To cater to the cuisine aspect and to pamper the taste buds, local and international food, and beverages could be added along with providing personal cooking spaces for those who love to cook. Finally, to cater to the entertainment of millennials, destinations could ensure digital connectivity, organise entertainment by local artists, and have dance and enjoyment zone.

Conclusion

The pandemic has played havoc for more than a year, and people, especially millennials, are longing for vacations with family and friends to unwind the stress and to breathe in fresh air. They might be

sceptical of travelling long distances so the HANCE framework can very well be utilised to create fun(va)cations for them beginning with local and domestic tourism, eventually leading to international tourism. Although the concept of fun(va)cation symbolises a change, this change will deepen with the millennials becoming richer. Accordingly, one can look forward to the tourism and hospitality industry creating exclusive products catering to fun(va)cations.

Limitations and Scope for Future Research

While the HANCE framework sheds light on the newly-conceived definition of fun(va)tion by millennials, it is to be noted that there might be differences in the definition across generations. Additionally, millennials are a heterogenous group (Ketter, 2020), and might vary in terms of individualism thereby leading to different trends.

Based on the HANCE framework, a fun(va)cation scale can be developed and tested quantitatively with large populations across countries, gender, age groups, income groups and other demographic factors. This will facilitate the Destination Management Organizations in particular and the tourism and hospitality industry in general to custom fun(va)cation for augmented tourism experience.

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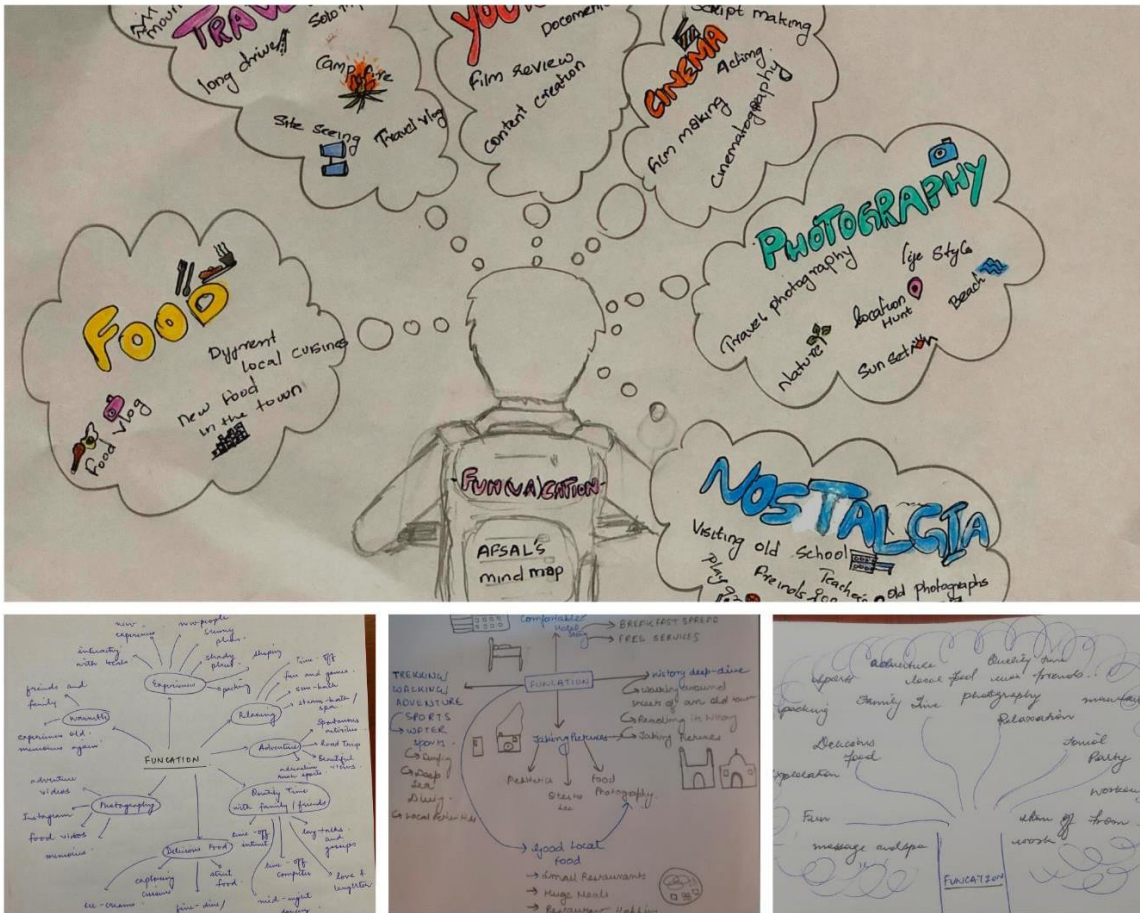
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Appendix 1: Sample Mind maps



Impact of Gamification on Autonomous and Controlled Motivations of Mobile Payment App Users

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Abstract

Recent times have witnessed an increased usage of gamification in various domains. This study explores the impact of gamification in the context of utilitarian applications like mobile payment systems. Owing to the unique characteristics of these applications, such as low product differentiation, low switching costs and high competition, retaining continued usage from the customers is a challenge. In previous research, gamification has been found to increase intrinsic user motivations leading to important behavioral outcomes. This study draws from self-determination theory to develop a framework of gamification's impact on continued usage intention of mobile payment users. The outcomes of the study will enhance our understanding of gamification in broader contexts and help practitioners modify customer behavior using gamification.

Keywords: Gamification, Mobile Payment Applications, Utilitarian apps, self-determination theory, intrinsic motivation, extrinsic motivation, continued usage intention

ICT and the Gig Economy: An Appropriate Technology?

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Abstract

ICT has disrupted how individuals find work in the gig economy and significantly altered the nature and purpose of work. This paper uses the theoretical framework provided by economist-philosopher E.F. Schumacher and asks whether the ICT that drives the gig economy qualifies to be called an “appropriate technology”. Appropriate technology encourages gentle use of natural resources and relies on small-scale technology that cherishes human creativity. The paper also explores if ‘work’ in the gig economy enables individuals to engage in empowering and sustainable livelihoods that fulfil the functions of work. The paper uses three case studies and finds that the ICT that drives the gig economy neither entirely fits the Schumacherian ideal nor always serves the functions of work.

Keywords: ICT for Development, gig economy, livelihood, appropriate technology, Schumacher

Introduction

Information and communication technology (ICT) has disrupted how people find work in the labour market today. A remarkable outcome of this disruption is the expansion of the gig economy¹, as individuals aim to diversify and enhance their earnings. Thus, the gig economy is slated to have a significant share in the future of work (Heeks, 2017). Access to affordable smartphones and the internet is essential to participate in the gig economy. The non-negligible growth in the ownership and usage of mobile phones is hoped to improve the capabilities of the poor by offering better economic opportunities (Jagun & Heeks, 2007) and this is a remarkable bottom-up phenomenon that has renewed interest in ICT’s implication for development (Walsham, 2010). Towards this end, the recent rise of the ICT-driven gig economy in India has been celebrated.

Primarily an urban phenomenon, employment through digital platforms saw a rise in the last decade in many services. The State argued against the bleak employment figures by showing how Ola and Uber created 2 million jobs². These platforms saw a rise in labour participation due to the possibility of earning around Rs 90000 per month (Surie, 2018). The drivers were encouraged to loan the cars and buy smartphones to work on the platform, while incentive-based earnings were to meet their expenses towards this end³. The incentives were given for completing a certain number of trips within a fixed time and plying during peak hours with surge pricing. However, eventually, the platforms lowered the incentives, leading to protests from the drivers⁴. In a recent study by the Fairwork Project (2020), app-based service companies such as Housejoy, Ola, Swiggy, Uber and Zomato scored the lowest when ranked on five principles of fairness: decent pay, working conditions, contracts, management and

¹ Although there is no singular definition of gig economy, we refer here to the finding of “discrete parcels of work through a digital platform directly by individuals and customers” (Brinkley, 2016).

² <https://www.cnbcvt18.com/economy/niti-aayog-says-ola-and-uber-helped-create-over-2-million-new-jobs-pegs-total-new-jobs-at-8-million-2142841.htm>

³ https://www.business-standard.com/article/companies/ola-launches-daily-repayment-car-loan-scheme-for-its-drivers-115022700723_1.html

⁴ <https://www.deccanchronicle.com/business/companies/190617/lower-driver-incentives-lead-to-ola-uber-car-crunch-report.html>

representation⁵. These factors indicated serious concerns that need to be attended before acclaiming the gig economy as a sustainable solution for the country's unemployment woes. Here, it is crucial to place the growth of employment in the gig economy in context. Several factors, such as a bulging youth population looking for employment, rural distress-led migration to the cities, and lack of permanent job options made individuals work in the gig economy⁶. Workers add that unsteady work and pay, changing rates of incentives, impossible targets requiring working daily for twelve hours or more, and lack of social security make work in the gig economy a difficult long-term livelihood option. Platform workers often cite desperation due to lack of other jobs as the reason why they work in the gig economy⁷. With the ever-expanding kind of tasks and changing terms of employment, the platform-based gig jobs are redefining employer-employee relations, working conditions and workers' rights⁸. Chaudhary (2020) argues that workers do multiple jobs for numerous platforms on a piece-rate basis, and this can be seen as a technology-enabled 'professional' reproduction of informality. These instances raise apprehensions about the chances of ICT creating decent jobs without broader social security reforms and achieving sustainable livelihoods and economic development. ICT4D literature has examined how ICT helps in the pursuit of development (Grimshaw, 2004; Van Reijswoud, 2009). Vasishth (2013) argues that ICT could lend itself as a provider of low-cost information and communication systems that could be critical in pursuing sustainable development goals, especially in poverty alleviation. However, Walsham (2010) argues that although ICT-based initiatives have happened in India, the beneficiaries are almost always not the poorest or most disadvantaged groups. Therefore, ICTs should not be seen either as 'silver bullets' or as totally irrelevant. A rather pertinent view would be to look at ICT implementation as a "process of techno-organisational interventions associated with global politics and economics" (Avgerou, 2008). This calls for the need to understand the character of ICT/algorithms in the gig economy to contextualize what entails the function of 'work' for individuals, especially in a developing country like India. The paper uses the theoretical framework of 'appropriate technology' as espoused by economist-philosopher E.F. Schumacher to posit the character of ICT/algorithms in the gig economy. This leads to the first research question of the paper. *Does ICT that drives the gig economy uphold the principles of appropriate technology?* The second question of interest here is *whether work in the gig economy enables individuals to have empowering and sustainable livelihoods that fulfil the functions of work.*

To answer the above research questions, the paper examines the cases of platform-based gig economies in general - a fishermen aggregator in specific, a set of independent gigs workers, and an online marketplace that enables artisans and weavers to sell their handloom products. In sections 2 and 3, we look at the theoretical framework provided by Schumacher on appropriate technology and work, followed by a review of the existing literature on ICT and appropriate technology. In section 4, we compare and analyse the use of technology and the nature of work

⁵ Housejoy and Ola scored two out of ten where as Swiggy, Uber and Zomato scored the least of one out of ten. The platforms that scored the highest here is Urban Company, Flipkart (Ekart) with a score of eight and seven out of 10 followed by Dunzo and Grofers with a score of four. The report argued that although platforms offered employment opportunities, the work offered does not qualify to be called decent work as per ILO standards.

⁶ <https://www.thehindu.com/business/Economy/the-gig-economy-is-creating-lakhs-of-jobs-but-workers-dont-see-a-future/article29299673.ece>

⁷ <https://www.thehindu.com/business/Economy/the-gig-economy-is-creating-lakhs-of-jobs-but-workers-dont-see-a-future/article29299673.ece>

⁸ <https://www.thehindu.com/society/poor-wages-punishing-hours-and-lack-of-labour-rights-make-food-delivery-a-thankless-gig/article36012013.ece>

in each case. And in the final section, we discuss the cases in the context of our theoretical framework, try to understand which one stands close to the Schumacherian ideal and conclude.

Theoretical Background

Economist turned philosopher E.F. Schumacher was one of the few voices that turned the direction of development thinking from the beginning of the 1970s. Not only did he raise concerns with the dominant development paradigm by emphasizing the ‘limits to growth’, but he also recentered the individual’s growth as the central agenda of development. According to Schumacher, in Buddhist economics, “the function of work is at least threefold:

1. to give people a chance to utilise and develop their faculties;
2. to enable them to overcome their egocentredness by joining with other people in a common task; and
3. to bring forth the goods and services needed for a becoming existence”.

An important implication of espousing such a meaning for work is also in saying that work shouldn’t be organised into something that is “boring, stultifying, or nerve-wracking for the worker”. Here, Schumacher makes a distinction between technology or mechanisation into two types, “one that enhances a man’s skill and power and one that turns the work of man over to a mechanical slave”. (Schumacher, 1973, 29-30)

In the same breath, he argued against the extensive use of natural resources for unlimited growth while making a case for the use of small-scale technology that will cherish human creativity while benefitting humankind and the environment. Here, he propounded the appropriate technology movement, influenced by Gandhian philosophy, which has since become a social movement. As envisaged by Schumacher, appropriate technology does not replace human labour with capital and machines, as he makes a distinction between mass production and production by masses. He argues,

“The technology of production by the masses, making use of the best of modern knowledge and experience is conducive to decentralisation, compatible with the laws of ecology, gentle in its use of scarce resources, and [is] designed to serve the human person instead of making him the servant of machines. I have named it intermediate technology to signify that it is vastly superior to the primitive technology of bygone ages but at the same time much simpler, cheaper, and freer than the super-technology of the rich”. (Schumacher, 1973, 127)

Derived from the above, this paper uses the following framework for defining intermediate or appropriate technology in the rest of the paper:

1. It is simple and cheap, thus easily accessible to anyone
2. The production process allows for the employment of a large number of people, rather than mass production
3. It should be gentle in its use of scarce resources.
4. The production process and marketing should be within a local context, thus minimising the transportation and movement of workers.
5. It is designed to serve the human person and enhance their creativity instead of making them the servant of machines.

The paper uses this theoretical framework of appropriate technology and the function of work as Schumacher conceptualised for analysing the gig economy centered on ICT.

Literature Review

ICT4D literature has conceptualised ICT as appropriate technology and its role in the pursuit of development. Vasishth (2013) points out that the argument for appropriate technology is also very well the argument for sustainable development. Kumar & Du (2011) point out that typical appropriate technology includes physical products and services used in agriculture, food

preparation and storage, and examples of appropriate technology are low-cost computers, Grameen phone, web, email services etc.

Further, in trying to understand why ICT projects fail in developing countries, Avgerou (2003) stresses the need to situate ICT projects in their complex context. Based on the guidelines formulated by (Darrow & Saxenian, 1986) on appropriate technology, Van Reijswoud (2009) argued the ICT would have a “higher chance of being effective if they are appropriate to the needs, expectations and limitations of the surroundings where they are applied”. Soeftestad & Sein (2003) also argue in a similar vein when they say that “appropriate technology must be connected to place, resources, economics, culture and impact of its use”. This necessitates a human and culture centred approach to applying ICT in a development context.

There are very few empirical papers that evaluate ICT within a Schumacherian framework. Pal et al. (2020) study the benefits of mobile banking payment systems in driving human empowerment in a Schumacherian framework, including low-cost transactions, the ease to install and operate, whether it offers local use and creative affordances. They argue that the benefits of mobile banking in driving human empowerment is limited as the benefits are not reaped by all sections of society, especially small-scale vendors. Thus, the literature emphasises the need to understand ICT in its complex context and evaluate whether ICT enabled work empowers all individuals to have sustainable economic development.

Methodology

This paper uses the case study approach, and we collect data on three different cases, sampled theoretically. While GoCoop and Fresh-to-home are India’s first online marketplace^{9,10} for their respective products, we had prior knowledge on the case of artisanal pens and their use of ICT. Data was collected from secondary sources such as newspapers, websites, and other literature available online. The data on cases provided the necessary details for our analysis within the framework of ‘appropriate technology’ and ‘function of work’ based on the Schumacherian principles.

Cases

Fresh-to-home

The rise of Fresh-to-home (FTH), an online meat delivery start-up based in Bengaluru, was phenomenal, following its launch in 2015. The app brings online around 1500 fishers across 150 coastal points, it has around 40 collection centres at harbours and 100 hubs across India and Dubai. When the fishermen open the application, the app reads the kind of fish based on an AI technology and determines its size, based on which the fisher could bid. While at the other end, the auction is finalised, and the catch is transported through the cold chain to its respective hub (Kashyaap, 2020). They built a cold chain with IoT-based inbuilt sensors to ensure the temperature is controlled and cloud-based monitors to track the movement of the products. The product collected at central hubs is sent to distribution hubs, packaged into vacuum-sealed pouches and delivered to customers. FTH boasts about investing in an unexplored and unorganised sector to make them organised while striving to build a more robust supply base. The application of FTH is cheap and accessible because of the use of the local language. As fishing is a labour-intensive process, one could argue that production allows for the employment of many people. Still, FTH is only associated with 1500 fishers across a few coastal points in Kerala. The value addition of this business model is because it consolidates demand from various cities and thus does not restrict the marketing within local areas. However, for supplying

⁹ <https://www.thehindu.com/features/metroplus/show-handloom-some-love/article7603581.ece>

¹⁰ <https://indianexpress.com/article/cities/bangalore/fishing-in-pandemic-waters-bengaluru-startup-realises-potential-of-delivering-fresh-to-indian-homes-7048691/>

to four lakh customers across major cities from few coasts, it cannot be gentle on the use of marine resources. FTH can very well be considered a platform that aggregates fishers, but fisher's voice on the FTH arrangement is significantly less and unclear as of yet.

Indian Artisanal Pens

A custom fountain pen handmade in Pune makes headway to New York, to Amitav Ghosh - one of the most famous Indian-English fiction authors, through Fosfor pens (Biswas, 2021). Mr Manoj Deshmukh¹¹ makes these pens in his small lathe machine within his apartment in Pune, Maharashtra and takes around one to four days for making a single pen. Most of the pens are made of ebonite-a hard rubber, and some sleek pens are made of metals such as titanium, copper, steel, aluminium, alloys such as brass, wood and sometimes buffalo horn. The mechanical systems of nib and filling are usually imported, and the immediate attraction of these pens are the design, looks and craft value. These artisanal pens traditionally sold at the store are getting worldwide attention after they started selling based on online orders on websites. Manoj Deshmukh notes that the popularity of fountain pens has grown, and the experience of getting a unique custom-made pen is creating a niche market for Fosfor. Like Fosfor pens, we have RangaPens¹² in Chennai owned by M S Panduranga, L Subramaniam owns ASA Pens in Chennai, Guider Pens by Mr Lakshman Rao of Rajahmundry and Arun Singhi of Lotuspens in Mumbai. These pen makers are from different walks of life professionally but explored and made pens as a hobby. Some of them started to sell their products on eBay, but most have their websites now.

The many reviews about these artisanal pens note functional efficiency and aesthetic appeal as a striking feature. Thus, the venture allows enhancing the pen maker's creativity while using minimal technologies of a lathe machine and ICT for marketing and selling of products. The production has considerable potential for employment of many people if relevant training is provided and interest generated. However, the potential of commercialisation could pose a threat to the gentle use of resources such as buffalo horns. Moreover, the production of artisanal pens is not entirely in line with a Schumacherian idea of production and consumption within a local context as the nib and filling systems are often imported, and the products are mainly exported.

GoCoop

GoCoop¹³ is an online marketplace for handloom products crafted by rural artisans' groups and weaver cooperatives across India. Launched in 2014, the website takes these products to a large group of domestic and international customers in over 15 countries. The venture has partnered with 350 weaver groups and has impacted the lives of 85000 weavers¹⁴.

The handloom industry is one of the largest cottage industries in India that employs over 3.1 million handloom weaver's households (Government of India, 2019). Mostly spread over Assam, West Bengal, Manipur and Tamil Nadu, the handloom products vary across geographical regions in styles and products. 88.7% of weaver households are in rural areas, while only 11.3% are in urban areas. Nearly 72% of handloom weavers are female, and more than 66 per cent of weavers earn less than Rs 5000 per month. The individual handloom

¹¹ <https://www.inkedhappiness.com/manoj-deshmukh-fosfor-pens-and-the-parkar-duofold/>

¹² Ranga Pens accessed on March 2021 at <https://rangapens.com/about-us>; Fosfor pens accessed on March 2021 at <http://www.fosforpens.com>; and Guider pens accessed on March 2021 at <http://guiderpen.com>.

¹³ <https://gocoop.com> as accessed on 8th July 2021

¹⁴ <https://innovationsoftheworld.com/weaving-sustenance/>

industry¹⁵ is plagued with several challenges: procuring good quality input, access to credit, inability to find avenues to market their products, matching up to the competitive market, and the exploitative intervention of middlemen (Bhowmik, 2019).

GoCoop entered this space with the objective of “providing good market linkage for the weavers, a fair price for their produce, and an identity to the producers”. GoCoop offers both B2B and B2C segments where the producers are directly selling online. GoCoop’s intervention has resulted in an average increase of 15 percent in income for all weavers and artisans. GoCoop charges a commission of 12-15 percent and provides workshops on e-commerce and online marketing; assistance in managing orders, ensuring quality, packaging, shipping and traceability by tagging each product to the artist. GoCoop also provides access to designers who help weavers match the customers' expectations¹⁶ and ensure payment reaches the artist. The company bagged the first National Award for e-marketing by the Ministry of Textiles, Government of India, in 2015.

Handloom weaving is a labor-intensive activity that requires less investment, making it easily accessible to anyone. The loom is a simple machine that holds the threads, which makes it easier to weave. Thus, the loom is a fine example of green technology that neither depends on electricity nor enables mass production. The loom here is only an enabler that serves the human person and enhances their creativity. The handloom industry uses agricultural produce as raw materials. So, some households in Northeastern states practice both weaving and agriculture showing the interdependence with weaving. Although the production process is localised, ICT opens a global market for handloom products proving advantageous for the artisans. Thus, the handloom industry offers a sustainable and scalable livelihood opportunity that stands close to the Schumacherian ideal.

Discussion

We observe in the paper that work in a platform-based gig economy, such as ride-hailing and food delivery, doesn’t entirely fit the Schumacherian framework on the function of work. It is seen that mechanical work in a platform-based gig economy does not give workers enough chance to utilise and develop their faculties, and as the work is independent, it does not enable anyone to join each other in common tasks and build relatedness. The repetitive nature of running errands hardly bring forth the goods and services needed for a becoming existence. Artisanal pen-making utilises and enhances one’s faculties, and thus the resultant pen helps achieve a becoming existence, especially for the artisan. It is important to note here that some artisans have been crafting pens from scratch for more than 50 years. Although individual craft takes precedence over the engineered copies of a pen, being a largely individual endeavour, the work hardly requires many people joining in a common task. The handloom industry has always presented an immense opportunity for weavers and artisans to utilise and develop their faculties, and an online marketing platform offers a breakthrough in this pursuit with an expanded market. Being a cottage industry, it stands close to the Schumacherian ideal of working jointly and overcoming ego-centeredness for accomplishing a common task. The handmade products using the labour and time of artisans does bring forth a becoming existence, especially for the artist and for the customer who values handloom traditions.

Working in an ICT driven gig economy certainly does empower participants economically but raises concerns when analyzed within appropriate technology framework. Ride hailing algorithms allow the driver to find a rider even if they are not in the visibility of each other but close by. The food delivery aggregator allows for the employment of many people, enabling

¹⁵ The handloom industry has broadly three institutions such as the independent weaver, weavers working with a master weaver and cooperative.

¹⁶ <https://www.thehindu.com/life-and-style/fashion/go-coop-making-handloom-accessible/article25285382.ece>

the local economies of restaurants to flourish. Although the key task involved is transportation of foods and movement of workers in these deliveries, one could say that the algorithm minimises the distance covered and, therefore, optimises the use of scarce resources like fuel for vehicle. However, in a Schumacherian framework, the fundamental point to analyse is the limitation imposed by this repetitive mechanical task in how creative one individual can become. At the least, the work does not offer avenues for professional growth apart from some training in soft skills to interact with customers. Moreover, the technology also enables tracking the worker in a way their earnings are linked to the number of trips or deliveries they make, thus making the person a servant of machines. Here, human dignity is not always preserved, leading to the dis-empowerment of workers.

| | Cheap, accessible technology | Mass, community employment | Gentle use of scarce resources | Local Production | Local marketing | Enhance creativity |
|----------------|------------------------------|----------------------------|--------------------------------|------------------|-----------------|--------------------|
| Fresh-to-Home | Yes | Yes | No | Yes | No | No |
| Artisanal Pens | Maybe | No | Maybe | Yes | No | Yes |
| GoCoop | Yes | Yes | No | Yes | No | Yes |

Schumacher argued that for societies short of capital and rich in labour, the task is to bring into existence millions of new workplaces in the rural areas and small towns. The intermediate technology development group that promoted the ideas of Schumacherian principles in developing countries argued for the development of an agro-industrial sector in rural areas to raise the level of agriculture (Leonard, 2018). Although FTH is a good example for an agro-industry, their labour participation is much lower than the platform economy that is predominant in urban areas. Platform economy here fits in with what Schumacher feared when he said that the advanced industries in the metropolitan areas were killing off the production of wage goods in rural areas, causing despondency and migration to the city. Thus, these platform-based gig economies prove to be largely anti-Schumacherian. The platform-based services also wouldn't be considered commercially viable in a rural setting without enough demand. However, the case of GoCoop stands apart. With technology as an enabler, rural employment doesn't stop an artisan from fetching a fair value for their product. Ventures like GoCoop can reduce migration to cities of labour in search of markets or jobs.

While expanding Schumacher's ideas of appropriate technology to ICT, Schaeffer & Piazza (2003) argued that "national plans should consider human dignity and quality of life as modern communication technologies can enable people to take ownership of their lives and prosper or allow them to be controlled by an elite few and become impoverished". Thus, where technology is used by a few to control workers, it could lead to impoverishment as in the platform economies. And where one is taking ownership of their lives with technology as an enabler, such as in the case of an artisanal pen maker or handloom weaver who sells online, it could enable individuals to have empowering and sustainable livelihoods. We find that platform gigs owned by global supply chains tend to dehumanise workers through mechanical and monotonous work. Here, the question then we are trying to answer is whether ICT that enables the gig economy qualifies to be called an appropriate technology? The answer is 'not always'. And it depends on one's engagement with the technology, whether you own it or not, whether the platform is a neutral enabler technology or much like an intermediary or a middleman with a character of its own. Thus, an ICT driven gig economy will have to be understood as a "process of techno-organisational intervention associated with global politics and economics" (Avgerou, 2008) and will need to be regulated to preserve the 'human substance'.

Conclusion

Though ICT use for gig work, where access to markets and labour is enhanced to a global scale, appears to be valuable and gets much media attention, it does pose challenges. When viewed through a Schumacherian lens of development, we find that the ideal of work is hardly achieved for the three cases we have studied. We can draw three conclusions for future research and policy making on the desirable character of technology:

1. ICT-enabled gig work may be best used for finding markets that generate and sustain demand for work. This is evident in all the cases and may be generalized to other cases also. The most famous gig economy examples, Uber taxis and AirBnB, also extend market reach for local workers on a sustained basis. This partly addresses the ideal of finding work in local areas.
2. ICT infrastructures could lead to creative and meaningful work, as in the case of making hand-crafted pens or woven goods, and this has to be actively promoted. Other artisanal craft products, leather goods, paper products, clay crafts have also found a space through online sites (e.g. etsy.com). These are low scale production operations that consume less local resources and provide meaningful work.
3. Though modern ICT technologies include facilities for creating communities, such as networking and collaboration sites, these are restricted to a few, elite production spaces. They may be enhanced through language and interface design to enable access to diverse users.

Limitations

This study has some limitations. As the gig economy is continually evolving, it is difficult to claim that the analysis of these three cases would comprehensively address all facets of the framework and gig economy. Future research can address the generalizability of the findings of this paper to other areas of the ICT-based gig economy. Further, the design of gig economy work, that embraces Schumacherian principles, is also not fully understood and remains as an area of future research. Such design could be addressed through action research or design science research. This also creates an opportunity for building socially and environmentally conscious work organisations using ICT tools.

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Does Network Traffic Slowdown Impact Revenue of E-Commerce Firms?

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Abstract

Network slowdown negatively impacts the brand image of an e-commerce firm, leading to customer churn and a drop in market capitalization. The major causes of network slowdown are network congestion, under-provisioning, cyber-attack, and faulty network design. This study analyzes the reasons and impacts of network slowdown vis-à-vis revenue-loss for e-commerce websites. Using risk theory and Protection Motivation theory, we have investigated two research questions. First, we have calculated the probability of downtime of e-commerce firms. Second, we have computed the expected revenue loss for e-commerce firms for different downtime scenarios. We propose that the e-commerce firm resorts to regular website monitoring, multi-cloud disaster recovery planning, and choosing faster and more reliable host providers. These measures will help in reducing downtime probability and revenue loss.

Keywords: Network traffic slowdown, website crash, e-commerce, revenue loss, risk theory, Protection Motivation Theory

Introduction

Between 2017 and 2020, 570 online business stores in 55 nations were antagonistically influenced by either the network traffic slowdown or the e-commerce websites' crash, leading to diminished sales and reduced quality of service. Indeed, a couple of developed nations - the US, the Netherlands, and the UK were affected by cyberattacks (The Economic Times, 2020). Out of the numerous reasons behind the slowdown, the primary ones are cyber-attacks and incorrect estimates of the IT assets required. The cyberattack is more pervasive due to the obsolete content management system and unpatched add-ins (Das et al., 2012). DDoS, a type of cyberattack, floods the system with malicious traffic and slows it down. Dominos India, an Indian food service firm, was the target of one such cyberattack on March 24, 2021 (Singh, 2021). Consequently, sensitive personal data (such as names, phone numbers, credit card numbers, etc.) of 180 million users was compromised. The attackers also designed a website to extract the spilled data information just by doing a simple search. This incident taught e-commerce firms a critical lesson to implement cybersecurity solutions to enhance security measures (The Indian Express, 2021). Another incidence of the slowdown occurred due to the overloading of the servers. On October 06, 2014, the much-advertised sale of Flipkart – the 'BigBillionDay' - fumbled severely due to the technical glitch (Pani & Kurup, 2014). The company did not have a robust upscaled data warehouse to handle the humungous data. Consequently, the servers were overloaded and crashed (Vernekar, 2015). As a result, the company was coined as "Flopkart" and lost many customers to its rival.

Such incidences reflect that anything which adversely influences network traffic speed will lead to the limited accessibility of e-commerce websites. This low accessibility will lead to revenue loss and customer churn (Dines, 2013). Consequently, there will be a loss of current and prospective business. This loss forms the prime motivation behind our study. The paper looks into the causes and impacts of network slowdown. To quantify the risk, we investigated two research problems. First, what is the probability of downtime? Second, what is the expected revenue loss for different downtime scenarios? Furthermore, the ways to resolve or forestall the network traffic deceleration are explored.

The remainder of the paper is organized as follows. The following section outlines a brief review of the related literature. The section on the proposed model formulates the research problem. The data section describes the collected data of uptime and revenues of e-commerce

firms. The methodology section details the methods and techniques used. The results section presents an overview of the results and insights. Lastly, we discuss the findings in conjunction with their academic and managerial implications in the discussion section.

Literature Review

Causes of network slowdown

The research suggests that numerous factors cause the slowdown of the network or an e-commerce site crash. One such reason is network congestion or traffic tsunamis (Hariharan, 2019). The abrupt traffic flood, particularly during the Christmas season, could cause a network slowdown. Another reason is under-provisioning (Forouzan, 2007). However, overprovisioning can lead to a cost burden. The third reason is the cyberattack. The hackers try to maliciously bring down the e-commerce site leading to the network slowdown (Tanenbaum & Wetherall, 2011). An example of such an attack is the malware attack; this attack brings down the site by exploiting the vulnerabilities.

Hariharan (2019) observed the slowdown only from the point of view of provisioning of the network. We also found an alternative reason behind the slowdown, that is, the DNS providers' unavailability. DYN went down in 2016, leading to the inaccessibility of many websites such as Netflix and Twitter. (Etherington & Conger, 2016). Researchers also highlight the faulty network design as one of its antecedents (Dahm, 2016). When the servers are not designed in the way they ought to be to handle the required amount of data needed, then that causes the network slowdown.

Moreover, it is observed that the presence of junk software contributes to the network slowdown. These unnecessarily run in the background, consuming bandwidth, reducing speed, and consequently slowing down the network. Table 1 summarizes all the above-stated reasons for the network slowdown or website crashes.

Table 1. Summary of causes of network slowdown or e-commerce website crash

| Causes of website slowdown or crash | Source |
|---|-----------------------------|
| Network congestion | Hariharan, 2019 |
| Under-provisioning | Forouzan, 2003 |
| Cyber-attack on e-commerce sites by hackers | Tanenbaum & Wetherall, 2010 |
| DNS provider's unavailability | Conger & Etherington, 2016 |
| Faulty or imperfect network design | Dahm, 2016 |
| Presence of junk software | Dahm, 2016 |

Impacts of network slowdown

The study reveals multiple impacts of the network slowdown. Revenue loss is a significant outcome of such slowdowns. We also observe that this results in loss of reputation (Walsh, 2021). Such downtimes prompt frustrated clients, who further denigrate the firm. This reputation loss will lead to potential business loss. The third impact the study discusses is that downtime or crash of a website could go to the contenders' benefit. Most of the time, the customers instantly shift to the competitors' website to complete their purchase, unless the website going down is well-reputed, and the customers are loyal to it (Pitt, 2021). The less popular the e-commerce site is, the higher are the odds of clients switching to an alternate website. A study conducted by Patel (2021) has attempted to clarify how the customer churn radically increments with the decrease in page loading time. Using infographics, he states that 47% of purchasers anticipate that the site should load within 2 seconds; 40% abandon the site if it doesn't load within 3 seconds; 79% of the customers don't revisit the sites that performed poorly. The fourth impact is on employee productivity (Boggs et al., 2009).

On the one hand, there will be employees sitting idle due to the inaccessibility of the website. While on the other hand, there will be others striving hard to fix the downtime issues. This imbalance in work will lead to employees' low morale (Alertra, 2016). The fifth impact is that the ranks of regularly down websites drop in Google search results (Baker, 2021). Consequently, the possibility of further clicks reduces. This drop prompts loss of imminent business even after the repair. All such impacts, summarized in table 2, reflect the severity of network slowdown.

The research conducted by Mukhopadhyay & Tripathi (2020) indicates that IT companies pay 25% of their budget in shielding firms from cyberattacks. This expenditure is because the cyberattack is one of the primary reasons for the slowdown or the crash. Researchers have analyzed the impact of information security breaches on the stock prices of Indian and US firms (Das et al., 2012). Downtime due to the security breach decreases the market valuation of the firm (Cavusoglu et al., 2004). As a result of such adverse consequences, e-commerce firms spend profusely to prevent crashes or downtime. Such huge expenditures allude to the need to correlate the downtime with the revenue loss of the firm. Moreover, the demand also emerges for predicting the revenue loss that a firm could confront based on the percentage of downtime. Knowing the expected loss in advance, the firms could find prudent ways to avoid crashes or downtimes.

Table 2. Summary of impacts of network slowdown or e-commerce website crash

| Impact | Source |
|---|----------------------------------|
| Revenue loss caused by the loss of sales | Walsh, 2021 |
| Reputation loss | Walsh, 2021 |
| Negative stock market response | Das, Mukhopadhyay, & Anand, 2012 |
| Decreased market valuation of e-commerce firm | Cavusoglu, 2004 |
| Customers shift to the competitors' website | Patel, 2021 |
| Employee productivity goes down | Bozman, Boggs, & Perry, 2009 |
| Rank drops in Google search results; reducing would be clicks | Baker, 2021 |

Proposed Model

As per the Protection Motivation Theory (PMT), individuals make certain behavioral changes in response to fear appeals. Their responses follow through threat and coping appraisal. Threat appraisal entails the perceived probability of the occurrence of a fear appeal, while coping appraisal measures an individual's efficacy in responding to a threat based on its severity (Rogers, 2010). This study calculates the probability of downtime occurrence and resultant losses to perform the threat appraisal for the fear appeal emanating from downtimes. It also concurs with the Risk Theory (Borch, 1967), where assessing risky assets is followed by quantifying risk and mitigation.

Thus, we intend to build a model based on the concept of risk theory (Kleindorfer & Kunreuther, 2007) that can help us calculate the probability of downtime and the expected revenue loss for various levels of downtimes. The risk theory helps determine the optimum exposure to risk (Roeser et al., 2013). The academic literature presents scant evidence of revenue loss for firms due to downtime. Our proposed model, as shown in figure 1, aims to address the following two research questions.

RQ1: What is the probability of downtime?

RQ2: What is the expected revenue loss for different downtime scenarios (such as for downtime of 0%, 1%, 2%, 3%, 4%, 5%, and 7%)?

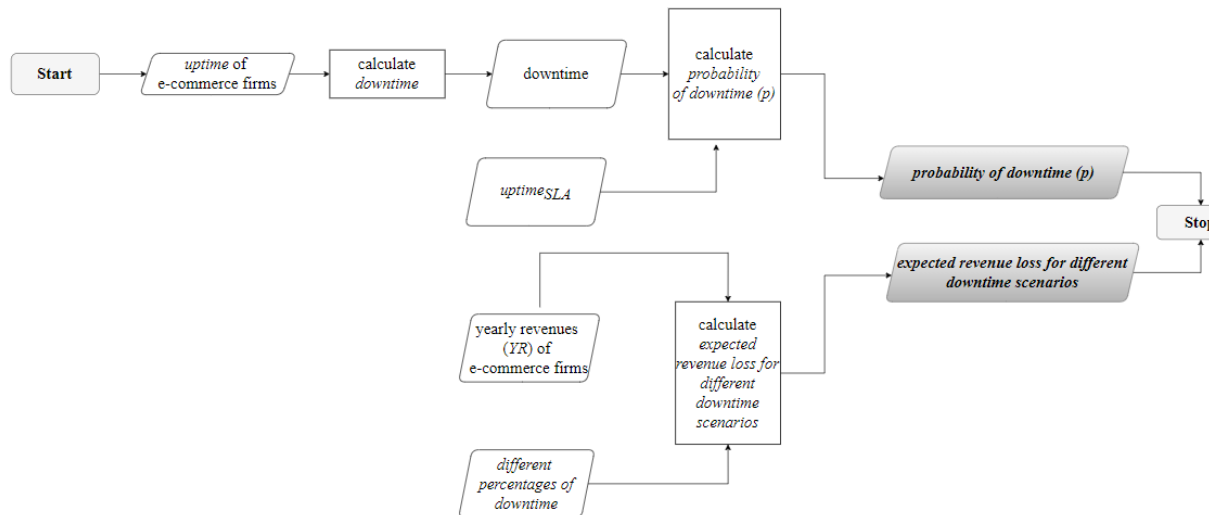


Figure 1. Flowchart for the proposed model

Data

To examine the impact of downtime on revenue loss, we have gathered data of uptime and revenues earned by e-commerce firms popular in online shopping, such as Gamestop, IRCTC, Amazon, Grover, Nike, Flipkart, IKEA, Samsung. The *uptime* is the time for which the e-commerce site is available for the customers. The *uptime* data (averaged over a week and extrapolated for one year) is collected from a SaaS website performance monitoring firm. We have chosen ‘Pingdom’ as it is a product of a well-known US\$938.5 million IT firm, Solarwinds, known for its reliable IT network monitoring solutions. The yearly revenues (*YR*) of the e-commerce firms are collected from various financial reports available at popular monetary websites such as Business-standard, Moneycontrol, Indiaretailing, Businessinsider, and Entracker. Table 3 summarizes the data and shows the minimum (min), maximum (max), mean, variance, and source of *uptime* and *YR*.

Table 3: Summary of uptime and yearly revenue (YR) data of 8 e-commerce websites

| | Min | Max | Mean | Variance | Source |
|--|--------|---------|--------|----------|---|
| Uptime | 93.54% | 100.00% | 98.60% | 0.001 | http://pingdom.com/ |
| Yearly Revenue (YR) (In USD billion) | 0.31 | 41.92 | 12.74 | 16.99 | Business-Standard, Moneycontrol, Indiaretailing, Businessinsider, Entracker |

Methodology

In this section, we compute (i) the probability of downtime, (ii) the expected revenue loss for different downtime scenarios. A 90% uptime denotes that the website is available for $0.9 \times (365 \times 24 \times 60 \times 60)$ seconds in a year.

Probability of downtime

To calculate the probability of downtime, we first calculate the downtime of a website as

$$downtime = (100 - uptime) \tag{1}$$

Where *uptime* is the actual uptime data collected as described in section 4, both *uptime* and *downtime* are in percentages. To calculate probability, we consider that the website should be up for the standard SLA of uptime (*uptime_{SLA}*), 99.999%. The probability is calculated as

$$p = downtime / uptime_{SLA} \tag{2}$$

Expected revenue loss for different downtime scenarios

Expected Revenue Loss is computed for different downtime scenarios i (0%, 1%, 2%, 3%, 4%, 5%, and 7%) of websites using equation (3) [Uptrends(2020)]. We are calculating loss for these downtime percentages since the probabilities calculated through equation (2) fall in the range of 0% to 7%, as shown in figure 2.

$$ERL_i = (YR/T) \times PW \times p_i \quad (3)$$

where ERL_i : Expected revenue loss for different downtimes; i denotes downtime percentages
 YR : yearly gross revenue collected from the financial websites.

T : the monitoring period is considered to be 365 days or 31,536,000 seconds.

PW : proportion of the time the website is monitored for in the firm's business hours. In our case, we monitored for 100% of the time; hence PW is 1

p_i : downtime of 0%, 1%, 2%, 3%, 4%, 5%, and 7% in seconds i.e., $365 \times 24 \times 60 \times 60$ seconds * (downtime %)

Results

We demonstrate here outcomes based on the computed association of downtime and revenue loss. It is evident that downtime negatively impacts e-commerce firms' revenues.

Probability of downtime

Figure 2 shows the probability of downtime for different e-commerce firms. IRCTC has the highest likelihood of downtime due to incorrect server load balancing (India TV Tech Desk, 2020).

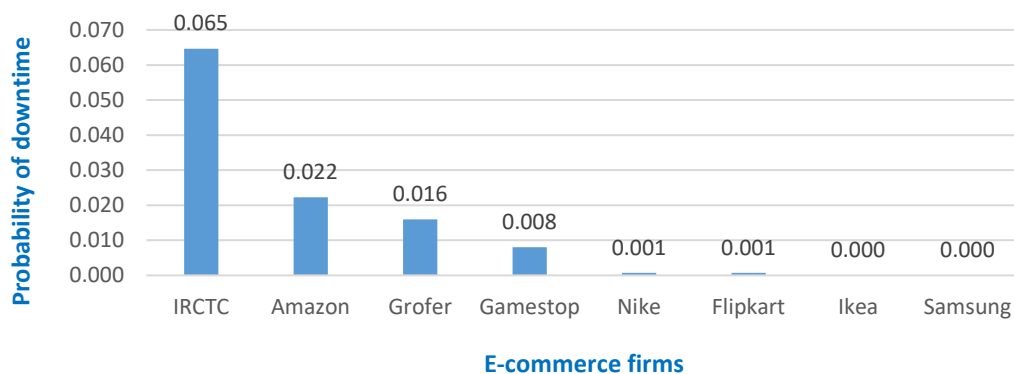


Figure 2. Probability of downtime of e-commerce firms

Expected revenue loss for different downtime scenarios

We present here results for *expected revenue loss for different downtimes*, as shown in Figure 3. IKEA has the highest revenue loss for all percentages of downtimes since it's the highest-earning firm.

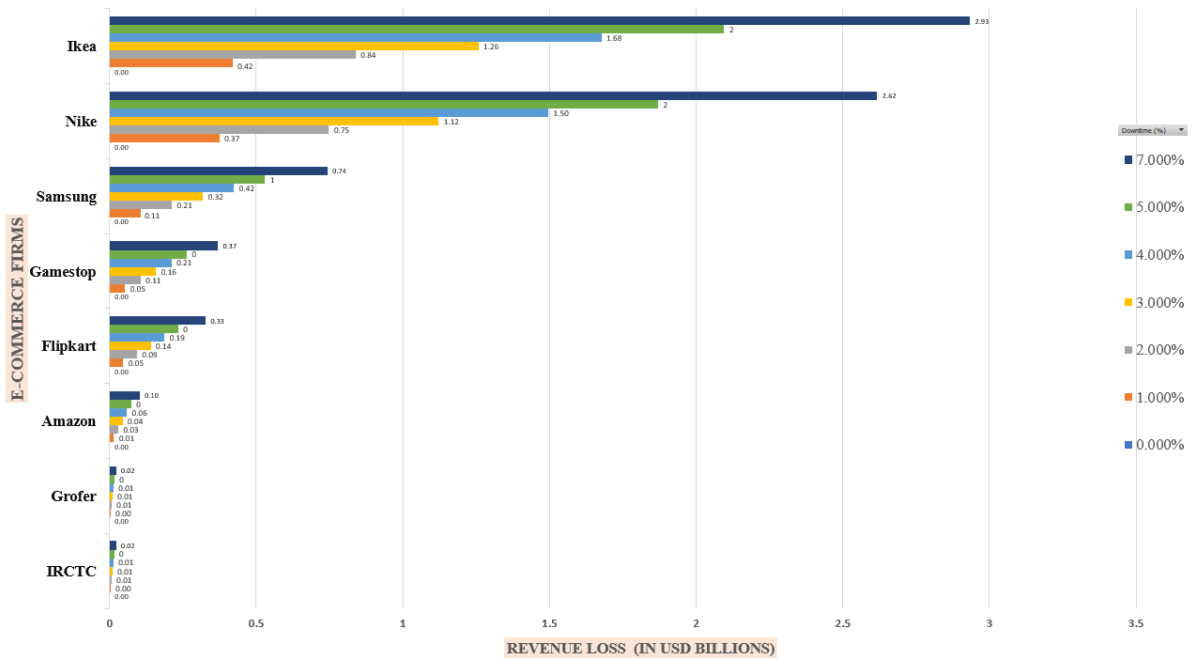


Figure 3. Expected revenue loss of various e-commerce firms for different downtimes

Discussion

This study aims to understand the effects of downtime of e-commerce firms in terms of revenue loss. In our study, we have tried to quantify the financial losses associated with the firm's downtime. We observed that the expected revenue loss of e-commerce firms for different probabilities of downtime. We contribute to the academic discourse by proposing a simple model using which the e-commerce firms can ascertain the probability of their website downtime and the consequent revenue losses. The proposed model will benefit from robust analytics algorithms that can help understand how different aspects of downtime cause a varied level of revenue loss.

Our study aids the managers and CTOs in reducing the downtime and hence the consequent losses. Broadly, managers can mitigate in two ways – by reducing the probability of downtime or decreasing the expected revenue loss. Firstly, proactive *website monitoring* provides detailed uptime and performance reports, based on which firm owners can take pre-emptive measures. Secondly, *multi-cloud disaster recovery planning* ensures a backup plan in case of disasters. Next, managers need to choose a *faster and reliable host provider* (Lee et al., 2014). Additionally, the firms should ensure cybersecurity measures to avoid the downtime caused by cyberattacks. Lastly, firms can purchase cyber insurance to hedge their losses due to cyberattacks (TechTarget, 2021).

Our study is limited by its use of a short time frame of data collection. Time-dependent data over a few years and robust measures of loss would strengthen the risk quantification in the modules described above. Multi-industry downtime and revenue loss data and industry and firm-specific variables would add to the model's predictive power.

Conclusion

The study concludes that the downtime of the e-commerce network traffic contrarily impacts the firm's revenues. It likewise hurts the standing of the firm and the expected business. However, if the firms embrace measures to reduce the downtime, they can certainly control the revenue loss.

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Using Factors for Digital Inclusion to Assess Changes in Digital Use Behavior During Covid Times

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Abstract

During this sudden dramatic transformation owing to the pandemic normal lives were disrupted and personal spaces merged in new ways with the professional. During this time a considerable attention has been drawn to the need for understanding in what ways the pandemic has affected the use of digital media in everyday lives of people. Literature highlights the Covid home in context of the digitized work arrangements and the need to look at unequal burdens of household work along with issues of digital access including Wi-Fi. Businesses are also reshaping their work practices in new ways after experiencing remote work during the pandemic. The purpose of our study is to explore the impact of Covid19 in everyday lives of working professionals in India applying the DI framework (Thompson and Paul, 2020) using a Qualtrics survey. The findings of our study can help in understanding the new normal with respect to digital use in the lives of individuals owing to the pandemic that will be of interest to governments and organizations to formulate policies towards effective digital inclusion for citizens and better work productivity by employees during stressful times.

Work from home and employee well-being: a model based on literature survey

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Abstract

With the onset of new normal, organizations today face the challenge of coping with unprecedented events and have to constantly find solutions to sustain their productivity. Workplace flexibility, a term coined way back in the IT industry is the most extensively discussed concept now. This paper is to understand the employees' perception of the enforced work from home post Covid-19. While the results show positive effects e.g., work-life balance and cost reductions, it also has contradicting results on employees e.g., work family interferences and unpaid overtimes. This paper has taken into scope the entry levels employees in an IT firm. The authors have tried to see how employees are managing things virtually in an organization where targets are high, and attrition is also increasing steadily.

Key Words: Covid-19, pandemic, employee well-being, work from home, remote working, organizational health

Introduction

The Covid-19 pandemic has changed lifestyles in ways people could not think of. With its outbreak, medical organizations have come up with strategies to help people curb the spread of the virus. One of the most important strategy was social distancing to decrease the transmission of the virus in a population by minimizing physical contact. All of them affected work life and consequently the daily life routines. As a result, most organizations also had to come with a solution, which was 'work from home' almost without no preparation.

Like any other organizational change, this complete remote working also had its pros and cons. On one hand it fosters work life balance since employees have been able to invest more time with their families, on the other hand it forced most employees to work from home without the necessary skills and resources to support the change.

However, work from home is not a recent concept. Over the past few decades, more and more organizations started implementing work from home practices due to several reasons. It helps achieve work life balance, reduces company costs, reduces absenteeism, attracts women with children and people with elder care responsibilities. A part of the working population feel that it is 'the best of both worlds', as it creates a balance between paid work and family. Others feel that it is like 'cutting my own throat' because of the negative intrusions at home while working.

In practice working at home can affect subjective well-being in different ways. First, it might either create a work-life balance (Azarbouyeh and Naini 2014; Wight and Raley 2009) or on the contrary, might create issues due to constant interruptions at home (Baines and Gelder 2003). Second, remote working gives an employee much more flexibility with respect to time, place etc and also autonomy, that allows them to manage their work better (Kemerling, 2002). Third, it reduces travel time, which is stress reliever for many (Gottholmseder et al. 2009; Roberts et al. 2011; Wener et al. 2003). Fourth, people who are engaged in complete remote working can manage the work better as compared to people who work in the office and bring work to home resulting in tiredness. Finally, unpaid overtime work at home is meaningful for well-educated supervisors and managers incase they are due for any promotion (Song 2009).

While, most studies found that remote working is beneficial for organizations and its employees, and even for the urban economy (Apgar 1998; Gajendran and Harrison 2007; Nätti et al. 2011). It is associated with perceived autonomy (Dambrin 2004; Wilson and Greenhill 2004), higher productivity

(Kemerling 2002), higher work–life balance and less stress (Azarbouyeh and Naini 2014; Felstead et al. 2002; Raghuram and Wiesenfeld 2004; Sullivan and Lewis 2006), greater employee satisfaction (Wheatley 2012), and better job performance (Fonner and Rolof 2010). Moreover, it is also useful for employees who have more responsibilities at home (Golden 2006; Shockley and Allen 2007). On the other hand, quite a few literature studies have shown the opposite. One negative aspect of telework is reduced communication among co-workers which may lead to social isolation and worsen individual and group performance (Sparrowe et al. 2001). Also working from home leads to less face-to-face interactions with managers, which can affect their evaluations, limit their opportunities for promotion, and increase their role stress (Weinert et al. 2015). One more concern is the increased conflicts at home that leads to stress increase stress because it blurs the boundaries between home and workplaces (Hardill and Green 2003; Mann and Holdsworth 2003; Russell et al. 2009; Standen et al. 1999; Sullivan 2012; Wheatley et al. 2008). Mirchandani (2000) states that homeworking is a cause of anxiety and stress as the employee will have to strike a balance between job and family demands simultaneously. Workers with young children at home doing menial jobs are stressed as the remote working does not improve that quality of life (Moore, 2006).

Literature Review

Organizational health and well-being at workplace have become most discussed and crucial topics in the last few decades. Physical, mental and subjective well-being affect the employees both at work and also tend to spill over to non-work domains. Health and well-being, if not taken care can lead to negative consequences, such as low productivity, absenteeism, low quality of work etc. Health has been defined as state of complete well-being and not just an absence of disease. Well-being has many components - subjective, mental and physical well-being to name a few.

Subjective well-being (SWB) is defined as ‘a person’s cognitive and affective evaluations of his or her life’ (Diener, Lucas, & Oishi, 2002, p. 63). The cognitive part refers to a one’s perception of his or her life satisfaction as a whole or in specific areas. The affective area talks about emotions, moods and feelings that are either positive (eg. Affection, happiness) or negative (eg. anger, shame etc). Based on this SWB can be divided into 3 components:

Life satisfaction, positive affect, negative affect.

People who spend a major part of their everyday lives at work, need to have a fulfilling job for their mental well-being. A lot of studies have been done to prove mental well-being is the key to higher productivity. In simple words, mental well-being can be defined as the way we think and feel and act. It is our ability to deal with stressful situations and make choices.

The third component of well-being discussed in this paper is physical well-being. It is the ability to perform physical activities and carry out social roles that are not obstructed by physical limitations and experiences of bodily pain, and biological health indicators.

Employee well-being serves as the stepping stones for organizational health as a whole. Organizations today work hard to cater to employee well-being. However, with the outbreak of Covid-19, the working landscape has changed to a large extent. Although work from home has been commonly used in the IT sector since the last 2 to 3 decades, this was not a usual way of work for the other sectors. This has now become a buzz phrase with the world witnessing a new normal. or, mainly to ensure engaging the workforce, to reach out to the internal and the external stakeholders, to retain the talent and maintain attrition rate to its low on one hand. The current situation has thrown new challenges to every organization in the form of either up-skilling or re-skilling without much time in hand.

This remote work or work from home is a practice that allows employees to work in a setting which is different from the usual office setting. It brings into picture the concepts of flexi time and flexi place. However, like any other change, remote working comes with its own advantages and disadvantages. Flexibility traditionally meant putting the control in the hands of the employees, so that they feel the responsibilities assigned to them and they take ownership. This would help them effectively respond to the job demands (Karasek & Theorell, 1990). Workers' flexibility therefore refers to a situation where they themselves decide where, when and how long to work (Lewis, 2003). This flexibility primarily comprises of schedule flexibility (like part time, compressed work weeks, flex time etc.) and location flexibility (remote work, telework). Flexibility is believed to help employees respond positively to stressors and enhance well-being.

The shift to complete work from home arrangements provide a unique context to study the relationship between WFH and well-being. The different aspects of work from home affect the employee well-being in different ways. The extended and continuous stay at home have contributed to general depression or anxiousness. The change in earlier routines, eating habits, sleeping habits have caused stress to many people. Apart from these changes, another notable aspect is the need for physical space to set up the workstations at home. Also, few might have to share the workspaces with other family members. In such a situation, it is important from organizations to adapt strategies that would ease their way of work as much as possible amidst all the stressful situations.

Problem Statement

With the pandemic situation, several organizations had to immediately shift to remote working without any scope of upskilling the employees. Therefore, it has affected the employees both positively and negatively. But none of the papers talk about the long-term impacts if this pandemic situation persists and the organizations are unable to go back to the usual work from office in the future. Moreover, in IT sector WFH has been accepted as a new norm in HR policy. In fact, very few research discussed about the short term and long-term impact of missed social life on individual stress level and productivity, as social interaction is an essential part of organisation work culture. Therefore, a detailed discussion on WFH and Employee well-being has been emerged as area to be researched and explored extensively.

Research Gap

There are no research papers with a model that describes the effect of work from home on subjective, mental and physical well-being separately. Approximately 60 research papers have been studied to gather secondary data on the antecedent and descendent relationship between various components of HR practices, leadership styles, socio demographic parameters and employee well-being. 10 different conceptual papers on employee well-being and approximately similar number of papers on work from home have been reviewed, where work is mostly done in countries like UK, Italy, USA, Spain, Netherlands. In their research papers, Daniel C. Ganster, Christopher C. Rosen, 2013; Sven Tuzovic, Sertan Kabadayi, 2018 have taken into consideration employee well-being as the whole, and did not break down into its components. Similarly, Juan Sandoval-Reyes et. al. have talked about only effects on work-life balance in their paper. None of the papers discuss on the different aspects of work from home that is causing an impact on subjective, mental and physical well-being among entry level associates in an IT company in India.

Objectives

- To find out the different aspects of work from home that can affect the employees.
- Bring together all separate strands like Work from Home with other HR practices, elements of leadership effectiveness, employee wellbeing and inherent socio demographic variables of individual employee in a common platform.

- To study whether remote working acts as a positive or negative factor for well-being among entry level associates in an IT sector.
- To create an aggregator model depicting the relationship between work from home and subjective, mental and physical well-being.

Research Methodology

This paper is a conceptual paper based on literature survey of papers related to remote working and employee well-being in the recent pandemic situation. Literature and journals reviewed mostly starting from 2000 till present to write this paper. Also references related to changes in the pandemic changes have been taken from papers starting from 2020. The research will be done on entry level associates in an IT firm to understand whether work from home has been creating positive or negative impacts on an employee's well-being at 3 levels-subjective, mental and physical. Over 60 conceptual papers have been thoroughly studied in order to derive the secondary data for this research.

Discussions

There is little reason to believe that the pandemic situation will be short-lived and hence its consequences on organizational life. The organizational changes which have been brought upon by the Covid-19, are far from being over. The new reality offers new opportunities and way of life. This paper would create a framework to understand the link between remote working, which is the most important organizational change, and employees' well-being at subjective, mental and physical levels.

From the literature survey we have derived 4 hypotheses, that we would be testing based on our secondary data.

Physical and mental well-being have decreased and health issues have increased. There are quite a few mediating factors like employees' lifestyle, for example eating habits, physical activity, physical aspects of the home workspace etc. (Yijing Xiao et. al., 2020).

Working at home has heterogeneous effects. Bringing work to home and work from home, both affect the subjective well-being of employees with children negatively than the employees who are non-parents. This happens more on weekdays. It also says that on weekends/ holidays the positive effects of working from home is more (Younghwan Song, Jia Gao, 2019).

H₁ Work from home positively affects subjective/ mental/ physical well-being of the employees.

Co-worker's support and interaction among them are essential to foster successful remote working and to balance the psychological aspects of well-being (Christine A. Grant et. al., 2013).

H₂ Employees have adjusted well in remote working setup and does not want to move back to commute to work.

What happens at work tends to spill over at home. In such a situation positive behaviour and negative behaviour (stress) tend to impact the relationships in the family (Ana Isabel Sanz-Vergel et. al., 2014). Boundaries between the work and private life have collapsed. The fact that employees are available 24 hours a day, leads to chances of unpaid overtime. This affects the work life balance badly (Christine A. Grant et. al., 2013).

H₃ Work from home has increased work-life balance among employees.

Building interpersonal relationships both at work and outside is important for psychological well-being. Studies have shown that there are employees who prefer working in the office than at home (Christine A. Grant et. al., 2013).

Leadership can be considered as a job resource since it plays a vital role in achieving organizational goals. Engaging leadership is defined by a practice in which managers support and involve themselves in forming and implementing the HRM practices and also in creating the employees' perceptions

towards these practices. Engaging leadership acts as a moderator in the relation between HRM practices and employee well-being (Andres Salas-Vallina et. al., 2021).

H4 Leadership effectiveness and socio demographic variables act as moderating factors which affect the relationship between work from home and employee well-being.

The Covid-19 pandemic has led to several challenges for the organizations to cope up with. The organizations had to come up with policies to help their employees move radically from working in the offices to remote working structures. Further the lines between the work and family spheres have been blurred due to this. With the closing down of schools, parental demands have also increased and employees find it difficult to manage work and family life. Another challenge during this time is unpaid overtime. Often employees are asked to extend beyond their office hours to complete the work assignments due to the work from home arrangement.

At the same time, if we look at the positive side, few opportunities like spending more time with family has improved the work-life balance. Also, the cost and time which was earlier spent in commuting, was also saved.

Below is the diagrammatic representation of the relationship between the work from home (independent variable) and subjective/ mental/ physical well-being (outcome variables) with the moderating effects of leadership effectiveness and socio demographics.

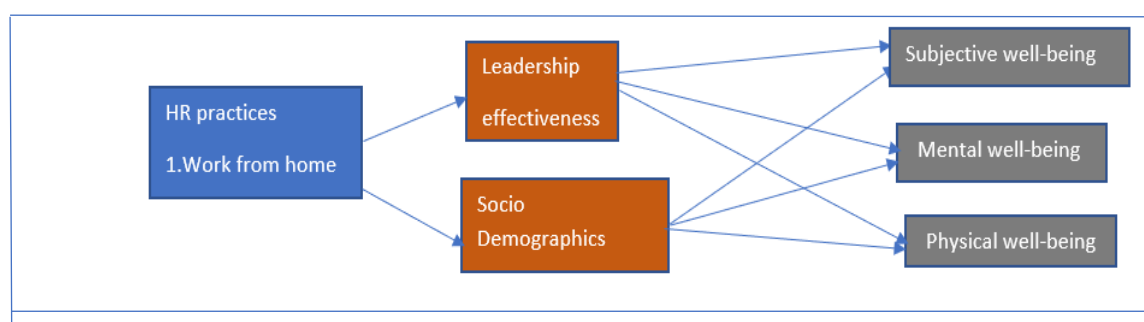


Figure 1. Model representing relationship between work from home and employee well-being

Scope for future study

The final outcome of this research is the model to understand the relationship between HR practices, majorly work from home and its impact on subjective, mental and physical well-being. The scope for further studies would include studying each element of HR practices in details and also to study the moderating or mediating variables and validating the model with Empirical research.

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Coworker Envy and Employee Silence: Mediating Role of Tolerance to Workplace Incivility

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Abstract

The purpose of the presented study is to examine the relationship between coworker envy & employee silence along with mediating role of tolerance to workplace incivility in the said relationship. Data from 214 respondents was collected from service sector employees. Using PLS-SEM, the relationship between the variables was discovered. The results indicated that coworker envy, tolerance for workplace incivility, and employee silence are positively related with each other and tolerance to workplace incivility partially mediates the relationship between co-worker envy and employee silence.

Keywords: Coworker Envy, Tolerance to Workplace Incivility, Employee Silence

Introduction

Employee silence has become an important issue in organizations around the globe, and it has sparked a lot of studies in recent years (Morrison et al., 2015). It is characterized as employees suppressing opinions and information concerning flaws in organizational methods, as well as thoughts, concerns, or suggestions that could benefit the firm better (Tangirala et al., 2008). Envy is a bad emotion that exists across cultures and can develop as a result of repeated social comparison (Tai et al., 2008). As a result, envy amongst coworkers of comparable ranks arises in the workplace. As a consequence of being envied, employees might adopt a mechanism such as being silent or withholding ideas on vital subjects so as to deal with such circumstances. Employees may perceive themselves as victims if a coworker treats them unfairly because of envy, they may safeguard their self-esteem by standing silent on critical issues (Kiyoungh et al., 2018). This study aims to address gaps in a growing body of research on the link between coworker envy and employee silence. Our research findings will be helpful in identifying whether coworker envy and tolerance to workplace incivility promote employee silence in organizations.

Literature Review & Hypothesis Development

Coworker Envy

Until recently, researchers generally concentrated on the envious individual (Smith & Kim, 2007)—this was in keeping with general research on emotions, which focused primarily on the emotional experience of a focal employee. Because of its explicitly dyadic nature, envy is guaranteed to affect its victim (Vecchio, 2007). Because envy is a social emotion that affects both the envious and the envied (Parrott et al., 2008), it's critical to look into both views at the same time.

Tolerance to Workplace Incivility

Workplace incivility tolerance refers to an organizational atmosphere that allows or does not seek to address possible conflicts among its members, owing to leaders' incapacity to do so (Megeirhi et al., 2018). Management's lack of response (tolerance) to uncivil workplace actions (e.g., supervisor, Coworker, and even customer incivility) can lead to an undesirable work environment (Pearson et al., 2001). Employees' emotional and social energy can be depleted in such an environment (Miner et al., 2010), leading to a rise in negative feelings.

Employee Silence

The deliberate withholding of information, ideas, suggestions, or worries regarding potentially major organizational issues is referred to as employee silence (Van Dyne et al., 2003). Employee silence has been linked to lower organizational performance (Madrid et al., 2015), innovation, and learning. Whereas, at the individual level, it has been linked to job dissatisfaction, unfavorable sentiments toward

change (Nikolaou et al., 2011), and a lack of professional dedication (Morrison, 2015).

Coworker Envy and Employee Silence

As a target of envy, it is a torturous experience, especially in the context of an important or close relationship, such as a work relationship (Parrott et al., 2008). Kim and Glomb (2010) discovered that intellectually gifted people are more likely to be victimized because they are envied by others. Being envied may make people not to cooperate with others. They may also react by withholding information and giving silent treatment (Lee et al. 2016). On the basis of this, we propose that:

H1: There is a positive association between Co-worker's envy and employee silence.

Coworker Envy and Tolerance to Workplace Incivility

Vecchio (1995) proposes that envy is linked to emotional responses such as frustration and anger, which may lead to interpersonal mistreatment, erratic behavior, and violent aggression. Because moral disengagement reduces self-regulation, one could argue that envy is linked to antisocial behaviour like interpersonal mistreatment and incivility (Bandura, 1991). The huge concern is that the majority of senior management overlooks uncivil behavior, and some are ill-equipped to deal with it (Sulea, et al., 2012). The term "tolerance to incivility," which refers to organisations that allow uncivil behaviour in the workplace, is particularly relevant to this study. The perpetrators may serve as "role models" for others, fostering an environment that tolerates uncivil behavior. On the basis of this we hypothesize that:

H2: There is a positive association between Co-worker's envy and tolerance to workplace incivility.

Tolerance to Workplace Incivility and Employee Silence

Despite substantial study on workplace incivility, the term tolerance has only been stated as a suggestion that managers and practitioners might explore in order to reduce workplace incivility (Estes et al., 2008). Management's lack of response (tolerance) to uncivil workplace actions (e.g., supervisory, coworker, and even customer incivility) can lead to toxic work environment (Pearson, et al., 2001). Employees may start completing work tasks late, being late for work, or considering resigning due of jobrelated concerns as tolerance for workplace incivility grows (Megeirhi et al., 2018). Thus it is proposed that:

H3: There is a negative association between tolerance to workplace incivility and employee silence.

Tolerance to Workplace Incivility as mediator

In the arguments above, we raised hypotheses of the relationship between coworker envy and employee silence and as well as between tolerance to workplace incivility and employee silence. Taken together, we argue that tolerance to workplace incivility functions as a mediating channel for the link between coworker envy and employee silence. Thus it is proposed that:

H4: Tolerance to workplace incivility mediates the relationship between Co-worker's envy and employee silence.

Research Methodology

Sampling method & Procedure: The association between coworker envy, tolerance for workplace incivility, and employee silence is investigated in this study. Primary data was gathered using a validated scale; coworker envy was assessed using a 3-item scale (Vecchio, 2005), while tolerance for workplace incivility and employee silence were assessed using a 4-item scale (Loi et al., 2015) and a 5-item scale, respectively (Tangirala et al., 2008). A total of 214 respondents were considered for the study. The data was collected using a convenience sampling method. The researchers employed PLS-SEM software to analyse the data with accuracy and precision. In the presented study, 41.1% of the respondents were female and 58.9% were male. Out of 214 respondents, 25.2% belonged between 20-25 years of age, 35.5% belonged to 26-35 years, 19.6% were between the age group of 36-45, and the

rest 19.6% were above the age of 45. It was found that 59.8% of the respondents belonged to private sector and 40.1% belonged to public sector. 60.7% of the respondents had an experience of upto 10 years, while 15.9% had an experience of 11-20 years and the rest of 23.3% respondents had an experience of over 20 years.

Data Analysis-

Multivariate normality & Common method Bias: Measurement Model

Table 1: Summary of Measurement model

| Item | Outer Loading | Cronbach's alpha | Composite reliability | AVE |
|------|---------------|------------------|-----------------------|-------|
| CE1 | 0.880 | 0.796 | 0.880 | 0.710 |
| CE2 | 0.861 | | | |
| CE3 | 0.784 | | | |
| TWI1 | 0.834 | 0.817 | 0.876 | 0.639 |
| TWI2 | 0.823 | | | |
| TWI3 | 0.780 | | | |
| TWI4 | 0.757 | | | |
| ES1 | 0.716 | 0.827 | 0.875 | 0.584 |
| ES2 | 0.847 | | | |
| ES3 | 0.828 | | | |
| ES4 | 0.721 | | | |
| ES5 | 0.698 | | | |

CE = Co-worker's envy, ES = Employee Silence, TWI = tolerance to workplace incivility

Table 2: Discriminant Validity

| | Fornell-Larcker Criterion | | | Corrotrait-Monotrait Ratio (HTMT Ratio) | | | F Square | | |
|-----|---------------------------|--------|-------|---|-------|----|----------|-------|----|
| | CE | TWI | ES | CE | TWI | ES | CE | TWI | ES |
| CE | 0.843 | | | | | | - | - | - |
| TWI | 0.247 | 0.799 | | 0.284 | | | 0.065 | - | - |
| ES | 0.424 | -0.037 | 0.764 | 0.475 | 0.156 | - | 0.251 | 0.027 | - |

CE = Co-worker's envy, ES = Employee Silence, TWI = tolerance to workplace incivility

Validation of measures

Cronbach's alpha values for the constructs were higher than the acceptable value of 0.7, and composite reliability (CR) values for the constructs were greater than the recommended value of 0.7, according to the data in Tables 1 and 2. (Hair et al., 2014). As a result, the constructs' reliability is proved (Hair et al., 2014). Moreover, each construct's average variance extracted (AVE) is greater than 0.50 (Hair et al., 2014). In addition, each item's outer loading was greater than 0.70. As a result, each construct's

convergent validity is shown (Hair et al., 2014). Furthermore, the AVE of each pair of constructs was greater than the squared correlation of each construct with any other construct, indicating discriminant validity (Hair et al., 2014).

Structural Model: Hypothesis Testing

Table 3: Summary results of Hypotheses testing.

| Hypothesis | Structural relationship | Path coefficient | t-value | p-value |
|------------|--|------------------|---------|---------|
| H1 | Co-worker's envy -> employee silence | 0.462 | 7.268 | 0.000 |
| H2 | Co-worker's envy -> tolerance to workplace incivility | 0.247 | 3.813 | 0.000 |
| H3 | tolerance to workplace incivility - > employee silence | -0.151 | 2.249 | 0.029 |

CE = Co-worker's envy, ES = Employee Silence, TWI = tolerance to workplace incivility

The structural model is said to have predictive relevance (Q^2) if the values of the reflective endogenous latent variables are more than zero (Hair et al., 2014). After blindfolding, results suggest that the values of endogenous variables are positive and thus have satisfactory predictive relevance (Henseler et al., 2015). The values of coefficient of determination (R^2) for employee silence was 20.2% and for tolerance to workplace incivility is found as 6.1%. Finally, the SRMR value is 0.089, which is less than the threshold of 0.10, thus confirming the overall fit of the structural model (Henseler et al., 2015). The path coefficients and significance levels are shown in Table 3 and are used to test the hypotheses.

H1 claims that employee silence is influenced by co-worker envy, which is corroborated by path coefficients of 0.462 ($p < 0.000$). H2 claims that co-worker envy has a positive link with workplace incivility tolerance, which is backed up by a path coefficient of 0.247 ($p < 0.000$). H3 suggests that there is a link between employee quiet and tolerance for workplace incivility. It has a path coefficient of -0.151 ($p < 0.029$) to back it up. Table 3 shows a summary of the findings.

Mediation Analysis:

Table 4: Total Effects

| Mediation Path | Path estimates | t- statistics | P-value |
|-----------------|----------------|---------------|---------|
| CE -> TWI -> ES | 0.424 | 6.811 | 0.000 |

CE = Co-worker's envy, ES = Employee Silence, TWI = tolerance to workplace incivility

Table 6: Indirect Effects

| Hypothesis | Mediation Path | Indirect effect | LLCI | ULCI | P-value | Mediation |
|------------|-----------------|-----------------|--------|-------|---------|-----------|
| H4 | CE -> TWI -> ES | -0.037 | -0.075 | 0.011 | < 0.05 | Partial |

CE = Co-worker's envy, ES = Employee Silence, TWI = tolerance to workplace incivility

Apart from the direct effect, the study also tested the indirect effect between coworker's envy and employee silence via tolerance to workplace incivility. In order to check the indirect effect, we carried out bootstrapping technique. The result suggests that tolerance to workplace incivility partially mediates the positive relationship between coworker's envy and employee silence ($\beta = -0.037$, $p < 0.001$). This confirms our fourth (H4) hypothesis.

Discussion

This paper's main contribution is to provide a better understanding of how coworker envy might lead to employee silence among employees in the public and private sectors in India. Employees

experiencing coworker envy may become tolerant to workplace incivility, which may diminish their silent conduct, according to our mediation theory. Tolerance to workplace incivility was discovered to be a mediator between coworker envy and employee silence. This suggests that employee silence is influenced both directly and indirectly by coworker envy. The study's findings backed up the proposed hypotheses. Other studies have shown that silence is a passive but critical response for victims of workplace mistreatment (Whitman et al., 2014; Xu et al., 2015).

Implications

Coworker envy has a detrimental impact on employee outcomes, resulting in societal costs for businesses. Furthermore, being envied can cause employees to reciprocate in negative manner by being silent which might harm their work. Organizations clearly have a vested interest in reducing this type of behavior and our research makes recommendations on how managers can control the feeling of envy and being envied in their employees. Managers can assist employees in feeling less threatened by comparisons by assigning various areas of influence to individuals striving for rank. They may, for example, allocate these personnel to separate projects or give them different jobs so that there is less comparison between them. Aside from providing employees with opportunities to improve their standing in these domains, managers can also provide employees with mentoring and training.

There are various managerial implications to our findings given the enormous hidden costs of employee silence as well. Coworker envy often leads to employees withholding their thoughts, opinions and views which is not an ideal situation for any organization. We suggest that mentoring programmes and social support groups can be viable extra interventions that organizations may choose to try. To encourage their mentees or peers to speak up, mentors or colleagues can take a more active role in offering psychosocial support and protection. In addition, human resource departments should encourage employees to voice their thoughts in the workplace and provide incentives for them to do so.

Conclusion

The study aimed to gain insight into the relationship between coworker envy, tolerance to workplace incivility and employee silence. The findings suggest that all the considered constructs have an association between them and that coworker's envy leads to employees being silent, while tolerance to workplace incivility mediates the relationship between the two. Our study does not fall short of its limitations. First, the data was collected from employees from different industries though specification was not made whether the data is collected from supervisors or subordinates. Another limitation is that the sample size is considerably small, future researches should have a bigger sample size.

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Influence of Work Life Interface on Job and Life Satisfaction: An Integration of Levels and Episodic Approach

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Abstract

Empirical studies on work-life balance tend to adopt either levels approach or episodic approach. Episodic approach is grounded in events theory, whereas level approach is rooted in attitudes. This study attempts to integrate these two approaches and investigate any differences in the perception of job and life satisfaction after recalling an event. The survey instrument has four parts; first part refers to the levels approach followed by a measure of life and job satisfaction; second part requires the respondents to recall an event from their recent past and respond to the measure of life and job satisfaction. The initial results indicate that a significant difference in job satisfaction is found when and there is a recall of work interference with personal life event.

Keywords: Work Life Balance, Work Life Enhancement, Work Life Interference, Life Satisfaction, Job Satisfaction

Introduction

The aspect of how individuals balance their work and life has attracted researchers and organizations in recent times. Recently, several reviews have delivered an excellent analysis of work-life balance (Casper, Vaziri, Wayne, DeHauw, & Greenhaus, 2018; Sirgy & Lee, 2018; Williams, Berdahl, & Vandello, 2016; Rothbard, Beetz, & Harari, 2021). Work-life balance viewed from a global perspective examines the association between work-life balance and its outcomes. In the combined spillover perspective, the processes shaping the work-life balance and association among various roles are studied (Wayne, Butts, Casper, & Allen, 2017). Generally, literature on work-life balance identifies depletion and enrichment as the two processes that influence and shape the perception of work-life balance. The association among these processes gets examined through two approaches.

The first being the levels approach, where the dimension of time gets ignored, and the general perception of WLB (Work-Life Balance) acquires the focus. Secondly, in the episodic approach, the functionality of time is of central focus with the perspective that episodes (events experienced by individuals in work and non-work life) influence these processes (Maertz Jr & Boyar, 2011; Rothbard, Beetz, & Harari, 2021). Studies under the episodic approach are scarce, and researchers opine that integrating these approaches will shed more light on WLB (Rothbard, Beetz, & Harari, 2021). We attempt to fill this gap by combining these two approaches and study WLB by bringing in the dimensionality of time and the impact of events. Further, we investigate whether this integration influences the perception of job and life satisfaction differently. This combined approach will help organizations deploy WLB schemes in a tailor-made manner effectively. Various events an employee experience throughout one's career influence WLB by varying proportions. We divide our study into the following sections: definition, theoretical perspectives, and hypothesis development, measures, results, and conclusion.

Definition

Various definitions and conceptualizations of work-life balance exist and reviewing all is beyond the scope of this study. We present a few of them here. From the global perspective, WLB is "the relationship between the institutional and cultural times and spaces of work and non-work in societies where income gets predominantly distributed through labor markets" (Finstad, 2010). Casper, Vaziri, Wayne, DeHauw, & Greenhaus (2018) define WLB as a psychological construct "arising from the degree to which their affective experiences and their perceived involvement and effectiveness in work and non-work roles are commensurate with the value they attach to these roles." A customary definition

of work-life balance is an association between work/family conflict (interference) and work/family facilitation (enhancement). This definition of balance involves two pathways: conflict and facilitation, which are considered negative and positive. These pathways interact in specific ways to produce balance (Frone, 2003; Grzywacz & Bass, 2003).

Theoretical perspectives

Depletion and enrichment processes in work-life balance are rooted in role strain theory and role accumulation theory, respectively (Rothbard, Beetz, & Harari, 2021). Role strain theory (Goode, 1960) claims that individuals experience role strain as their total role obligations are over-demanding in nature. Individuals reduce their role strain by using various techniques such as compartmentalization, delegation, and elimination of role relationships. Drawing parallels with economic structures, individuals with finite resources reduce their role strain by reallocating these resources. They avoid roles altogether (role avoidance), or they enter into negotiation of roles where their interest is to put forth maximum demands against minimum performance (role bargains) (Goode, 1960). In this scarcity approach, all the roles undertaken by an individual fight for finite resources which an individual possesses, thus leading to role strain. This role strain manifests through role overload and role conflict. Role overload is experienced when allocating required time (which is a finite resource) becomes difficult for various roles. Role conflict occurs when individuals comply with one role, thereby violating expectations of the other roles involved (Sieber, 1974).

Sieber (1974) postulated that role accumulation theory claims that multiple roles experienced by individuals result in positive outcomes contrary to the assertions of role strain. These positive outcomes are categorized as role privileges, overall status security through buffer roles, resources for status enhancement and role performance, and enrichment of the personality and ego gratification. As individuals accumulate a more significant number of roles, their privileges grow. Multiple roles compensate for role strain by providing numerous buffers against failure in some of the roles. Through these buffer roles, role performance increases; thereby, an individual achieves a sense of security. Additional roles also bring in status enhancement and career progression. Further role accumulation helps in enhancing one's personality and self-concept. (Sieber, 1974). In contrast to role strain theory, role accumulation theory expresses a contrarian view that multiple roles help individuals grow in their lives.

Episodic approach of work-life balance is rooted in peak-end and delayed gratification theories. According to peak-end theory (Redelmeier & Kahneman, 1996), recent episodes of enrichment and depletion influence the evaluation of work-life balance by individuals with varying proportions. This theory indicates that work-life balance may be more than the sum of the momentary experiences of depletion and enrichment as experienced by individuals (Rothbard, Beetz, & Harari, 2021).

The theory of delayed gratification (Mischel, 1974) explains that individuals may have enrichment experience in the long term despite momentary episodes of depletion. Delayed gratification emphasizes the importance of how the temporal (time) perspective connected with one's role identity influences how the identity gets assessed as enriching or depleting, thereby affecting the work-life balance (Rothbard, Beetz, & Harari, 2021).

Hypotheses development

Work-Family Conflict (Interference)

"Work-home conflict is a generalized state and a subset of role conflict that results from the incompatibilities between role expectations and the consequences of such incompatibilities" (Kreiner, Hollensbe, & Sheep, 2009). In the literature, work-home conflict is conceptualized as bidirectional and measured by Work Interference with Personal Life (WIPL) and Personal Life Interference with Work

(PLIW) which are distinct in nature (Mesmer-Magnus & Viswesvaran, 2005). A study by (Casper, Vaziri, Wayne, DeHauw, & Greenhaus (2018) empirically confirms through a diary study that the work-family interface (work-family conflict and work-family facilitation) is dynamic that changes daily and is related to job characteristics. Taking time as an equitable distributive concept, Sheldon, Cummins, & Kamble (2010) measured individuals' life balance and found an association with their subjective wellbeing. In this study, variation between actual and intended or ideal use of time reported by individuals gets conceptualized as a work-life balance measure. Through a diary study, Judge, Llies, & Scott (2006), by measuring with-in variations, found that WFC (work-family conflict) and FWC (family-work conflict) experienced by employees are associated with guilt and hostility. In their review Maertz Jr & Boyar (2011) state that the primary assumption under the levels approach is that there is a cause for work-family conflict. Further, they opine that the episodic approach allows studying the conflict by foregoing this assumption and attempts to find the cause. In a diary study, Van Hooff, Geurtz, Kompier, & Taris (2006) found global work home interference was positively related to its daily variation. A diary study (Cropley & Purvis, 2003) reported that teachers who experienced high strain during the work took longer time to unwind, reported less personal control over their activities at home than those experiencing low strain.

Job Satisfaction

In a longitudinal study, Brough et al. (2014) establish a significant influence of work-life balance on job satisfaction. Studies in abundance report an association between work-life balance and job satisfaction (Fisher, Bulger, & Smith, 2009). In their meta-analysis McNall, Nicklin, & Masuda (2010) find positive associations between both enrichment measures (WFE and FWE) and job satisfaction, affective commitment, physical health, and mental health also a negative association with turnover intention.

Life Satisfaction

Investigating across seven countries a study conducted in thirty-four countries (Noda, 2020) found a positive association between work-life balance and life satisfaction.

Hence integrating these two approaches, we hypothesize:

Hypothesis 1: Work Interference with Personal Life is negatively associated with Job satisfaction

Hypothesis 2: Work Interference with Personal Life is negatively associated with Life satisfaction

Hypothesis 3: Recent interference event experienced by individuals reduces/increases Job Satisfaction in comparison to which was reported before recalling the event

Hypothesis 4: A Recent interference event experienced by individuals reduces/increases Life Satisfaction in comparison to which was reported before recalling the event

Work-Family Enrichment (Enhancement)

Rooted in role accumulation theory, Greenhaus & Powell (2006) propose that if role performance in a given domain is of greater value for an individual, then the potential for transferring resources from other domains to that role is higher, thereby facilitating the process of enrichment. Sieber (1974) defines enhancement as "the acquisition of resources and experiences that are beneficial for individuals in facing life challenges" (as cited in (Carlson, Kacmar, Wayne, & Grzywacz, 2006, p. 133). Greenhaus & Powell (2006) define work-family enrichment as "the extent to which experiences in one role improve the quality of life in the other role" (p. 72).; "quality of life", encompasses two elements: "high performance" in a given role within the receiving domain (either work or family) and "positive affect" experienced within a role in the receiving domain (p. 80). The resources involved in this enrichment process are psychological, physiological, KSAs (knowledge, skills, and abilities), social capital, flexibility, and material resources. The mechanisms involved in these transfers are an instrumental

mechanism where the direct effect is experienced and the affective mechanism where the indirect effect is felt on improving the performance of a role in the receiving domain. In their meta-analysis McNall, Nicklin, & Masuda (2010) find positive associations between both enrichment measures (WFE and FWE) and job satisfaction, affective commitment, physical health, and mental health also negative. Hence, we hypothesize:

Hypothesis 5: Work Enhancement by Personal Life is positively associated with Job satisfaction

Hypothesis 6: Work Enhancement by Personal Life is positively associated with Life satisfaction

Hypothesis 7: A Recent enhancement event experienced by individuals reduces/increases Job Satisfaction in comparison to which was reported before recalling the event

Hypothesis 8: A Recent enhancement event experienced by individuals reduces/increases Life Satisfaction in comparison to which was reported before recalling the event

Measures

Work interference with personal life (WIPL), Personal Life interference with Work (PLIW), Work Enhancement by Personal Life (WEPL), Personal Life Enhancement by Work (PLEW) are measured by a scale developed by Fisher, Bulger, & Smith (2009). The scale consists of 17 items, and sample items are: My job makes it difficult to maintain the kind of personal life I would like; I am too tired to be effective at work because of things I have going on in my personal life; The things I do at work help me deal with personal and practical issues at home; My personal life gives me the energy to do my job.

Life satisfaction was measured by using a five-item life satisfaction scale by Diener, Emmons, Larsen, & Griffin (1985). The sample items are: So far, I have gotten the important things I want in life; If I could live my life over, I would change almost nothing.

Overall job satisfaction scale was measured by a scale developed by Weiss, Nicholas, & Daus (1999). The sample items are: All in all, I am satisfied with my job; In general, I like working where I am working right now.

Results

The indicative results from the preliminary analysis of data are presented in Table 1.

| Constructs | Pearson Correlation | |
|------------|---------------------|------------------|
| | Life Satisfaction | Job Satisfaction |
| WIPL | -0.17 | -0.02 |
| PLIW | -0.72 | -0.55 |
| WEPL | 0.77 | 0.55 |
| PLEW | 0.51 | 0.49 |

Table 1: Correlations among the constructs

Further a t -test reveals that recalling work interference with personal life event impacts the perception level of job satisfaction (t statistic 0.64; $p < 0.05$ N= 12) but no effect on life satisfaction. Recalling PLIW, WEPL and PLEW events don't have any impact on both and job satisfaction.

Conclusion

With an integration perspective, we combine levels and episodes approach in work-life interface and aim to study its influence on job and life satisfaction. We stated that recalling an event, depending on its nature (interference/ enhancement), will have a positive/negative influence on the levels of job and life satisfaction. Our preliminary analysis (N=39) proves the hypotheses that work life constructs have an association with job and life satisfaction as indicated by earlier studies. Further this study reveals

that only recalling work interference with personal life event impacts job satisfaction but not life satisfaction. In large samples we expect a difference would exist between job and life satisfaction scores before and after the recall of an event related to work-life interface. This study results will contribute to the work-life balance domain and further shed light on whether levels and episodic approaches converge or diverge.

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Current State and Determinants of SDG Reporting by Businesses: A Perspective

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Abstract

Since UN had adopted Sustainable Development Goals (SDGs) in 2015, companies around the world have started aligning their business processes and reporting practices to incorporate SDG related initiatives. However, when it comes to SDG Reporting by businesses, the literature is nascent and no significant effort has been made to collate the findings of the previous studies. In this paper, we study existing literature to arrive at the research contexts and the determinants of SDG adoption. We also highlight the theories & contexts which have been used to explain SDG reporting related phenomena. As SDG Reporting in a growing area and businesses are increasingly adopting it, our proposed conceptual framework will be equally of interest to the academicians, practicing managers and policy makers.

Keywords: SDG Reporting, Non-financial Reporting, Sustainable Development Goals (SDGs), Agenda 2030, Corporate Sustainability

The Interplay between Corporate Sustainability and Organizational Willingness and Ability: Evidence from India

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Abstract

Corporate sustainability (CS) is a voluntary pursuit subject to corporate self-determination. A systematic inquiry on how organizations create shared value through the integration of CS in managerial decision-making is limited. Drawing conceptual basis from stakeholder theory and resource-based view (RBV) rooted in the strategy literature, the paper addresses the research gap by proposing a bi-dimensional framework based on organizational willingness and ability to identify the factors affecting a firm's CS orientation. The paper tests the theoretical predictions through a six-year unbalanced panel using Prais-Winsten Panel Corrected Standard Error (PCSE) approach. The paper identifies institutional shareholding, foreignness, and firm maturity (affecting organizational willingness), and firm size and profitability (affecting organizational ability) as significant factors explaining the variation in CS.

Keywords: Business Groups, Corporate Sustainability, Emerging Markets, Expropriation, Governance

A Review of the Sustainability and CSR/CSV focus of Startups in India

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Abstract

Today consumers are willing to move towards sustainability-focused products and pay a premium for them. This focus can inspire startups to grow business and do social good. We reviewed 122 startups in India. We categorize their Environmental and Social focus areas into Not Present, Corporate Social Responsibility (CSR), and Creating Shared Value (CSV). We conclude that startups in agriculture focus on social and economic equity. In contrast, startups in beauty products, nutrition, and wellness focus on recycling, and mobility startups focus on reducing CO2 emissions. Marketplace and hospitality startups do not usually have CSR or CSV focus. We highlight good initiatives. The success of this paper is whether it can motivate thousands of startups to add a few lakhs of beneficiaries and reduce environmental pollution.

Keywords: Sustainability, Corporate Social Responsibility, CSR, Creating Shared Value, CSV, Startup, India, Entrepreneurship

Introduction

McKinsey Global Survey report (Delevingne, Gründler, Kane, & Koller, 2020) states that investors and executives believe ESG activities of companies will add to the shareholder value. Further, consumers are moving towards sustainability-focused products and are willing to pay a premium (Gatzer & Clarisse, 2021). Today Corporate Social Responsibility (CSR) activities of businesses are more than philanthropic activities. There is an expectation that they will integrate Environmental, Social, and Governance (ESG) concerns into their operations (United Nations International Development Organization, 2021). (Porter & Kramer, 2019) introduced the concept of shared value or Strategic CSR. They argue that the companies can grow and create benefits for society by looking for opportunities to develop a shared value (CSV). We are reviewing Indian Startups to see which strategy they are following for Sustainability and CSR – Philanthropic or CSV. We focus on startups in agriculture, fresh food, beauty products, nutrition and wellbeing, and consumer goods and services sectors. These sectors are clear choices to study in sustainability. Large companies have a legal mandate to spend on CSR activities. Hence, we do not focus on them. But we review startups that do not have a legal mandate but may have to do CSR for either strategic or philanthropic reasons. We choose startups that have raised capital in 2021.

Background

The theory of CSR has evolved from the pyramid of CSR (Carroll, 2016) that talks of philanthropic responsibilities to the institutional theory that companies will behave in a socially responsible behavior if they have strong engagement with the stakeholders such as NGOs and employee associations (Campbell, 2007). However, as the firm's objective is satisfying the stockholders who are the primary stakeholders of a firm, the CSR behavior of most firms is of "Social Obligation" (Sethi, 1979). However, the startups do not primarily have any social pressure, as they are not profitable. But the startups are spending a lot of money to create new business opportunities and markets. (Porter & Kramer, December 2006) show that strategic CSR will unlock business opportunities for a company and drive its growth. They define a concept of "Creating Shared Value" (CSV) that allows companies to grow business profitably while fulfilling the social obligation (Porter & Kramer, 2019). When businesses earn profits and revenues while improving their communities' economic and social conditions, they create Shared Value. This approach is capitalism while doing social good and not defining CSR's success with money spent or benefit achieved. The money spent by the firm must improve its

bottom line. CSV is a long-term sustainable model of social good by companies, as managers have a vested interest in continuing, and social good is not dependent on a policy or regulation. The startups do not have regulatory responsibilities for CSR. Most startups, except for the Unicorns, also do not have the public visibility that would make them the target of activists. However, the startups are the harbinger of the future. Therefore, we would like to review how the companies in India at their formative and growing stage have sustainability and CSV in their focus.

Methodology

Data Collection

The StartupTalky.com website (Startup Talky, 2021) lists the names of all the startups that have received external funding. We took the list of startups that received funding till August 2021. Seven hundred twenty startups received funding. Entrackr (Entrackr, n.d.) is another website to get the details of funding that startups have received. StartupTalky.com allows data download in spreadsheet format for easy analysis.

Of the 720 startups in the list, we selected 122 startups in the consumer and retail sectors. We have chosen startups in the consumer sector – retail, agriculture, fresh food, meat, beauty, nutrition, and wellness. These sectors are easily associated with sustainability and the environment. Usually, companies in these sectors market their products with information on sourcing, effect on the environment, and ingredients. Therefore, we want to study their CSR and CSV focus.

We consider the benefits to the environment and society and not to the end consumer. So, for example, the startup could provide products to the consumer with organic and pesticide-free ingredients. Still, if they do not discuss how they work with their supply chain or any other sustainability activity, we categorize that they do not focus on this area.

The business area categorization is based on the classification in startuptalky.com and then refined by the researcher's judgment.

(Tiba, van Rijnsoever, & Hekkert, 2021) have studied different ecosystems of startups around the world to understand the location of the sustainability startups. This reference has used a similar methodology. In addition, however, they have reviewed websites of 19,997 startups and analyzed the text of the websites using the latent Dirichlet allocation method (Blei, Ng, & Jordan, 2003).

Table 1: Names of Startups Reviewed with Area of Business

| Area of Business | No | % in the study | Names |
|---|----|----------------|--|
| Apparels & Fashion | 10 | 8.2% | Almo, Bewakoof, BlissClub, Fashinza, Flatheads, LetsDressUp, Nestroots, Solethreads, XYXX Apparels, Zouk |
| Agriculture, Aquaculture, Fresh Vegetables, and Fruits, Meat Products | 23 | 18.9% | AgNext, Agri10x, Aqrolmalin, Aquaconnect, Captain Fresh, CropIn, DeHaat, EF Polymer, Ergos, Faarms, FarMart, FRAAZO, Fyllo, Gourmet Garden, Licious, Origo, Reshamandi, Safex Chemicals, Samunnati, Superplum, TenderCuts, UrbanKisaan, Vegrow |

| Area of Business | No | % in the study | Names |
|-------------------------|----|----------------|--|
| Consumer Goods | 12 | 9.8% | Biocraft Innovation Technology, boat, Candes, Clairco, Lenskart, Neeman, Nobel Hygiene, Sirona Hygiene, SleepyCat, Soothe Healthcare, The Sleep Company, WaterScience |
| Cosmetics | 12 | 9.8% | Auric, Bella Vita Organic, Bombay Shaving Company, Earth Rhythm, Juicy Chemistry, Mamaearth, Minimalist, MyGlam, Purple, Scentials, The Switch Fix, Vanity Wagon |
| Mobility | 5 | 4.1% | Blaer Motors, Metro Ride, Oye Rickshaw, Rapido, Zingbus |
| Food & Beverages | 11 | 9% | Blue Tokai Coffee Roasters, Chai Waale, F5, Happy Jars, Kwik Foods, Nao Spirits & Beverages, Rage Coffee, Snack Amor, TagZ Foods, True Elements, TruNativ |
| Marketplace | 14 | 11.5% | 6Degree, AMPM, CityMall, DusMinute, Express Stores, Indic Inspirations, Jobsgaar, Jumbotail, Ourbetterplanet, OwO, Pepperfry, ReDesyn, Spinny, Vahak |
| Hospitality | 4 | 3.3% | goSTOPS, OYO, Treebo Hotels, Vista Rooms |
| Nutrition and Wellbeing | 15 | 12.3% | AyuRythm, Green Cure, Keeros, MYFITNESS, Onelife Nutriscience, Otipy, OZiva, Pee Safe, Power Gummies, SMOOR, Supply6, The Ayurveda Co, The Whole Truth, Wellbeing Nutrition, Zingavita |
| Services | 11 | 9% | Blive, Dunzo, Furlenco, GoTo, Inspacco, Ixigo, Playo, Skymet, Swiggy, Tilt, The Urban Company |
| Social Commerce | 2 | 1.7% | DealShare, Trel |
| Petcare | 2 | 1.7% | Heads up for Tails, Super Tails |
| Water | 1 | 1% | Swajal |

We reviewed each company's website in the list and looked to see if they talk of sustainability, CSR, or CSV. We performed the following steps in the review

1. Look for keywords – "Sustainability", "CSR", and "Social Impact" in the home page, and menu bar
2. We look for the link to "About Us" page at the navigation menu or the bottom of the home page, if not present in the navigation menu
3. Go to "About Us" page, and again look for the above keywords
4. We categorize that the company does not list focus if there is no mention about these topics

Findings

We find that only a handful of startups talk of social impact or sustainability in their home page at a prominent place. We navigate to their "About Us" page to find the details. Most companies do not have "About Us" in a prominent place, and we must navigate to the bottom of their home page.

Here is a table of the focus of the startups.

Table 2: Breakdown by Focus (Behaviour)

| Focus | Number of Startups |
|-------------------------------------|--------------------|
| No mention of CSR or Sustainability | 56 (46%) |
| CSR | 16 (13%) |
| CSV | 50 (41%) |

1. The E-commerce/Marketplace startups talk the least about sustainability. The reason could be that they are a marketplace of many products and cannot talk about sustainability.
2. The startups in the Agriculture area (working with farmers) are focusing on social and economic equity. They show their social impact by saying that farmers get a fair price and prompt payment. They are also generating employment for rural people.
3. The Beauty area (Cosmetics) startups that use organic ingredients show a focus on sustainability via recycling.
4. The cosmetics companies which do not have organic ingredients do not talk much about CSR or Sustainability.
5. Only two startups map their goals to United Nations Sustainable Development Goals (United Nations Department of Economic and Social Affairs, n.d.).
6. One startup in the Electronics area talks of regulatory compliance and does not promote recycling actively.
7. Very few startups are showing the actual impact

The following table shows the year of founding of startups focusing on CSR/Sustainability/CSV and those that do not have.

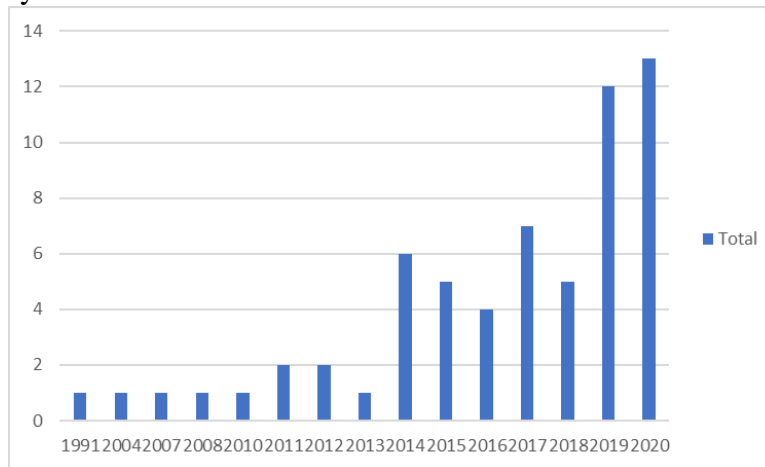


Figure 1: Year founded of startups with CSR/CSV/Sustainability focus

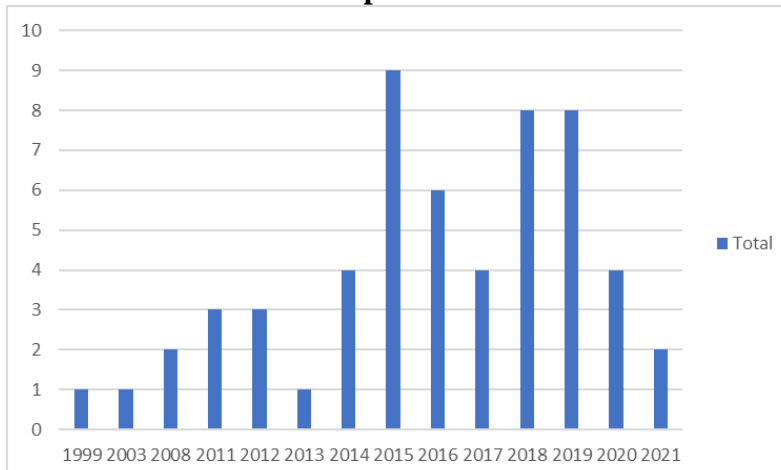


Figure 2: Year founded of startups without CSR/CSV/Sustainability focus

We can see that the startups that started later are more focused on CSR/CSV/Sustainability, and the trend was increasing in 2020. This trend is in line with the increasing awareness in society.

Best Practices

1. Swajal shows the social impact in terms of saving plastic and reducing CO2 emissions with Water ATMs. It further asks for nominations for a place to install Water ATMs and will find a sponsor.
2. A financial startup in agriculture has created a foundation for CSR activities (Sammunati)
3. Tendercuts has supported voting in an election. However, no other startup has taken up an effort to tackle a civic issue.
4. GoTo (mobility startup) is contributing Rs 51 to PM Cares relief fund for every booking. This contribution is a CSR activity, as the startup is not able to show CSV.
5. Earth Rhythm employs people with autism and down syndrome
6. Supply6 donates a meal to the underprivileged with every order it receives
7. Soothe Healthcare has reached out to 35,000 women
8. Fashinza has provided Covid-19 help to suppliers
9. Mamaearth plants tree with every order, and the tree plantation is traceable to the order
10. Sleepycat donates its product to NGOs
11. Safex chemicals has stopped manufacturing products harmful for the users and is working on ways to prevent itching

Future Work

The secondary data is the basis for research in this paper. The next step would be to interview the startup founders to understand why they are not highlighting CSR and Sustainability efforts and whether there is a strategic need. We should study if their consumers are willing to pay a premium for their offerings if they have Strategic CSR in place. The relevance of UNSDGs should also be looked at, as almost no Indian startup references them.

The data was collected by going through the websites of companies manually. Therefore, we must use text mining methodology like latent Dirichlet allocation (Blei, Ng, & Jordan, 2003). The usage of such a method will allow us to research many startups worldwide.

Conclusion

Creating shared value opens new business opportunities while helping in social and economic equity. The agriculture-related startups in India are a great example. They are developing technology while helping farmers with best practices, fair trade, and rural employment. The mobility startups are using EV and helping reduce CO2 emission while solving the problem of last-mile connectivity and micro-area commutes. However, the marketplace startups have an excellent opportunity to look in this area, as many are not focused on CSR or CSV. Overall, all the startups in India are not highlighting their work in the sustainability area. We must navigate through a couple of web pages or to the bottom of their website's home page to see their work. As the consumer is more aware of sustainability, the startups must highlight this. For example, beauty, wellness, and nutrition startups focus on providing healthy and safe ingredients to the consumer but do not talk much about helping in the supply chain. Their sustainability efforts are limited to recycling. The startups do not need to wait to be profitable to focus on CSR and sustainability. They can use CSR and sustainability to generate business and become profitable. It is a win-win situation for the environment, society, and the firm.

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Customers' Perception of Corporate Social Responsibility in India: Scale Development and Validation

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Abstract

This study aims to develop and validate a scale to assess consumers' perceptions of Corporate Social Responsibility (CSR) activities in the context of Indian CSR legislation. Factor analysis and structural equation modeling are accommodated for analysis. A multidimensional 'Seventeen item scale' is created and verified to assess the CSR viewpoint from a sustainability paradigm. The research confirms that perceived CSR might affect purchase intention by increasing consumer satisfaction. CSR activity has a positive impact on customers' evaluation of corporate. CSR measurement on customers' behaviour based on legal framework is a novel study in India. This research contributes to a comprehensive scale for CSR assessment based on the sustainable development framework.

Keywords- Corporate Social Responsibility (CSR), Scale development, Customer satisfaction, Purchase intention, Company evaluation, India

Corporate Social Responsibility and Organizational Performance: The Intervening role of Sustainability Risk Management and Organizational Reputation

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Abstract

This research aims to examine the complex sustainable mechanism underlying the association between corporate social responsibility (CSR) and organizational performance (OP). Based on sequential mediation analysis, this study links CSR with organizational performance through sustainability risk management (SRM) and organizational reputation. A sample of 325 managers of European multinational firms was used to investigate the proposed hypotheses. The present study results provided support for all proposed hypotheses. SRM and organizational reputation found to have a mediating effect on the linkages between CSR and OP both independently as well as sequentially. By providing meaningful insights about the relationship between CSR and OP, the study advances the understanding on the triple bottom line (TBL) and provides a basis for designing strategic and effective CSR practices.

Keywords: Corporate Social Responsibility (CSR); Organizational Performance (OP); Sustainability Risk Management (SRM); Sequential Mediation Analysis.

Impact of Governance Transparency on Firm Value

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Abstract

This study examines the relationship between governance transparency and firm value by using data for 1285 non-financial companies of MSCI All Country World Index (ACWI), each having data for 10 years, thus providing a balanced panel of 12,850 firm-year observations. Our sample includes data for firms across 10 GICS sectors and 46 developed and emerging countries. Governance disclosure scores and its components reported by Thomson Reuters have been adopted as an indicator of governance transparency. The findings show that there is significant positive relationship between governance transparency and firm value. The results suggest that higher governance transparency enhance firm value and can be considered as additional non-financial information that helps investors make better decisions.

Keywords- ESG, governance transparency, firm value

Introduction

Investors are expected to have a higher confidence in firms which are transparent. As fallout, such firms are also likely to have better corporate governance practices. By ensuring accountability in corporate governance, transparency is generally expected to result in a better firm performance and a higher firm value. There have been many recent amendments in laws for disclosures made by firms in many countries. SEBI (LODR), 2016 has introduced disclosures norms for listed firms in India to increase the level of transparency. Knowledge about governance structure is important in assessing the credibility of information provided by firms. Governance transparency helps in assessing the quality of information. Governance related disclosures include information about governance structure, remuneration and shareholdings of officers and directors, and holdings of other major shareholders (Bhat, Hope & Kang, 2006).

Previous studies have examined the impact of ESG disclosures on firm performance and value (Qiu, Shaikat & Tharyan, 2016) (Yu, Guo & Luu, 2018) (Li, Gong, Zhang & Koh, 2018) (Brooks & Oikonomou, 2018). This study contributes to corporate governance literature by examining governance transparency and its impact on firm value. This study examines the relationship between governance transparency and firm value proxied by Tobin's Q by using data for 1285 non-financial companies of MSCI all country world index (ACWI), each having data for 10 years, thus providing a balanced panel of 12,850 firm-year observations. Governance disclosure scores reported by Thomson Reuters have been adopted as an indicator of governance transparency. These disclosure scores range between 0 and 100, which means higher the disclosure score, more the transparency of firm in particular segment. Nine disclosure scores have been adopted in this study. The proposed relationship is examined by ordinary least squares method controlling for industry and year fixed effects. The findings show that there is significant positive relationship between governance transparency and firm value. The environmental, social and governance (ESG) components separately have significant positive impact on firm value. Prior literature has focused on importance of environmental and social transparency. The results of this study suggest that higher governance transparency enhances firm value and can aid investors in making better and informed decisions. The findings indicate that policymakers and regulators should impose mandatory or voluntary disclosure requirements to encourage companies to disclose more information.

Section 2 provides literature review and hypotheses, section 3 describes data and methodology used in this study, section 4 gives empirical results and analysis, section 5 provides discussion and conclusion, and section 6 discusses limitations and scope for future research.

Literature Review

Previous studies suggest that governance indicators have positive or negative relationship with firm performance (Hermalin & Weisbach, 1991) (Adams, Hermalin & Weisbach, 2010). However, very few studies have examined the impact of governance transparency on firm performance. (Haat, Rahman & Mahenthiran, 2008) examines the impact of governance practices on corporate transparency and performance using data for Malaysian firms. Across 21 countries, (Bhat, Hope & Kang, 2006) examines how differences in transparency affect the average forecast accuracy of analysts for firms in each country. After accounting for financial openness and other variables, authors find that governance transparency is positively correlated with analyst forecast accuracy.

Previous researchers have examined the impact of ESG performance and disclosures on firm performance and firm value. (Yu, Guo & Luu, 2018) find that higher ESG transparency increases firm value and firms having large asset size, higher liquidity, higher R&D intensity, lower insider holdings and better past performance provide more ESG disclosures. (Li, Gong, Zhang & Koh, 2018) study the role of CEO power in enhancing ESG disclosure impact on firm value. Their results show positive impact of ESG disclosure level on firm value and higher CEO power enhances the ESG disclosure impact on firm value. (Qiu, Shaukat & Tharyan, 2016) find that past profitability increases current disclosures in social related information. Prior literature has focused on importance of environmental and social transparency. This study focuses mainly on role of governance transparency in impacting firm value. Following hypotheses are proposed to be examined in this study:

- a. *There is significant positive association between governance transparency (indicated by governance pillar score) and firm value.*
- b. *There is significant positive association between ESG transparency and firm value.*
- c. *There is significant positive association between governance transparency (indicated by management score, shareholders score and CSR score) on firm value.*

Data and Methodology

Data

The data for non-financial firms of MSCI All Country World Index (ACWI) is used to examine the impact of governance transparency on firm value. The sample period is 2011-2020. The initial sample consists of 2300 firms. After removing data for financial firms and firms having missing values of variables, the final sample consists of 1285 firms each having data for 10 years, thus providing a balanced panel of 12,850 firm-year observations. The data for the disclosure scores and financial variables of 1285 global firms have been collected from Refinitiv Eikon database of Thomson Reuters. This study includes data for firms across 10 GICS sectors and 46 developed and emerging countries.

Variables

This study examines the impact of corporate governance transparency on firm value. Firm value is dependent variable in this study. Tobin's Q is widely used as a proxy for firm value (Yu, Guo & Luu, 2018) and is calculated as follows:

$$Tobin'sQ = (Equity\ market\ value + Liabilities\ book\ value) / (Equity\ book\ value + Liabilities\ book\ value)$$

Seven disclosure scores are used as independent variables in this study to indicate transparency in environmental, social and governance (ESG) segments. These scores are reported by Refinitiv Eikon database of Thomson Reuters. These variables are environment pillar score, social pillar score, governance pillar score, ESG score, management score, shareholders score and corporate social responsibility (CSR) score. These scores are prepared on the basis of self-reported information provided by the firms. The scores range between 0 and 100. The higher score indicates higher degree of transparency in reporting material ESG data publicly. Management score, shareholders score and CSR score are components of governance pillars indicating governance transparency.

The previous studies show that liquidity, firm size and leverage affect firm value (Yu, Guo & Luu, 2018). The effect of these variables should be controlled. Therefore, firm size, liquidity and leverage are the control variables in this study. Firm size (FirmSize) is calculated as the natural logarithm of total assets. Current ratio reported by Refinitiv Eikon is adopted as liquidity indicator in this study. Leverage (Lev) is calculated as:

$$Lev_t = Total\ Debt_t / Total\ Assets_t$$

Model Specification

Sixteen models have been analyzed in this study to examine the impact of various disclosure scores on firm value. Eight models have been analyzed using industry dummies and other eight models have been analyzed using both industry and country dummies. Tobin's Q (TQ) is the dependent variable in each model. Current ratio (CR), firm size (FirmSize) and leverage (LEV) are the control variables. Following equations are formed to represent the models:

$$TQ_{i,t} = \beta_0 + \beta_1 EPS_{i,t} + \beta_2 SPS_{i,t} + \beta_3 GPS_{i,t} + \beta_4 CR_{i,t} + \beta_5 FirmSize_{i,t} + \beta_6 LEV_{i,t} + Yearfixedeffect_t + Industryfixedeffect_i + \varepsilon_{i,t}$$

$$TQ_{i,t} = \beta_0 + \beta_1 ESG_{i,t} + \beta_2 CR_{i,t} + \beta_3 FirmSize_{i,t} + \beta_4 LEV_{i,t} + Yearfixedeffect_t + Industryfixedeffect_i + \varepsilon_{i,t}$$

$$TQ_{i,t} = \beta_0 + \beta_1 MS_{i,t} + \beta_2 SS_{i,t} + \beta_3 CSRS_{i,t} + \beta_4 CR_{i,t} + \beta_5 FirmSize_{i,t} + \beta_6 LEV_{i,t} + Yearfixedeffect_t + Industryfixedeffect_i + \varepsilon_{i,t}$$

Where $TQ_{i,t}$ represents Tobin's Q, $EPS_{i,t}$ represents environmental pillar score, $SPS_{i,t}$ represents social pillar score, $GPS_{i,t}$ represents governance pillar score, $ESG_{i,t}$ represents ESG score, $MS_{i,t}$ represents management score, $SS_{i,t}$ represents shareholders score, $CSRS_{i,t}$ represents CSR score, $CR_{i,t}$ represents current ratio, $FirmSize_{i,t}$ represents size of firms, $LEV_{i,t}$ represents leverage of firms and $\varepsilon_{i,t}$ represents residuals.

Empirical Results and Analysis

Descriptive statistics of variables used in this study is presented in Table 1. There are 12,850 firm-year observations for each variable. The mean value of Tobin's Q (TQ) is 1.851 with a standard deviation (SD) of 1.267, ranging from 0.224 to 20.699. The mean environmental pillar score (EPS) is 54.269 with a SD of 27.221, having a maximum (minimum) value of 98.888 (0). The mean social pillar score (SPS) is 56.941 with a SD of 24.005, having a maximum (minimum) value of 98.628 (0.265). The mean governance pillar score (GPS) is 57.147 with a SD of 21.801, having a maximum (minimum) value of 99.460 (0.45). The mean ESG score (ESG) is 56.507 with a SD of 20.259, having a maximum (minimum) value of 94.519 (2.421). The mean management score (MS) is 58.659 with a SD of 27.448, having a maximum (minimum) value of 99.981 (0.122). The mean shareholders score (SS) is 53.922 with a SD of 28.412, having a maximum (minimum) value of 99.980 (0.116). The mean CSR score (CSRS) is 54.422 with a SD of 32.424, having a maximum (minimum) value of 99.876 (0). The average current ratio (CR) is 1.738 with a SD of 1.437, ranging from 0.022 to 33.123. This means, on average, current assets is 1.738 times of current liabilities. The mean leverage (LEV) of firms

is 0.265 with a SD of 0.168, having a maximum (minimum) value of 2.439 (0). This means that sample firms, on average, have 26.5% debt relative to total assets.

Table 1. Descriptive Statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|----------|--------|--------|-----------|--------|--------|
| TQ | 12,850 | 1.851 | 1.267 | 0.224 | 20.699 |
| EPS | 12,850 | 54.269 | 27.221 | 0.000 | 98.888 |
| SPS | 12,850 | 56.941 | 24.005 | 0.265 | 98.628 |
| GPS | 12,850 | 57.147 | 21.801 | 0.450 | 99.460 |
| ESG | 12,850 | 56.507 | 20.259 | 2.421 | 94.519 |
| MS | 12,850 | 58.659 | 27.448 | 0.122 | 99.981 |
| SS | 12,850 | 53.922 | 28.412 | 0.116 | 99.980 |
| CSRS | 12,850 | 54.422 | 32.424 | 0.000 | 99.876 |
| CR | 12,850 | 1.738 | 1.437 | 0.022 | 33.123 |
| FirmSize | 12,850 | 23.348 | 1.225 | 19.303 | 27.300 |
| LEV | 12,850 | 0.265 | 0.168 | 0.000 | 2.439 |

(Notes: TQ represents Tobin's Q, EPS represents environmental pillar score, SPS represents social pillar score, GPS represents governance pillar score, ESG represents ESG score, MS represents management score, SS represents shareholders score, CSRS represents CSR score, CR represents current ratio, FirmSize represents size of firms and LEV represents leverage of firms.)

Correlation among variables is presented in Table 2. Environmental (EPS), social (SPS), governance (GPS), ESG, management (MS) and CSR (CSRS) disclosure scores have significant positive or negative correlation with Tobin's Q (TQ). Shareholders score (SS) has insignificant correlation with TQ. Among control variables, current ratio (CR) has positive correlation with TQ while firm size (FirmSize) and leverage (LEV) have negative correlation with TQ. Among disclosure scores, variables have either positive or negative correlation with each other.

Table 3 presents the regression results of eight models analyzed in this study. Ordinary least squares method is employed in all the models. Four models have been analyzed using industry dummies and other four models have been analyzed using both industry and country dummies. Tobin's Q (TQ) is the dependent variable in each model. Current ratio (CR), firm size (FirmSize) and leverage (LEV) are the control variables in each model. Table 3 shows the impact of various disclosure scores on firm value. In models 1 and 2, the impact of environmental pillar score (EPS), social pillar score (SPS) and corporate governance pillar score (GPS) on TQ is analyzed. EPS has significant negative impact while SPS has significant positive impact on TQ. GPS has insignificant impact on TQ. In models 3 and 4, impact of GPS is analyzed which has significant positive impact on TQ. This indicates that firms that make higher governance disclosures have higher market values. In models 5 and 6, impact of ESG score (ESG) is analyzed which has significant positive relation with TQ. In models 7 and 8, the sub-categories of governance pillar score are analyzed which are management score (MS), shareholders score (SS) and CSR score (CSRS). MS and CSRS have significant positive impact on TQ which means better corporate governance mechanisms and disclosures lead to higher firm value. Among control variables, current ratio (CR) has significant positive relation with TQ indicating more the liquidity, higher the firm value.

Table 2. Pair-wise Correlation Matrix.

| | TQ | EPS | SPS | GPS | ESG | MS | SS | CSRS | CR | FirmSize | LEV |
|----------|----------|-----------|-----------|-----------|-----------|-----------|----------|----------|-----------|----------|-----|
| TQ | 1 | | | | | | | | | | |
| EPS | 0.127*** | 1 | | | | | | | | | |
| SPS | 0.033*** | 0.730*** | 1 | | | | | | | | |
| GPS | 0.042*** | 0.388*** | 0.413*** | 1 | | | | | | | |
| ESG | 0.039*** | 0.867*** | 0.905*** | 0.667*** | 1 | | | | | | |
| MS | -0.018** | 0.261*** | 0.311*** | 0.945*** | 0.552*** | 1 | | | | | |
| SS | -0.011 | 0.116*** | 0.097*** | 0.436*** | 0.232*** | 0.183*** | 1 | | | | |
| CSRS | 0.124*** | 0.700*** | 0.639*** | 0.471*** | 0.726*** | 0.291*** | 0.110*** | 1 | | | |
| CR | 0.139*** | -0.156*** | -0.151*** | -0.123*** | -0.175*** | -0.099*** | -0.011 | 0.188*** | 1 | | |
| FirmSize | 0.398*** | 0.440*** | 0.355*** | 0.235*** | 0.414*** | 0.162*** | 0.074*** | 0.405*** | -0.231*** | 1 | |
| LEV | 0.094*** | 0.043*** | 0.050*** | 0.045*** | 0.053*** | 0.034*** | 0.009 | 0.072*** | -0.338*** | 0.208*** | 1 |

(Notes: *** p < 0.01, ** p < 0.05, * p < 0.1)

Table 3. Impact of ESG Transparency on Firm Value

| | Model 1 TQ | Model 2 TQ | Model 3 TQ | Model 4 TQ | Model 5 TQ | Model 6 TQ | Model 7 TQ | Model 8 TQ |
|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| EPS | -0.0007 | -0.0054*** | | | | | | |
| | (0.0014) | (0.0006) | | | | | | |
| SPS | 0.0073*** | 0.0125*** | | | | | | |
| | (0.0017) | (0.0006) | | | | | | |
| GPS | 0.0008 | 0.0001 | 0.0028*** | 0.0026*** | | | | |
| | (0.0010) | (0.0005) | (0.0004) | (0.0005) | | | | |
| ESG | | | | | 0.0074*** | 0.0075*** | | |
| | | | | | (0.0006) | (0.0006) | | |
| MS | | | | | | | 0.0015*** | 0.0012*** |
| | | | | | | | (0.0004) | (0.0004) |
| SS | | | | | | | 0.0001 | 0.0005 |
| | | | | | | | (0.0003) | (0.0004) |
| CSRS | | | | | | | 0.0016*** | 0.0015*** |
| .. | | | | | | | (0.0003) | (0.0004) |
| CR | 0.0600*** | 0.0599*** | 0.0547*** | 0.0490*** | 0.0605*** | 0.0589*** | 0.0565*** | 0.0514*** |
| | (0.0197) | (0.0074) | (0.0072) | (0.0075) | (0.0072) | (0.0075) | (0.0072) | (0.0076) |
| FirmSize | -0.4155*** | -0.4121*** | -0.3778*** | -0.3888*** | -0.4179*** | -0.4296*** | -0.3899*** | -0.3986*** |
| | (0.0367) | (0.0094) | (0.0088) | (0.0088) | (0.0094) | (0.0094) | (0.0094) | (0.0093) |
| LEV | 0.0564 | 0.2236*** | 0.0017 | 0.2269*** | 0.0491 | 0.2704*** | 0.0108 | 0.2392*** |
| | (0.2391) | (0.0632) | (0.0619) | (0.0641) | (0.0618) | (0.0638) | (0.0619) | (0.0641) |
| cons | 11.025*** | 10.5666*** | 10.3847*** | 10.2427*** | 11.0794*** | 10.9276*** | 10.6392*** | 10.4273*** |
| | (0.8152) | (0.2190) | (0.2115) | (0.2111) | (0.2189) | (0.2168) | (0.2221) | (0.2179) |
| Industry Dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Country Dummies | Yes | No | Yes | No | Yes | No | Yes | No |
| Adj R-squared | 0.3535 | 0.2648 | 0.3448 | 0.2408 | 0.3513 | 0.2499 | 0.3454 | 0.2413 |
| F-statistic | 102.82*** | 193.87*** | 101.92*** | 186.21*** | 104.85*** | 195.55*** | 99.27*** | 171.31*** |

Discussions and Conclusion

Previous studies have examined the impact of ESG disclosures on firm performance and value. There are very few studies which have focused mainly on impact of governance transparency on firm value. This study contributes to corporate governance literature by examining governance transparency and its impact on firm value. The findings show that there is significant positive relationship between governance transparency and firm value. The results suggest that higher governance transparency enhance firm value and can be considered as additional non-financial data that helps investors make better decisions. This also confirms that increasing governance transparency reduces information asymmetry and agency costs for investors. Firms should be encouraged to report governance data alongside the financial information required to be reported to shareholders. While financial statements are important, we recommend that investors pay attention to governance transparency, and that they encourage companies to increase the amount of governance related disclosures.

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Decoding VC exit returns: the Indian experience

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Abstract

This paper aims to analyse the effect of the investment duration, the overall market condition and the industry to which the investee firm belongs on exit returns realised by venture capital (VC) firms invested in Indian market, using hierarchical regression models. The study examines the relationship that exist among the variables of interest by analysing all the 210 exits that happened in the Indian VC market over the period 2004–2017 by using analytical tools such as moving averages, hierarchical regressions and pooled ordinary least squares regression. Exit return has an approximate U-shaped relationship with investment duration, and the turning point in the convex relationship happens around seven to eight years after investment. Returns are weakly related to the market condition, discarding the market timing hypothesis. Relationship patterns are found to be generally unvarying during the time period under study. The results indicate VC funds in the Indian market tend to exit in a brief time span and gain substantial returns from the immediate exits beyond, which returns start dipping. This points to the illiquidity of the Indian VC market wherein the exits from “lemons” are quite tricky, which make them remain invested for longer durations and eroding the value substantially in the process. VC funds may make rational investment/exit decisions in the Indian market capitalising this knowledge.

Keywords: Venture capital, Indian market, Exit returns, Investment duration, Market cycle

Study of Intellectual Capital on Drugs & Pharmaceutical Industry of India: Using Dynamic Panel Data Analysis

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Abstract

In an information-based environment, managers' financial decisions depend on the performance of their intellectual capital. However, intangible assets account for a modest fraction of a business's total assets (concessions, licenses, patents, and trademarks). The objective of the current research is to examine the relationship between intellectual capital and organizational health. Additionally, a new model, the Modified Extended Value-added Intellectual Capital Coefficient model, has been proposed. The results are compared with two previously published models and the proposed model. The performance of 25 Indian pharmaceutical and medicine businesses from 2010 to 2019 is evaluated using dynamic panel data regression. The efficiency of human capital, structural capital, and relational capital has been shown to have a significant positive association with return on assets (ROA). Additionally, there is a negative yet significant correlation between organizational capital efficiency and profitability. Human capital and structural capital efficiency do not affect the market to book value under the Value-Added Intellectual Coefficient. On the other hand, capital employed efficiency has a favorable effect on market-to-book value.

Keywords: Organisational Health, Endogeneity, Dynamic Panel Data, Intellectual Capital

Does Board Compensation Matter?

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Abstract

While executive compensation has attracted much scholarly attention, board compensation has not. We bridge this gap by investigating the relation between board compensation, firm performance and total firm risk using a sample of Bombay Stock Exchange listed firms during 2003-2019. We find that higher board compensation is associated with higher ROA and Q but lower firm risk. Additional analysis reveals that the positive relation between compensation and performance holds only when competition is high, growth opportunities are more and when director compensation is above a threshold. We show that the relation between board compensation and firm performance or firm risk is non-monotonic.

Keywords: Corporations, Board Behaviour, Corporate Governance

Re-examining the Relationship between Creditor Rights and Corporate Leverage through a Cultural Lens

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Abstract

Two opposing effects govern the impact of creditor rights strengthening reforms on corporate leverage. On the one hand, the income effect states that creditor rights strengthening leads to a higher supply of loans from lenders and higher debt capacity of the borrowers, which may increase corporate leverage. On the other hand, the substitution effect states that creditor rights strengthening leads to a higher threat of bankruptcy and thus may lead to lower credit demand and lower corporate leverage. Single country studies from different countries have documented contradicting results on the impact of creditor rights on firm leverage. In this multi-country study, we postulate that national culture determines risk-taking behavior of borrowers and lenders, which in turn determines whether the income effect or the substitution effect dominates in a given country. Thus we examine how culture moderates the impact of creditor rights strengthening reforms on firm leverage. We use DIDID in a generalized setting on data of over 24000 firms in 23 years from 31 countries to test our hypothesis. We find that individualism, which is associated with high risk preference, has a positive moderating effect while power distance, which is associated with low risk preference, has a negative moderating effect on the impact of creditor rights strengthening reforms on corporate leverage. We see similar results for economy-wide aggregate bank credit in the sample countries. Further, we document that firms in individualistic and low power distance countries tend to issue less equity and hold fewer cash balances in response to strong creditor rights.

Investigating Barriers to A Sustainable Food Supply Chain Developing Nations - Retailers Views

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Abstract

More than 50% of the fruits and vegetables gets wasted before it reaches to consumer's table. Carrying low shelf life and fragility in nature could be blamed for it but they are non-controllable factors. The research focused on content analysis, in-person unstructured open ended interviews with retailers of this supply chain, and using NVIVO for word clouds and Tree-map. Poor packing and handling at all ends (farmer, distributor and retailer), poor transportation system in terms of quality and speed, lack of infrastructure to provide favorable conditions, and lack of harvesting techniques comes out as main reasons for Food Loss and Wastage (FLW). It's been found that poor transportation and poor handling of items are two areas to work for to reduce FLW significantly.

Keywords: Food Loss and Waste, Fruits and Vegetables, Supply Chain, NVIVO

IntroductionThe food we eat comes from various parts of the world. A major part of the price we pay for our food goes into getting that food from source (where it is produced) to destination and food spoilage or Food Loss and Waste (FLW). Time to reach from source to destination also plays a big role in fragile food items like Vegetables and Fruits due to their low shelf life. With the use of technology, process optimization, supply chain optimization, there is a lot of scope to reduce food loss and waste, reduce time duration from farm to fork and reduction of supply chain cost.

India produces 191.77 million metric tons of vegetables and 99.07 million metric tons of fruits every year (National Horticulture Board). India ranks second in vegetables and fruits production in the world (China is ranked 1st). As per FAO report, roughly one third of food (globally) gets wasted in different stages. Here, food covers fruits, vegetables, meat, cereals, pulses. Food losses in the Fruits and Vegetables category is the highest. In high income countries, food losses are more in consumption stage while in developing nations like India food losses are more in production to distribution stage. South Asia has a little more than 50% Food losses as far as Fruits and Vegetables are concerned. Out of that more than 45% losses are in the Agricultural, Post-Harvest, Processing and Distribution stage. Per capita food losses in South Asia is around 110 kg/year between production and retailing stages and around 15 kg/year at consumption stage (FAO, 2011). Talking about data on food losses in India, as per Indian Institute of Horticultural Research Technical, India sees a 29.65% losses in Mango. West Bengal has a 59.7% losses in potato which includes losses at all the stages (Indian Institute of Horticultural Research, 2014).

Another issue to look at is the cost build up ratio for the average basket in the market chain. As per Ministry of Agriculture & Farmers welfare 2017 report, a consumer gets vegetables at INR 12 per unit, out of that INR 4 per unit goes to farmers and the rest 66% goes to distribution network and logistics. For fruits, it's even higher, out of INR 22.8, INR 6.5 goes to farmers (Ministry of Agriculture & Farmers welfare, 2017), (National Horticulture Board, 2015). The context of the problem, and the statistics provided above leads to the following key research questions, which we plan to investigate in this research and going forward:

1. What is the scale of the food loss and wastage (FLW)?
2. The key reasons to be attributed to the FLW?

3. The key fruits and vegetables which requires maximum attention in this area?
4. What is the role of transition time and transition cost in addressing the FLW issues?

In this in progress paper, we designed unstructured interviews for retailers, distributors, and farmers. We were able to conduct interviews for a few retailers deeply engaged in the logistics and sales of the perishable vegetables and fruits. We analyzed the responses of the experts using NVIVO 10, and developed word cloud and Tree map to analyze the frequency of the important areas. The study will be progress further by collection of additional data, analysis, and discussion as follows.

We further plan to collect data from different more retailers, distributors, and farmers of this supply chain (excluding consumer) and analyze it qualitatively and quantitatively in the next few months. We plan to strengthen the literature in this area by identification of important drivers and performance measures by including bibliometric analysis. The focus of the study would remain the developing nations, and the study will be operationalized Indian market.

Literature Review

In a paper (M. Balaji, 2016) which aims to identify primary causes of fresh fruits and vegetables wastage in India. The author first identified 16 causes of perishable food wastage at different levels including harvesting, supply chain, distributor and retailer's end through literature review, academia and food industry experts suggestions. After identifying the causes, fuzzy MICMAC and TISM (total interpretive structural modelling) to find interaction between these causes as well their driving power. Author found poor logistics at the bottom of the hierarchy which leads to inefficient logistics network design, poor demand management, large number of intermediaries and poor communication among members. Lack of Stringent Inventory Policies leads to Lack of Integrated IT system, poor training in handling & stacking and lack of scientific harvesting methods. Both driving power and dependence has been calculated for each causes. It was found that all the causes impact on food wastage significantly. Poor training in handling & stacking was found with low driving power and high dependence. Lack of scientific harvesting methods, a large number intermediaries were found less dependence but high driving power.

In a paper (Mattias Eriksson*, 2012), where author studied fruits and vegetables losses and wastage in six Swedish retail stores. The author found that largest part of wastage at stores was pre-store waste (3.01%) out of total 4.3%. Pre-Store waste is the items rejected by the stores at the time of delivery due to non-compliance with quality standards. A comparative view of the review of literature is presented in the Table 1 below.

Our review of literature indicates that the area of food loss and wastage (FLW) for vegetables and fruits is still in a very nascent stage in developing nations. The aim of this study is to understand reasons for the high level of losses and challenges farmers, distributors are facing is preventing these losses through interviews with them. The study will also deep dive into reasons of high cost of logistics and distribution network and look for solution for optimizing price for consumers and better margins for producers.

Methodology

The approach used for this study is both qualitative and quantitative analysis. We analyzed the expert interviews using NVIVO 10 statistical software commonly used to analyze the unstructured interviews.

Analysis of Retailers Interviews

The retailers which were interviewed are store managers of a metropolitan city of India. The stores are part of multi-chain retail stores which sells grocery and fruits & Vegetables. As an example, one store MB (Modern Bazaar) caters to middle class and upper middle customer while second store LM (Le Marche) deals with elite customers.

Table 1. Review of relevant Literature

| Sr.No | Title | Aim of the Study | Country | Items | Research Type |
|-------|--|---|---------------|-----------------------|---------------|
| 1 | Framework For Evaluating Risks In Food Supply Chain: Implications In Food Wastage Reduction (Ali, 2019) | Food Wastage reasons and model for food processing companies | Bangladesh | Food Wastage | Quantitative |
| 2 | Implementation Of IoT For Food Wastage Minimisation (Ostojić, 2017) | Use of Technology to minimize FLW | NA | Food Wastage | Quantitative |
| 3 | Consideration Of Food Wastage Along The Supply Chain In Lifecycle Assessments: A Mini-Review Based On The Case Of Tomatoes (Bernstad, 2017) | Study on Tomatoes to analyse FLW | Multi Country | Tomato | Quantitative |
| 4 | Post-Harvest Losses And Wastage In Indian Fresh Agro Supply Chain Industry: A Challenge (Negi, 2017) | FLW at different stages | India | Food | Quantitative |
| 5 | Retail Food Wastage A Case Study Approach To Quantities And Causes (Eriksson) | Food wastage at retail store | Sweden | food wastage | Quantitative |
| 6 | Save The Food For A Better Future: A Discussion On Food Wastage In Malaysia (Sulaiman, 2018) | Possible regulation required to reduce FLW | Malaysia | Food | Quantitative |
| 7 | Solar Pv Powered On Farm Cold Storage Design Software Himsaurya For Improving Storage Quality And Reducing Wastage Of Perishable Agricultural Produce (Mandal, 2017) | Sustainable and affordable approach to increase product shelf life and reduce FLW | India | Fruits and Vegetables | Quantitative |
| 8 | Wasting Harvest And Worsening Food Security In India (Aneesh, 2017) | Examining the post-harvest losses in India | India | Fruits and Vegetables | Quantitative |
| 9 | Evaluating Critical Causal Factors For Post-Harvest Losses (Phl) In The Fruit And Vegetables Supply Chain In India Using The Dematel Approach (Gardas, 2018) | Prime causes of FLW and ways to address them | India | Fruits and Vegetables | Quantitative |

MB procures fruits and vegetables from whole sale Fruit Mandi through multiple vendors and use some vendors who are basically small organic farmers or new startups who are providing them organic vegetables, hydroponic vegetables and micronutrients and sprouts while LM procures through a middle man who procure fruits and vegetables from various sources and deliver to the store. MB sells majorly loose fruits and vegetables while LM deals in completely packed items. All the items are packed and weighed in advance. Some items arrive in packed condition directly from the vendor while some are being packed by the store. MB has an average wastage of 4% while LM is at 2%. When being asked about reasons for FLW, common primary reasons are low shelf life of leafy vegetables, ripening of fruits, poor handling of fruits at times, pressure on fruits.

Some uncommon reasons were there as well. MB's one of the FLW reason was delay or transition time from bags to display, often their stock arrives at the store but either due to unavailability of the staff or no space in shelves, the items remain in bags/cartons and gets damaged to some extent while this issue was not there with LM since they order small quantities of already packed products. However, LM mentioned a different reason, which was development of moisture in packed vegetables especially Ginger, leafy greens. When they were asked the solutions to further control FLW, they pointed out to reduce time from farm to store, wants to serve more fresh products to the customer, and it will give them more time to sell the items as well. As per them, apart from leafy vegetables, other vegetables like brinjal, lady finger, carrot takes around 2-3 days from farm to store which need to reduce further.

When there were asked about their awareness about processes in developed countries about managing FLW, MB respond that better packing right from farmer's end leads to better handling and leads to low FLW. As per them items with most FLW are leafy vegetables and fruits like Banana, apple and pear. As far as expenses are concerned in order to main quality of items in the store, RM said that manpower is required audit items when it arrives at store, clean items like leaf vegetables, cauliflower, cabbage before they go to display, frequent audit (once a day) of the items to check quality and remove damaged one is required. LM does not require cleaning much since items comes in packed condition. One of the FLW reason for both the store is damage of items at store due to low shelf life and gap in demand and supply at times. They use short term sale pattern (weekdays and weekends, festival and non-festival) and current stock left to order item every evening for the next day. No previous long term data is used to predict the demand.

Empirical Analysis

We developed word clouds of the responses of the retailers (Figure 1A, and 1B, Figure 2). Leaving aside a few words which are integral part of this research such as wastage, items, distributor etc. there are important keywords emerged in each interview. The word cloud of Modern Bazaar, and Le Marche interview as an example showed the important focus areas transportation, handling, packing, and storage in mandis.

Secondly, the cooperative societies, and the unorganized retailers, distributors may come forward to develop the facilities in this area to improve the supply chain infrastructure. If these unorganized players have an awareness and sensitization, they would approach the banks for financing, and the overall supply chain would improve.

Thirdly, the organized large distributors, and retailers can make a big difference. When they understand the concept of waste, and quality philosophies, which argues that any waste in the supply chain is also a cost, it is possible that such large players may start to invest in better infrastructure facilities.

Limitation and Future Scope

No research is free of limitations. The limitation of this research is that we were only able to interview the retailers so far. This research is in progress. We further plan to extend the study through some case studies (developed nations), surveys and interviews. The main method of data collection will be semi-structured interviews at three different levels (Table 2), which are:

Table 2: The Potential Stakeholders

| Retailer End | Producer End | Supplier End |
|--|--|------------------------------------|
| • At Cost Pvt. Ltd | • Vegetables Producers at Panipat and Karnal | • Frugivore India Pvt. Ltd |
| • Marche Retail Pvt. Lts (La Marche) | • Apple and Plum Producers at Manali, Himachal Pradesh | • Khandsa Fruits & Vegetable Mandi |
| • Street/Local Fruits & Vegetables Shops | • Kiwi Producers at Sitlakhhet, Uttarakhand | |
| • Vegetable Carts | | |

Different questionnaires are made for each link of the supply chain to collect the data. The data will be analyzed by logistics cost, logistics challenges, spoilage percentage, Reason for Spoilage, Current usage of technology, Scope of technology. Due to the paucity of space we provide only the retailer unstructured interview questionnaire in Appendix A

Appendix A: The retailer questionnaires

1. Where all do you procure your goods from?
2. How much time your fruits and vegetables (separately) last at your end on an average?
3. What's the wastages % of fruits and vegetables (separately) at your end?
4. What are the reasons of FLW at your end?
5. What are your challenges as far as FLW is concerned?
6. How can FLW at your end be reduced? Consider no shortage of resources?
7. How can distributor help in reducing FLW at your end?
8. What are top three fruits and vegetables with highest FLW?
9. What the cost of your daily/weekly/monthly procurement?
10. What's the logistics cost (Distributor to Retailer) you pay?
11. What do you think of the future of this sector?
12. What role do you see the government can play?
13. Is there any industry which is giving tough competition to you?
14. What is the situation of logistics, do you see any challenges?
15. What is the status of cold storages, do you see any challenges?
16. What are the best practices in this field in India and internationally?

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The Performance of a Decentralized Dual-Channel Supply Chain Against COVID-19 Lockdown: A Game-Theoretic Study When E-Tailer is the Channel Leader

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Abstract

COVID-19 pandemic checked the resilience claim of the global supply chain and found that most of the supply chains are not resilient in the long run. The pandemic disruption was unparalleled, and many supply chain has not yet recovered from the shocks inflicted. In the wake of pandemic lock-down, this study checks the extend of lock-down induced by the pandemic in a decentralized dual-channel supply chain consisting of the manufacturer, retailer, and e-tailer. We assume that the manufacturer has a command over downstream channel partners, i.e., retailer and e-tailer. Hence, we used a Stackelberg game with the manufacturer as the leader to model their interaction. We also assume that, among the downstream channel partners, the e-tailer has power over the retailer. To study their interaction, we used a second Stackelberg sub-game, with e-tailer as the Stackelberg leader. We found that the disruption made by pandemic lock-down was severe, and it perpetrated the optimal price, order quantity, and profit of all the channel partners severely. We have analytically quantified the decrease in optimal price, order quantity, and optimal profit of the channel partners. This mathematical model can aid intelligent decision support systems, and thereby the system will be able to solve the supply chain disruptions during future pandemic scenarios. Later we solved some numerical examples to obtain managerial implications.

Keywords: Dual-channel supply chain, COVID-19, Lockdown, Demand disruption, Game Theory, Stackelberg game

Lean Production and Industry 4.0: An Integrated Relationship

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Abstract

Lean production refers to practices that aim to reduce waste and improve operational performance based on human aspects and continuous improvement. Industry 4.0 is a smart technology applied to various industrial practices, builds on the digital revolution and technology tools in the working environment. Both Lean and Industry 4.0 support operational excellence objectives, even if they apply different types of tools for achieving these goals. This paper presents the relationship between Industry 4.0 and Lean based on the observations from literature. The relationship between the different lean tools and Industry 4.0 is presented in the form of a matrix. A framework for the proposed research to study the relationship between lean and Industry 4.0 in Indian manufacturing industries is presented in this context.

Keywords: Lean production, Industry 4.0, Integrated Relationship, Lean management, Lean manufacturing

1.0 Introduction

In today's competitive business environment, organizations and manufacturers face tremendous pressure to produce products with high accuracy, enhancing quality, customer service, and gaining productivity and efficiency at optimum cost. Numerous systems have been introduced to the industries to eliminate waste and minimize costs, such as Lean Manufacturing (LM), agile manufacturing, six sigma, etc., and recently Industrial Revolutions 4.0 (IR4.0). Lean Manufacturing aims to maximize the process performance and make it more efficient by eliminating wastes. In recent years, "Industry 4.0" has revolutionized the world to represent the next wave of opportunities for ambitious businesses.

Lean is concerned about people, process, and their associated issues for continuous improvement. As a part of the implementation, lean does not require a highly advanced technology environment, and it has been recognized as a best practice for manufacturing companies around the world. Hence, it is suitable for small, medium, and large-scale industries. The success and acceptance of lean in improving performance and driving competitiveness have extended its implementation to other non-manufacturing areas such as healthcare, construction, logistics, etc. Industry 4.0 is a current technological trend where advanced technology is used to develop integrated and highly adaptive manufacturing systems for production management (Does Industry 4.0, n.d.)

The production systems are transitioning towards implementing digital technology based on Industry 4.0, such as the Internet of Things (IoT), additive manufacturing, advanced robotics, 3-d printing, data analytics, augmented and virtual reality, cloud computing, simulation, machine learning, artificial intelligence, etc. In such a case, there is a question on the survival of the lean manufacturing philosophy. Could organizations continue to manage lean production by taking advantage of Industry 4.0 technologies to support the lean principles that are already in place? Alternatively, should organizations change, either slightly or drastically, their use of Lean management (Rosin et al. 2020).

Lean manufacturing techniques and principles have been in place for more than two decades giving better operational performance and productivity, and Industry 4.0 is in its development phase, promising to solve future challenges in manufacturing. Hence, the question arises if and

how these contradicting philosophies can possibly support each other. Will lean get replaced in the Industry 4.0 environment, or will coexist with it? (Garza-Reyes, 2020).

In the above context, this paper presents the relationship between lean production practices and Industry 4.0. The relationship between different lean tools and Industry 4.0 is presented in the form of a matrix. A framework for the proposed research to study the relationship in Indian manufacturing industries is presented. The rest of the paper is organized as follows: Section 2 presents the lean manufacturing principles, and in Section 3, the overview of Industry 4.0 technology. In section 4, the literature review is presented. Section 5 presents the relationship between lean and Industry 4.0. In Section 6, the proposed research framework is presented, and finally, Section 7 presents the conclusion.

2. Lean Manufacturing Principles

Lean manufacturing, or simply “lean,” is a systematic method designed to minimize waste in a manufacturing system while productivity remains constant. Lean manufacturing principles find their origin in Japan in the Toyota Production System (TPS). Lean manufacturing strives to differentiate between waste and value. As per lean principle, waste is ‘any human activity which absorbs resources but creates no value, on the other hand, value is ‘a capability provided to a customer at the right time at an appropriate price, as defined in each case by the customer (Sony, 2018). According to lean management, there are eight types of wastes: Transportation, Inventory, Motion, Defects, Overproduction, Over Processing, Waiting, Non-utilized talent. Lean Management is supported by a set of tools to implement its goals of minimizing waste through continuous improvement. The basic philosophy of lean is based on people (human) and processes as the most important in all activities at the strategic and operational level (Varela et al., 2019). The most popular LM methods, tools, and techniques include: Value Stream Mapping, 5S, Total Productive Maintenance, Single Minutes Exchange of Die, Kanban, Poka-Yoke, Just-in-time, Jidoka, Heijunka, etc. (Chiarini and Kumar, 2020)

3. Industry 4.0

Industry 4.0 is a term developed by the German government to describe its high technology strategy for manufacturing. The term Industry 4.0 was formed by the National Academy of Science and Engineering and its working group founded on the Hanover exhibition in 2011(Kagermann et al., 2013). The German Federal Government included it as one of their ten projects of High Tech Strategy 2020 (Pereira et al. 2019). Industry 4.0 is about technology with data and connectivity at its core philosophy. There are a number of technologies or trends driving this ‘fourth wave’ of technological advancement; Internet of Things (IoT), Big data and analytics, Additive manufacturing or 3D printing, Advanced robotics, Augmented and virtual reality, Cloud computing, Machine learning, and artificial intelligence, Horizontal and vertical system integration (including Information technology (IT) and Operational Technology (OT) integration) and Simulation (The new lean: How lean manufacturing meets industry 4.0, 2019).

4. Literature Review

The literature review is based on the articles searched through the Scopus database. The search string includes the keywords ((“industry 4.0” OR “industrie 4.0”) AND (“lean production” OR “lean manufacturing” OR “lean thinking” OR “lean management”)). Two search criteria have been used; (1) the articles searched based on the above keywords in Title and (2) the articles searched based on the above keywords in Title and Abstract. The first criteria resulted in 77 articles; the analysis based on year-wise, country-wise publication is shown in Figure 1.

The second criteria resulted in a total of 256 articles; the analysis based on year-wise, country-wise publication is shown in Figure 2.

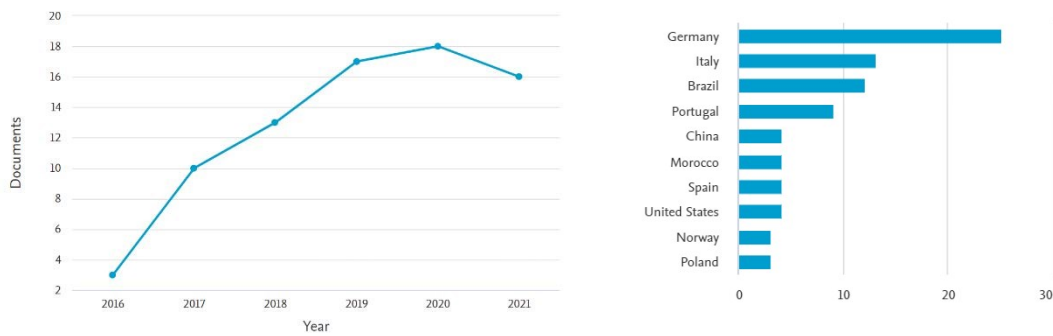


Figure 1. Results of Search #1

The current literature on the conjunction between lean and industry 4.0 can be classified into two streams; Lean is a necessary foundation for Industry 4.0 or that Industry 4.0 improves the effectiveness of Lean (Rosin et al., 2020). The observations from some of the relevant research articles are as follows: Rosin et al. (2020) highlighted the links between the principles and tools proposed by Industry 4.0 and those proposed by the Lean management approach. The results obtained show strong support for Industry 4.0 technologies for Just-in-time and Jidoka, but little or no support for waste reduction and People and Teamwork. Mayr et al. (2018) studied how Industry 4.0 tools can support eight lean methods and improve the deployment and use of 10 Lean principles. They argued that reducing product and process complexity through the Lean approach enables economic and efficient use of Industry 4.0 technologies. Sanders et al. (2016) presented the technological solutions proposed by Industry 4.0 for ten dimensions of the lean approach as implementation challenges. Chiarini and Kumar (2020) investigated a possible integration between Lean Six Sigma tools and principles and Industry 4.0 technologies. They developed a pattern for Operational Excellence through the grounded theory methodology based on the survey of Italian manufacturing managers in ten case organizations and direct observation of practices linked to Industry 4.0 and LSS integration.

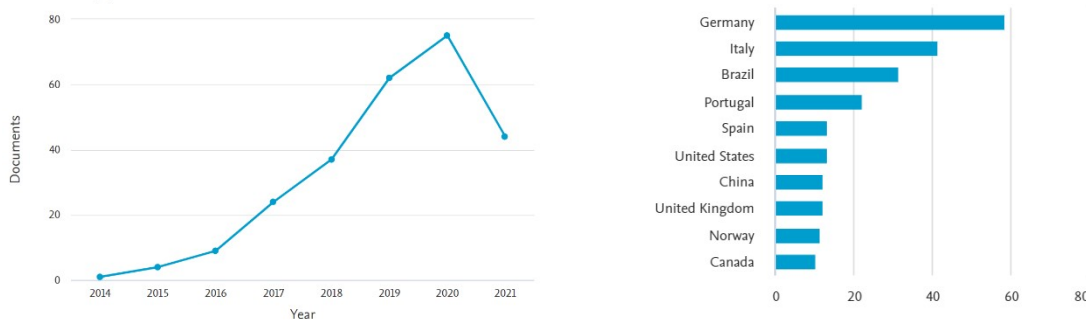


Figure 2 Results of Search #2

Sony (2018) provided fifteen research propositions that can be used as a philosophical guideline for the design of architecture for the horizontal, vertical, and end-to-end engineering integration for implementing Industry 4.0 based on lean principles within the organization. Wagner et al. (2017) introduced Industry 4.0 in an environment of connect-ability in the IoT and Services with the vision of a smart factory. They presented a framework for developing Industry 4.0 integrated applications, which includes a matrix representing their impacts on the elements of lean production systems. Kolberg and Zühlke (2015) presented an overview of the combination

of lean production and automation technology called as lean automation. They presented the linking of lean principles with the cyber-physical system and a framework of how industry 4.0 can add value in lean production. Kamble et al. (2020) investigated the relationship between Industry 4.0, Lean manufacturing practices, and sustainable operational performance from the perspectives of Indian manufacturing companies. Satoglu et al. (2018) argued that lean manufacturing and Industry 4.0 are not mutually exclusive; they can be seamlessly integrated with each other for successful production management.

5. Lean and Industry 4.0

Both lean production and Industry 4.0 support the objective of operational excellence, but they use different types of tools and principles to achieve the goal. According to the lean philosophy, there are eight traditional wastes (non-value adding activities) common within the manufacturing systems and several tools and principles suggested by the Toyota Production System (TPS) to minimize or eliminate these wastes. The most used lean tools/principles and their purpose/meaning are given in Table 1.

Table 1. Lean tools/principles

| Lean Principle/tool | Purpose/Meaning |
|------------------------------------|---|
| SMED | To reduce tool changeover times in production as much as possible |
| Total Productive Maintenance (TPM) | Carry out as much as possible the maintenance without stopping production with the help of workers. Use of autonomous maintenance |
| Value Stream Mapping (VSM) | Analysis tool that makes it possible to identify and visualize all the physical and information flows of a process. |
| Poka-Yoke (mistake-proofing) | Prevents assembly, assembly, connection, or even procedural error |
| Kanban | Method for implementing "pull" continuous flow production. Use of cards to trigger the production of parts between workshops, starting from the lowest workstation and working up to the upstream workstations. |
| Kaizen | Philosophy of continuous improvement. |
| Heijunka (Level Scheduling) | Smoothing the planning or workload to achieve continuous flow production. |
| Just-In-Time (JIT) | On-demand system of production, i.e., when there is a customer demand. This ensures the continuous flow from raw materials to finished products and synchronizing all the processes. |
| Autonomation or Jidoka | automatic shutdown of a machine or equipment in case of defect detection |

Table 2 presents the most used tools and principles of Industry 4.0, along with a brief explanation of their purpose and implementation (Chiarini & Kumar 2020).

Table 2: Industry 4.0 technologies

| Technology | Purpose |
|---|--|
| IoT | Network to connect anything with the Internet through information sensing equipment to conduct information exchange and communications in order to achieve smart recognitions, positioning, tracing, analysis, etc |
| Big data collection and analytics | Big data are characterized by an immense volume, variety, and velocity of data across a wide range of networks. Analytics has evolved from business intelligence and decision support systems enabling organizations to analyze big data to support evidence-based decision making and action taking |
| Artificial Intelligence (AI) and machine learning | Artificial intelligence concerns the ability of machines to carry out tasks typically performed by human intelligence. Machine learning is a branch of AI where machines have access to data and learn by themselves, making decisions or predictions |
| additive manufacturing 3D printing | Various processes are used in the manufacture of products, by depositing or fusing materials layer by layer |
| Cloud computing | Involves delivering hosted services over the Internet. These services are typically infrastructure-as-a-service, platform-as-a-service, and software-as-a-service |
| Digital automation with sensors and smart sensors | Machines and manufacturing processes embedded with sensors capable of collecting data, measuring, analyzing, and triggering other processes |
| Autonomous Mobile Robots | Intended to physically interact with workers |
| Augmented Reality (AR) | Allow people to interact with a number of smart technologies such as screens, 3D glasses, exoskeletons, etc |
| Cyber Security | To resist events resulting from cyberspace which may compromise the availability, the integrity, or confidentiality of data stored, processed, or transmitted and of the related services that ICT systems offer |

Table 3 is based on the extensive review and analysis of the existing literature. Many authors have supported the relationship between lean and Industry 4.0. Hence, to answer the question of which Industry 4.0 tool can support the lean method, Table 3 shows the mapping or the alignment of lean tools/principles with Industry 4.0 methods.

Table 3: Lean and Industry 4.0 tools mapping

| Lean Concept | Industry 4.0 enabler method | Purpose |
|---|---|--|
| Continuous Improvement, Waste Reduction | Cyber-Physical System, Internet of Things, Big Data and data analytics, Digital twin, Simulation, VR and AR | Real-time product tracking, Tracking unusual conditions in the production system and the identification of root causes |
| Kanban | Cyber-Physical System(CPS) | The CPS-supported real time |

| | | |
|--------------------------------|---|--|
| | RFID Simulation | data allows the improvement of several Lean practices, such as automatic orders processing and inventory level control through e-kanban. |
| Value Stream Mapping (VSM) | e-VSM, Big data, data analytics, Digital twin simulation | Enables to create dynamics VSM (e VSM) through the real-time replication of the whole manufacturing system based on updated information. |
| Just-in-Time (JIT) | Big data and data analytics Cloud computing Internet of things(IoT) | Tracking and accurate data on inventory levels based digitalization of supply chains |
| Autonomation | Cyber-physical systems | Intelligence to machines |
| TPM, Autonomous maintenance | Machine learning and big data | contribute to monitoring production and supply chain equipment's wear, loads, and defects |
| Autonomous | Virtual and augmented reality | Training to operator |
| Heijunka (Production Leveling) | Big data analytics Internet of Things | Converting customer orders into smaller, recurring batches |

The alignment of fundamental technologies of Industry 4.0 and the associated lean waste types that these technologies help for reduction are depicted in Table 4 (Satoglu et al. 2018). The matrix in Table 3 and Table 4 displays that most of the lean tools/principles interact with the Industry 4.0 methods.

Table 4: Lean waste mapping with Industry 4.0

| | Additive Manufacturing | Augmented Reality | Simulation & Visualization | Adaptive Robotics | IoT | Data Analytics | Cloud Computing |
|------------------------|------------------------|-------------------|----------------------------|-------------------|-----|----------------|-----------------|
| Transportation | | Y | Y | Y | | Y | |
| Motion | | Y | | Y | | | Y |
| Waiting | Y | | Y | Y | Y | Y | Y |
| Inventory | Y | | | | Y | Y | |
| Unnecessary Processing | Y | | Y | Y | | | Y |
| Overproduction | Y | | | | Y | Y | |
| Defectives | Y | Y | Y | Y | Y | Y | |

6. Proposed Research

From the literature, it is observed that there is a lack of studies on the investigation of the relationship between lean and Industry 4.0 in Indian manufacturing industries. India is an emerging economy, and to the best of the observation, there are very few studies on the progress and implementation of Industry 4.0 in the lean environment in developing countries. In this context, a survey-based research is proposed to study the relationship between lean production practices and the implementation of Industry 4.0 in the Indian manufacturing industries. This will be a representative case within a developing economy as well.

The steps for the proposed research are as follows:

1. Questionnaire development
 - a) For demographic information
 - b) Lean practices followed in the industry
 - c) Awareness of Industry 4.0
 - d) Awareness and Opinion on the relationship of lean and Industry 4.0
 - e) Adoption of industry 4.0 technology in the company
2. Data Collection using Google form/email communication
3. Data analysis
 - a) Clustering the data.
 - b) Statistical analysis.

7. Conclusion

Lean production and Industry 4.0 are manufacturing philosophies, one based on the people and process aspect, while another is based on the technology aspect for the manufacturing environment.

The main purpose of this work is to study the relationship between Lean production and Industry 4.0. From the literature, it is observed that research papers in the context of Indian manufacturing industries are very scarce, and there is a need to study the scope for Industry 4.0 implementation in the context of lean manufacturing. In India, many industries are still in the phase of transitioning towards the third industrial revolution, especially small-scale industries. The government is promoting various schemes for lean implementation to transform these industries to make them lean. In such a scenario, to what extent the industries are aware of Industry 4.0. With their lean implementation efforts, it is important to assess their readiness and preparedness for Industry 4.0 implementation, though not fully, but an initiative to remain competitive in the global market. A research framework based on a questionnaire and interview-based methodology is proposed to analyze the awareness and implementation opportunities in Indian manufacturing industries.

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Mitigation strategy to Supply Chain Disruptions and Supply Chain Disruptions Orientation

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Abstract

With the rising external environment uncertainties, firms are exposed to disruptions in the supply chain – due to natural calamities, etc., which are beyond the firm's control, and market turbulence. A firm must build resilience to such disruptions and develop an orientation to tackle such issues. Buffering and Bridging are two identified strategies to mitigate the impacts of supply chain disruptions. This paper applies information processing and explores the impact of these mitigation strategies on two factors – supply chain disruption impact and supply chain disruption orientation. Structural equation modeling is done on 296 collected data. The study outcome establishes the positive and substantive mitigation impact of buffering and bridging strategies on supply chain disruption impact.

Keywords: Supply chain disruption, Buffering, Bridging, SEM, Validity test, mitigation strategy.

Introduction

The supply chain is a connection of different players that are supporting the operations of an organization. It starts with suppliers to the organization to the customers. In the current competitive environment where competition is increasing, companies are compelled to make their supply chains more and more efficient to reduce costs. This calls for companies to reduce inventory, Transportation costs, etc., to reduce their costs and make their supply chain lean. Today's marketplace is operated by turbulent and uncertain conditions. We are living in a VUCA world. Such an environment creates a supply chain more vulnerable and prone to different disruptions. When a company collaborates with others, it faces a risk of disruption in the Supply Chain. These disruptions can be supply failures, destruction of inventory or finished products, natural disasters such as floods, Hurricanes, Wildfires, etc.

Market turbulence is attributed to many reasons, including demand uncertainty, short product and technology life cycle, lack of skilled labour, production constraint, and lack of innovation. When major disruptions occur, many supply chains tend to break down and take long to recover. This is why Supply Chain Risk Management is gaining a lot of attention lately. The role of supply chain risk management is an integration of supply chain partners; to implement the risk management tool to cope with risk and uncertainty events in the supply chain.

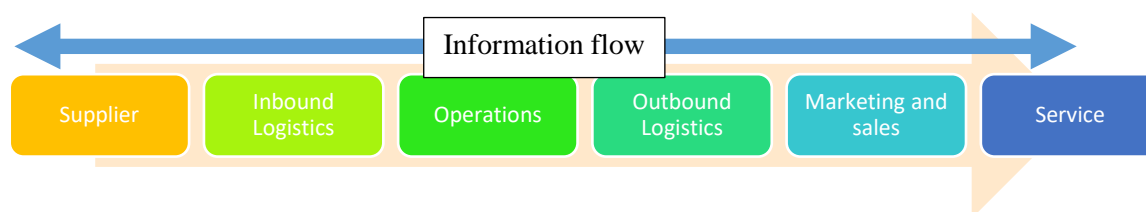


Figure 1: Information flow in supply chain

One of the integral parts of a supply chain is information transfer. A transparent supply chain is more effective as compared to the one where information transfer is restricted.

As shown in Figure 1 above, information flows both ways in the supply chain, and the effects of disruptions on the supply chain depend on the extent to which it is shared. Another measure that is affected by supply chain disruptions is inventory that is available in various stages. If there is an expectation of a supply chain disruption, then the tendency to keep high inventories will increase to hedge this risk.

Literature Review

Disruptions in supply chain are spontaneous and unforeseen occasions that upset the ordinary stream of merchandise and materials inside an inventory network (Gotangco et al., 2017; Kleindorfer & Saad, 2005; Paul et al., 2016; Zsidisin et al., 2016) and, as an outcome, uncover firms inside the store network to operational and monetary dangers (Simchi-Levi, 2015; Stauffer, 2003). Disruption can substantially affect all gatherings over the supply chain, and it can adversely affect the supply of materials from assembling plants to the clients, just as changing the cash stream.

As a company grows, there is an increase in the number of relationships of the company. More vulnerability due to disruptions is penetrated into companies due to all kinds of disruptions – internal to firm or maybe external. To mitigate the risks associated with this, a company must be agile enough. Schmidt & Raman (2012) have found that Internal disruptions are more damaging than external disruptions. Firms with higher rates of operating profits will have more risk of reduction in firm value during a supply chain disruption. Similarly, Chaudhuri et al. (2018) confirm that internal integration (among different internal departments of the organization like sales, manufacturing) and supply chain risk management have a positive effect on the flexibility performance of a firm, while external integration (between suppliers and customers) has no impact. Thus, There should be a close monitoring of the internal risk factors and external risk factors for mitigating their impact (Keawsoon, 2015).

Scholars have given various classifications on the risks, but the most popular is the classification based on internal and external environments. (Lim, 2010) has shown that only a few selected attributes are positively correlated to the manager's choice of each process and buffer-oriented risk response strategies. Sarkar & Kumar (2015) intended to find the effects of the behavior of managers on the inventory of a company in case of an event of a disruption. They used a traditional Beer game experiment under a disruption to find its effect on the Supply chain of a company by measuring inventories at different levels of the Supply Chain. The increased focus should be put on the Supplier Relationship Management to gauge the effectiveness of the procurement performance of the firm from both the buyer and supplier sides. Trkman & McCormack (2009) undertook an assessment and classification of suppliers to identify those with the highest disruption risks. The evaluation can be done based on performance, characteristics, etc.

Supply chain risks can be categorized based on frequency as well as impact, and different strategies need to be devised to handle the different types. Oke & Gopalakrishnan (2009) argued that risk categorization is vital to devise strategies for risk management. Wang et al. (2015) identified the four key factors that influence the firm's capability to mitigate supply chain risk. These factors were customer-oriented capability, process-oriented capability, flexibility-oriented capability, and continuous improvement-oriented capability.

As the firms grow, they outsource their activities, which act as a critical decision with strategic concerns for the supply chain disruption. It can cost a firm in terms of operating costs, including remediation, legal liability, and reputation damage if a firm does not provide good conditions for its employees. There have been huge auditing issues related to this in the past. The increased interference from the auditors has been facilitated by increased knowledge of the supply chain disruptions among the auditors (Short et al., 2015). Similarly, Laradi (2017) identified the following strategies to mitigate risks associated with disruptions in the procurement process: building a stable procurement process, leveraging procurement information, leveraging outsourcing contracts, and developing collaborative relationships with other parties.

Nooraie & Mellat Parast (2015) showed that higher visibility increases the supply chain's efficiency and decreases both cost and risk. Strategies, as well as resilience for high impact disruption scenarios, vary from those of low impact. Ambulkar et al. (2015) set up an objective to understand how supply chain disruption-oriented firms might build supply chain disruption resilience. The research revealed that low-impact disruption scenarios, supply chain disruption orientation, and risk management infrastructure help develop resilience. In disruption scenarios, high-impact reconfiguration of resources becomes vital.

Reactive supply chain risk management has its benefits and differs significantly from preventive supply chain risk management. Thun & Hoenig (2011) revealed that internal supply chain risks have a high probability of occurrence. Companies utilizing reactive supply chain risk management possess higher disruption resilience, and companies utilizing preventive supply chain risk management have more flexibility or safety stocks.

Emerging technologies and innovative developments have led to changes in the supply chain dramatically. Therefore, trust in the supply chain stakeholders has become extremely important. It has been studied that there are different and varying levels of positive relations between other supply chain attributes (Ezgi Şahin et al., 2017). Park et al. (2016) discussed the factors – disruption occurrence, supply chain security practices, and risk propensity, in light of their interdependence, to enable the firm to work on finding ways to mitigate the effects on the supply chain of a company and get a competitive advantage over its peers by preparing them for looming disruptions in the supply chain.

Due to high levels of complexities in supply chains in today's dynamic environment, disruption has become inevitable. Skipper & Hanna (2009) tried to reduce the risk of a supply chain disruption using a contingency planning strategic approach. They aim to reduce potential loss by helping managers understand the important planning attributes that would help identify, prioritize, and safeguard assets of higher risk and help in increasing overall flexibility.

Researchers have investigated the mitigation strategies to disruptions in the supply chain from the point of view of information processing and resource dependence. The findings suggest that these responses are shaped by the "stability motive" and by "interpretative postures," which evolved from past experiences. Buffering (larger inventories, flexible production processes, redundant suppliers, and supplier independent production designs) and Bridging (collaborative measures and timely availability of information and all peripheral activities) are key ways to mitigate supply chain risks (Bode et al., 2011).

UDbye (2014) studied the context of supply chain risk management in India on disruptions, their frequency, severity, mitigation methods, and expectations. The major causes of disruptions in the supply chain include inadequate infrastructure (transportation, logistics, utilities), problems associated with labor and suppliers, and the stifling bureaucracy. The impact of disruptions on the firms varied across Indian-owned companies, service companies, smaller companies. Another study by Mishra et al. (2016) showed that buffering and bridging strategy mitigates the buyer-supplier risk and positively influences supply chain performance. To mitigate these disruptions, as per the paper's findings, buffering and redundancies were top strategies.

Conceptual Model Proposal

Based on the outcome of literature review and study limited to specific industries like the oil industry or the textile industry., this study attempt to capture both bridging (information sharing) and buffering (larger inventories), insignificant strengths, as mitigation strategies to tackle such disruptions, based on the supply chain orientation of the firm and nature of the disruption impact across the industries, divided mainly into three sectors - service, manufacturing and other.

Independent Variables: risk mitigation strategy

Buffering –Buffering is defined as maintaining enough inventory of goods to nullify the effect of fluctuations in demand. These inventories can be of raw materials required to manufacture different products or finished products. The level of buffering is related to the dependency of the firm on its supply chain partner. larger inventories, flexible production processes, redundant suppliers, and supplier independent production designs

Bridging - collaborative measures, availability of information on a timely basis regarding the possibility of any looming supply chain disruptions and associated consequences, and all other peripheral activities

Dependent Variables:

Supply-chain disruption orientation of the firm – ability and willingness of the firm to recognize and learn from supply chain disruptions, i.e., a robust supply chain disruption orientation leads to a stronger motivation to act in the wake of a disruption

Supply-chain disruption impact – reveals the inability of the firm to safeguard itself against environmental uncertainties and the absence of strong ties with its suppliers

Hypotheses:

Based on the literature review and proposed conceptual model following hypotheses are proposed

Hypothesis 1: The buffering strategy will positively mitigate the supply-chain disruption and supply chain disruption orientation.

Hypothesis 2: The bridging strategy will positively mitigate the supply-chain disruption and supply chain disruption orientation.

Research Methods

Data collection methodology

Our target population included professionals working in the service or manufacturing industries, ranging from entry-level employees to top management individuals. The target group of our survey was individuals employed in the supply chain management departments who were likely to have a boundary-spanning outlook towards their firm's supply-chain network and the activities of their suppliers. A survey of 317 industry professionals was collected. Out of the 317 respondents, 21 responses were eliminated due to non-response bias and missing data. Analysis was done with final cleaned data of 296 responses.

Questionnaire Reliability Test and Validity Test

To measure the reliability of the survey questionnaire (Appendix A), we performed a Cronbach alpha analysis. A measurement model was developed in IBM AMOS for confirmatory factor analysis. A validity test was performed. The result of the validity and reliability test are

tabulated in Table 1. Test result confirms the reliability of the scale as well as convergent & discriminant validity (Fornell & Larcker, 1981; Hair et al., 2014; Hu & Bentler, 1999)

Table 1: Reliability and validity test results

| Construct | Code | Cronbach alpha value | CR | AVE | MSV |
|-------------------------------------|------|----------------------|-------|-------|-------|
| Supply chain disruption | SCD | 0.781 | 0.76 | 0.514 | 0.321 |
| Supply chain disruption orientation | SCDO | 0.827 | 0.835 | 0.561 | 0.081 |
| Buffering | BUF | 0.798 | 0.801 | 0.574 | 0.32 |
| Bridging | BRID | 0.826 | 0.802 | 0.504 | 0.321 |

Structural Equation modeling

The structural equation model was developed from the measurement model in IBM-AMOS. Hypotheses are tested, and the Path co-efficient is estimated using Co-variance based SEM, as shown in Figure 2. The outcome of the SEM is summarized in Table 2

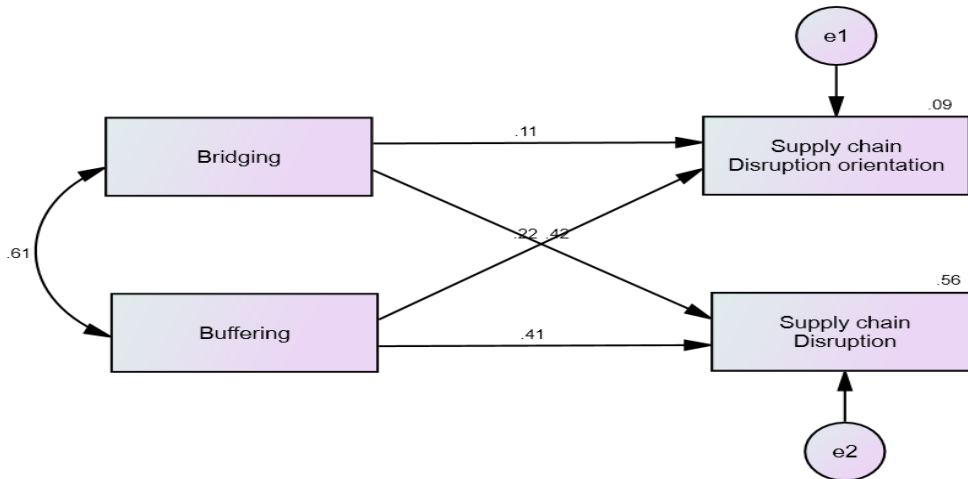


Figure 2: Structural equation model

Table 2: Hypotheses result

| | | | Std. Estimate, β | Estimate | S.E. | P | R-Square |
|------|---|------|------------------------|----------|-------|----------|----------|
| SCDO | ← | BRID | 0.115 | 0.169 | 0.103 | 0.1* | 0.091 |
| SCDO | ← | BUF | 0.218 | 0.262 | 0.084 | 0.002*** | |
| SCD | ← | BRID | 0.421 | 0.481 | 0.056 | *** | 0.558 |
| SCD | ← | BUF | 0.411 | 0.383 | 0.046 | *** | |

*p-value <= 0.1; ** p-value <= 0.01; and *** p-value =0.000

Result and discussion

Hypotheses testing results as shown in Figure 2 and Table 2, indicates that Buffering ($\beta = 0.411$; p-value =0.000) and Bridging ($\beta = 0.421$; p-value =0.000) strategies positively mitigated the supply chain disruption impact. R-square value of 0.558 (55.8%) suggest the mitigation impact is moderate to strong (Chin, 1998).

Buffering strategy ($\beta = 0.218$; p-value < 0.01) have positive moderate impact on supply chain disruption orientation. While, Bridging strategy ($\beta = 0.115$; p-value $= 0.1$) has weak impact on supply chain disruption orientation. Overall the mitigation effect of Buffering and Bridging strategies on supply chain disruption orientation is weak (R-square = 0.091 ($< 15\%$)).

Conclusion

We thus observe there is positive and substantive mitigation of supply chain disruption using Buffering and Bridging mitigation strategies. At the same time, a similar impact cannot be established on supply chain disruption orientation.

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Appendix – A: Questionnaire

| Construct | Items | Code | Loading (λ) |
|--|--|-------|-----------------------|
| Supply Chain Disruption (SCD) | Procurement costs/Prices for the purchased Item | SCD1 | 0.716 |
| | The overall efficiency of the Firms Operations | SCD2 | 0.744 |
| | Product quality of the Final Products | SCD3 | 0.69 |
| | Sales | SCD4 | Removed |
| Supply Chain Disruption orientation (SCDO) | We feel the need to be alert for possible supply chain disruption at all times | SCDO1 | 0.79 |
| | Supply chain disruption show us where we can improve | SCDO2 | 0.722 |
| | We recognize that supply chain disruption are always looming | SCDO3 | 0.64 |
| | we think a lot about how a supply chain disruptions could have been avoided | SCDO4 | 0.831 |
| | After supply chain disruption has occurred, it is analyzed thoroughly | SCDO5 | Removed |
| Buffering (BUF) | Make us more independent of the supplier of the purchased items | BUF1 | 0.765 |
| | Increase out protective barriers against disturbance in the supply of the purchased items | BUF2 | 0.822 |
| | Search for or develop one or more alternative suppliers for the purchased item | BUF3 | 0.68 |
| Bridging (BRID) | Establish a closer relationship with this supplier in order to collaborate better in case of supply chain disruption | BRID1 | 0.695 |
| | Tighten the control mechanisms on the supplier | BRID2 | 0.674 |
| | Cooperate more intensively with the supplier | BRID3 | Removed |
| | Improve information exchange with this supplier | BRID4 | 0.711 |
| | Engage in risk management activities with this supplier | BRID5 | 0.756 |

Mapping the Digital Procurement Research: A Bibliometric Analysis

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Abstract

Digital procurement continues to heavily transform as a value center and create new business models by linking businesses with a web of external partners. This review presents a qualitative and quantitative analysis of this field, utilizing bibliometric performance analysis and science mapping to examine 583 articles published from 2002 to 2021. Although research on digital procurement is still scarce and scattered, the study reveals that a significant proportion of publications on this subject came from the USA, China, and the UK. The co-occurrence keyword analysis resulted in five interconnected clusters: 'innovation technology,' 'electronic commerce,' 'competition,' 'decision making,' and 'innovation.' For future studies, some important synonyms may be included to broaden the search criteria such as 'digital procure-to-pay,' 'data-driven procurement,' 'blockchain in procurement,' etc.

Keywords: Digital procurement, bibliometric analysis, thematic mapping, thematic evolution, science mapping.

Introduction

In the real sense, the digital revolution in procurement requires advanced analytics and data-driven insights for better business decision-making, allowing for increased cross-domain value-chain interactions. While downstream procurement activities are being transformed by automation tools such as eRFX, eCatalogue, eAuction, eContract, etc., also known as eProcurement, which drastically improve efficiencies, but artificial intelligence/ machine learning along with relevant insights from value-chain stakeholders are transforming procurement. Thus, there are manifold dimensions of digital procurement, and a comprehensive understanding is required. Digital procurement, undoubtedly, is rapidly moving to the center of value creation by not only connecting the business with a solid network of both internal and external partners but also by creating new business models. Though digital transformation in the procurement space is costly, the benefits reaping after its successful integration and implementation outweigh the initial investment. Likewise, while its benefits may outweigh the cons, it can still have many negatives, such as managing non-digital suppliers/ vendors, a lot of protocol, and control management for errors prevention. Thus, as we fully recognize the worth of a digital transformation, the path to get there is not clear yet, and we are trying to further explore this subject through this study.

The bibliometric methodology was used in this study to review the research articles published on the topic. It is a popular method used for rigorous statistical analysis of large volumes of scientific data in various fields. Besides a visual overview of the cumulative scientific development on the topic, the study also gives insights on the emerging themes intuitively in that field (Donthu et al., 2021). The bibliometric analysis measures the inter-relationships and impacts of publications, for instance, by using citation data to provide insights into the impact of research outputs (co-citation analysis). It does also help us efficiently identify influential authors, institutions, journals, countries over time. Since the topic has a massive intellectual structure, the objective of this study is to analyze further using bibliometric analysis and identify the emerging themes, trends, and new research avenues.

Literature review

Many organizations use e-procurement and digital procurement interchangeably. However, both differ significantly in their scope. In its simplest terms, an E-procurement system refers to

the web interface or other network system enabled solutions designed at automating and rationalizing the key activities involved in the procurement process, such as material ordering, sourcing, supplier performance evaluation, etc. A number of technologies meet the requirements of e-procurement systems (Tatsis et al., 2006), for example, e-catalogs, procurement modules of ERP (SAP EBP, Oracle iProcurement, Straightbuy, etc.), e-auctions, e-marketplaces, etc. but it is critical to understand that sheer implementation of e-procurement systems isn't enough and doesn't guarantee any expected benefits (Pearcy & Giunipero, 2008). It has been observed that there is a rich corpus of literature as well as the adoption of e-procurement systems available in many countries (Gunasekaran & Ngai, 2008). However, the research on digital procurement is still minimal and scattered. However, digital procurement is an emerging theme of this era and represents a concept that involves e-procurement systems (process automation) but incorporates various innovative analytical tools like cloud computing, the IoT, big data analytics, advanced modeling, other data mining solutions, etc. (Srai & Lorentz, 2019).

Digital procurement can dramatically fast track the leap of procurement transformation and streamline its process management (Ilhan & Rahim, 2020), as it involves “the use of advanced digital technologies”, such as artificial intelligence (AI), machine learning (ML), source to pay (S2P) and procure to pay (P2P) technologies, robotic process automation (RPAs), smart sensors, etc., along with relevant insights from value-chain stakeholders. For instance, AI tools can combine and analyze multiple data points to drive actionable decisions or alert any potential disruptions in the supply chain, project the working capital requirements based on past data, map market data with demand to project cost increase or decrease for a commodity, tackle maverick spend, etc.

Research objectives

1. What are the development trends in this field?
2. Which are the most prolific authors, journals, institutions, and countries' journals in this field?
3. What have been the pattern of publication and contribution in the field of digital procurement?
4. What are the major themes in the field of digital procurement in supply chain research?
5. What topics can researchers explore in the future to move digital supply chain procurement forward?

Research methodology

The bibliometric methodology is used to discover the subject of digital procurement in the supply chain. Broadly, the analysis is categorized into two sections –

- a. Performance Analysis (quality indicator) to analyze the development trend of publications, most prolific journals, authors, institutions, and countries in the field of digital procurement.
- b. Science Mapping (structural indicator): draws a representation of the scientific research structure or knowledge (K-structures). Thematic structure and evaluation help to identify the most relevant research topic and trend on digital procurement.

Literature search protocol

Scopus is the largest database for multi-disciplinary scientific writings (Chadegani et al., 2013). We decided to use the same for our study. The key search string included a combination of “technology,” “digital,” “automation” with the “or” notation; AND “sourcing,” “procurement” with the “or” notation; AND “supply chain.” Within “TITLE-ABS-Keywords.”

We obtained 1175 documents from the preliminary search and were further reduced to 583 by following the below steps –

- Included the publications within year timespan of 2002- 2021.
- We excluded any non-English articles, conference papers, editorials, misprints, conference reviews, withdrawn papers, notes, short survey reports, and book chapters.

Descriptive Data Information

Table. 1 presents the main information about the bibliographic collection for the selected time span of 2002 – 2021. 1524 authors wrote a total number of 583 articles. It is observed that 1434 authors have collaborated (crucial amongst authors) whereby 90 authors have published solely.

Table 1: Main information about the bibliographic collection

| | |
|--------------------------------------|-----------|
| Timespan | 2002:2021 |
| Sources (Journals, Books, etc) | 375 |
| Documents | 583 |
| Average years from publication | 7.52 |
| Average citations per documents | 24.01 |
| Average citations per year per doc | 2.936 |
| References | 25004 |
| DOCUMENT TYPES | |
| Article | 583 |
| DOCUMENT CONTENTS | |
| Keywords Plus (ID) | 3081 |
| Author's Keywords (DE) | 1754 |
| AUTHORS | |
| Authors | 1524 |
| Author Appearances | 1664 |
| Authors of single-authored documents | 90 |
| Authors of multi-authored documents | 1434 |
| AUTHORS COLLABORATION | |
| Single-authored documents | 109 |
| Documents per Author | 0.383 |
| Authors per Document | 2.61 |
| Co-Authors per Documents | 2.85 |
| Collaboration Index | 3.03 |

Fig. 1 reveals the year-wise growth pattern of scientific publications (annual scientific production), measured by the sum of papers and evaluations published in different countries in this field. There has been consistent growth of publications on the issue, resulting in an annual percentage growth rate (CAGR*) of 5.33%. For instance, the average number of publications for the first ten years in our sample (2002 – 2011) was only 21 publications per year, which can be attributed to the limited use of automation and technology in the field during that time. However, the topic has grown with the technological advancements, especially with the arrival of e-Procurement systems, thus getting the average number of publications more than double, i.e., 42 in the past three years (2018 – 2020).

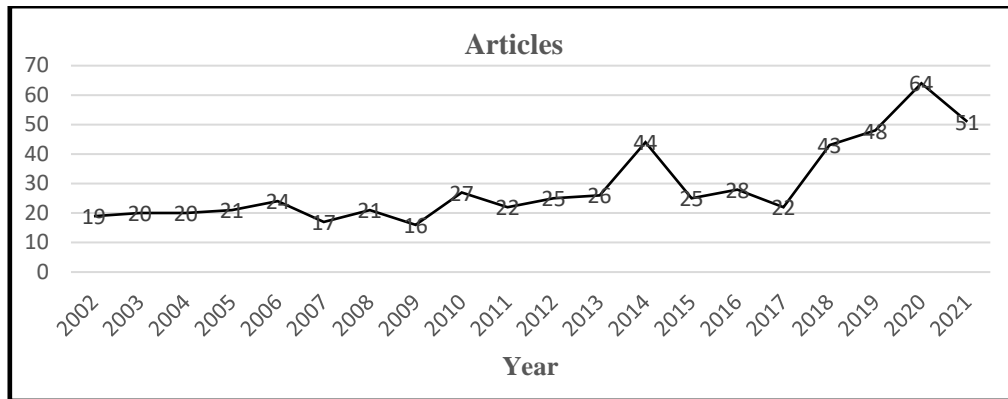


Fig 1: Annual Growth Pattern of Scientific Publications

*CAGR (Compound Annual Growth Rate) is a measure of average yearly growth of scientific production over a period. Generally, the term is used in business context to calculate mean annual growth rate of an investment over a specified period (geometric progression ratio), assuming growth takes place at an exponentially compounded rate. For example, $CAGR = \frac{\text{value in year A}}{\text{value in year B}} / ((1/(A-B)) - 1)$, between any two years A&B ([Definition of Compound Annual Growth Rate \(CAGR\) - IT Glossary | Gartner, n.d.](#))

Performance Analysis

Most Prolific Sources

Table 2 highlights the top 10 most prolific journals/ publications in our field of study. The Hirsch index or H-index measures the impact of an author or journal depending on the highest number of publications (h), each of which has received h or more citations in other papers. Usually, different databases index different journals and cover different years, and thus an author's h-index might differ across different databases.

Table 2: Most prolific journals (impact measured by H-index)

| Element | h_index | g_index | m_index | TC | NP | PY_start |
|---|---------|---------|---------|-----|----|----------|
| SUPPLY CHAIN MANAGEMENT | 10 | 12 | 0.5 | 833 | 12 | 2003 |
| INTERNATIONAL JOURNAL OF PRODUCTION ECONOMICS | 9 | 12 | 0.5 | 620 | 12 | 2002 |
| JOURNAL OF CLEANER PRODUCTION | 9 | 13 | 0.5 | 461 | 13 | 2002 |
| COMPUTERS IN INDUSTRY | 7 | 8 | 0.5 | 151 | 8 | 2008 |
| BENCHMARKING | 6 | 6 | 0.3 | 139 | 6 | 2002 |
| INTERNATIONAL JOURNAL OF PRODUCTION RESEARCH | 6 | 6 | 0.5 | 144 | 6 | 2010 |
| JOURNAL OF PURCHASING AND SUPPLY MANAGEMENT | 5 | 5 | 0.6 | 268 | 5 | 2014 |
| PRODUCTION PLANNING AND CONTROL | 5 | 6 | 0.3 | 179 | 6 | 2004 |
| SUSTAINABILITY (SWITZERLAND) | 5 | 6 | 0.6 | 187 | 6 | 2014 |
| JOURNAL OF MANAGEMENT INFORMATION SYSTEMS | 4 | 4 | 0.2 | 590 | 4 | 2004 |

Most Prolific Authors, their H-index, and its generalizations

Table 3 visualizes the top 10 most productive contributing authors to our field of study and 20 most local cited authors. The most prolific author is T. Palander, who has published five articles on the subject, followed by A. Groznik and B. Niu. However, the most cited authors on the topic are Sar Khan, S Miller, A Razzaq, and Z Yu. This indicates that while the number of publications have grown over the years, but the impact of these hasn't yet grown significantly. to evaluate an author's scientific productivity based on both – their most cited papers plus the count of citations they had received from other articles. According to Hirsch, the h index is defined as: "A scientist has index h if h of his or her N_p papers have at least h citations each and the other $(N_p - h)$ papers have $\leq h$ citations each." In fig 14, h index of 4 for T Palander means that 4, among all his publications, have received a minimum of 4 citations each.

Table 3: This figure represents the author's local impact by H-index

| Author | h_index | g_index | m_index | TC |
|-----------------|---------|---------|---------|-----|
| PALANDER T | 4 | 5 | 0.364 | 26 |
| KAUFFMAN RJ | 3 | 3 | 0.15 | 302 |
| LEE WB | 3 | 3 | 0.15 | 219 |
| NIU B | 3 | 3 | 1 | 75 |
| SANA SS | 3 | 3 | 0.429 | 92 |
| SMITH AD | 3 | 3 | 0.15 | 118 |
| SOWLATI T | 3 | 3 | 0.5 | 123 |
| ALDS J | 2 | 2 | 0.143 | 94 |
| ALOR-HERNNDEZ G | 2 | 2 | 0.25 | 31 |
| ALVANDI M | 2 | 2 | 0.182 | 7 |

Countries

Table 4 represents the most cited countries, a) basis the total number of citations, with USA being highest, followed by UK and China, and b) basis the average citations per year, with Singapore being highest.

Table 4: a) Total Citations per country, b) Average Citations Per Year

| Country | Total Citations | Average Article Citations |
|----------------|-----------------|---------------------------|
| USA | 4905 | 44.19 |
| UNITED KINGDOM | 1396 | 26.34 |
| CHINA | 857 | 16.48 |
| SINGAPORE | 685 | 342.5 |
| GERMANY | 336 | 30.55 |
| HONG KONG | 317 | 39.62 |
| ITALY | 305 | 33.89 |
| GREECE | 296 | 98.67 |
| CANADA | 264 | 29.33 |
| SPAIN | 257 | 28.56 |
| FINLAND | 255 | 18.21 |
| INDIA | 238 | 10.35 |

Documents Level (and their contents and bibliographies)

Table 5 represents the most global cited documents. As we can see that Benjaafar S, 2013, IEEE Trans Autom Sci Eng' has obtained the maximum (677) count of global citations from documents in the whole database. Since global citations measure the influence of a document in whole of bibliographic record and for many documents, a large part of global citations could come from other disciplines, it provokes us to think and research further if this most cited document is really an impactful paper in our analysis?

Table 5: Most global cited documents

| Paper | Total Citations | TC per Year | Normalized TC |
|---|-----------------|-------------|---------------|
| BENJAAFAR S, 2013, IEEE TRANS AUTOM SCI ENG | 677 | 75.2222 | 14.804 |
| KOTABE M, 2003, STRATEGIC MANAGE J | 630 | 33.1579 | 6.9767 |
| SWAMINATHAN JM, 2003, MANAGE SCI | 340 | 17.8947 | 3.7652 |
| PREMKUMAR G, 2005, J MANAGE INF SYST | 333 | 19.5882 | 4.8529 |
| BRUNSWICKER S, 2015, J SMALL BUS MANAGE | 307 | 43.8571 | 8.6528 |
| IRIZARRY J, 2013, AUTOM CONSTR | 230 | 25.5556 | 5.0294 |
| PAGELL M, 2010, J SUPPLY CHAIN MANAGE | 229 | 19.0833 | 5.7144 |
| DAVILA A, 2003, EUR MANAGE J | 227 | 11.9474 | 2.5138 |
| DAI Q, 2002, INT J ELECT COMMER | 201 | 10.05 | 5.4247 |
| PRYKE SD, 2004, CONSTR MANAGE ECON | 194 | 10.7778 | 4.3255 |
| PRESUTTI JR. WD, 2003, IND MARK MANAGE | 188 | 9.8947 | 2.0819 |
| BRISCOE G, 2005, SUPPLY CHAIN MANAGE | 183 | 10.7647 | 2.6669 |
| WU DJ, 2005, MANAGE SCI | 161 | 9.4706 | 2.3463 |
| GEORGIADIS P, 2005, J FOOD ENG | 151 | 8.8824 | 2.2006 |
| PUSCHMANN T, 2005, SUPPLY CHAIN MANAGE | 150 | 8.8235 | 2.186 |

Likewise, the most cited article in the field is (Presutti, 2003), which has been cited 18 times. The article focuses on “supply management and e-procurement: creating value-added in the supply chain” and was published in a top journal (Elsevier’s Industrial Marketing Management).

Science Mapping (Knowledge Synthesis)

The analysis helps draw a big picture of this vigorously fluctuating scientific knowledge and tries to figure out structural depictions of intellectual, conceptual, social connections (*Visualizing Science by Citation Mapping - Small - 1999 - Journal of the American Society for Information Science - Wiley Online Library, n.d.*). The technique uses mainly the “structures of knowledge” from a statistical point of view to determine any buried patterns (Börner et al., 2003) (Morris & Martens, 2008). The bibliometric charts define how precise disciplines, or domains, or field of study are conceptually (main themes and trends), intellectually (influence

of an author's work in a given scientific community), and socially (interactions amongst authors, institutions, countries) structured (Cobo et al., 2011).

Thematic Map or Strategic Map

Fig 2 represents the thematic map for our collection, where each circle/ bubble signifies a cluster of a network.

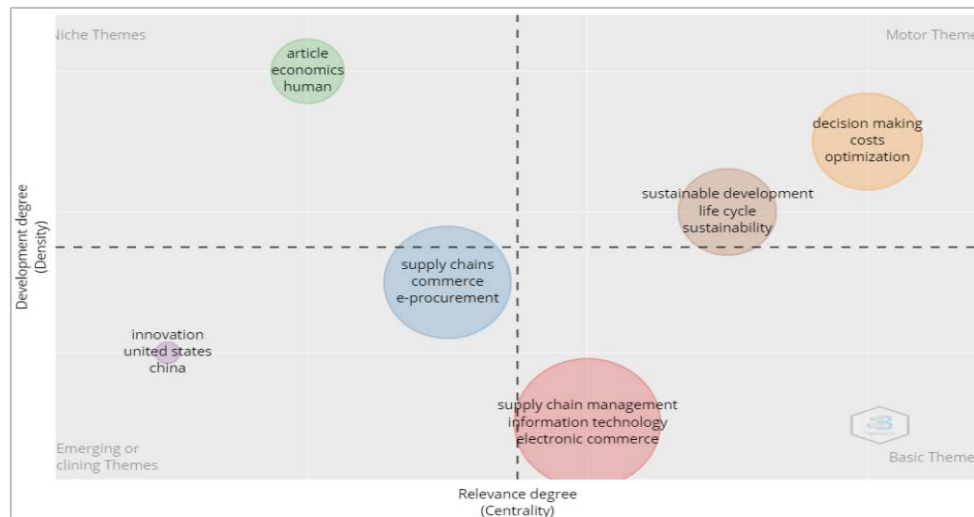


Fig 2: Thematic Map from a network to a bivariate map (Topics in digital supply chain procurement using bibliometrics)

Depending upon the quadrant various themes are placed, we observe that themes in the top-right section, i.e., ‘sustainability’ and ‘optimal decision making,’ are termed motor-themes. They are both well advanced and significant for shaping our field of study. They have strong centrality as well as high density. The themes of this section also indicate their external relations with other theme concepts that are theoretically closely linked. However, themes such as ‘economics’ in the top-left section have well advanced internal bonds but insignificant external bonds and thus, not of any significant importance in the field of study. Further, it is important to note that these themes' character is very specific and exterior. Themes such as ‘e-procurement’, ‘commerce’, ‘innovation’ in the bottom-left section are both inadequately recognized and peripheral. Since low on both density and centrality, they are either emerging or vanishing themes. For instance, e-procurement and innovation are emerging themes and need a lot of further development in the field, while commerce is a disappearing theme and being replaced by e-commerce instead. Last but not least, themes such as ‘information technology in the bottom-right section represent basic/ general/ transversal themes in the field of study. In comparison, they are important but not significantly developed.

Thematic Evolution

Thematic evolution or a longitudinal thematic map analysis is done by dividing the period into diverse time slices. We can study and plot the topic evolution (in terms of trajectory along time). Looking at the distribution of publications per year, we decided to split our collection into three slices setting two cutting points 2011 and 2018: 2002 – 2011; 2012 – 2018; 2019 – 2021.

In Fig 3, we noticed that the topic “technology” starts as a niche theme and subsequently merges to become part of “supply chain management.” In contrast, new themes such as ‘sustainable development, ‘decision making’ have emerged in the research field's recent 3-4 years.

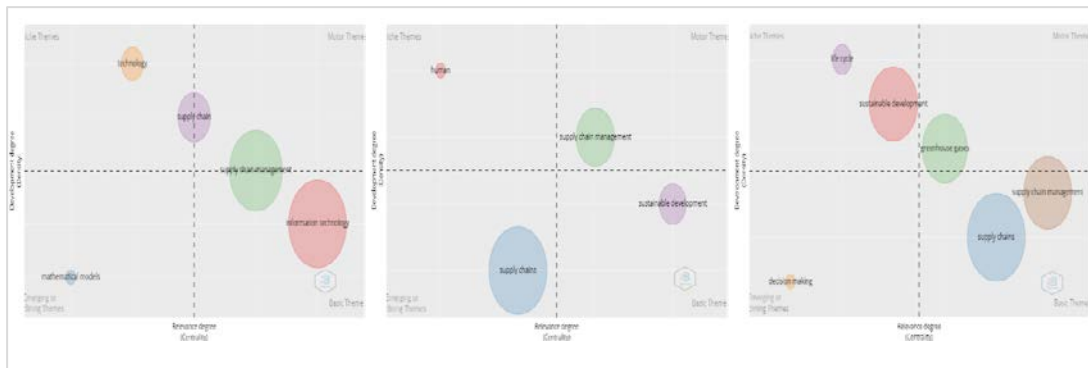


Fig 3: Thematic Evolution Time Slice (2002 – 2011, 2012 – 2018, 2019 – 2021)

Research Outcome

We used bibliometric analysis to discover the field of digital procurement in the supply chain. Although research on digital procurement is still scarce and scattered, yet there has been steady progress in publications about technology/ electronic and sustainable procurement, as suggested by the performance analysis. A large percentage of scientific production came from the USA, China, and the UK. Moreover, Spain, Sweden, and Turkey have high international collaboration intensity (MCP Ratio > 0.5) as compared to other countries, while India, Australia, Germany, and Korea are at the lowest international collaboration levels (MCP Ratio < 0.2) in this field of study.

This study adds to the research literature in a couple of ways. First, we showed the progress of digital procurement in the supply chain field regarding publications and contributions from various other components. Second, we recognize the leading practices via a structured method to examine and visualize a field of study in bibliometrics. Third, we present the strategic drawings and thematic groups to understand the thematic development of this research topic. In addition to the leading methodologies, these understandings will help researchers further steer the research topic. Last but not least, we present potential directions for future research in the field of study. Studying the field's intellectual structure and its evolution provides an exciting opportunity to predict potential emerging and dying topics shortly.

Future Research Directions

Our bibliometric data search query counted on keywords such as 'digital procurement', 'automated procurement,' and its alternatives. If these terms weren't explicitly mentioned in a few articles, those might have been left out of the study. Future studies may widen the exploration conditions by including the emerging synonyms such as digital procure-to-pay, 'data-driven procurement,' 'blockchain in procurement' etc.

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When the most desired option is not available: robustness of the phantom decoy effect

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Abstract

In four experimental studies, this paper examines the robustness of a relatively less studied phenomenon, the phantom decoy effect, in various conditions. In the phantom decoy effect, the unavailability of a superior alternative increases the relative preference of a core alternative of the choice set. For instance, stock-out of a high-quality moderate-price (decoy) alternative increases the preference of a high-quality high-price (target) alternative over a low-quality low-price (competitor) alternative. In contrast with the findings of some of the past studies, this paper shows that the phantom decoy effect occurs systematically in the free-choice condition (i.e. when choice deferral is allowed) and in the UNKNOWN condition (i.e. the decoy is declared unavailable only when the choice maker tries to select it).

Keywords – Decoy pricing, preference construction, context effect, phantom decoy effect, choice theory, consumer decision making.

Extended abstract

Products sold in online flash sales are usually high in demand because good quality products are sold at an attractive price. However, most of the customers are unable to purchase the product because of the limited stock (e.g. Yordan, 2021). Furthermore, there are many other market situations in which the desired product is always high in demand but usually not available at the time of choice. For example, train tickets, hotel rooms of the hotels that are located adjacent to a tourist spot such as a waterfall, movie tickets, restaurant that serves delicious food. What is the impact of such desirable but unavailable alternatives on the demand of other alternatives to the same product category?

The literature on preference construction provides insights into this question. The desirable but unavailable alternative in a multi-alternative choice set is termed as ‘phantom decoy,’ and it enriches the preference of a core alternative of the choice set systematically (Hedgcock *et al.*, 2009; Highhouse, 1996; Pettibone and Wedell, 2000; Pratkanis and Farquhar, 1992). For example, consider that XA (competitor alternative) and XB (target alternative) are the two variants of a smartphone model that are the same in every aspect except their RAM size and price. XA has 4 GB RAM and is priced at \$ 300, while XB has 6 GB RAM and is priced at \$ 400. XA and XB have an equal market share. Now the smartphone company announces an online flash sale of a new variant XC (decoy alternative), that has 8 GB RAM size and is offered at a discounted price of \$ 400. On the day of the online flash sale, as usual, XC becomes out of stock before most of the customers could complete their checkout process. However, after the flash sales, the market shares of the target alternative XB increased from 50% to 70% and the market shares of the competitor alternative XA reduced from 50% to 30%. Thus, the market situation after the flash sale became favorable for the marketer, i.e. the demand shifted toward the high-quality high-priced alternative.

Instances of phantom decoy effect can often be observed in various marketing situations in real life. However, as compared to other preference construction phenomena, for example, the attraction effect (Huber *et al.*, 1982; Milberg *et al.*, 2014) and the compromise effect (Neumann *et al.*, 2016; Simonson, 1989), the phantom decoy effect has not received enough attention in the consumer behavior literature. The results of the phantom decoy effect in the past studies have not been consistent (Simonson, 2014). For example, Hedgcock *et al.* (2016) showed that when respondents can choose a “no-buy” option (i.e. when choice deferrals are allowed),

phantom decoy produces the repulsion effect, i.e. preference reversal in the opposite direction (e.g. the choice shares of XA and XB revise to 70% and 30% respectively after the flash sales in the smartphone example discussed above). Further, the phantom knowledge, i.e. KNOWN versus UNKNOWN condition, can affect the phantom decoy effect (Hedgcock et al., 2009; Scarpi and Pizzi, 2013; Trueblood and Pettibone, 2017). In KNOWN condition, the choice maker is aware that the decoy is not available at the beginning of the choice-task. In the UNKNOWN condition, all the alternatives are shown available at the beginning; however, if the choice maker attempts to choose the decoy, it is declared unavailable. In their studies, Scarpi and Pizzi (2013) found the phantom decoy effect in KNOWN condition, while they observed the repulsion effect in the UNKNOWN condition. They also showed that the distance between the target and decoy affects the intensity of the preference reversal. These findings indicate that more clarity is needed in understanding the systematic occurrence of the phantom decoy effect in various conditions.

In four experimental studies, this paper examines the impact of range extension (i.e. increasing the distance between the decoy and the target alternative) on the phantom decoy effect in forced versus free-choice conditions and KNOWN versus UNKNOWN conditions. Choice deferrals are allowed in the free-choice condition, while choice makers are forced to select available alternatives in the forced-choice condition. In the first three studies, this paper adopts the methodology of Padamwar *et al.* (2021) to examine the impact of range extension on the phantom decoy effect. In the fourth study, we corroborate the findings of the first three studies in natural settings.

In contrast to Hedgcock *et al.* (2016), we observe statistically significant phantom decoy effect in the free-choice condition in multiple studies in this paper. Also, in contrast to Scarpi and Pizzi (2013), this paper observes robust phantom decoy effect in UNKNOWN conditions and find no significant impact of range extension on the intensity of the phantom decoy effect. We show that free versus forced-choice conditions and range extension have no impact on the phantom decoy effect. Finally, we show that the phantom decoy effect is more effective in the UNKNOWN (versus KNOWN) condition. Our results suggest that the UNKNOWN condition is more suitable to get consistent results in the phantom decoy effect experimental studies.

Frederick et al. (2014) and Yang and Lynn (2014) failed to replicate several experimental studies of the published attraction effect articles, and they questioned the generalizability and practical relevance of the attraction effect. Rebuttal articles of these articles and follow-up articles on this debate suggested that various moderating factors and boundary conditions are required to be considered to conduct attraction effect experiments successfully (Huber *et al.*, 2014; Lichters *et al.*, 2015; Simonson, 2014). Contributing in this direction, the role of KNOWN versus UNKNOWN condition on phantom decoy effect is an important finding of this paper to conduct phantom decoy effect studies successfully. The results of past studies on the phantom decoy effect are not consistent (Simonson, 2014). This paper suggests that to get consistent results in the phantom decoy effect experimental studies, the UNKNOWN condition should be adopted over the KNOWN condition.

The accidental occurrence of the repulsion effect, i.e. the decoy increases the choice shares of the competitor alternative at the cost of the target alternative (Simonson, 2014), in decoy effect studies have been reported in the past studies (Chatterjee *et al.*, 2011; Frederick *et al.*, 2014; Hadar *et al.*, 2018; Simonson, 2014). To the best of our knowledge, Hedgcock et al. (2016) and Scarpi and Pizzi (2013) are the only article in the extant literature that demonstrated systematic repulsion effect in consumer decision making by phantom decoy alternatives in certain

conditions, i.e. free-choice condition (Hedgcock *et al.*, 2016) and UNKNOWN condition (Scarpi and Pizzi, 2013). However, we failed to replicate their findings in this paper and observed robust phantom decoy effect in free-choice condition and UNKNOWN condition in multiple studies. The results suggested that the systematic occurrence of the repulsion effect is still a potential direction for future research.

In online flash sales, many customers are often unable to complete their purchase transaction because the product becomes out of stock before the customers could complete the checkout process. According to the phantom decoy effect studies, the context of unavailability of desirable products can polarize the choice share of the regular products in a predictable direction, i.e. toward the core alternative that is asymmetrically dominated by the unavailable alternative. The same can have several managerial implications. For instance, considering the unavailable alternatives in the market, the marketers can adjust the marketing mix of their offerings to get favorable market response. For example, an E-commerce website would have an incentive by displaying the (asymmetrically dominated) target alternative in their digital ad campaigns to the customers who have made a failed attempt in the online flash sale. In another example, the marketer can adjust the price of its target alternative to make it asymmetrically dominated by the out-of-stock alternatives.

E-commerce websites often display out-of-stock products. Such out-of-stock products are likely to cause the decoy effect, and it can affect the market shares of other alternatives of the same or different websites. A buyer who is about to buy a product is likely to have gone through various product attributes and compared it with other alternatives. Thus, the impact of the unavailability of a superior alternative on the evaluation of different alternatives will be higher on customers who have made a failed attempt to buy that superior alternative. The results of this paper indicate that the decoy effect will be more robust among the customers who have made an unsuccessful attempt to purchase the superior alternative than those who just observed that an alternative is out-of-stock.

The findings of this paper suggest that the marketers, who wish to use the phantom decoy effect to gain strategic advantages, should try to motivate more consumers to go through the product information of the decoy alternatives. For example, E-commerce websites usually impose a “stock-out” sign on the pictures of unavailable products and make the image of out-of-stock products faded. We suggest that to increase the intensity of the phantom decoy effect, the marketers should not make the stock-out information explicitly visible while displaying various alternatives on a web page; they can provide the stock details along with the details of the product information on the product’s landing page.

Customers usually have an option to postpone their purchase decisions. However, in many situations, the consumers are forced to choose from available options, such as purchasing a gift for the event of the same day. Free and forced-choice conditions exist in real-life market scenarios. The results of this paper suggest that a phantom decoy alternative favors the target alternative when the customers are forced to choose from available options as well as when they have an option to postpone their purchase decision. Superior products/services, such as travel tickets in the holiday season, restaurant tables in peak hours, beach-facing hotel rooms, durable and fast-moving consumer goods at attractive price discounts, are often sold out quickly. This situation can potentially affect the preference of other alternatives. Instances of phantom decoy alternatives can be widely observed in real life. However, there is a scarcity of published research articles on this topic, and there is a lack of clarity on the systematic

occurrence of this phenomenon (Simonson, 2014). This paper contributes in this direction by demonstrating the systematic occurrence of the phantom decoy effect in various conditions.

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Purposefully serving Bottom of the Pyramid through Innovation

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Abstract

The concepts of Purpose and Bottom of the Pyramid (BoP) are both gaining traction in the business world. Organizations are increasingly becoming purpose conscious, trying to find their reason for existence beyond profit maximization. Similarly, targeting the unexplored domains of BoP is equally fascinating for organizations. This paper establishes a link between these two trending topics. It is a pure exploratory study that uses the case study method to explain how purpose serves the BoP market by fostering innovation.

Keywords: Purpose, Bottom of the Pyramid (BoP), Innovation

Introduction

A vast majority of the world's population lives in deprived conditions (Hammond et al., 2007). These consumers, constituting 4 billion poor people with an annual income of less than US\$ 1500 (on Purchasing Power Parity basis), are known as BoP. Prahalad and Hart (2002) highlighted that this segment offers immense potential for market growth. They sharpened the focus on the BoP segment as receptive to path-breaking innovation at an affordable price. The BoP is a market that offers enormous untapped potential, which calls for good quality affordable products, implying the need for innovation.

Recent trends also show an increasing interest in academic research about purpose (both in individuals and organizations). Being a topic of discussion at the World Economic Forum's annual meeting (2017) shows its importance for leaders and executive managers. Benefits of purpose are found in areas as diverse as health, well-being, work productivity, learning, innovation, and financial performance. Whether collective or individual, purpose represents the "why" of our actions and efforts. More importantly, it specifies our contribution to this world and the society we live in (Rey et al., 2019).

In this research work, we try to establish a link between the BoP market and purposeful organization via innovative solutions to consumer needs. Innovations seem to provide valuable solutions to the need of BoP consumers, which shall stem from purposeful organizations.

The paper is exploratory, and it takes two examples from the Asian perspective, which served a higher purpose and innovatively met the BoP market's needs. First is bKash, a mobile money system whose services aim to serve BoP consumers in Bangladesh. The second is Reliance Jio which revolutionized the Indian market with its innovative product and helped Indian BoP consumers get digitally included.

The first section of the paper reviews the literature and establishes why serving the BoP market is beneficial, followed by the second section that discusses the methodology. The third section finds the connection among the three terms (purpose, Innovation, and BoP) and establishes the link therein. The fourth section discusses the two case studies, keeping the established connection in mind. The last segment deals with the limitation and conclusions derived as a result of this research.

Literature Review

Bottom of the Pyramid (BoP)

The BoP market comprises Tier 4 of the population – the poorest of the poor. Prahalad and Hart (2002) argue that multinational corporations can grow their revenues and help lift billions of

people out of poverty by doing business with poor consumers. The expected reward for businesses that chose to serve the BoP consumers includes “growth, profits, and incalculable contributions to humankind” by providing a better life to these consumers (Prahalad and Hart, 2002).

Since the introduction of the BoP concept, there has been a rise in efforts to increase business engagement with poor consumers. The primary reason is the prospect of a considerable number of new consumers. Moreover, it is projected to grow from 4 billion to 6 billion in 40 years as most of the world population’s growth occurs in this group (Prahalad and Hart 2002). Therefore, global marketers are attracted by the growth opportunities present in this market. Widespread penetration of television and the internet have changed the world’s poor consumers’ aspirations. These consumers have become familiar with how the “rich” consumers live, and they are no longer willing to accept “old” technologies and second-class status (Prahalad and Hart, 2002).

Purpose

There has been a tremendous increase in the general interest in organizational purpose over the last decade because of its numerous benefits: energized and engaged employees, recruitment and retention, day-to-day decision-making, trust in the organization (Rey et al., 2019). Collins & Porras (1994) stated that organizations driven by purpose and values outperformed the general market by 15:1. Similarly, the Deloitte millennial survey (2016) showed that “Millennials prioritized the sense of purpose around people rather than growth or profit maximization.”

Purpose in an organizational context is used in close proximity with concepts like vision, mission, goal, values, and objectives (Singleton, 2014). However, the most agreed-upon definition states purpose as the reason for existence or fundamental reason for being (Reiman, 2012; Kramer, 2017). Also, purpose has often been associated with a social orientation (contribution to the world and to the society in which we live) (Melé, 2009) and the notion of something beyond profit-maximization (Mitra and Fyke, 2017). Nevertheless, three characteristics of purpose hold across its different descriptions: Identity, Meaning, and Motivation (Yemişçigil, 2019).

Purpose means putting positive change at the heart of a company’s products, services, and strategy. A purpose does not have to be about saving the world. Providing excellent entertainment or banking services is just as meaningful a purpose as improving health care in emerging economies—as long as it is an authentic representation of why a company exists (Ready & Truelove, 2011).

Not just theories of motivation, well-being, and identity, purpose has also found itself space in theories of leadership. Purpose-driven leadership is defined as shared leadership based on shared purpose. The concept does not emphasize what the leaders do, instead “why they do what they do” (Rey et al., 2019).

Research Methodology

We adopted a qualitative research design following interpretive principles (Walsham, 2006) for our research. As described in the previous section, our examination of the relevant literature was used as the initial theoretical scaffolding and guide to our case selection, following the accepted role of theory in interpretive research designs (Walsham, 2006). We chose the case research method to explore how companies use “purpose” to build their brand strategies, especially for the BoP market, and how each strategy, though connected with providing low-

cost products, eventually provided innovative solutions serving a higher purpose. We aimed to identify the cases that would be useful in revealing relevant insights. Our cases were selected intentionally by searching for purpose-driven brands, innovatively meeting the needs of the BoP market. After identifying the cases, we visited each brand's website to search for its mission statement or other statements, such as vision, goal, philosophy, or a statement of purpose. Concerning our research goals, we were particularly interested in identifying any innovative solutions provided by selected brands and how they met their purpose.

In our study, neither a particular brand nor its strategy was the focus; instead, we investigated how the purpose-driven strategy initiated innovative solutions for the BoP market.

Connecting BoP and Purpose through Innovation

This section discusses how innovation is related to both purpose and serving the bottom of the pyramid. Innovation can be referred to as a "perceived degree of newness and improvement over existing alternatives" (Lowe and Alpert, 2015) or "as an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (Rogers, 1983).

How Purpose leads to Innovation?

Among the various advantages of purpose, this research concentrates only on Innovation. Innovation is a by-product, helping purposeful organizations achieve their higher-order purpose beyond their current offerings. When organizations understand their "why," new horizons open up, allowing them to explore the "how" and the "what" in fresh and innovative ways. It ensures one stays ahead of disruption and outperforms the competition (The house, n.d.) Research states that embracing organizational purpose ensures financial performance and innovation (Grise & Keller, 2014). Purpose drives firms to find and create new forms of value. It directs a company's activity system towards a clear and present priority: conferring benefits to customers, and from this quest, innovation blooms. Purpose-driven businesses are twice as likely to invest in new technologies (Deloitte, 2013). Also, according to EY Beacon Institute (2016), using purpose as a guide for daily and long-term decision-making can engender increased innovation.

BoP and Innovation

Since BoP consumers are different from middle and high-income consumers, there is a need to develop products tailored uniquely for this consumer segment. This could be done with the help of innovation (Prahalad, 2002). Innovation at the BoP ought to start with a commitment towards awareness, access, affordability, and availability. Merely taking products and services from the West will not work. This market demands new products, services, and applications. Companies need to establish an ecosystem as an indispensable part of innovation (Prahalad, 2012).

Companies are targeting BoP with "innovations," like mobile medical diagnosis, mobile money transfer, banking services, internet accessibility, zero electricity air coolers (Hasan et al., 2020). Some may argue that the aforementioned technologies have been commercialized for quite some time in non-BoP markets and may not see them as innovations, but as mentioned earlier, innovation may be referred to as a perceived degree of newness or improvement over existing alternatives.

Innovations targeted at the BoP must focus on improving the livelihoods of these consumers, thus serving a higher purpose. To improve their overall well-being, access to products and services earlier unavailable to this segment must be provided (Hasan et al., 2020).

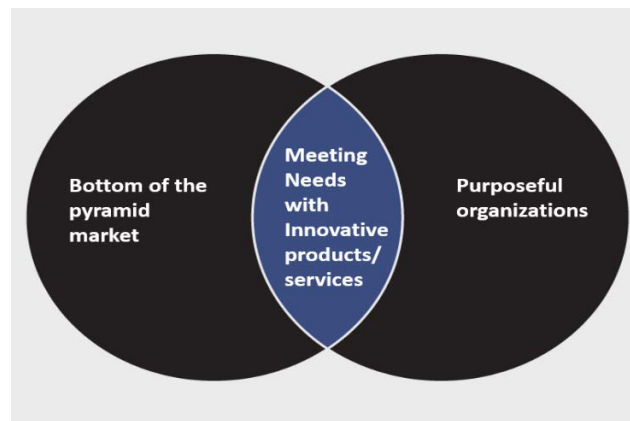


Figure 1: BoP meets Purpose

How leading companies used purpose to serve the BoP market innovatively bKash

In Bangladesh, many people travel to urban centres to support families in rural areas to earn a livelihood. One fundamental insight driving the development of bKash was to cater to the money transfer problem of this growing class of workers. It enabled consumers to send money back home in an efficient, affordable, and secure manner. Therefore, it is considered a revolution in banking for the BoP (Hasan et al., 2020). bKash has had a positive impact on the lives of countless poor people and has gained worldwide recognition for its innovative business model (GSMA, 2011; Mahmood et al., 2017).

In 2017, bKash was ranked as the 23rd company in the annual list of Fortune Magazine's 'Change the World' among the top 50 companies to make changes based on social issues (iBAN, 2019).

bKash's mission statement, "By providing financial services that are convenient, affordable and reliable, bKash aims to widen the net of financial inclusion. bKash wants to provide a solution for Mobile Financial Services, built on a highly scalable Mobile Money platform, allowing the people of Bangladesh to send and receive money via mobile devices safely" also justifies the above Venn diagram of integration of a higher purpose of financial inclusion and serving the BoP market resulting in this innovative service (bKash, n.d.).

JioPhone

The Indian market was largely unpenetrated in terms of digital inclusion. This led to the birth of Reliance Jio that completely revolutionized the domestic telecom industry. Jio's higher-order purpose of digital inclusion is very well seen via its vision statement that reads as "Jio's vision is to transform India with the power of digital revolution - to connect everyone and everything, everywhere – always at the highest quality and the most affordable price" (Jio, n.d.). The company was ranked India's #1 and the world's #17 Most Innovative Company by Fast Company in 2018 (Reliance Industries Limited, n.d.).

Jio's innovative solution focused on three components: Pricing: while other telcos focussed on lowering call rates, Jio decided to make the call rates free and charge for data. Secondly, Jio was positioned as an experience rather than a product or service. The positioning was never about low prices but a new digital way of life (JioMusic, JioTV, JioChat, JioWallet). Lastly, Jio reduced the switching cost (reducing from 3-4 days to 15 minutes using Aadhaar for activation of new SIM). It also offered free usage for three months. Through this innovative pricing strategy, a considerable reduction in the switching cost, and a clear value proposition around digital life made Jio a success (Ajitesh, 2020)

For the first time in 2017, Reliance launched JioPhone, which further changed the lives of tens of millions of less advantaged Indians. It provided them with the opportunity of connecting to the internet at a meagre cost. Reliance and KaiOS Technologies partnered to bring this smart feature phone to the Indian masses, who were either unable to afford a smartphone or were looking for smartphone alternatives. Securing technologies from technology giants like Google, Facebook and using the open-source Firefox OS, this phone successfully met the demand for reliable and affordable technology (James, 2020).

Table 1: Summary of two brands' innovative outcomes due to intersection of Purpose and BoP market

| Case no. | Brand/organization | Product category | Geographical coverage | Vision / mission/ purpose statement | BoP market served | Higher Purpose served | Innovative product or service |
|----------|--------------------|-----------------------|-----------------------|---|-------------------|-----------------------|--|
| C1 | Jio | Telecom | India | Jio's vision is to transform India with the power of digital revolution - to connect everyone and everything, everywhere – always at the highest quality and the most affordable price. | yes | Digital Inclusion | Charging on data not call, Reducing switching time, Promoting digital experience rather than product or service, Affordable smartphone |
| C2 | bKash | Banking and financial | Bangladesh | By providing financial services that are convenient, affordable and reliable, bKash aims to widen the net of financial inclusion. bKash wants to provide a solution for Mobile Financial Services, built on a highly scalable Mobile Money platform, allowing the people of Bangladesh to safely send and receive money via mobile devices. | yes | Financial Inclusion | Easy money transfer, Low processing fees, Other Mobile financial services |

Limitations and Conclusion

The current study explains how the integration of organizations with purpose and BoP target market results in Innovative products and services. Like any other research work, this paper also has some limitations that need to be addressed in the future. Firstly, it is based on secondary data, so future research calls for primary data sources for analysis and interpretation. Secondly, our study is exploratory, and to improve robustness, researchers suggest using mixed methods that involve both qualitative and quantitative approaches (Creswell and Miller, 2000).

Current trends show that purpose seems to be penetrating people's daily lives and transforming societal institutions worldwide. Similarly, BoP is an important market, so special attention must be paid to it. If the bottom falls out, there is no pyramid at the end of the day, no matter how beautifully the pyramid is structured. Given this tremendous interest in purpose and organizations' newfound opportunity to serve the BoP market profitably, it is essential to clearly understand what each is, how the two can be clubbed, and why innovation is the integration point of both. This paper aims to provide a starting point to this understanding.

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Co-creation in Management practices: A synthesis and conceptual framework

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Abstract

The paper attempts to classify and organize the accumulated knowledge about co-creation with an objective to identify the factors that have an effect on co-creation practices in management and streamline of future research. A term-based search method was applied in which the literature was restricted to peer-reviewed articles in English-language journals of a certain date and specific online databases with 90 peer-reviewed articles, published between 2000 and 2020. A framework of five broad classification viz. brand; customer; technology & innovation; services; and value have been considered. The research has an impact on theoretical development, decision-making of administrators and teachers. This paper provides the first systematic review of co-creation literature, which not only helps to organize co-creation based literature, but also investigates significant gaps on this topic, thus facilitating future research.

Keywords - Co-creation, value co-creation, customer co-creation, innovation, brand, service.

Marketing Resources and Stock Performance: Exploring Moderating Effect of Business Group Affiliation of Construction Firms during Crisis

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Abstract

The present research examines the role of a firm's marketing resources on its stock performance in the construction sector (CS) during times of intense uncertainty and crisis, such as the COVID-19 pandemic. Further, the study uses event study and multivariate regression analysis to analyse the moderating role of business-group affiliation in the effectiveness of these marketing resources. We report a significant negative effect of COVID-19 on the value of the CS firms. The study established that affiliation of the business group played a positive moderating role in the effectiveness of the firm's marketing resources, such as brand image and marketing capability in mitigating the adverse impact of the crisis on stock performance. At the same time, investors did not favourably reward higher spending on advertising for business group affiliated firms.

Keywords – Marketing resources, stock performance, business group affiliation, construction sector, crisis management,

Introduction

The extant literature argued that marketing resources would greatly help a firm to manage a crisis (Grewal & Tansuhaj, 2001) effectively. As argued by Foley & Fahy (2009), examining marketing through the capability's lens can reveal new insights. There have been limited studies exploring the role of the firm's marketing capabilities on performance and risk mitigation. The present study is grounded in the signaling theory. It explores the role of marketing resources as signal on the firm's stock performance specifically on construction sector (CS). The study dwells deeper into the CS literature primarily because there is a paucity of studies examining the role of marketing resources/capabilities in firms (Mokhtariani, Sebt, & Davoudpour, 2017). Moreover, CS is amongst the majorly affected sector during the recent COVID-19 pandemic. Further, there are limited studies examining the effect of marketing constructs' in managing crisis (Naranjo, Pellicer & Yepes, 2011) and its impact on firm's stock performance. Thus, the present study explores the role of the CS firm's marketing resources, including marketing capabilities, advertising intensity, and brand image on firm's stock performance during health crises (outbreak of COVID-19). Moreover, the study investigates the role of business group affiliation and its moderating effect on the relation between a firm's marketing capabilities, advertising intensity, and brand image on its stock performance during a crisis period.

This study contributes to the marketing literature in several ways. First, the present study adds value to the works of Cacciolatti & Lee (2016) and Merrilees, Rundle-Thiele, & Lye, (2011) in the area of marketing capabilities. The study further adds to the marketing literature on resources like advertising intensity and brand image that serves as an advantage for organizations in the crisis period. Second, the study also explores the moderating role of group affiliation on a firm's marketing strategy and its stock performance. Third, this study is amongst the earliest that explores the role of CS firm's marketing capabilities and impact during a pandemic. Fourth, from the methodological perspective, it uses event study in the CS literature which has been less explored (Kajander et al. 2012) and is recently gaining traction in the marketing literature (Sorescu, Warren, & Ertekin, 2017). Finally, it adds to the limited literature on the impact of COVID-19 and CS in an emerging market context.

Conceptual Background and Hypotheses Development

Building on the signalling theory this paper explores the role of CS firms' marketing resources viz., advertising intensity, marketing capability, brand image, on firms' stock performance - specifically for BG-affiliated firms.

Advertising intensity

Signalling theory refers to how a firm is effectively able to communicate credible information to the stakeholders. One of the essential characteristics of signalling is its ability to get observed, i.e., referring to the visibility of the product or services and related information (Kirmani & Rao, 2000). Advertising is a means of communication used to promote the firm, its product or services and is observable to all the stakeholders. Real estate and construction firms do invest in advertising to provide necessary information to potential consumers (Perkins et al., 2008). Furthermore, advertising is also found to reduce the firm's systematic risk, i.e., the sensitivity of a firm's stock returns due to changes in market level economic factors (McAlister et al., 2007). Yin et al. (2019) have identified advertising by real estate firms as useful in reducing the risk perception in the post crises period. Furthermore, Kim et al. (2020) have analyzed the crises situation of epidemic outbreaks from 2004-2016 and found advertising to mitigate the risk faced by the firms. Therefore, based on the above arguments, it has been hypothesized:

H1: Firms with higher advertising intensity would have a positive impact on the firm's stock performance during the crises period.

Brand image

Investing in brand building activities by the firms have been well accepted by the shareholders as such activities provide justifications for future payoffs (McAlister et al., 2007; Yeung & Ramasamy, 2008). Fehle et al. (2008) reported that firms with a more reliable brand enhance shareholders wealth. AlMalkawi & Pillai (2013) suggest that brand loyalty increase returns on assets for and individual in real estate and CS. Further, they argued that a recognized brand symbolizes the quality of the products and services provided by a firm leading to better performance, in turn, providing positive stock returns. Thus, the authors argue that firms in CS with a positive brand image would have a better return on firms' stock performance. Bagaen (2007), through the example of brand Dubai, argued that the infrastructure & construction development in a city would create a distinct brand identity and boost the economic growth in the city. Furthermore, a favourable brand creates a halo effect that serves as a shield in times of crises (Coombs & Holladay, 2006; Claeys & Cauberghe, 2015). Therefore, it is argued in a crises period like COVID-19 pandemic; a reputed brand will provide the halo effect to mitigate the negative impact on the firm's stock performance. Therefore, it has been hypothesized as:

H2: Firms with a positive brand image would have a positive impact on the firm's stock performance during the crises period.

Marketing capability

According to the Market-based asset theory, marketing initiatives act as a critical resource to develop and manage market-based assets that in turn help a firm develop capabilities to gain competitive advantage (Srivastava et al., 2001). Angulo-Riuz et al. (2014) defined marketing capability as "the process of combining marketing resources by leveraging relational and intellectual assets to satisfy customers and attain brand equity" (p.383). Firms with higher marketing capability have greater possibility of developing and maintaining substantial brand value not only by the customers but also by the shareholders, thus reducing the firm's risk

(Morgan et al., 2009). Moreover, the marketing investment of a firm is found to lower the risk for shareholders (Srivastava et al., 2001).

The literature on marketing capability captures not only the investors perspective but also the customers perspective (Tuli & Bhardwaj, 2009). They further, identified that the marketing capability captured as an initiative to enhance customer satisfaction acts as an essential indicator in reducing the risk in stock returns. Grasskamp (1992) argued marketing as one of the crucial functions for construction firms that protect them from uncertainty. Thus, the authors argue firms with higher marketing capability will be in a better position in developing and implementing marketing actions that mitigate the risks arising in an uncertain situation like COVID-19 pandemic and retain shareholders trust and confidence in the firm. Therefore, it has been hypothesized as:

H3: Firms with higher marketing capability would have a positive impact on the firm's stock performance during the crises period.

Business Group Affiliation

Business group (BG) is defined as "a set of firms which, though legally independent, are bound together by a constellation of formal and informal ties and are accustomed to taking coordinated action" (Khanna and Rivkin, 2001, p.47-48). Extant literature identifies that BG can tap into the knowledge and connections of affiliated firms (Lamin, 2013). BG-affiliated firms, through their connections, compensate for institutional voids arising due to a weaker regulatory or enforcement environment (Khanna & Palepu, 2000). Many researchers (e.g., Gaur & Kumar 2009, Gaur & Delios 2015) have explored the moderating role of BG affiliation on a firm's performance in an emerging market economy, like India. An emerging market with institutional voids and less efficient external capital market, it is imperative that investors would value BG affiliation. Such firms will have better access to BG's vast physical, financial, and intellectual resources, which helps fill in for that institutional void. Claessens, Djankov & Klapper (2003) have identified BG affiliation to be useful when a firm is facing financial distress. Given the COVID-19 outbreak, there is an unprecedented uncertainty in the business environment which may, in turn, lead to financial distress. The outbreak may also take CS firms into a prolonged period of crisis.

Further, Carney et al. (2011) argued that BG affiliation is vital and supports firms during the crisis and post-crisis periods. We, therefore, argue that in emerging markets, BG affiliation tends to provide benefits to associated companies in the form of resources such as marketing resources and superior managerial expertise during the crisis and the post-crisis periods. Business groups serve as a forum for resource sharing among affiliates in emerging markets. Singh & Delios (2017) concluded that the ability of BG affiliate firms to connect group-wide resources serves as an advantage, as the linkages help firms pool resources and exploit business opportunities. Based on the resource advantage theory it is argued that the BG-affiliated firms would leverage the marketing resources such as advertising expense, brand image, and other marketing capabilities during periods of uncertainties and crisis such as COVID-19 pandemic. Therefore, it becomes imperative to explore the role of BG-affiliation in the hypotheses argued earlier, as a moderator. Thus, it is hypothesized:

H4: BG affiliated firms would positively moderate the impact of advertising intensity such that group affiliated firms stock performance would be less affected as compared to non-group affiliated firms during the crises period.

H5: BG affiliated firms would positively moderate the impact of the brand image such that group affiliated firms stock performance would be less affected as compared to non-group affiliated firms during the crises period.

H6: BG affiliated firms would positively moderate the impact of marketing capability such that group affiliated firms stock performance would be less affected as compared to non-group affiliated firms during the crises period.

The conceptual model is given in Figure 1.

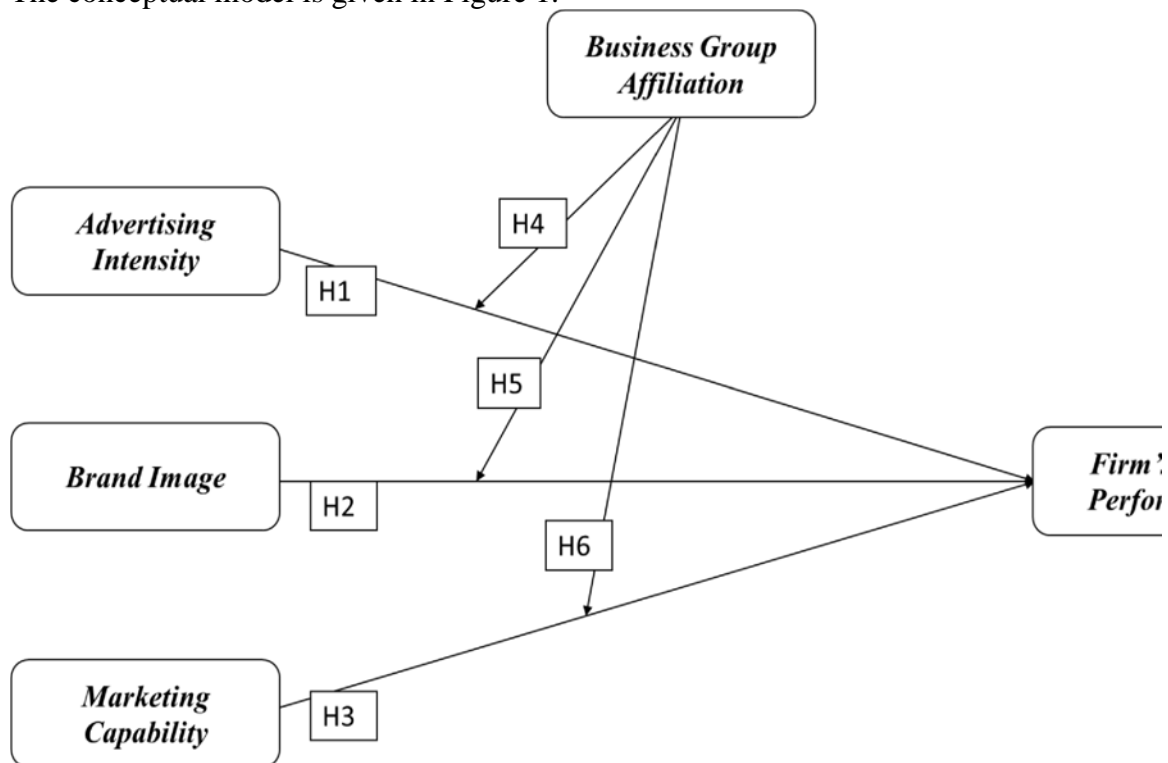


Figure-1: Conceptual Model

Research Design

The empirical analysis is done in two stages. In the first stage, univariate analysis was conducted using an event study (ES) methodology for examining the impact of the COVID-19 pandemic on the stock performance of the CS firms. ES has been used to measure the effectiveness of an event on the firm value (the stock returns) and widely used in the field of marketing (Sorescu, Warren, & Ertekin, 2017; Prentice & Zhang, 2017). The ES enables to discern and establish the impact of the of an event (COVID19 outbreak) on target firm's (CS) stock returns which cannot be otherwise explained by the model of normal stock return behaviour.

In stage two, multivariate regression analysis is used for assessing the impact of the firm's marketing resources on stock performance during the COVID-19 crisis period. Furthermore, the moderation effect of BG affiliation is explored on the effectiveness of the marketing resources on the firm's stock performance. Using reliable firm and market-level trading and financial data of construction firms, this study puts forth insights into the CS and marketing literature.

Data & Sample Selection

The data for the study has been collected from secondary sources. Major events around COVID-19 outbreak has been collected from the World Health Organisation and Ministry of Health, Government of India websites. The firm-level trading (January 2018-March 2020) and financial data (financial year ending 2019) are collected from the Centre for Monitoring Indian Economy (CMIE) Prowess database. Numerous published works in social science research have used Prowess data in their research work (e.g., Khanna & Palepu 2000). Using 8-digit National Industry Classification Codes (NIC), 297 listed firms were classified which belonged to core construction and allied sectors.

The thinly traded firms (less than 100 days of trading in a calendar year) and the firms with less than five days of returns data in the event window period were dropped from the sample. Further, any confounding events such as earnings announcements, dividend/bonus issuance, stock split news, or any other major corporate announcement with a potential of impacting stock performance were dropped. After dropping all these firms, 165 firms remained in the sample for the univariate ES analysis, which included construction firms from real estate (40%), infrastructural (25%), Industrial (20%), and others (15%).

For the multivariate regression analysis, those firms which did not have two or more stock or firm characteristics data items were dropped from the sample, leaving the sample size to 162. Mean imputation technique was used to replace missing control variable value based on suggestions of Hoyle (1999). All the financial data is taken for the year ending March 2019 to avoid any spurious correlation between these variables and measures of changes in firm value during the crisis, as suggested by Wang et al. (2009).

Univariate Analysis (Event Study)

In the ES method, authors first estimate the expected normal return using the historical stock and market return data from the estimation window (252 trading days as per suggestions of Cowan, 2003 to mitigate seasonality bias) period using the Market Model. The expected return from the actual return is subtracted to calculate the abnormal return, which in turn is cumulated over the event-window periods (i.e., [0, 0] [-1,+1] and [-3,+3]) to calculate the Cumulative Abnormal Return (CAR). We restrict to 7day event window as a larger event window may have confounding event issues, resulting in biased CAR's estimates (Oler et al., 2008).

After calculating the firm-level CARs for various event-window periods, their statistical significance is tested using Boehmer et al., (1991) with adjustment suggested by Kolari and Pynnonen (2010) (KPBMP, henceforth). KP-BMP is suitable as COVID-19 events may lead to problems of event clustering leading to event induced cross-correlation and conventional test-statistics may produce biased estimates (e.g., Jawed et al., 2019).

Multivariate Regression Analysis

Further multivariate regression analysis is undertaken to analyze the role of marketing resources in mitigating the impact of a crisis like COVID-19 pandemic on stock performance. The firm-level 7-day CARs during the crisis period is regressed with CS firms' marketing variables while controlling for the key determinants of stock return during the market crisis periods. The moderation effect of the BG affiliated firms is explored on the efficacy of the marketing variables in mitigating the adverse impact of the crisis on the stock performance. The variable description is given as under:

Dependent Variable (DV):

The dependant variable is the stock's CAR_i, for the 7-day event window period, as used by Aggarwal et al. (2019).

Independent Variables (IVs):

Advertising intensity (ADV_EXP) is operationalized as a ratio of total advertising expenses to total assets of the CS firms in the preceding financial year. Similar operationalization was adopted by previous studies (e.g., Kashmiri & Mahajan 2015).

Brand image (BRND_IMG) is a dummy variable taking value as 1 if the firm has been part of the Fortune 500 (India) list in the past three years, else 0 (Smith, Smith, & Wang., 2010).

Marketing capability (MRKT_CAP) is operationalized as a ratio of total marketing expenses to total sales of the CS firms in the preceding financial year. Similar operationalization was adopted by previous studies (e.g., Kashmiri & Mahajan 2015; Mishra & Modi, 2016).

Moderating Variable (MV):

Business Group Affiliation (GRP_DUM) is a dummy variable wherein the value is 1 if the firm is affiliated to a business group, else 0.

Control Variables (CVs):

The multivariate model controls for other important factors suggested in previous works on stock return (Wang et al., 2009; Kim et al., 2012), as elaborated below.

Bankruptcy Risk (BNKR_RISK), is calculated using the Altman Z-score ratio (Altman, 1993), which is widely used and accepted measure of insolvency (risk to bankruptcy) (e.g., Vivel-Búa, Lado-Sestayo & Otero-González, 2018). A higher Altman Z-score indicates higher financial stability, i.e. lower credit risk/risk to insolvency and vice versa.

Altman Z Score = $0.718 * V1 + 0.847 * V2 + 3.107 * V3 + 0.420 * V4 + 0.998 * V5 \dots(ix)$

where, V1= working capital/total assets; V2= retained earnings/total assets; V3= EBIT/total assets; V4= capital/debt; V5= sales/total assets.

Growth Potential/Market-to-Book (MB_RATIO) ratio, measured as the market value divided by the book value of the equity. Higher values of MB_RATIO would mean that the stock is overpriced, as investors value it more owing to its higher growth potentials.

Stock liquidity (STCK_LIQ) is captured by the turnover ratio, calculated as the daily number of shares traded (volume) as a percentage of the number of shares outstanding on that day, averaged over the number of trading days (n) in the preceding 12 months (Wang et al., 2009).

Stock beta (BETA) is computed by regressing firms' stock return in the pre-crisis period on the corresponding market index return using the Scholes-Williams (1977) method. BETA of a stock measures the volatility of the returns on the asset relative to the returns on the market portfolio (Wang et al., 2009).

Momentum (MOM) is the past cumulative stock return, one-quarter before the event window period. The momentum and reversal patterns of stock returns have received considerable attention in the literature (Li et al., 2008).

The regression model used for the multivariate analysis is as follows:

$$CAR[-3, +3]_j = \alpha + \beta_1 ADV_INT_{i,2019} + \beta_2 BRND_IMG_i + \beta_3 MARK_CAP_{i,2019} + \beta_4 GRP_DUM_i + \gamma_1 GRP_DUM_i * ADV_INT_{i,2019} + \gamma_2 GRP_DUM_i * BRND_IMG_i + \gamma_3 GRP_DUM_i * MARK_CAP_{i,2019} + \delta_i \sum Control_variables_i + \epsilon_i \dots(x)$$

where,

ADV_INT_{i,2019} a ratio of total advertising expenses to total assets

BRND_IMG_i is a dummy variable which takes the value 1 if the firm featured in Fortune 500 (India) list the past three years, else 0
 MARK_CAP_{i,2019} is a ratio of total marketing expenses to total sales
 GRP_DUM is a dummy variable which takes value 1 if the firm is affiliated to the business group, else 0 β_i show the coef. of IVs,
 γ_i show the coef. of the interaction effect with the moderating variable δ_i show the coef. of control variables, and
 ϵ_i is the error term.

Results & Discussion

Univariate Analysis (Event Study Results)

The first stage of the empirical investigation is conducted using ES methodology around the key events of the COVID-19 outbreak. Results in Table-1 shows the percentage Cumulative Average Abnormal Return (CAAR) around the following event days:

- i Panel A - 31st December 2019 (date of origin of COVID-19 in China),
- ii Panel B - 30th January 2020 (the date of the outbreak of the disease in India and categorization of COVID-19 into a severe threat category by WHO),
- iii Panel C - 11th March 2020 (announcement of COVID-19 as a pandemic by WHO), and
- iv Panel D - 24th March 2020 (start of the nation-wide lockdown period in India), respectively.

Table-1: ESM on All firms in the sample of key event dates

| Event Window | CAAR (%) | t-Stat (BMP) | p-value |
|--------------|-----------|--------------|---------|
| | Panel - A | 31-Dec-19 | |
| (-3...3) | 6.26% | 1.5599 | 0.1188 |
| (-1...1) | 1.55% | 0.8705 | 0.384 |
| (0...0) | 0.52% | 0.626 | 0.5313 |
| | Panel - B | 30-Jan-20 | |
| (-3...3) | -2.48% | -1.0342 | 0.301 |
| (-1...1) | 2.67% | 1.745 | 0.081 |
| (0...0) | -0.15% | -0.1623 | 0.871 |
| | Panel - C | 11-Mar-20 | |
| (-3...3) | -4.93% | -1.7633 | 0.0778 |
| (-1...1) | -7.35% | -2.9958 | 0.0027 |
| (0...0) | 5.52% | 2.6486 | 0.0081 |
| | Panel - D | 24-Mar-20 | |
| (-3...3) | -9.13% | -2.4642 | 0.0137 |
| (-1...1) | -17.10% | -3.4015 | 0.0007 |
| (0...0) | -5.42% | -2.686 | 0.0072 |

Results from Table-1, Panel A & B indicate that COVID-19 was anything but negative for the construction sector as the CAARs are non-significant – both economically and statistically. On 11th March 2020, construction firms on an aggregate witnessed a significant 5% positive return

which quickly turned negative (-7.35% at $p < 0.01$) in the 3-day event window period. This positive return might be because the announcement by WHO was made after market hours in India, and the impact was mostly seen on the next trading days. In the more extended event-window period, the direction of the CAARs remain the same as of 3-day even window period; however, the magnitude and significance got weaker over time (-4.93%, $p < 0.1$).

It was eventually 24th March 2020 when construction sector stocks witnessed a CAAR of -5.42% ($p < 0.05$) on the event date and a whopping -17.10% ($p < 0.01$) in the 3-day event window periods. It was further seen that the direction of CAARs remained the same; however, the magnitude decreases in the 7-days event window periods with CAARs over -9% at $p < 0.05$. This empirically establishes that 24th March (nation-wide lockdown in India) was a critical adverse event for the construction firms listed in Indian stock exchanges. We, therefore, identify the CARs around this event as our dependent variable for further multivariate regression analysis.

Multivariate Regression Analysis

All the statistical data analyses were carried out using STATA/MP 15.1 software package. The summary statistics and Pearson's Correlation coefficients of the data are reported in Table-2. The correlation values of explanatory variables do not hint at any problems of multicollinearity in our data. We also conducted the Variance Inflation Factor (VIF) test for all the models under consideration, to confirm the absence of multicollinearity problem in the model (VIF values for individual variables ranged from 1.49 to 2.76).

Table-2: Summary Statistics and Pearson's Correlation Coefficients

| Variables | Std | | | | CAR 24_7 | ADVT _EXP | BRND _IMG | MRKT _CAP | GRP_ DUM | BNKR _RISK | MB_R ATIO | STCK _LIQ | BE TA | M O M |
|-----------|----------|----------|---------|---------|-------------|--------------|--------------|--------------|-------------|---------------|--------------|--------------|----------|-------------|
| | Me an | De v. | Mi n | Ma x | | | | | | | | | | |
| CAR24_7 | 0.068 | 0.1049 | 0.4095 | 0.2146 | 1 | | | | | | | | | |
| ADVT_EXP | 0.0196 | 0.0713 | 0.007 | 0.6707 | 0.073 | 1 | | | | | | | | |

Table-3: Multivariate Regression Results & Difference of Slopes test

| Variables | Panel - A | | | | | | | Panel - B | | |
|------------------|------------------------------|------------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------------|--------------------------|---------------------------|
| | Model-1 | Model-2 | Model-3 | Model-4 | Model-5 | Model-6 | Model-7 | Col (1) | Col (2) | Col (3) |
| ADVT_EXP | 0.164 1* (0.10) | 0.17 44* (0.10) | 0.173 8 (0.129) | 0.085 0 (0.117) | 0.172 3 (0.126) | 0.180 0 (0.133) | 0.093 0 (0.118) | 0.178 4 (0.16) | 0.574 1*** (0.087) | 0.395 7*** (0.135) |
| BRND_IMG | 0.037 4** (0.017) | 0.03 24* (0.014) | 0.031 1* (0.018) | 0.033 5* (0.018) | 0.083 6*** (0.031) | 0.030 2* (0.018) | 0.083 4*** (0.031) | - 0.075 6** (0.025) | 0.019 1 (0.021) | 0.056 5** (0.028) |
| MRKT_CAP | -2.8e-06** * (0.2e-06) | -2.9e-06** * (1.0e-06) | -2.8e-06** (1.2e-06) | -2.5e-06* (1.3e-06) | -2.8e-06** (1.4e-06) | -3.3e-06*** (7.1e-07) | -3.5e-06*** (7.1e-07) | 4.1e-06** * (8.2e-07) | 5*** (4.53e-06) | 1.77e-06*** (3.16E-06) |
| GRP_DUM | | 0.01 | 0.029 | 0.023 | 0.051 | 0.032 | 0.048 | | | |
| GRP_DUM*ADVT_EXP | | | | 0.497 8*** (0.135) | | | 0.500 7*** (0.141) | | | |
| GRP_DUM*BRND_IMG | | | | | 0.081 7** | | 0.079 | | | |
| GRP_DUM*MRKT_CAP | | | | | | 9.2e-06* | 1.5e-05*** | | | |
| BNKR_RISK | | | 0.000 9** (0.000) | 0.001 0*** (0.000) | 0.000 9*** (0.000) | 0.000 9** (0.000) | 0.001 0*** (0.000) | 0.000 9** (0.000) | 0.008 5*** (0.002) | |
| MB_RATIO | | | 0.000 5*** | 0.000 5** | 0.000 0.000 | 0.000 6*** | 0.000 6*** | 0.005 5*** | 0.000 5*** | |
| STCK_LIQ | | | 0.023 2*** | 0.022 8*** | 0.021 5*** | 0.023 0.023 | 0.021 0.021 | 0.019 0* | 0.016 5* | |
| BETA | | | 0.013 5 | 0.012 7 | 0.013 7 | 0.014 9 | 0.015 2 | 0.003 1** | 0.040 1** | |
| MOM | | | 0.045 3* | 0.041 8* | 0.038 4 | 0.046 4* | 0.037 1 | 0.036 7 | 0.036 5 | |
| Const | 0.053 | 0.000 | 0.002 | 0.002 | 7 | 0.000 | 0.000 | 4 | 0.061 | |
| N | 162 | 162 | 162 | 162 | 162 | 162 | 162 | 87 | 75 | |
| F-Stat | 3.98* | 2.81 | 6.05* | 20.14 | 5.34* | 10.2* | 15.86 | 6.9** | 15.63 | |
| R Sq | 0.036 | 0.04 | 0.127 | 0.141 | 0.152 | 0.130 | 0.171 | 0.161 | 0.280 | |
| RMSE | 0.103 | 0.10 | 0.100 | 0.100 | 0.099 | 0.101 | 0.099 | 0.108 | 0.085 | |

We report the estimated results in Table 3. The F-statistics for all the seven models are significant ($p < 0.05$ for Model-(1) & (2), while $p < 0.01$ for others), indicating that each model is a significant predictor of the dependant variable under consideration.

Model-(1) show that BRND_IMG (coef.=-0.0374, $p < 0.05$) and MRKT_CAP (coef.=-2.8e-06, $p < 0.01$) is significantly related to CARs, while ADVT_EXP is non-significant. However, the direction of the relationship is opposite to what is hypothesized for all the IVs. These relationships hold their direction and significance in the presence of moderator variable

(GRP_DUM) and the chosen firm and stocklevel control variables in Model (3) – though with a slightly lower level of significance (coef. = -0.0311, $p < 0.1$ for BRND_IMG and coef. = -2.8e-06, $p < 0.05$ for MRKT_CAP). This implies that during periods of extreme uncertainty and crisis, firms with better marketing capability or brand image witness a steeper negative stock price reaction. The negative impact of BRND_IMG on CARs during periods of crisis could be attributed to the rationale of being known as a burden (Wei, Ouyang & Chen, 2017). In contrast, the negative impact of the ADVT_EXP can be attributed to the enhanced attention of the investors to the negative news or the underlying uncertainty leading to higher selling pressure in the stock market (Xiong and Bharadwaj 2013; Chemmanur and Yan 2019). Moreover, CS is believed to be a lower margin industry (Mokhtariani, Sebt & Davoudpour 2017) and firms having traditionally higher advertisement intensity would be perceived as value eroding, especially during market downturns (Han & Manry 2004). The adverse effect of higher MRKT_CAP on the stock value (CARs) can be explained in two ways – one, brand visibility and investor attention, and second, nature of the uncertainty (COVID-19). Prior studies have shown evidence of a relationship between higher marketing capability and brand image (Ortega & Villaverde, 2008). The higher brand image would lead to enhanced investor attention (Wei, Ouyang and Chen 2017) which would adversely affect the stock value during spells of bad news (Chemmanur and Yan 2019). Further, the unique nature of this crisis which brought uncertainties disrupting the usual channels through lockdowns, travel restrictions, and newer protocols of doing business. The firms with lighter ex-ante expenditure on building marketing capabilities would find it easier to shift to new ways than the ones who had already been investing heavily in traditional ways of doing business. Thus, investors might not give enough weight to marketing capability during such a unique set of uncertainties and may potentially see them as a liability. Moreover, studies have shown that operational capabilities score more during an economic crisis over marketing capabilities in the eyes of investors (Ahmed, Kristal, & Pagell, 2014).

Amongst the chosen control variables for the study, we find that MB_RATIO (coef.=0.0005, $P < 0.01$), STCK_LIQ (coef.=0.0232, $P < 0.01$) and MOM (coef.=0.0453, $P < 0.1$) are significantly and positively related to the CAR. While BNKR_RISK (coef. = -0.0009, $P < 0.05$) shows a negative relationship. This indicates that firms with higher growth potential, stock liquidity, stock momentum and lower risk to bankruptcy witness lower negative abnormal return. Thus, based on the above results, hypotheses H1, H2, and H3 are not supported, implying that during the periods of extreme crisis firms marketing resources, namely - Advertising Intensity, Brand Image, and Marketing Capability does not prove capable of retaining firm's market value. Instead, they seem to value eroding during periods of extreme market uncertainty and chaos, such as COVID-19.

Moderation Effect:

We test the moderation effect hypotheses (H4-H6) of group affiliation on the IVs using interaction effect regression framework. We first test the direct relationship of the moderator variable (GRP_DUM) with CAR, as reported in Model-(2) and (3) of Table 3. The relationship is negative but insignificant in both instances. Model (4-6) of Table 3 shows the test of the interaction effect of GRP_DUM on ADVT_EXP, BRND_IMG, and MRKT_CAP, respectively. Model (7) shows the joint moderation effect. Models (4-7) also control for chosen firm and stock-specific control variables.

The results in Model (4), Table-3 shows that GRP_DUM has a negative moderation (interaction) effect on ADVT_EXP (coef.=-0.4978, $p < 0.01$). This signifies that BG affiliated

firms having higher ex-ante advertisement intensity witnessed a higher negative CAR, refuting our hypothesis H4.

Model (5), Table 3 show the interaction effect of GRP_DUM with the BRND_IMG, which comes out to be positive and significant (coef.=0.0817, $p<0.05$). This implies that BG affiliated firms having better brand image helped them retain firm value during periods of extreme uncertainty and crisis such as COVID-19. This is in congruence with the arguments as hypothesized about advantages of BG affiliation in an emerging market context, from resource advantage theoretical perspective.

Similarly, Model (6) of Table-3 (Panel-A) indicate the interaction (moderation) effect of GRP_DUM on MRKT_CAP of firms. It is observed that BG affiliation has weakly significant positive moderation effect on the firm's marketing capability (coef.=9.2e-06, $p<0.1$). This implies that capabilities developed by any firm within a BG may get utilized by other affiliated firms. This is true for marketing capabilities, as well. Any capabilities developed by a group affiliate would be accessible to other group affiliated firms which is not the case with non-affiliated firms as all the capabilities at their disposal has to be developed by them by spending their own resources (Gaur, Kumar, & Singh, 2014). Moreover, that is why investors view MRKT_CAP as a useful resource to process during periods of extreme uncertainty and crisis, but only if the firm is BG affiliated.

We further tested the interaction (moderation) effect of GRP_DUM on all the IVs in a joint model (Model-7). The results indicate that GRP_DUM has a significant moderation effect on the variables under consideration (coef.=-0.5007, $p<0.01$ for ADVT_EXP; coef.=0.0799, $p<0.05$ for BRND_IMG; and coef.=1.5e-05, $p<0.01$ for MRKT_CAP, respectively). It is observed that in the joint model, the interaction terms retain the direction and improved the levels of significance from their individual models. We also observe that the model shows improved goodness of fit (F-statistics=15.86, $p<0.01$) and the lowest Root Mean Square Error (RMSE) of 0.09925.

Robustness test for Moderation effect

We carry the further analysis of the interaction effect using the difference of the slopes approach, as suggested by Robinson, Tomek, & Schumacker (2013). We divide our sample into two sub-set based on their BG affiliation and fit regression model (Model-3 of Table-3(Panel-A) without the GRP_DUM variable). The results are reported in Table-3 (Panel-B). Column-(1) shows the regression results of the non-BG affiliated firms (GRP_DUM = 0). Column-(2) reports the regression results of the BG-affiliated firms (GRP_DUM = 1). Column-(3) reports the difference of the slope coefficients, i.e., the moderation effect ($\beta_{Group\ Affiliated} - \beta_{Non\ Affiliated}$). It is found that all the three IVs indicate significant moderation effect of BG-affiliation(coef.=-0.3957, $p<0.01$ for ADVT_EXP; coef.=0.0799, $p<0.05$ for BRND_IMG; and coef.=1.5e-05, $p<0.01$ for MRKT_CAP, respectively). The differenced slope coefficients and their respective significance reinstate the robustness of the findings of the regression analysis using the interaction effect in Model (4-7) of Table-3(panel-A).

Theoretical Implications

The present study builds upon the signaling theory in exploring the role of marketing resources on the firm's stock performance in CS. The study makes several contributions to marketing and CS literature. First, the study adds to the marketing literature on resources like advertising intensity, brand image, and marketing capability and its negative impact on the firm's stock performance. Further, the study explores the role of BG affiliated firms in reducing the negative

impact of advertising intensity, brand image, and marketing capability on the firm's stock performance. The results confer to the resource advantage theory implying that marketing resources developed by any firm within a BG may get utilized by other affiliated firms to survive through the crises. Second, the study contributes to the methodological development of the use of ES methodology in the field of marketing (Sorescu, Warren, & Ertekin, 2017) in the CS literature. Third, the study adds to the CS literature on crises (Kaklauskas et al., 2011) by exploring the role of CS firm's marketing resources and impact during a pandemic crisis. Finally, it adds to the limited literature on the impact of COVID-19 and CS in an emerging economy context.

Implication for Practitioners

This study also aids marketing professionals and practitioners in the CS in quite a few meaningful ways. First, the study helps the marketing professionals to strategically deploy their marketing resources during the time of an expected economic downturn or crisis. Second, in an emerging market setup, it pays to invest in spending resources in building brand image, and general marketing capabilities, if the firm is an affiliate of BG. However, for a non-BG firm, these marketing resources do not work as a shield in protecting value erosion in the bearish stock market. Third, the study provides early cues for managers, practitioners, and stakeholders of the CS on the nature of early impacts on the firm's value on the onset of a health crisis. Lastly, by throwing some light on the CS in between an ongoing healthcum-economic crisis, this study provides timely evidence which will give early cues for the policymakers in countries which are yet to see the peak of COVID-19 pandemic. It would also help the policymakers rationalize their decision-making when it comes to choosing between a complete lockdown over other available alternatives of checking the spread of the virus to rationalize the damage to the CS.

Conclusion, Limitations, and Scope for Future Research

This paper adopts the resource advantage theoretical perspective and explores the role of the marketing resources of the CS firm in mitigating the negative impact of the crisis period on stock performance. The study further investigates the role of BG-affiliation as a moderator to the marketing resources of the CS firms – Advertising Intensity, Brand Image, and Marketing Capability.

There are three significant findings of the study. First, using the ES methodology, it empirically identifies the event that caused the maximum significant value erosion in the CS. Second, the study also finds that the marketing resources of the CS firm could not provide resistance to the negative stock performance during the periods of extreme crisis, like a pandemic. Moreover, it was seen that BGaffiliation of the firms proved to be a shield during such events of crisis and helped moderate the effect of brand image and marketing capability of CS firms positively on stock performance. However, the advertising intensity showed a significant negative effect on BG affiliated firms.

It needs a mention that the present study has few limitations, which may be addressed by future studies. First, there are more capabilities of the firm, such as, supply chain capabilities, innovativeness, and organization culture which this paper does not consider and restrict to the ones emerging from the marketing literature for logical coherence and availability of data. Second, the importance of marketing function in different industries may vary thus sectoral comparison of these effects may have merits. Third, an investigation of this relationship in an advanced economy having structural difference is worthy of further investigation.

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Why do I need to depend on the context? Fuzzy trace theory and attraction and compromise effects

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Abstract

Both attraction and compromise are very robust context effects. However, the way attributes are described, like for example, when presented pictorially or when rated on a common scale (1- 100), the effects are *attenuated*. In this paper, building on fuzzy trace theory, we show how qualitative representation of attribute values—good, average, excellent etc. *completely* eliminates both attraction and compromise effect. In addition, we also argue that use of qualitative attribute values makes the use of relational processing of attribute values, which underlies both attraction and compromise effect, redundant, thereby eliminating both.

Suppose one is planning to buy a digital camera and is asked to make a choice from a set of two alternatives that differ only on two attributes—screen size and optical zoom, and has the following set of values, target (7 inches, 30 mm of optical zoom) and competitor (5 inches, 35 mm of optical zoom). If one does not have clear preference for one attribute over the other, for example, screen size over optical zoom, both looks equally attractive, there is a gain in one attribute value with a concomitant loss in the other as one moves from one to the other. Now if an option having values, 7 inches and 25 mm of optical zoom, is added (decoy), it increases the choice share of the target, popularly known as attraction effect (Banerjee et. al., 2018; Huber et. al., 1982; Simonson 2014). If instead a third alternative having values, 3 inches and 40 mm of optical zoom, is introduced, it leads to an increase in share of the second or middle alternative, popularly known as the compromise effect.

Though both attraction and compromise are robust effects with hundreds of articles being published in the last few decades, recent research shows how attribute descriptions influence both. For example, when realistic stimuli (e.g., pictorial description) replaces numeric representation of attribute values, attraction effect is attenuated and may even lead to repulsion effect, which increases the choice share of the competitor (Frederick et. al. 2014). In a similar vein, Chernov (2004) shows when both the attributes are rated in a common scale (1-100), the choice of the middle option depends on whether there is a balanced alternative, which has same values on both the attributes— (60,60).

In this paper, I use findings from fuzzy trace theory to show when attributes are described qualitatively—excellent, good average, it *completely* eliminates both attraction and compromise effects. More important, I argue that relational processing of attribute values, which drives both attraction and compromise effects, becomes redundant with the use of qualitative attribute values, thereby eliminating both. The remaining part of the paper is organized as follows, (i) I contend that relational processing of attribute values is the underlying mechanism that drives both attraction and compromise effects, (ii) using fuzzy trace theory, I reason why such relational processing is mitigated when attribute values are described qualitatively, (iii) report two studies that support my conjecture and (iv) end with a general discussion, limitations and future research directions.

CONCEPTUAL DEVELOPMENT

Relational Processing of Attribute Values and Attraction Effect

Huber et al. (1982) in their seminal paper established attraction effect as the first demonstration of violation of regularity. In their study, they introduced an inferior option (e.g., 7 inches of

screen size and 25 mm of optical zoom in the example above) into a choice set consisting of two equally attractive alternatives—target and competitor. Introducing an *inferior* option may seem unreasonable and should not in any way influence the choice share of the existing alternatives. However, the introduction of the decoy, increases the *relational advantage* of the target over the competitor, the target has at least one attribute superior to the decoy but not the competitor, resulting in attraction effect. Indeed, and as I discuss below, the various explanations of attraction effect highlight the role of *relational processing of attribute values*—attributes are taken one at a time and alternatives are compared on them, increasing the favorability of the target over the competitor.

Value shift model

In the introductory example, the target has an inferior value on the attribute optical zoom, 30 mm compared to 35 mm of the competitor. With the introduction of decoy, 25mm of optical zoom, the low value of the target does not look as bad. In other words, the decoy extends the range of the attribute in which the target is inferior. Arguably, in the presence of the decoy, the subjective evaluation of the target on the attribute optical zoom becomes less extreme (Huber et. al., 1982; Wedell 1982; Wedell and Pettibone 1996). In addition, the target is already superior to the competitor on screen size. Thus, the decoy increases the overall attractiveness of the target over the competitor resulting in its increased choice share.

Value added Model

When one moves from target to competitor, there is a loss of 2 inches in screen size with a concomitant increase of 5 mm of optical zoom, making attribute trade-offs imperative in the choice process—comparing a 2-inch change in screen size with a 5 mm change in optical zoom (Hedgcock et. al. 2016). However, with the introduction of decoy, the target but not the competitor, enjoys a distinct advantage over the decoy—*asymmetric dominance*. Presumably the introduction of the decoy, adds some value to the way the target is evaluated, it is now the dominant option, leading to attraction effect (Simonson 1989).

Relative advantage Model

The theory (Tversky & Simonson 1993) posits that attribute values are compared pairwise while making a choice. In the initial stage, when only the target and competitor are present there is both a loss and a gain when one moves from target to the competitor. On the other hand, when the decoy is introduced, it provides a point of comparison, which favors the target. For example, in the digital camera example, when one moves from the decoy to the target there is gain in one attribute (optical zoom) without any loss on the other (screen size), while if one moves towards the competitor, there is both a loss and a gain. Consequently, the decoy alters the status quo between the target and the competitor, in favor of the target. In essence, the decoy provides an anchor for pair-wise comparison among attribute values, makes losses loom larger in the choice process with the end result of target becoming the favored choice.

Trades-off contrast model

As is evident, trade-off inevitably entails comparison of attribute values across alternatives. More important, such trade-off results in a contrast, which favors the target over the competitor (Simonson & Tversky 1992). For example, in the absence of the decoy, a trade-off between attribute values leads to the realization that as one moves from competitor to the target there is loss of two inches in screen size and a gain of 5 mm in optical zoom. On the other hand, when the decoy is introduced, there is a no loss in screen size when one moves from the target to the decoy but results in a gain of 5 mm in optical zoom. Therefore, as one moves from the two to the three-alternative set, a contrast in the trade-off of attribute values increases the attractiveness

of the target over the competitor, leading to attraction effect.

Whether it is value shift, relative advantage or trade-off contrast, attributes are taken one at a time and alternatives are compared across them, in line with relational processing of attribute values, which increases the relative advantage of the target over the competitor, resulting in attraction effect. Though several other theories—reference dependent model (Hedgcock et. al., 2016), distance density model (Dhar & Glazer 1996; Krumhansal 1978; Pechtl 2009) have also tried to explicate attraction effect but the underlying mechanism that runs through all the different explanations is the *relational processing of attribute values*.

Relational processing of attribute values and compromise effect

In the example discussed above, if the introduced third option has values, 3 inches and 40mm, it increases the choice share of the middle alternative, popularly known as compromise effect (Wernerfelt 1995). Understandably, in compromise effect too, consumers engage in a relational processing of attribute values to choose the preferred middle option, which has moderate values on both the attributes (Cataldo & Cohen 2019; Chernev 2004; Simonson 1989). Consequently, under time pressure, compromise effect is attenuated (Dhar et.al 2000). Ostensibly, relational processing of attribute values is a cognitively engaging task that demands one's time as one has to compare and contrast attribute value across alternatives, to arrive at a choice that has moderate values on both the attributes. Therefore, when a scarcity of time is created, such relational processing becomes difficult, reducing the preference for a middle compromise alternative.

Indeed, Dhar et al. (2000) show that consumers choose one attribute at a time, compare the given alternatives and settle for the middle option that has moderate values on both. In similar vein, Wernerfelt (2005) shows that consumers rank order the attribute values before making a choice. Ranking of attribute values also reflects the use of relational processing of attribute values, as ranking clearly depends on how an alternative fair on a given attribute with respect to other alternatives in the choice set.

Thus, across both attraction and compromise effect, *relational processing* of attribute values are integral in the choice process. Let us see why this may be so. In the digital camera example above, can both 5-inch and 7-inch be considered equally good or one is good and the other is fair? In other words, what is the real difference between a 5-inch versus a 7-inch screen? In addition, how will one compare a difference of 2 inches in screen size with a difference of 5 mm in optical zoom as one moves from one alternative to the other? Moreover, are the attributes screen size and optical zoom equally important in choosing a camera? Faced with such cognitively challenging tasks and that too at the face of what the attribute values mean, and whether one prefer them equally, increases the uncertainty in choosing a preferred option (Dhar and Simonson 2003). Consequently, one looks for reasons to make a choice. Relational processing of attribute values helps to find the same. For example, relational processing of attribute values makes target the *dominant* option, which also provides a reason to choose the target over the competitor (Hedgcock & Rao 2009)—asymmetric dominance. In a similar vein, the introduction of decoy reduces gap between target and the competitor on the *attribute* on which the competitor is superior to the target (value added model) making the target more attractive in the presence of the decoy or highlights the risk of loss in an *attribute* if one moves from the decoy to the competitor vis a vis the target (relative advantage model), which increases the subjective evaluation of the target over the competitor.

In compromise effect too, as the attribute values are similarly difficult to decipher, preference

uncertainty leads to the use of relational processing of attribute values (Chernev 2004) resulting in the choice of the middle alternative, which has moderate values on both the attributes, and is thus the safest option to consider (Neuman et. al., 2016; Sheng et. al., 2005). For example, if one moves from one end to the other, losses and gains in attribute values are much higher compared to if one moves from the middle to the extremes (Tverkey and Simonson 1993). As losses loom larger than gains, consumers settle for the safest middle alternative, which also minimizes the regret from choosing an extreme alternative (Dhar and Simonson 2003). Also, past research shows that a large portion of a variance in choice is suitably explained by the loss averse mindset of the consumers (Mao 2016). In a similar vein, consumers preference for the middle option increases when one is asked to make choices for others (Chang et. al., 2012). Presumably, uncertainty is even higher when one has to predict the taste of others further increasing the choice share of the safer middle option.

In the main, when one is forced to make a choice and is uncertain of the attribute values, it motivates a relational processing, resulting in both attraction and compromise effects. In the ensuing section, building on fuzzy trace theory, I argue, when qualitative values—good, excellent, average, represent attributes the need for relational processing is mitigated, eliminating both attraction and compromise effects.

Fuzzy trace theory and context effects

Fuzzy trace theory posits that “removing numbers and other background information (so that verbatim memory faded) systematically improved reasoning involving those numbers, especially in reasoners likely to focus on superficial details” (p. 340, Reyna 2012). In addition, as the verbatim memory of numbers faded the accuracy of decision making also improved such that there is an inverse correlation between verbatim memory and reasoning performance (Reyna & Brainerd, 1996). Let us see how this pans out in a framing effect problem (Reyna & Brainerd, 1991), when consumers tend to be risk averse if there is a possibility of gain and risk seeking when there is a likelihood of loss. In set A, numbers describe the framing effect stimuli while in set B qualitative gist replaces them:

Set A

A: If Program A is adopted, 200 people will be saved.

B: If Program B is adopted, there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved.

C: If Program C is adopted, 400 people will die.

D: If Program D is adopted, there is a one-third probability that nobody will die and a two-thirds probability that 600 people will die.

Set B

A: Some people will be saved.

B: Some people will be saved or no one will be saved.

C: Some people will die.

D: Nobody will die or some people will die.

Research shows (Reyna & Brainerd, 1991) when descriptors like some and nobody replaces numbers as in choice set B above, it increases the magnitude of framing effect, such that consumers become more risk averse in the gain domain as also more risk taking in the loss domain. Presumably, and as Reyna (2012, p. 241) asserts, “Rather than being mindless and low-level, the core construct of cognition in fuzzy-trace theory (the fuzzy trace, also called gist) is based on meaning—on extracting the essential, bottom-line meaning of information.” In other words, when numbers are replaced by meaningful descriptors like some and nobody, consumers

do not get distracted by the surface details of the numbers 200 versus 400 versus 600, but tend to focus on the more critical issue of whether some versus nobody will die. Consequently, focus shift towards whether one should consider saving life in situations such as above, making loss of lives more critical than the numbers behind them. In the main, when consumers attention shifts from numbers to what they mean—some will die versus nobody will die, reasoning performance increases, loses *surely* looms larger than gains, thereby, increasing the magnitude of the framing effect.

In a similar vein, I argue when numeric representation is replaced by qualitative attribute values—excellent, good, bad, people will no longer be swayed by the surface details of the numbers and get lost in the relational processing of attribute values to find *reasons* to make a choice, which drives both attraction and compromise effect. On the other hand, use of such qualitative attribute values will make dependence on relational processing of attribute values irrelevant. For example, suppose there are three cars having fuel efficiencies, 40 mpg, 42 mpg and 45 mpg. When asked to make a choice and as discussed earlier, consumers typically rank order these values or process them relationally into low, medium and high, respectively, though all may signal high fuel efficiency. On the other hand, when fuel efficiency is described qualitatively—good, very good and excellent, which is devoid of any trace of numbers, relational processing is no more required as one can independently assess the attractiveness of the attributes without any due consideration of how well they fair in relation to the other values in the choice set. In addition, and as the fuzzy trace suggests, use of qualitative attribute values also *increases the reasoning performance* while deliberating on a choice. Consequently, it will lead to the realization that decoy is indeed an *inferior* alternative and should not be given due consideration, thereby muting its role in increasing the contextual superiority of target over the competitor, eliminating attraction effect. Similarly, in compromise effect experiments too, it will lead to the realization that all the alternatives in the given set lie on an equipreference contour and there is no reason why the middle compromise alternative should have a majority share, eliminating compromise effect. In the next section, I report two studies that support my conjecture. Study 1 shows that use of qualitative attribute values eliminates attraction effect while study 2 shows the same for compromise effect.

Study 1: Attraction Effect and Qualitative Attribute Values

The goal of study 1 is to show when qualitative values are used for describing attribute values, there will be no attraction effect. I use descriptors like good, excellent, average, above average etc. to represent qualitative attribute values (please refer to Table 1 for details).

Table 1: Attraction Effect and Qualitative Attribute Values Orange Juice

| Brands | Price of a can of frozen concentrate equivalent to 64 fluid ounces | Quality |
|--------|--|-----------|
| a | Average | Good |
| b | High | Excellent |
| c | Average | Average |

Beer

| Brands | Price of six packs | Quality |
|--------|--------------------|-----------|
| a | Average | Average |
| b | High | Very good |
| c | Average | Low |

Restaurants

| Brands | Quality | Driving time |
|--------|-----------|--------------|
| a | Excellent | Somewhat far |
| b | Good | Near |
| c | Excellent | Far |

Grills

| Brands | Cooking area | Cooking space |
|--------|---------------|---------------|
| a | Average | Good |
| b | Good | Average |
| c | Below average | Good |

Method:

Participants were recruited from a large Midwestern university and was paid course credit for participation. Three hundred and sixty-five completed the questionnaire. The study was a 2 (decoy: decoy vs. no-decoy) \times 4 (products: grills, orange juice, beer, restaurant) between subject's design. The order of presentation of the products was randomized. Participants also answered the following questions on a scale of seven: How much thought did you put into the choice task? - Not at all: Very much; How knowledgeable are you about orange juice? - Not at all: Very much and; How familiar are you with orange juice? - Not at all: Very much. Finally, they answered demographic questions.

Results

The average age of the participants was 21.40 with 48.64% being female. Overall, combining the choices yielded no significant difference in the choice of the target across the conditions (decoy: 57.9%; no-decoy: 51.6%; $z = 1.20, p > .05$). Please refer to Table 2 for details. There was no significant difference in the other dependent variables across conditions.

Table 2: Attraction Effect and Choice Patterns

| Product | Choice Set | Brand Choice | | | Total |
|--------------|--------------|--------------|--------|------------|-------|
| | | Observed | Target | Competitor | |
| Orange juice | No decoy | Observed | 24 | 22 | 46 |
| | | % within row | 52.1% | 47.8% | |
| | Decoy | Observed | 25 | 18 | 43 |
| | | % within row | 58.1% | 41.8% | |
| Beer | No decoy | Observed | 20 | 25 | 45 |
| | | % within row | 44.4% | 55.5% | |
| | Decoy | Observed | 24 | 22 | 46 |
| | | % within row | 52.1% | 47.8% | |
| Restaurants | No decoy | Observed | 25 | 20 | 45 |
| | | % within row | 55.50% | 44.40% | |
| | Decoy | Observed | 31 | 13 | 44 |
| | | % within row | 70.4% | 29.5% | |
| Grills | No decoy | Observed | 25 | 21 | 46 |
| | | % within row | 54.3% | 45.6% | |
| | Decoy | Observed | 26 | 20 | 46 |
| | | % within row | 34.6% | 65.4% | |
| No decoy | Observed | 94 | 88 | 182 | |
| | % within row | 51.6% | 48.3% | | |

| | | | | | |
|--------------|-------|--------------|-------|-------|-----|
| Total | Decoy | Observed | 94 | 88 | 182 |
| | | % within row | 51.6% | 48.3% | |
| | | Observed | 106 | 73 | 179 |
| | | % within row | 59.2% | 40.7% | |

Discussion

Thus, the result of study 1 shows that when attribute values are represented qualitatively there is no attraction effect, though the key factors that leads to attraction effect (Huber et. al., 2014) was maintained in the experimental conditions. For example, in the two-alternative condition, the share of the target was 51.6% while that of the competitor was 48.3% and thus there is no strong preference for one alternative over the other, a prerequisite of attraction effect to take place (Huber et. al., 2014). The decoy captures a share of 4.1% and thus is neither strongly liked or disliked, which is also in line with what Huber et al. (2014) emphasizes, for attraction effect to take shape the decoy should neither be undesirable or be viable. Also, to get attraction effect the dominance relationship should be transparent, which is made obvious by the use of qualitative attribute values. For example, it is not difficult to assess good versus very good when one tries to judge the attractiveness of car milage but probably not when it is stated as 36 mpg versus 39 mpg, which may look very similar. In the main, though all the key criteria for obtaining attraction effect was maintained but I did not find attraction effect. Arguably, when the attribute values are qualitative in nature one need not depend on context to evaluate the attractiveness of the attribute values, thereby eliminating attraction effect.

Follow up study

To understand the process why qualitative attribute values, lead to the elimination of attraction effect, I conducted a follow up study. Similar to study 1, participants made choices from the same choice set and everything else remained the same. The only difference was; they were asked to list the thoughts that went through their mind as they made a choice from the three-alternative set.

As discussed earlier, in the face of uncertainty of what the attribute values mean and whether they prefer them equally, consumer look for reasons to make a choice (Simonson 1989). Dominance provides such a reason and consequently, choice of the dominant option increases when participants are asked to justify their choice, as the role of dominance becomes central in choosing an option, more so when asked to justify choice (Simonson 1989).

However, and as deliberated earlier, when qualitative attribute values describe the alternatives, relational processing of attribute values, which makes the role of dominance critical in choosing an alternative, become redundant. More important, consumers are able to independently evaluate how well the attributes perform, without resorting to how a particular attribute fairs with respect to others in the choice set. Or in other words, one becomes more interested in how the attribute values compare within an alternative and not across alternatives, which is typically an outcome of relational processing of attribute values. Consequently, I argue that focus will shift to whether a consumer prefers a particular attribute mix—how one may want to have a higher value on one attribute over the other, making the role of attribute mix a dominant reason to choose one alternative over the other. For example, some may like more of cooking speed and less cooking area in deciding to choose a grill and vice versa. Similarly, one may prefer to drive a long distance for a good quality food and for some what matters is whether drive is long or short. The listed thoughts are categorized on the basis of what reasons were provided for choice (i) dominance or dominant attribute (ii) preference for a particular attribute mix and (iii) nothing in particular, to show that the role of attribute mix and not dominance becomes the key

underlying reason in the choice process.

A total of two hundred and two participated in the study. Similar to study 1, there was no attraction effect (decoy: 42.57% and no-decoy: 49.50%, $z = 0.98$, $p > .05$). More important, there was a significant difference in dominance related thoughts compared to thoughts that highlighted the preference for a particular attribute mix (dominance: 2.9% and attribute mix: 51.48%, $z = 7.74$, $p < 0.05$, please refer to Appendix 1 for details). Thus, the analysis of the listed thoughts supports the underlying mechanism of how consumers make choices when qualitative attribute values are used to describe alternatives—consumer prefer to choose alternatives in line with how much one wants of a particular attribute, making the role of attribute mix critical in choosing an alternative. Presumably, as the decoy has the worst attribute mix its role in the choice process is mitigated leading to the elimination of attraction effect.

Thus, the results of the thought analysis show that the role of dominance is substantially reduced to the extent of being eliminated in making a choice. This finding is in line with my conjecture that qualitative attribute values will make relational processing of attribute values redundant and thereby, eliminate the role of dominance in choice. On the other hand, the choice of a particular alternative is dependent on how the attribute values within an alternative are liked by a particular consumer. Arguably, such a choice process highlights the individual preference of a consumer (e.g., one make like to drive a long distance for the best quality food) and not what the context highlights, which results in attraction effect. Thus, the change in the choice process, eliminates the role of dominance in choice and thus, completely removes attraction effect.

Study 2: Compromise Effect and Qualitative Attribute Values

The goal of study 2 is to show when qualitative values are used for describing the attribute values, there will be no compromise effect. Similar to study 1, I use descriptors like good, excellent, average, above average etc. to represent qualitative attribute values (please refer to Table 3 for details).

Table 3: Compromise Effect and Qualitative Attribute Values Printer

| Brands | Print quality | Print speed |
|--------|-----------------|-----------------|
| a | Below average 4 | Above average 6 |
| b | Average 5 | Average 5 |
| c | Above average 6 | Below average 4 |

Mouthwash

| Brands | Germ killing effectiveness | Decay prevention effectiveness |
|--------|----------------------------|--------------------------------|
| a | Above average 6 | Excellent 9 |
| b | Good 7 | Very good 8 |
| c | Very good 8 | Good 7 |

Cordless phone

| Brands | Battery life | Sound quality |
|--------|-----------------|-----------------|
| a | Excellent 9 | Average 5 |
| b | Above average 6 | Above average 6 |
| c | Average 5 | Excellent 9 |

Grills

| Brands | Cooking speed | Cooking space |
|--------|-----------------|-----------------|
| a | Excellent 9 | Average 5 |
| b | Above average 6 | Above average 6 |
| c | Average 5 | Excellent 9 |

Digital camera

| Brands | Features | Picture resolution |
|--------|-----------------|--------------------|
| a | Average 5 | Very good 8 |
| b | Above average 6 | Good 7 |
| c | Good 7 | Above average 6 |

Mp3 players

| Brands | Features | Ease of use |
|--------|-----------------|-----------------|
| a | Below average 4 | Good 7 |
| b | Average 5 | Above average 6 |
| c | Above average 6 | Average 5 |

Method:

Participants were recruited from the online panel of a large Eastern University in partial fulfilment of a course credit. A total of nine two participated in the study. I used six different product categories—grills, printer, mouthwash, cordless phone, digital camera and Mp3 player to test my hypothesis. Given the large number of product categories, a mixed design was used such that number of alternatives was between groups and number of products was within group, 2 (number of alternatives: two vs. three) \times 6 (products) mixed design. The order of presentation of the products was randomized. Each product was shown one at a time and participants were asked to make a choice. Following which they answered the subsequent questions on a seven-point scale: How confident are you that you made a satisfactory choice? - Not at all: Very much; How difficult was the task? - Very difficult: Not at all difficult; How much thought did you put into the choice task? - Not at all: Very much; How motivated were you in an accurate evaluation of the MP3 Player brands? - Not at all: Very much and; How much effort did you put into the evaluation of the brands of MP3 Player? - Very little: Very much. Finally, they answered demographic questions.

Results:

The average age of the participants was 21.72 with 35.86% being female. Following past research (Chernev 2004), the share of the second/middle alternative in the three alternative set is calculated (i.e., the third alternative's share is not considered). In the two-alternative condition, the share of the second alternative was 59%, while it was 58% in the three-alternative condition (please refer to Table 4 for product wise details across conditions), $z = 0.35$, $p > .05$. Thus, there was no increase in share of the second alternative going from the two to the three-alternative condition, eliminating compromise effect. There was no significant difference in the other dependent variables across conditions.

Table 4: Compromise Effect and Choice Patterns

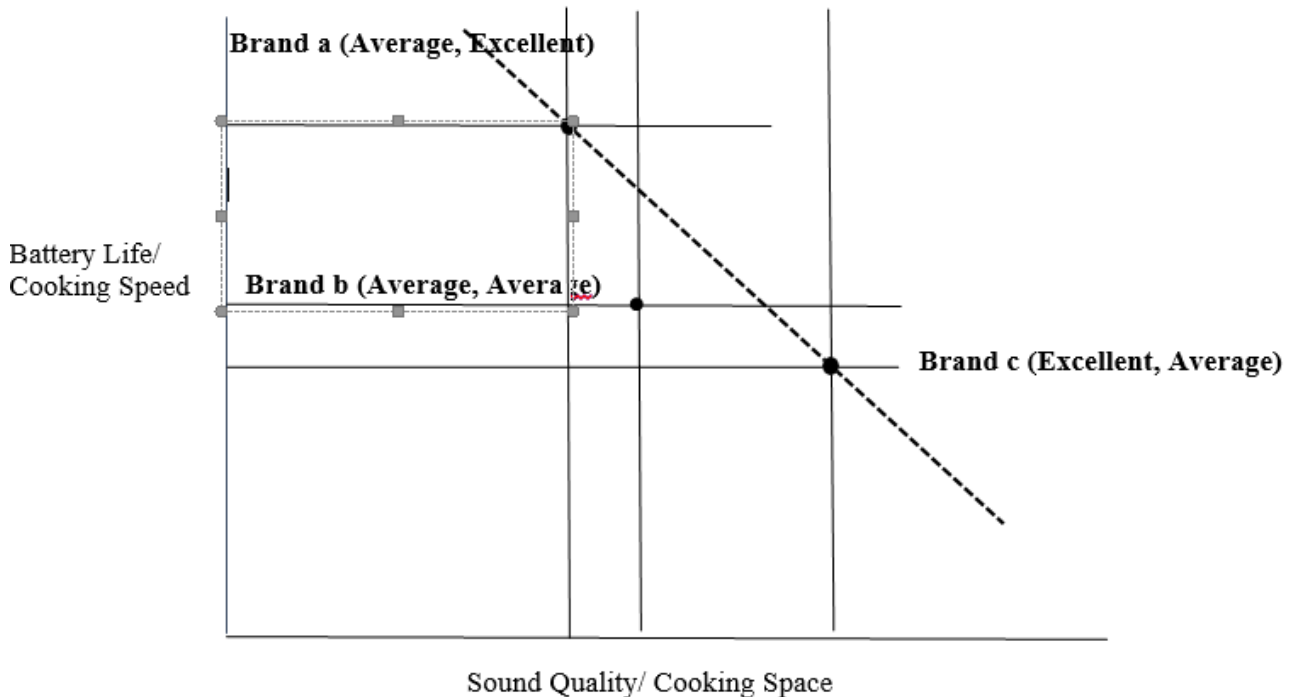
| Product Category | Two Alternative Condition | | Three Alternative Condition | | |
|------------------|---------------------------|-----------|-----------------------------|-----------|----------|
| | First | Second | First | Second | Third |
| Grill | 35.4% | 64.5% | 20.4% | 63.6% | 15.9% |
| | (n = 17) | (n = 31) | (n = 9) | (n = 28) | (n = 7) |
| Printer | 8.3% | 91.6% | 0% | 68.1% | 31.8% |
| | (n = 4) | (n = 44) | (n = 0) | (n = 30) | (n = 14) |
| Mouthwash | 66.6% | 33.3% | 54.5% | 20.4% | 25% |
| | (n = 32) | (n = 16) | (n = 24) | (n = 9) | (n = 11) |
| Cordless | 39.5% | 60.4% | 40.9% | 40.9% | 18.1% |
| | (n = 19) | (n = 29) | (n = 18) | (n = 18) | (n = 8) |
| Digital | 81.2% | 18.7% | 59% | 20.4% | 20.4% |
| | (n = 39) | (n = 9) | (n = 26) | (n = 9) | (n = 9) |
| MP3 | 10.4% | 89.5% | 2.2% | 31.8% | 65.9% |
| | (n = 5) | (n = 43) | (n = 1) | (n = 14) | (n = 29) |
| Total | 40.27% | 59.72% | 29.54% | 40.90% | 29.54% |
| | (n = 116) | (n = 172) | (n = 78) | (n = 108) | (n = 78) |

Discussion

The results of study 2, show that the share of the safer middle alternative does not increase with the introduction of a third alternative. In addition, the share of the middle alternative is 41% while those of the extremes combined is 59%. Thus, a substantial chunk of the participants preferred the extreme alternatives. Arguably, when the meaning of the attribute values is made obvious the choice of an alternative is no longer determined by the context but probably by the underlying preference, leading to the choice of extreme options.

It is interesting to note that for the product categories grills and cordless phones, the middle alternative lies below the equipreference contour (Please see Figure 1 for details). Thus, if one depends on relational processing of attribute values it should be eliminated from the choice set, as it does not lie on the equipreference contour and all compromise effect studies are designed such that the alternatives lie on the equipreference contour. On the other hand, if the choice of the alternatives is not dependent on relational processing there is a possibility of choosing the middle option as the attribute values are more balanced compared to the extremes (Chernev 2004), though it still lies below the equipreference contour. Indeed, in both the two (62.5%) and the three alternatives (63.01%) set the middle alternative has the majority share.

Figure 1. Cordless Phone and Grills the compromise alternative lies below the equipreference contour



Follow up study

Past research shows that attribute trade-offs lead to compromise effect (Khan et al. 2011), such that the middle alternative having moderate values on both the attribute becomes the favored choice. Arguably, attribute trade-offs make both the attribute equally important for choice or else one would pick one attribute over the other and choose the alternative that has the highest value on the chosen attribute, which is not what is typically seen in compromise effect. Indeed, Simonson (1989) asserts, “If a decision maker is uncertain which of the two attribute is more important, a selection of a compromise alternative that can be seen as combining both attributes might be easiest to justify” (p. 161). Therefore, attribute trade-offs are not only important while choosing a compromise alternative but also, both the attributes are deemed to be equally important in the choice process. Simonson (1989) also makes it very clear that, “With sets that include compromise alternative, there is no need to distinguish between lexicographic and non-lexicographic decisions because, almost by definition, decisions to select compromise alternative are unlikely to use a lexicographic rule” (p. 170).

However, and as discussed earlier when qualitative attribute values are used attribute trade-offs, which forms the core of the relational processing of attribute values, become redundant. On the other hand, as attribute values can be evaluated independent of the context, consumers will choose alternatives that are in line with their preference, making the role of attribute mix a qualifying criteria in choosing an alternative. For example, one may like to have high values on germ killing effectiveness compared to decay prevention. Thoughts were coded into (1) when both the attribute is mentioned to be equally important in making a choice (2) when a particular attribute mix—preference for higher value of one attribute over the other, is mentioned as a reason of choice and (3) nothing in particular, to show how the use of qualitative attribute values change the choice process from attribute trade-offs to preference for a particular attribute mix.

A total of forty-three participated in the study all else being similar to study 2. There was no compromise effect, the share of the second alternative in the two alternative set is 58.33% which reduced to 49.09% in the three alternative set, $z = 1.20$, $p > 0.05$). The analysis of coded thoughts shows that participants listed significantly higher number of thought coded as two compared to one, (Two: 56.4% versus One: 21.79%, $z = 4.43$, $p < .05$, please refer to Appendix 2 for details). This gives a process explanation why qualitative attribute values eliminates compromise effect. In other words, consumers choose alternatives that are in line with their preferred attribute mix, highlighting the role of individual preference in choosing an alternative rather than what the context dictates, which invariably leads to the choice of safer middle alternative.

General Discussion

Role of *context* in making choices is a well-established research stream, with hundreds of published papers over the last few decades. Among them, attraction (Fedrick et. al. 2014; Mishra et. al., 1993; Simonson 2014) and compromise (Neuman et. al., 2016) being the most explored. As the name indicates, context effect, one needs to depends on the context for making a choice. In my research, I show that under certain conditions the role of context is muted, when numeric attribute values are replaced by qualitative values —good, excellent, bad etc. In other words, consumers are not dependent on the context to make a choice as they are in a position to evaluate the alternatives independent of the context.

I reason that numeric attribute descriptions, like 37 mpg, which are typically used to describe attribute values, does not necessarily reflect the underlying utility of the attribute, gas mileage in this case. Thus, when there is a set of three alternatives whose gas mileage varies from 33 to 37 mpg, though all the attribute values may reasonably be clubbed under the category good but consumers end up rank ordering them with 37 being the best and 33 the being the worst on mpg. Seemingly and as research shows, consumers do not have well defined preferences but construct preferences when asked to make a choice, making 37 the best and 33 the worst. Thus, the context provides a reference point that determines the relative superiority of one attribute value over the other. For example, the decoy acts as the reference point, which makes the target contextually superior to the competitor (Hedgcock et. al. 2016), which in turn results in attraction effect. In a similar vein, the middle alternative in compromise effect, becomes the reference point, which makes comparative losses and gains moderate compared to the extremes, leading to its choice, being the safest one to choose (Sheng et. al., 2005).

On the other hand, the present research shows when attribute values are represented qualitatively—good, very good, poor, both attraction and compromise effect are eliminated. In other words, consumers need not dependent on the surface details of the attribute values, numbers, and use relational processing to judge the attractiveness of a given set of alternatives. I derive insights from the fuzzy trace theory to elucidate why relational processing will be muted when attribute values are represented qualitatively. Fuzzy trace theory shows that reasoning is primarily dependent on simplified representation of stimuli. With the use of qualitative descriptors, which are arguably a simpler representation of attribute values in a sense that the underlying utility of the given attribute values become clear, 37 mpg may seem good but when we use a descriptor excellent, there is no need for speculation. Consequently, the need for relational processing of attribute values to judge the attractiveness of 37 mpg is made redundant. Thus, the use of dominance in attraction effect and choice of the safest option in compromise effect are no more tenable in choosing an alternative, as there is no need for relational processing of attribute values in the presence of qualitative attribute values, leading to the elimination of both attraction and compromise effect. On the other hand, consumes tend

to choose option that best fits their inherent preference and not the one that is swayed by the context, which leads to the choice of extreme options in the compromise effect condition.

Theoretical contribution.

The theoretical contribution of this paper is enumerated below:

- (i) Past research shows that attraction effect is pretty robust. Though recently, a series of studies have questioned the robustness of the effect (Fedrick et. al. 2014). However, researchers have concurred that one needs to explore potential factors that attenuate the effect (Huber et. al., 2014; Simonson 2014). Though studies in the past have investigated the role of several moderators that attenuate attraction effect but no studies till date have investigated the role of qualitative attribute values. I add to the research stream by showing that attraction effect is completely eliminated when attribute values are expressed qualitatively. In a similar vein, a recent meta-analyses of compromise effect studies shows it to be robust (Neuman et. al., 2016) However, my research shows that compromise effect is eliminated when attribute values are expressed qualitatively.
- (ii) Dominance is a key factor that leads to attraction effect (Huber et. al., 2014). In other words, to get attraction, dominance relationship between the target and the decoy should be made clear. In my research, the design of the stimuli makes dominance very explicit (excellent is definitely better than good) but still there is no attraction effect. Thus, dominance may not be the key factor that yields attraction effect but probably how one processes the attribute values. Relational processing of attribute values is probably the key that results in attraction effect. Consequently, when the need for relational processing is muted, when attribute values are represented qualitatively, even the presence of a clear dominance does not yields attraction effect. Presumably, when qualitative attribute values are used, it shifts focus to which of the given set of alternatives best suits one's taste, for example, what attribute mix would one like, which potentially leads to the realization that the decoy is an inferior option. This leaves a consumer to make a choice from a reduced set consisting of only target and competitor, eliminating attraction effect. In a similar vein, in compromise effect too, consumers need not depend on relation processing of attribute values, which motivates the choice of the safest middle alternative (Chernev 2004; Mao 2016). Consequently, consumers prefer to choose as alternative that best suits their preference. As results show, preference of extreme alternative shows up in the compromise effect experiment.
- (iii) Past research shows when attribute values are presented verbally—okay tasting food, reasonable portions size, for describing the food quality of a restaurant, it magnifies attraction effect, though only for consumers who are knowledgeable (Sen 1993). Though such description of attribute value may be classified as qualitative in nature as it is characterized by absence of any numbers but still it differs from my definition of qualitative attribute values. It is evident when attribute values are explained in details, such as above, one still needs to arrive at an overall evaluation of what those descriptions stand for—good, average above average etc. Thus, when attribute descriptions are detailed such that, it gives a sense of what it means but still consumers need arrive at some meaningful approximation of what those descriptions—okay tasting food, small portion size, etc... My research is distinct in a way that the use of qualitative attribute values unambiguously reflects the underlying utility of the attributes—good, bad, excellent etc. which is different from using a descriptive sentence for describing an attribute.
- (iv) In a similar vein, past research shows when attribute values highlight the underlying meaning, consumers' dependence on context diminishes resulting in *attenuation* of

context effect (Ratneshwar et.al (1989). In a similar vein, Mistra et .al (1990) show that attraction effect is *weakened* for experts who have a greater sense of what the attribute values mean and are able to distinguish the fine-grained differences among them, in a way that is largely independent of the context. However, my research shows that when qualitative attribute values are used to describe the alternatives, attraction effect is *completely* eliminated

In compromise effect too, when attribute values make some sense the use of relational processing becomes redundant. Suppose there are three alternative whose attribute ratings are as follows— (60,60), (70,50) and (80,40). Chernev (2004) shows when both the attributes are rated on a common scale, 1-100, the balanced alternative—an alternative that has equal values on both the attribute (60,60), garners the maximum share, as the attribute dispersion of (60,60) is the least (Chernev 2004). Consequently, though (70,50) is the middle compromise alternative but consumers prefer to choose (60,60). Thus, it is the attribute dispersion within an alternative that drives the choice of the compromise alternative and not whether the option is in the middle, attenuating compromise effect. Ostensibly, when attributes are rated on a scale, it signals some underlying meaning of the given attribute (Chernev 2004). Consequently, it reduces the dependency on the context and the use of relational processing to arrive at a choice, attenuating compromise effect.

Thus, use of attribute values that signal some underlying meaning result in an attenuation of both compromise and attraction effect. This research shows that completely moving away from numbers or even the descriptions of them (Ratneshwar et. al., 1989; Sen 1993), by using qualitative descriptors, totally eliminates both attraction and compromise effect. Evidently the qualitative attribute values unequivocally signal the underlying meaning of the given attributes and its attendant utility thereby muting the role of relational processing of attribute values, which in turn eliminates both attraction and compromise effects completely.

Limitations and Future Research

The basic premise of my findings is when attribute values are expressed qualitatively, consumers will not be dependent on the context for making a choice. Or in other words, the attractiveness of a given alternative will depend on how the alternatives suit the taste of an individual or in other words what attribute mix is favorable to a particular consumer—one may like a digital camera with high optical zoom and a reasonable screen size while it may be just the opposite for some other consumer. Arguably, such a process involves an alternative based processing—the attributes need to be compared within an alternative before making a choice. Indeed, past research shows when one moves away from relational processing to alternative based processing it does reduce both attraction and compromise effects (Cataldo & Cohen 2019).

Thus, it seems that the use of qualitative attribute values may entail an alternative based processing of attribute values. Consequently, the irrelevance of the decoy becomes apparent in attraction effect, eliminating attraction effect. In a similar vein, with the use of alternative based processing of information, the majority share of the middle option in compromise effect becomes untenable as all the alternatives in compromise effect lie on an equipreference contour and thus is no one justifiably better than the other. Future research may look into this to establish whether the use of qualitative attribute values motivates an alternative based processing of attribute values.

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Going Back to Indian Basics to Achieve a Happier World

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Abstract

This paper reflects on the current state of Sustainability efforts from Corporates and is an attempt to find answers to following questions –

Why sustainability considerations must be an integral part of strategic and tactical corporate planning? How current business models are performing on sustainability agenda? Is there any framework to measure it?

Why Corporates are not able to deliver on the sustainability agenda? Reasons like lower priority, execution challenges, conflicting priorities are touched upon.

How Indian culture has solutions to these shortfalls? A significant deliberation to show the effectiveness of Indian culture, traditions giving some references to SDGs from UN 2030 Agenda.

The scope of further research in this area - to understand Indian tradition and design/derive the workable strategy for corporates for each SDG.

Keywords: SDG (Sustainable Development Goals), Corporates, Deliver, UN 2030, Tradition, Culture, Bhagavad Gita, Arthashastra

Introduction

Sustainability Agenda is taking the centerstage in Corporate Planning. The outcome of these efforts does not seem to be as per expectations and there is still a long way to go to achieve the goal. While a lot of thinking is done to find the reasons, there seems to be some fundamental gaps in the overall approach. I have tried to showcase how Indian Culture and Traditions have an effective solution and directions to achieve the sustainable goals. I have also attempted to map the 17 SDGs to the elements from Indian traditions from which the guidance can be derived.

Going back to Indian Basics to Accomplish a Happier World

Significance of Sustainability Considerations for Corporates

Why sustainability considerations must be an integral part of strategic/ tactical planning?

With **193 governments agreeing to deliver 17 goals** tackling major world issues by 2030, the corporates cannot keep this away from their vision. The National Governments have already started using SDGs and associated targets defined by UN under ‘The 2030 Agenda for Sustainable Development’ to define their national policies and regulations [1]. This creates the opportunities as well as poses some threats. So, to achieve long term sustainability, the Corporates should understand that Sustainability is no longer just limited to reducing waste disposal, energy consumption or supporting community causes. They must understand the interlinking of SDG and the relevance of SDGs to their business. They must rethink strategy and business behavior to align with the goals and to assess implementation and evidence their impact. With the right strategy in place, they can think of leveraging on the ‘**First Mover**’ advantage in some areas. A related survey has indicated that 78% of the citizens said that they were more likely to buy goods and services from companies that had signed up for SDGs.

Sustainability is a topic having a vast scope and is relatively difficult to measure and monitor as the outcome should be measured not only on financial terms but also in terms of societal value created. For a Corporate to adopt and succeed in this, **sustainability considerations have to be imbibed both strategically and tactically into the decision making**. Some fundamental

questions should be asked to themselves - Do we have the Executive Leadership buy in for it? Is the Leadership compensation linked to achieving sustainability targets? Selecting the vendors having compatible goals is needed for the organization to succeed.

For sustained business growth opportunities in terms of getting invited for bidding for large deals, the corporates need to qualify for key sustainability benchmarks such as the **Dow Jones Sustainability Index, FTSE4GOOD and the Climate Disclosure Leadership Index**. With the right adoption of this agenda, corporates can outgrow competitors. The implementation of sound sustainability strategy provides intangible advantages like enhancing a company's reputation; driving employee engagement resulting in attracting and retaining the top talent, satisfying consumers, leading to market differentiation and helping the organization to gain the long-term growth and profitability. This is evident from the example of Tesla. With commitment to sustainability agenda, in about 14 years since inception, its market value has crossed that of established peers in the US automobile market who are operating for more than 100 years [2].

Is there any framework to measure it?

Consulting organizations like PricewaterhouseCoopers (PwC) have developed frameworks and methods to measure the effectiveness of organizations on sustainability targets like minimizing water and energy use, CO2 emissions and waste, levels of conduct on labor practices and ethics, etc. They offer various assessments like - Life-cycle assessments of product or service impact on sustainability goals [3].

Why have Sustainability Initiatives not Delivered as expected?

Assumes Lower Priority

Many businesses have already started planning for the SDGs, but the outlook is not very encouraging. **13%** of businesses have identified the tools they need to assess their impact against the SDGs. **41%** of businesses say they will embed SDGs into strategy and way they do business, within 5 years [3].

Lack of Proper Understanding

Absence of a proper way to understand which SDGs are more relevant to the business and the potential value at risk if they are not achieved. Most of the times, the willingness from Executive Leadership is there but lack of guidance on how to proceed, results into not making the desired progress.

Conflicting Interests

Citizens and Corporates may not be focused on the same outcome. Business may not see opportunity where citizens see importance – SDG 13 (Climate action) is the only SDG that features in the top five for both [3]. Balancing some contrasting goals (Climate Action and Economic Growth) may pose a challenge for corporates. A significant focus on one goal may put the other goal in jeopardy.

Perceived as Forced Initiatives

The two drivers of sustainability agenda are – the Government and Corporates. Government puts the legal framework for its implementation and Corporates define their Corporate and Business Strategy for it. At times, it is perceived as a compulsion to adhere to these goals

keeping in mind the implications of not doing it. Such ‘**Push / Forced Initiative**’ thinking pose a challenge in adopting and implementing it by heart.

Execution Challenges

One thing is quite evident that achieving the sustainability target needs focus from all departments of the organization. Each goal spans across all functions. It is not the responsibility of any one function or only leadership. One of the major reasons for not meeting these goals is the belief that only Human Resources or Sustainability Function (if it exists) is accountable for it.

Unavailability of Simple Measurement Frameworks

As the quantitative measurement process is complex, presenting accurate and credible data to Index decision-makers and other key audiences, is observed to be challenging. The data collection must happen at tactical, operational and strategic level. Not adhering to global indices, may put curbs on the growth opportunities. Conversely, the same can turn out to be competitive advantage if the organization has it. The proactive declarations of the same certainly helps in business growth.

How Indian Culture has Solutions to Overcome these Shortfalls?

The SDGs can be categorized as shown in Figure 1– Environment, Society and Economy.

| Degree of dominance | Environment | Society | Economy |
|--|---------------------------------------|---------------|---------|
| Pure Dominance | SDG 6, SDG 12, SDG 13, SDG 14, SDG 15 | SDG 4 | SDG 9 |
| Strong Dominance | | SDG 1 | |
| Only Dominant If Measured by Specific Indicators | | SDG 5, SDG 16 | |
| Dominant in a Ratio of Two Thirds | SDG 7 | | SDG 10 |
| There Is no Dominant Dimension | SDG 2, SDG 3, SDG 8, SDG 11, SDG 17 | | |

Figure 1

As pondered earlier, the key reasons for sustainable efforts not yielding the desired outcome can be attributed to lack of strong leadership to drive this agenda, inability to understand the bigger picture and its impact and the execution challenges. Indian culture has guidelines to address all such challenges. It has been advocating a way of life which blends all 17 goals seamlessly.

Bhagavad Gita guides on the kind of leadership needed to execute the initiatives, **Upanishads** show us way to manage the Environmental SDGs, **Arthashastra** gives us timeless wisdom on management concepts, best practices for Economic Development and Social Security, historical rules of Kings like Shivaji Maharaj gives us best practices on economic and social goals.

Bhagavad Gita

Bhagavad Gita provides the wealth of wisdom explaining the practical aspects of discharging any responsibility. Like Krishna has advised Arjuna, the Business should also look at the macro view of the society than the micro view of own organization. It talks about the having head

controlling heart and inner resolve to execute any task and focusing on a single point of action [4]. Applying this to our context, the leadership must be truly clear and committed to SDG cause. This will be starting point for successful implementation of SDGs. The Leader has to lead the teams in this mission by showing them alternative reality of creating a better world for future generations. To address the motivation issue, Bhagavad Gita advocates that the inspiration is the key to success. The leaders must enable their followers to self-inspire to deliver.

Like Krishna brought Arjuna out of his comfort zone to fight the battle, the leaders must break their circle of complacency when they embrace the sustainability agenda. It says that we have to think objectively by separating emotions from duties. Separating these two is a challenging task. The '**Agency Theory**' of Strategic Management is also based on the same beliefs. This should be the guiding principle for managing conflicting interests. Like Arjuna's situation in Mahabharata, where his thoughts and actions were separated, business leaders also shy away from taking tough decisions resulting into ineffectiveness of outcome.

The philosophy of 'Nishkama Karma' tells that one has to focus on the process and not on the final outcome, which may prevent engaging fully in the present [4]. If you do the process right and sincerely, the results will automatically follow. This mindset is vital for the execution of initiative.

In order to gain maximum efficiency in implementation, the business has to follow the Karmayoga philosophy -, When work is done in the spirit of worship, the quality undergoes metamorphosis [4]. It also tells that you should forget your narrow concerns and understand the bigger picture of serving others. There is no greater purpose than to serve the mankind. This mindset is exactly needed for driving the sustainability initiatives.

Upanishads

Peaceful Coexistence, which is the fulcrum of all sustainable development goals, was conceptualized in Upanishads some 2000 years ago. Ancient Hindu culture was having a great awareness about the rainfall process, weather cycles, environmental protection, ecological balance. **Rigveda**, while mentioning about **Panchamahabhutas**, provide reference to protective Ozone layer. **Yajurveda** explains the importance of '**Ahuti**' in the sacrificial fire (Yadnya) as offering butter and firewood so that it mixes in the atmosphere and makes the environment free from impurities. **Samveda** touches upon the importance of maintenance of the seasons' cycles and the impact if it is disturbed. **Atharvaveda** talks about sustainability in more clear terms when it discusses the concept of give and take. It is that one can take from the earth and atmosphere only so much as one would give back to them, which is nothing but the conversation of the resources for the future generations [7]. The SDG-13 – Climate Action SDG-15 – Life on Land can be achieved if these learnings are practiced with the precision as mentioned above.

Kautilya's Arthashastra

Kautilya's **Arthashastra** is considered as the Supreme Management Guide, the learnings from which are proven on the large time scale. A close study of it indicates that most of the contemporary management concepts including great focus on Human Resources practiced currently, have been suggested by him in 4th Century B.C. He has referred to **Prabhu Shakti**, **Mantra Shakti** and **Utsah Shakti**, which correlates to Vision, Mission and Motivation in modern day management. Arthashastra has guiding principles like efficient management of resources, balance between current prosperity, future gains and investments, importance of having feedback mechanism for improvement, composition of diversified economy with

having constituents of water reservoirs, forests, mines, trades, markets, storages, etc. It also suggests the characteristics of a good tax system like it should not be a great burden to the public, looking at taxes as the remuneration for the services rendered by the king as a public functionary for providing internal security to his subjects, The King's role should be like the bee which collects honey without inconveniencing the plant. All these are applicable to the SDGs like Decent work and Economic Growth, Industry, Innovation and Infrastructure, Quality Education, No Poverty, Sustainable Communities, as it gives an overall guidance on how to run an effective Government from which parallels can be drawn on managing these SDGs to deliver at maximum efficiency [5].

Manu and Kautilya have talked about minimum wages, wage regulation, dispute settlement and against having slave labor. The SDGs like Reduced Inequalities should draw inspiration from this. Arthashastra also touches the Town Planning and Social Security. It provides best practices in city planning in terms of main roads/sub streets, sanitation and fire planning arrangement, a suitable residential arrangement for elderly and poor. All these are guiding principles for SDG of Sustainable Cities and Communities and a few others [6].

Other Customs and Traditions

Indian customs and traditions have been started thousands of years ago with sustainability considerations. Respecting Mother Earth forms the basis of Indian culture. In Rajasthan, Khejri tree is valued for its moisture-retaining properties, and it is not axed even if it comes between the constructions. Peepal and Banyan trees are never cut in Indian tradition. Some areas popularly known as sacred groves or orans that are dedicated to a local deity, are especially reserved for biodiversity conservation [8].

Lod Krishna telling people to worship the mountain to ensure rainfall, swallowing the forest fire to show a concern for the protection of forests and wildlife, indicate an appreciation of ecological balance. One can map this to derive inspiration to manage a few SDGs. Samrat Ashoka's decree prohibiting the destruction of forests and the killing of various species of animals, some 22 centuries ago, is considered as the first recorded measure on conservation anywhere in the world. One can find advanced medical remedies in ancient Indian granthas like '**Charak Sanhita.**' This can easily form the basis for managing SDG 3 – Good Health and Well Being [7].

Indian philosophy states that universe is created out of 5 gross elements (Panchamahabhutas) - earth, water, fire, air and space. These elements play a vital role in preserving and sustaining the environment. A change in any of the constituents beyond certain limits disturbs the natural balance and in turn causes lots of problems to the ecosystem. So ancient Hindu Holy books (**Granthas**) like Arthashastra and Manusmriti provides guidance on optimum and efficient use of these resources and even prescribes punishment for causing injury to plants.

The best part of Indian traditions is the way the rituals are made and imbibed into daily routine of individuals. These were not seen as any additional and difficult to follow tasks but became fully integrated in the life. It is not only the religious/holy books but even the simple Indian traditions are observed to be based on certain scientific ground. Having the lunch or dinner on a banana leaf is an excellent example of this. The polyphenol present in the banana leaf is a natural antioxidant which helps in improving the resistive power. So having a hot food on these leaves helps in improving the immunity. Typically, after using for having food, these were used to give to cows and buffalos. When the world has not invented the word 'Recycling,' we Indians were already following it. The water, detergents used to clean the utensils also were not needed. Selling the banana leaves can also be an effective way to earn. So as one sees, this

simple ritual is giving solutions to many SDGs like – Good Health and Well Being, Clean water, Responsible consumption, climate action, life on land, No Poverty, etc.

To summarize, each SDG can derive guidelines from one or combination of different references from Indian heritage. The indicative mapping may look as below –

| Goals | Guidance can be derived from |
|--|---------------------------------|
| Goal 1. No poverty | Arthashastra |
| Goal 2. Zero hunger | Arthashastra |
| Goal 3. Good health and well-being | Upanishads, Charak Sanhita |
| Goal 4. Quality education | Arthashastra |
| Goal 5. Gender equality | Arthashastra |
| Goal 6. Clean water and sanitation | Vedas |
| Goal 7. Affordable and clean energy | Indian Traditions, Arthashastra |
| Goal 8. Decent work and economic growth | Arthashastra |
| Goal 9. Industry, innovation and infrastructure | Arthashastra |
| Goal 10. Reduced inequalities | Arthashastra |
| Goal 11. Sustainable cities and communities | Upanishads |
| Goal 12. Responsible consumption and production | Arthashastra, Other religions |
| Goal 13. Climate action | Upanishads, Samveda |
| Goal 14. Life below water | Upanishads |
| Goal 15. Life on land | Upanishads |
| Goal 16. Peace, justice and strong institutions | Arthashastra |
| Goal 17. Partnership for the goal, Leadership, Project Execution | Bhagavad Gita |

Table 1

Conclusion

The sustainability alignment for corporates is indispensable. However, a diluted focus has resulted in it not delivering to the expectations. A lot of research is being done to find out the causes and devise the corrective action. Leveraging on the navigation from its rich tradition and wealth of knowledge in ancient holy books, India can provide strategic directions and lead this movement to achieve the goals.

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**Does organizational virtuousness help identified and happy employees to craft their job:
A Parallel Mediation Model**

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Abstract

The purpose of the present study is to examine the impact of organizational virtuousness on job crafting both directly and through parallel multiple mediators (subjective well-being and organizational identification). Three-wave, time-lagged, data was collected from a sample of 416 employees from India Post. After establishing reliability and validity for the measures used in the study, the parallel multiple mediation model was tested using Hayes PROCESS Macro. The findings of the present study indicate that the positive virtues of an organization elevate job crafting behaviors both directly and through the two mediators namely, subjective well-being and organizational identification parallelly. Both the paths, which include intermediary variables were also found to be significant.

Keywords: Organizational virtuousness, Subjective well-being, Organizational identification, Job crafting

Workplace Spirituality in Hospitality Sector: A New Dimension

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Abstract

Workplace spirituality has gained phenomenal attention in the literature to predict and explain various organisational outcomes. The prior research has proposed different definitions of workplace spirituality through the lenses of religion, culture and employee experience at the workplace. Based on the fundamental understanding of workplace spirituality which talks about the common theme of purpose, completeness, and joy at work, this study highlights the mismatch in the operationalisation of definition and the workplace spirituality construct in the hospitality setting. In this study, a systematic literature review was conducted in hospitality context, using PRISMA technique with articles published in SCOPUS database journals between 1999-2020. This study reports the methodologies, antecedents, outcomes, theories, research gaps, and further suggest a new dimension for workplace spirituality in the hospitality setting.

Keywords: Workplace spirituality, Systematic Literature Review, PRISMA technique, Emotional Contagion, Hospitality sector.

I Want My 'Me' Time: Role of Personal Time in Managing Happiness

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Abstract

While discussing the two domains of work and life, we generalize life aspects as revolving around family only. We tend to neglect the time we need to devote to our personal interests. Work from home during Covid19 had the boundaries between work and life blurred. Oscillating between work and family responsibilities took a toll on the individual's mental well-being. Recently people have started giving time to their own interests, socialization with friends and pursuing their hobbies without holding any guilt. This study attempts to link the role of personal and 'me' time in attaining happiness in one's life. It also explores the regrets and the guilt associated with the same. Conservation of Resources Theory and Mood Alleviation Theory are used as a theoretical background. As methodology, it uses an interpretivist approach where a qualitative research comprising of 22 in-depth semi-structured interviews was carried out on respondents in the age group of 30-55 from different fields of life. The study holds implications for both individuals as well as organizations.

Keywords: 'Me' time, personal time, leisure, happiness, wellness

ESG (Economic, Social, Governance) Framework-Past, present and future

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Abstract

In the past, sustainability-based competitive advantage was a debatable topic in the field of management and received attention from both sides – for and against. Some advocated the “do well by doing good” approach which refers to the company’s focus on non-shareholders needs in order to create “shared value” (Porter and Kramer, 2011). Positive outcomes of this approach include: more consumer acceptance, right talent acquisition and less payments for fines and penalties. On the other hand, it was argued that sustainability measures may have an ‘agency cost’ i.e. it may be beneficial for the sustainability policy implementing manager, but these have a negative impact on the bottom line of the company due to higher cost for implementation (Friedman, 1971).

In the backdrop of global climate change concerns of the present, firms’ sustainability practices in both developed and emerging markets are under greater scrutiny by the governments and the regulators. Consequently, organizations have started using ESG (Economic, Social, Governance) framework for sustainability reporting. ESG framework was born in 2006 under the United Nation’s Principles of Responsible Investment (UNPRI) and refers to increase in corporate value creation for the stakeholders by focusing on the factors under this framework. Its global acceptability among the corporates has grown manifold as they realize, ESG alignment, instead of impeding growth, can boost the bottom line and benefit the stakeholders in the long-term due to a range of factors like boosting corporate image, more societal acceptance and easier access to cheaper funds. India too, is an active player in this field and has been making significant progress on several sustainability fronts.

It is now accepted that sustainability as a business philosophy and the ESG framework which helps to operationalized it are here to stay. A US study shows high sustainability companies outperform the low sustainability companies in the long-term with respect to balance sheet performance and stock market returns (Eccles et al., 2014). As a result, the earlier optional “do well by doing good” paradigm is now shifted to institutional investors using ESG framework to assess business personal performance before they invest in the stock market. Consequently, corporates and the various stakeholders (customers, suppliers, employees, investors, regulators, governments, communities) are now more than willing to embrace voluntary ESG disclosure norms, as its compliance is a value creator for all the business actors. Indian corporates too, are enthusiastic about aligning with this global trend and are supported by several government incentives.

This paper reviews the relevant literature to explore ESG and its constructs from different theoretical perspectives e.g. stakeholder theory (Freeman et al., 2010), organizational legitimacy theory (Suchman, 1995), existing global scenario in this domain, India’s ecosystem readiness, and the future of ESG.

Foresight for Energy transition towards affordable and sustainable clean energy access

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Abstract

Shaping future niches is an outcome of foresight deployment. The intent to attain a cleaner energy future through provisioning cost-effective local solutions for last mile connect to the deprived populace is sacred. When irrespective of an inopportune environment, a sustainable ecosystem is created, it calls for seeking enlightenment. The journey of Husk Power Systems, an entrepreneurial firm in the energy sector from the Gangetic Plains working in alternative energy generation exemplify the impetus for Energy Transition towards affordable and clean energy. Gleaning details from published resources and authentication established through multifarious coherence as triangulation, the case study explores the foresight fostered pathways adopted by Husk Power Systems towards sustainable clean energy access, creating a value chain of enrolment, engagement and empowerment in the process.

Keywords: energy access, clean energy, foresight, ecosystem, sustainable future, Husk Power Systems, energy transition

Strategic Planning for Zero Budget Natural Farming Development

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Abstract

This paper delineates priority-based recommendations and the orchard model for installation of Zero Budget Natural Farming (ZBNF) and economic development in the district of Jhargram, West Bengal. For implementing ZBNF in the district, we have focused on the approach given by Palekar (2002). First of all, we have analyzed the spatial correspondences among geographical area, net sown area, agricultural production, and human development to establish the relationship between agricultural phenomena and development in the district. Second, we have developed a SWOT matrix based on some literature and spatial correspondences findings, and some priority-based strategies build on the premise of Quantitative Strategic Planning Matrix (QSPM) using the Delphi method. Our results show that ZBNF is the best alternative way for income generation and economic development in the district of Jhargram.

Keywords: ZBNF, SWOT, income generation, economic development

Gender Diversity Performance in Global Mining Companies: An Exploration

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Abstract

Despite gaining the attention of socially responsible investors, gender diversity has long been a challenge for the mining sector given its strong masculine legacy. Mining has consistently lagged other industries across all employment levels in gender diversity with notable regional variations. Our qualitative empirical study of self-reported narratives of the 24 largest mining companies spread across eight regions reveals that stronger gender diversity performance is invariably associated with greater coherence between articulated diversity aspirations and specific diversity initiatives. While this interlinkage is more likely symptomatic than causal, we argue that a commitment to stated posture drives strategic action and in turn stronger performance. Conversely, lack of coherence between aspirations and action likely reflects a superficial approach to diversity management in turn derailing the agenda.

Keywords: GDM initiatives in mining, gender diversity performance, institutional theory, resource-based view, regional variation

Evaluating the Climate Change Efforts of Oil & Gas Sector in India

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Abstract

Environment, Social & Governance (ESG) performance is increasingly becoming important to investors for making responsible investment decisions across all industrial sectors including Oil & Gas. However, ESG issues like practices on climate change goes beyond ESG ratings. Considerable literature is available on comparative data analysis of ESG performances like, carbon emission intensity/water consumption and how that contributes to Company's Financial Performance. However, there a gap is evaluating quality characteristics of these disclosures. This study will focus on qualitative evaluation of the current state of Climate Change related disclosures for Indian Oil & Gas Companies, followed by comparative analysis of similar disclosure of International Oil & Gas Companies. The results of this study will provide investors an insight on maturity of company's climate change disclosures while helping companies to focus on areas where they need to take meaningful action.

Keywords: ESG, Climate Change, Oil & Gas, qualitative evaluation, India.

Maintenance Work of Minority Institutions - A Practice-based Approach

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Abstract

Institutional work has mostly focused on the deliberative work of powerful actors situated in developed economies and has paid scant attention to poorly resourced and less powerful actors in developing economies, particularly transition economies which are characterized by rapid institutional transformations. Such contexts offer the possibility to study the nature of maintenance work for minority institutions which lose power with the rise of new formal institutions under various socio-political conditions but continue to exist in small spaces alongside the dominant institutions. Drawing upon the case study of a non-governmental organization in India, this paper delineates the nature of maintenance work by tracing the mundane practical work of a marginal actor and finds that the actor engages in strengthening work, i.e., enlarging the minority institution and protection work. i.e., opportunistically engaging with the dominant actors to preserve the minority institution from the formal institutional pressures.

Creditor Rights and Bank Loan Certification Values

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Abstract

In this essay, I study the impact of creditor rights on bank loan certification values using a large sample of more than 10,000 loans from 22 countries for the period of 1999-2013. I find that creditor rights increase the threat of bankruptcy and liquidation leading to a significant reduction in loan certification values. Consistent with our hypothesis, the decline in certification value is higher for large and long maturity secured loans. Further, the reduction in certification value is less for larger, more profitable, and more solvent firms. I consider three other alternative channels – lazy lender channel, adverse selection channel, and bargaining power channel - through which creditor rights may affect bank loan certification value. However, I find that the threat of liquidation is the only dominant channel through which creditor rights affect loan certification values.

Relationship between Financial well-being and Financial Stress: Does Gender Matter?*Ifra Bashir¹ & Ishtiaq Hussain Qureshi²**^{1&2} Department of Management Studies, University of Kashmir***Abstract**

The study aims to investigate the relationship between financial well-being and financial stress. It also attempts to explore the moderating role of gender in the proposed model. Financial well-being, a reflective construct was quantified using eight items on a five-point scale. Likewise, financial stress, a reflective construct was quantified using six items on a five-point scale. Data were collected from 168 citizens of Kashmir province, India using convenience sampling and analyzed using AMOS 23.0. The results strongly supported the hypothesized model that financial well-being has a negative impact on financial stress and this relationship varies by gender. The study holds key importance for academia or future researchers, governments, and policymakers aiming at improving quality of life (QOL), health, and well-being of citizens, a key sustainable development goal (SDG 3), and the ultimate goal of Transformative Consumer Research (TCR) agenda.

Keywords: Financial well-being, well-being, Sustainable Development Goals (SDGs), financial stress, gender

Relationship of Surveillance Actions with Earnings Management and Corporate Governance

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Abstract

Surveillance measures are implemented to prevent fraudulent trading practices in the stock market. In this study, we examine one of the surveillance actions of the National Stock Exchange of India (NSE). We have hand-collected data on instances of this surveillance action performed by NSE during the financial years 2011–12 to 2019–20. The earnings management and corporate governance of the targeted firms are compared with all those firms listed on NSE. Our results show that the firms facing this surveillance action are often more likely to be engaged in earnings management than the firms that do not face this action. Our findings also show that poor corporate governance at the firm-level increases the firm's likelihood of facing surveillance action from the exchange. The study also suggests that if a firm has institutional ownership, its probability of facing surveillance action will decrease by 20%.

Keywords: *Surveillance Measures, Financial Market, Earnings Management, Corporate Governance.*

Debt heterogeneity and firm performance*Akanksha Saxena¹ & Ranajee²**^{1&2} IBS Hyderabad***Abstract**

The paper examines the relationship between debt heterogeneity and firm performance for the listed Indian firms with 53037 firm-year observations for the period 2001-2019. The panel data estimation with fixed effects regression and quantile regression models are used to examine the relationship between debt heterogeneity and firm performance. The findings suggest contrasting results between debt heterogeneity and firm performance with different measures of firm performance, ROA, ROE, and Tobin's Q.

‘Wall Street’ or ‘Main Street’? VC Characteristics and Investment Performance

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Abstract

Venture Capitalist investors act as a strategic resource for their portfolio firms, leveraging their expertise, experience, and access to networks. In our paper, we re-visit the question of who adds more value – 'Specialist' investors or 'Generalist' investors in an alternative VC ecosystem. Popular media often refers to this difference as the 'Main street versus Wall Street' split. We find that in the Indian VC ecosystem, it is the 'Wall Street' VC partners with financial expertise that are able to secure successful outcomes on their investments compared to their 'Main Street' counterparts with specialist domain prowess. This result presents a contrasting story to that of the VC markets in developed countries like the US, where Specialist partners perform better than generalist partners. We find that Specialist investors add value for firms in early stages and high-tech industries, but in an emerging market context, the advantages of generalist VC partners and partners with finance backgrounds dominate. We also find that generalist investors' value predominantly stems from their finance experience, in particular from experience gained working in the domestic markets.

Keywords: Venture Capital, Startups, Firm Performance, Human Capital

Are Green equity investments in India vulnerable to commodity price risk? - Evidence from Quantile-on-Quantile Regression

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Abstract

In recent years, investment in green firms' equity has emerged as key investment trend in India, owing to the green company's eco-friendly business strategy. In this study, we have explored the relationship between performances of green firms in Indian equity markets with respect to the risk arising from price fluctuations in Indian commodity markets. The heterogenous impact of commodity prices on green equity prices is explored through a quantile-on-quantile regression model and causality-in-quantiles model framework. The results shows that agricultural and metals commodities have positive impact on green equity investment in extreme quantiles, while bullions have negative relationship in median and upper quantiles. The results provide unique insights for investors and policymakers in relation to green equity investments.

Keywords: GREENEX, METALS, ENERGY, GOLD, INDIA, Green Investment,

1. Introduction

Global warming is one of biggest concerns of the modern World. The Paris Climate Agreement, a significant step in this direction, emphasized the necessity for coordinated action to fight against climate change and environmental degradation. While there is widespread consensus on climate change, mobilizing funds is essential for proactive response to mitigate the impact of climate change. According to various estimates, India requires an estimated 1.6 trillion USD fund by 2030 to meet its Nationally Determined Contribution (NDC) commitments of climate change mitigation¹. While public finance will continue to play an important role by providing support in the form of credit enhancement and risk mitigation instruments, private capital is expected to play a larger role. In recent years, Sustainable and Responsible Investing (SRI) or Green Investment has emerged as key investment trend globally. In India, Green Investing is receiving considerable attention, thanks to the government's ambitions to cut CO₂ emissions by 35% of 2005 levels, by performing and sponsoring a variety of eco-friendly infrastructure and green projects. One of the novel initiatives to attract environmentally sensitive investors and to promote best practices amongst corporates is the creation of Green Equity Index by stock exchanges, such as the GREENEX index by Bombay Stock Exchange (BSE), a stock index that measures the performance of companies in terms of their carbon emissions. This enables passively managed funds to invest in green companies, as well as the indices acts as a clear benchmark of the performance of the green investments in equity markets in India

The major attractiveness for financial investors to consider green equity investment is the higher long term returns generation potentials of sustainable equity investment relative to conventional equity investment (Al-Najjar and Anfimiadou 2012), but the green equity investment domain being relatively new in India is also vulnerable to risk transmission from other assets. As Green companies are mostly consumers of various commodities on a day-to-day basis, there operating cost is directly or indirectly influenced by the price of the consumables. The high expenses of implementing green technologies have a negative impact on the profitability of green companies, and as a result, they may become less attractive for

¹ <https://shaktifoundation.in/wp-content/uploads/2019/08/CatalysingPrivateCapitalforGreenInvestmentsinIndia.pdf>

investors. Furthermore, equity price of green companies may experience heterogeneous shocks from other macroeconomic factors such as government policies, supply-demand fundamentals, prices of industrial metals, operating cost due to rise in oil price and so on, implying that the risk transmission relationship may vary based on different market conditions. So, naturally the question arises whether green equity investment is vulnerable to commodity price change, and whether it varies based on different market conditions. As such, in this study, the heterogeneous relationship between green equity investment and commodity price has been analyzed using a robust quantile-on-quantile regression (QQR) framework. The traditional quantile regression model assesses the impact of an explanatory variable's quantiles on dependent variables. The QQ method, on the other hand, combines quantile regression and non-parametric estimation. Traditional quantile regression analysis focuses on how different quantiles of an outcome variable interact with an explanatory variable at first. Unlike traditional regression/quantile regression methods, the QQR approach is an information-rich method since it is composed of quantiles of independent variables and quantiles of dependent variables.

Various commodities are essential ingredients for clean energy companies. Base metals, such as copper, aluminium, nickel etc., are essential for all kinds of electrical energy generation and transmission machinery, whereby Copper plays a great role in decarbonization due to its usage in electric vehicles, renewable-power generation, air-conditioning and overall energy-efficiency improvement of motors and transformers (Henckens and Worrell 2020). Silver is essential for solar PV cells (Dutta 2019), Nickel and lead are used in batteries of Electric Vehicles. Therefore, performance of green firms is highly dependent on different commodity prices. Moreover, the sectoral equity investments can be more sensitive to asymmetric commodity price volatility in bearish market as well as bullish or normal market condition (Tiwari et al. 2018; Dutta et al. 2021). Further, many investors prefer including commodity assets in portfolios to accrue diversification benefits, however due to the financialization of commodity markets, returns comovement between equity and commodity markets is increasing, thereby reducing the diversification benefits (Tang and Xiong 2012; Cheng and Xiong 2014; Basak and Pavlova 2016; Pradhananga 2016). Mensi et al. (2017) has shown that volatility in the oil and gold markets has significant impact on sustainability indexes. Dutta et al. (2021) has identified that global commodity VIX indexes transfer volatility to Indian green equity indexes during periods of high uncertainty. Importantly the commodity market in India is in its infancy with respect to other developed markets of USA, London and China, whereas the green equity markets is also relatively new, hence the interaction between commodity markets and green equity markets is worth exploring.

Against this backdrop, it is essential to understand the relationship between green equity investment and commodity markets in India. In this study, we have used GREENEX as the representative of green equity investment in India. Further, we have used different commodity indices such as AGRIDEX from National Commodity Derivatives & Exchange Limited, India (NCDEX) commodity exchange, COMDEX, BULLDEX, METLDEX and ENERGY from Multi Commodity Exchange of India (MCX), as representative of various commodity groups. The asymmetric relationship between GREENEX and commodity indices is ascertained through a Quantile-on-Quantile regression model. The causal relationship between GREENEX and commodity index is analyzed using a Granger causality in quantiles model. The results shows that commodity index returns have heterogeneous impact on GREENEX returns across different quantiles of both indices. Further, casual relationship in different quantiles is bidirectional in extreme quantiles, while unidirectional in normal market conditions.

Earlier studies have focused on the relationship between green investment and other asset classes (Sadorsky 2012, 2014; Ahmad 2017; Tiwari et al. 2018; Dutta et al. 2021), however,

our study is unique in four aspects, First, we have focused on the impact of different Indian commodity index returns on Indian green equity returns, which has not been considered in any previous study. Considering the stage of development of these markets and the developing economy in India, the analysis is crucial for policymakers and investors in India as well as globally. Second, most of the previous studies have analyzed the relationship between Oil price or metal price and green equity, however none of the studies have considered the impact of agricultural commodities. In this study we have used AGRIDEX index which includes most of the agricultural commodities being traded in NCDEX. Third, we have used the quantile-on-quantile regression model which is superior to traditional OLS or quantile regression models, as it is capable of exploring the relationship between the quantiles of dependent variables and independent variables. Fourth, the causality in quantiles method helps in exploring the heterogeneity of causal relationship in different quantiles.

The remaining part of this study is organized as follows: Section 2 presents a brief literature review. Section 3 provides the details of the dataset used for the analysis. Section 4 depicts the methodology followed for the analysis. Section 6 highlights the results and discussion. Section 7 provides the conclusion.

2. Literature Review

In this section, the literature pertaining to green investment and its relationship with various asset classes especially with commodity markets has been reviewed. Various studies have identified the impact of oil price shock on clean energy equities. For example, Sadorsky (2012) identified that increase in oil prices increases the risk associated with clean energy stock prices. Bondia et al. (2016) identified short term linkage between crude oil price and renewable energy equity price, whereby the causal relationship is unidirectional from commodity market to equity markets. Ahmad (2017) highlights that increase in oil price leads to upturn in renewable energy stock prices. Dutta (2019) identified that due to higher consumption of Silver in photovoltaic cell for solar energy generation has led solar energy sector to be more vulnerable to silver price volatility. Dutta et al. (2021) demonstrates that risk is transmitted from crude oil, gold, and silver markets to Indian green equity indices in a major way, with the transmission being stronger during bearish periods than bullish periods. Kathiravan et al. (2021) has identified that daily temperature influences BSE GREENEX performance. Kaur and Kaur (2021) identified that listing and delisting of stocks in BSE GREENEX and CARBONEX indices impacts the returns of the concerned firm equity. He et al. (2020) identified that gold price has negative impact on clean energy stock, whereas oil prices have significant positive impact on clean energy stock prices in USA and Europe. Another strand of literature analyses the hedging properties of various commodities in a portfolio with clean energy equity. Ahmad et al. (2018) has shown that clean energy stock price and Oil Volatility Index (OVX) is negatively correlated, and can be used as a hedge against clean energy stock investment. However, the same study has identified that Gold is ineffective in minimizing the risk. Similar finding has been reported by Elie et al. (2019). Mensi et al. (2017) has shown that volatility in the oil and gold markets has significant impact on sustainability indexes.

3. Data

In this study, S&P BSE GREENEX indices are used as proxy for Sustainable equity investment which represents the equity prices of green companies in India. The BSE GREENEX or Green Index, which was launched in 2012 by the Bombay Stock Exchange, is India's first carbon-efficient live index. The index was created by the BSE in partnership with IIM Ahmedabad with the goal of evaluating company performance in terms of carbon emissions. The

GREENEX includes the top 25 companies from different sectors like power, steel, cement etc. which are part of BSE 100. The companies are selected based on

- i. Emission Intensity: carbon dioxide or its equivalents released into the atmosphere as a result of the organization's activities
- ii. Market capital: calculated from number of shares traded and the equity price of the company
- iii. Turnover: Annual sales volume net of all taxes

This index is important for both businesses and investors when it comes to raising capital and comparing against the best carbon performers. It assists investors in identifying "green investments" and companies with a strong social responsibility, allowing them to make better-informed investment decisions in energy-intensive industries. The index is a Green Finance instrument which is followed by individual, retail as well as institutional investors such as hedge funds, mutual funds, pension funds etc. The daily index data is extracted from official website of Bombay Stock Exchange (BSE).

The prices of different commodity groups are represented through different commodity indices from Multi Commodity Exchange of India (MCX) and National Commodity Derivatives & Exchange Limited, India (NCDEX). The AGRIDEX tracks the performance of the ten liquid agricultural commodities futures traded on NCDEX platform., which are selected based on the liquidity on the exchange platform. So, it can be considered as the representative of agricultural commodity price as most of the agricultural commodities are traded in NCDEX. METLDEX is one of the sectoral indices, and the index includes the liquid Base Metal futures contracts traded on MCX, viz. futures of Aluminium, Copper, Lead, Nickel and Zinc. BULLDEX is one of the sectoral indices, and the index is based on the liquid futures contracts of gold and silver traded on MCX. ENERGY is based on the futures contract of Crude Oil and Natural gas traded in MCX. MCX iCOMDEX Composite index represent a series of real-time commodity futures price indices, conceptualized for market participants to capture the pulse of commodity markets. Hence, the indexes AGRIDEX, METLDEX, BULLDEX, ENERGY, and COMDEX can be utilized as representative of commodity prices for Agricultural commodities, Base metals, Bullions, Energy commodities, and other highly traded commodities in India, respectively. All the index values are sourced from official websites of NCDEX and MCX. The details of the indexes are provided in Table 1.

Table-1: Data Source and Description

| Index | Brief Description | Source |
|---------|---|--------|
| GREENEX | Top 25 Green Companies equity price in BSE | BSE |
| METLDEX | Index of Base Metal futures contracts traded on MCX | MCX |
| BULLDEX | Index of Gold and Silver futures contracts traded on MCX | MCX |
| COMDEX | Index of all commodity futures contracts traded on MCX | MCX |
| ENERGY | Index of Crude oil and Natural Gas futures contracts traded on MCX | MCX |
| AGRIDEX | Index of Agricultural commodities futures contracts traded on NCDEX | NCDEX |

4. Methodology

4.1.1. Quantile on Quantile regression

The study employs the Quantile-on-Quantile regression approach proposed by Sim and Zhou (2015) for the comprehensive examination of the impact of commodity index returns on green equity indices returns. The traditional quantile regression model assesses the impact of an explanatory variable's quantiles on dependent variables. The QQ method, on the other hand,

combines quantile regression and non-parametric estimation. Traditional quantile regression analysis focuses on how different quantiles of an outcome variable interact with an explanatory variable at first. Furthermore, traditional linear regression is used to depict the effect of a particular quantile of a predictor variable on the criterion variable. The main goal of the data reduction analysis is to correct the linear regression model by separating the data and giving high weights to its immediate surroundings. Furthermore, unlike traditional regression/quantile regression methods, the QQR approach is an information-rich method since it is composed of quantiles of independent variables and quantiles of dependent variables. Therefore, the model of QQR for the present study is formulated as follows:

$$GREENEX_t = \beta^\theta (COMINDEX_t) + \mu_t^\theta \quad (1)$$

Where θ represents the conditional distribution of θ th quintile, GREENEX stands for the green equity index values in period t , COMINDEX denotes the specific commodity index such as AGRIDEX or METLDEX or BULLDEX or COMDEX or ENERGY index at period t , μ shows the quantile error term, and it is assumed to be zero conditional upon θ th quintile. However, there is no prior knowledge related to β^θ as the link between green equity index and commodity index needs to be estimated from the collected sample. Ultimately, the employment of a non-parametric approach requires the proper bandwidth selection. A lower bandwidth that hits a balance variance and equal and bias must be selected, whereas a higher bandwidth may create biased outcomes in the analysis. Hence this study uses a bandwidth parameter $h = 0.05$ by following (Sim and Zhou 2015).

4.2. Granger Causality in quantiles

The standard Granger (1969) causality test examines the causal relationship between two variables. The Granger causality test, in general, posits that the dependent variable's present value is determined by itself and the independent variable's lagged values. In this study we have used the recently developed causality in quantiles method by Troster (2018). This model helps in exploring the causal relationship in various quantiles.

5. Results and Discussion

5.1. Preliminary Statistics

The descriptive statistics of the return's series are provided in Table 2. It can be observed that maximum returns are highest for ENERGY commodity index followed by GREENEX index. Moreover, the Kurtosis values are very high and positive for all the variables, thereby highlighting a leptokurtic distribution of the returns. It indicates that the investments in these indexes are prone to extreme values on either sides and is considered to be risky. Further the Jarque-Bera (JB) test statistics values are highly statistically significant at 1% level rejecting the null hypothesis of data normality, thereby approving the use of QQR model.

Table-2: Descriptive Statistics

| | GREENEX | METLDEX | BULLDEX | COMDEX | ENERGY | AGRIDEX |
|---------------|-------------|-----------|------------|-----------|-------------|-----------|
| Mean | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Median | 0.001 | 0.001 | 0.000 | 0.001 | 0.001 | 0.000 |
| Maximum | 0.081 | 0.048 | 0.042 | 0.041 | 0.189 | 0.038 |
| Minimum | -0.126 | -0.046 | -0.072 | -0.058 | -0.230 | -0.042 |
| Std.Deviation | 0.011 | 0.011 | 0.010 | 0.009 | 0.025 | 0.008 |
| Skewness | -1.443 | -0.202 | -0.721 | -0.539 | -1.290 | -0.033 |
| Kurtosis | 22.184 | 4.480 | 8.703 | 6.611 | 23.389 | 4.594 |
| Jarque-Bera | 20700.77*** | 129.43*** | 1903.27*** | 781.04*** | 23230.34*** | 139.90*** |
| Observations | 1321 | 1321 | 1321 | 1321 | 1321 | 1321 |

***, ** and * indicate the result is significant at the 1, 5 and 10% level, respectively.

Further, the BDS test introduced by Broock et al. (1996) is used to confirm the non-linearity of the variables. Table 3 reports the outcome of the BDS test, suggesting that data of all variables are non-linear as p-values of the BDS test confirmed significance at each specified level from m2 to m6 for all countries at 1% level of significance.

Table-3: Results of BDS (1996) test for non-linearity

| | GREENEX | METLDEX | BULLDEX | COMDEX | ENERGY | AGRIDEX |
|-----|-----------|-----------|-----------|-----------|-----------|-----------|
| m=2 | 0.0176*** | 0.0044*** | 0.0111*** | 0.0097*** | 0.0233*** | 0.0074*** |
| 3 | 0.0327*** | 0.0105*** | 0.0236*** | 0.0231*** | 0.0437*** | 0.0149*** |
| 4 | 0.0425*** | 0.0161*** | 0.0346*** | 0.0307*** | 0.0560*** | 0.0213*** |
| 5 | 0.0486*** | 0.0194*** | 0.0401*** | 0.0343*** | 0.0634*** | 0.0249*** |
| 6 | 0.0489*** | 0.0206*** | 0.0415*** | 0.0340*** | 0.0643*** | 0.0265*** |

***, ** and * indicate the result is significant at the 1, 5 and 10% level, respectively.

The unit root properties of the variables are studied using ADF test and PP test. The results presented in Table 4, shows that the variables are non-stationary at levels but stationary in first difference. However, traditional unit root tests are based on conditional means, and the variables are following non-normal distribution; thus, the findings of these tests may result in biased estimations. Therefore, the quantile autoregressive (QAR) unit root test proposed by Koenker and Xiao (2004) and further developed by Galvao (2009) is employed to revalidate the stationary properties of the first differenced variables in each quantiles. The results of QAR test are presented in Table 5. The test statistics across diverse quantiles (0.10 – 0.90) confirm the existence of unit root at each level of conditional distribution at 1% level of significance.

Table-4: Unit root test

| | GREENEX | METLDEX | BULLDEX | COMDEX | ENERGY | AGRIDEX |
|----------------------------|------------|------------|------------|------------|------------|------------|
| A) Levels | | | | | | |
| ADF test | 0.225 | -1.116 | -1.057 | -2.129 | -1.026 | 0.811 |
| PP test | 0.100 | -1.122 | -0.981 | -2.326 | -1.149 | 0.992 |
| B) First Difference | | | | | | |
| ADF test | -36.739*** | -37.818*** | -37.169*** | -35.993*** | -37.323*** | -34.441*** |
| PP test | -36.780*** | -37.791*** | -37.223*** | -36.062*** | -37.448*** | -34.452*** |

***, ** and * indicate the result is significant at the 1, 5 and 10% level, respectively.

Table-5: Quantile Autoregressive Unit Root test

| Quantiles | GREENEX | | METLDEX | | BULLDEX | | COMDEX | | ENERGY | | AGRIDEX | |
|-------------|----------------|----------|----------------|----------|----------------|----------|----------------|----------|----------------|----------|----------------|----------|
| | $\alpha(\tau)$ | t-stats | $\alpha(\tau)$ | t-stats | $\alpha(\tau)$ | t-stats | $\alpha(\tau)$ | t-stats | $\alpha(\tau)$ | t-stats | $\alpha(\tau)$ | t-stats |
| 0.10 | 0.1346*** | -15.8206 | -0.0228*** | -15.4591 | -0.072*** | -16.8597 | -0.0135*** | -15.8872 | 0.0144*** | -14.6877 | 0.0751*** | -17.6657 |
| 0.20 | 0.0994*** | -24.9301 | -0.0543*** | -25.3328 | -0.0123*** | -27.6274 | 0.0444*** | -22.7642 | 0.0567*** | -24.7072 | 0.0453*** | -24.9259 |
| 0.30 | 0.0671*** | -29.3284 | -0.0761*** | -31.322 | -0.002*** | -33.8419 | 0.01*** | -29.464 | 0.0247*** | -35.2437 | -0.0204*** | -29.9723 |
| 0.40 | 0.0319*** | -34.6154 | -0.0693*** | -33.1623 | -0.0003*** | -37.5115 | 0.0137*** | -32.8313 | 0.0159*** | -45.0388 | -0.0155*** | -33.3712 |
| 0.50 | 0.0116*** | -38.3882 | -0.0657*** | -34.6407 | 0.01*** | -36.9835 | -0.0002*** | -37.22 | -0.0329*** | -50.0654 | 0.0003*** | -32.5406 |
| 0.60 | -0.0302*** | -40.5204 | -0.0767*** | -36.1952 | 0.0031*** | -37.9676 | 0.0018*** | -37.4546 | -0.0269*** | -48.6676 | -0.0186*** | -32.3834 |
| 0.70 | -0.0509*** | -43.2064 | -0.0745*** | -32.9133 | -0.0004*** | -34.1762 | 0.0243*** | -31.3303 | -0.0314*** | -44.0327 | 0.0022*** | -27.9189 |
| 0.80 | -0.0643*** | -36.4881 | -0.0452*** | -27.7024 | -0.0325*** | -27.9594 | 0.0117*** | -24.2682 | -0.0485*** | -41.164 | 0.0426*** | -25.4692 |
| 0.90 | -0.0414*** | -24.8202 | -0.0403*** | -17.9784 | 0.051*** | -17.1572 | 0.0247*** | -18.484 | -0.0894*** | -22.9928 | 0.0775*** | -17.0709 |

***, ** and * indicate the result is significant at the 1, 5 and 10% level, respectively.

5.2. Results of Quantile-on-quantile regression (QQR)

The QQR model has been performed on the quantiles of GREENEX indices on the quantiles of different commodity indices. The QQR slope coefficients estimated from the regression are plotted in Figure 2 (a-e), that visualizes the effect of τ -th quantile of commodity indices on θ -th equidistant quantile of GREENEX indices. The results are discussed in details in Section 5.2.1 and 5.2.2.

5.2.1. Interlinkage between GREENEX and Commodity Indices

The impact of AGRIDEX on GREENEX return quantiles are presented in Figure 2(a). It can be observed that AGRIDEX returns has overall positive impact on GREENEX returns in all quantiles. The heterogenous results of the slope coefficients across the quantiles highlights that AGRIDEX has strong positive impact at lower quantiles (0.05 – 0.20) of GREENEX, and it is spread across all quantiles of AGRIDEX with relatively less impact in higher quantiles of AGRIDEX. The association remains low in median quantiles of GREENEX, which is equivalently spread across all quantiles of AGRIDEX. In the upper quantiles (0.70 – 0.95) of GREENEX, AGRIDEX shows moderately strong positive impact which remains approximately same across all quantiles of AGRIDEX. Overall, the strength of the relationship is very high in the lower quantiles (0.05 - 0.20), remains very low throughout the median quantiles (0.3- 0.6), and becomes considerably higher in the upper quantiles (0.7 – 0.95). It indicates that the impact of agricultural commodities price change on GREENEX is higher in the tail quantiles or extreme market conditions, while it remains lower in the median quantiles or normal market conditions.

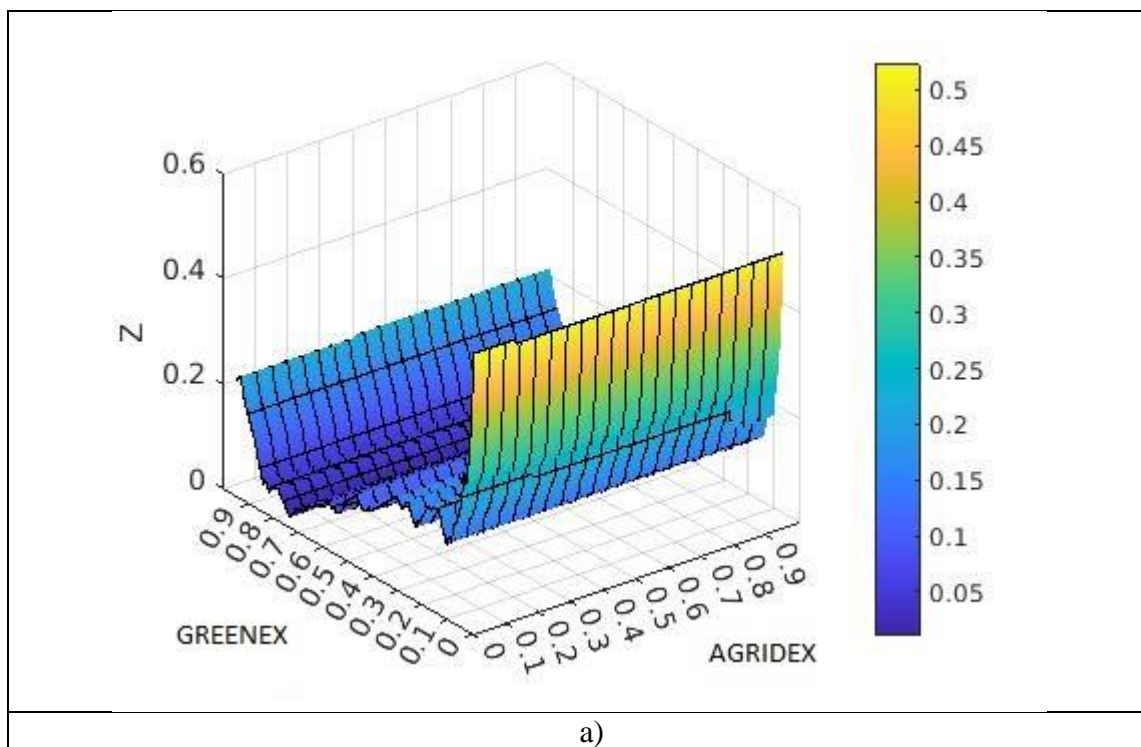
In Figure 2(b), the QQR results for the slope coefficient of BULLDEX on GREENEX is presented. Interestingly, the slope coefficient shows both positive as well as negative influence on GREENEX, which is heterogenous across the quantiles. The results shows that BULLDEX is positively associated with GREENEX in the lowest quantiles (0.05 – 0.1), which further becomes negative in the lower quantiles (0.1 – 0.3). The coefficients remain below zero afterwards, but the size of the coefficient gradually become lesser negative from median to higher quantiles of GREENEX. The strength of the association is spread across the quantiles of BULLDEX. The results indicates that BULLDEX and GREENEX have negative relationship and as such bullion commodities can be an effective hedge against the price risk of GREENEX. The results are aligned with (He et al. 2021), but contradicting the results of (Ahmad et al. 2018).

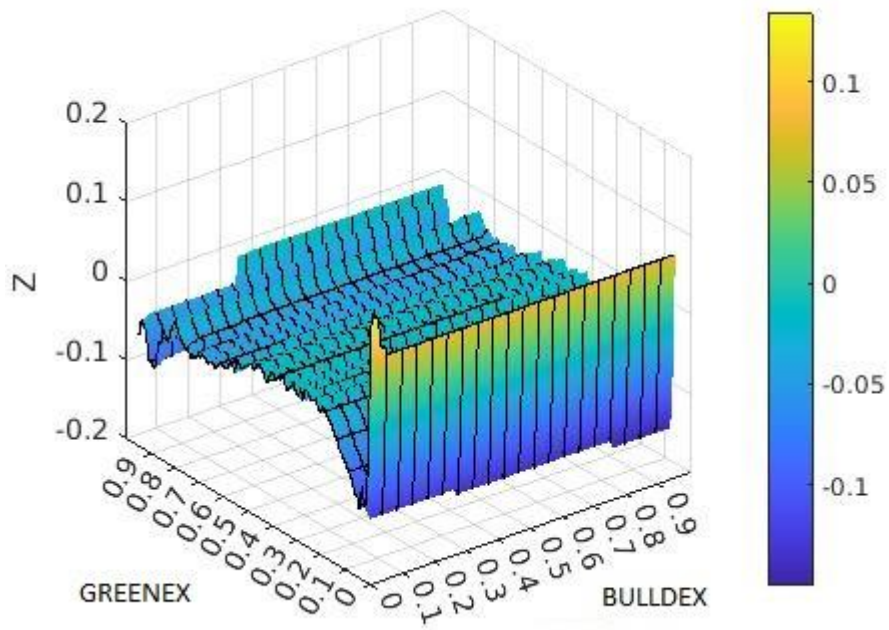
In Figure 2(c), the impact of COMDEX on GREENEX is presented across quantiles. It can be observed that slope coefficient of COMDEX remains positive across lower and median quantiles, but becomes negative in the higher quantiles of GREENEX. The strength of the association reduces from lower to higher quantiles of COMDEX. The results indicates that a portfolio of all types of commodities or a commodity index can be an effective hedge against inflation of GREENEX and can provide diversification benefits when returns of GREENEX remains in higher quantiles. However, in lower and median quantiles the association is positive, thereby it may not provide the desired benefits.

The QQR relationship between ENERGY commodities index and GREENEX is presented in Figure 2(d). The results highlight heterogenous slope coefficients across quantiles, however the association is positive for all quantiles combination. The association is moderately strongly positive in the lower quantiles of ENERGY and GREENEX. The strength lowers gradually

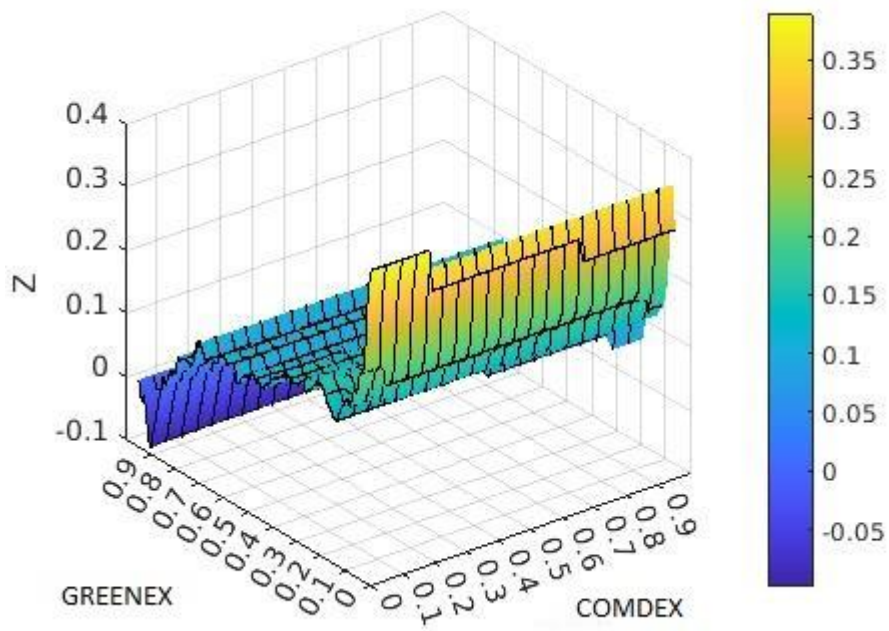
and becomes almost zero for highest-lowest combination quantiles of ENERGY and GREENEX at both diagonal ends. Further, when the quantiles of both the variables are highest the coefficient value again becomes moderately strong. The ENERGY commodities (crude oil, gas etc.) are the major emitters of carbon in the environment, and the better performing companies under GREENEX are trying to reduce the carbon footprint while continuing the industrial production. When energy prices are in the lowest quantile and the GREENEX returns are also in the lowest quantiles the relatively higher positive association indicates that with increase in ENERGY prices GREENEX returns will also increase, as it is beneficial for the companies to shift towards cleaner alternatives with rise in ENERGY commodities prices. Moreover, the strong positive association is again visible when GREENEX returns are in highest quantiles and ENERGY commodities are also in highest quantiles, thereby indicating that extreme rise in energy commodity prices is beneficial for GREENEX performance. The relationship in the remaining quantiles remains relatively low. These results are aligned with the results of (Ahmad 2017; Ahmad et al. 2018; He et al. 2020).

Finally, the QQR relationship between GREENEX and METLDEX is presented in Figure 2(e). It can be observed that slope coefficient remains positive for all quantiles combination, however, it is relatively higher positive in lower quantiles (0.05 – 0.20) of GREENEX and gradually reduces to almost zero in higher quantiles. The strength of the association is equivalently spread across the quantiles of METLDEX. Base metals are essential commodities for production of equipment's related to clean energy generation and supply, as such change in price of base metals makes the adoption of clean energy devices expensive and the effort in carbon footprint reduction gets jeopardized.





b)



c)

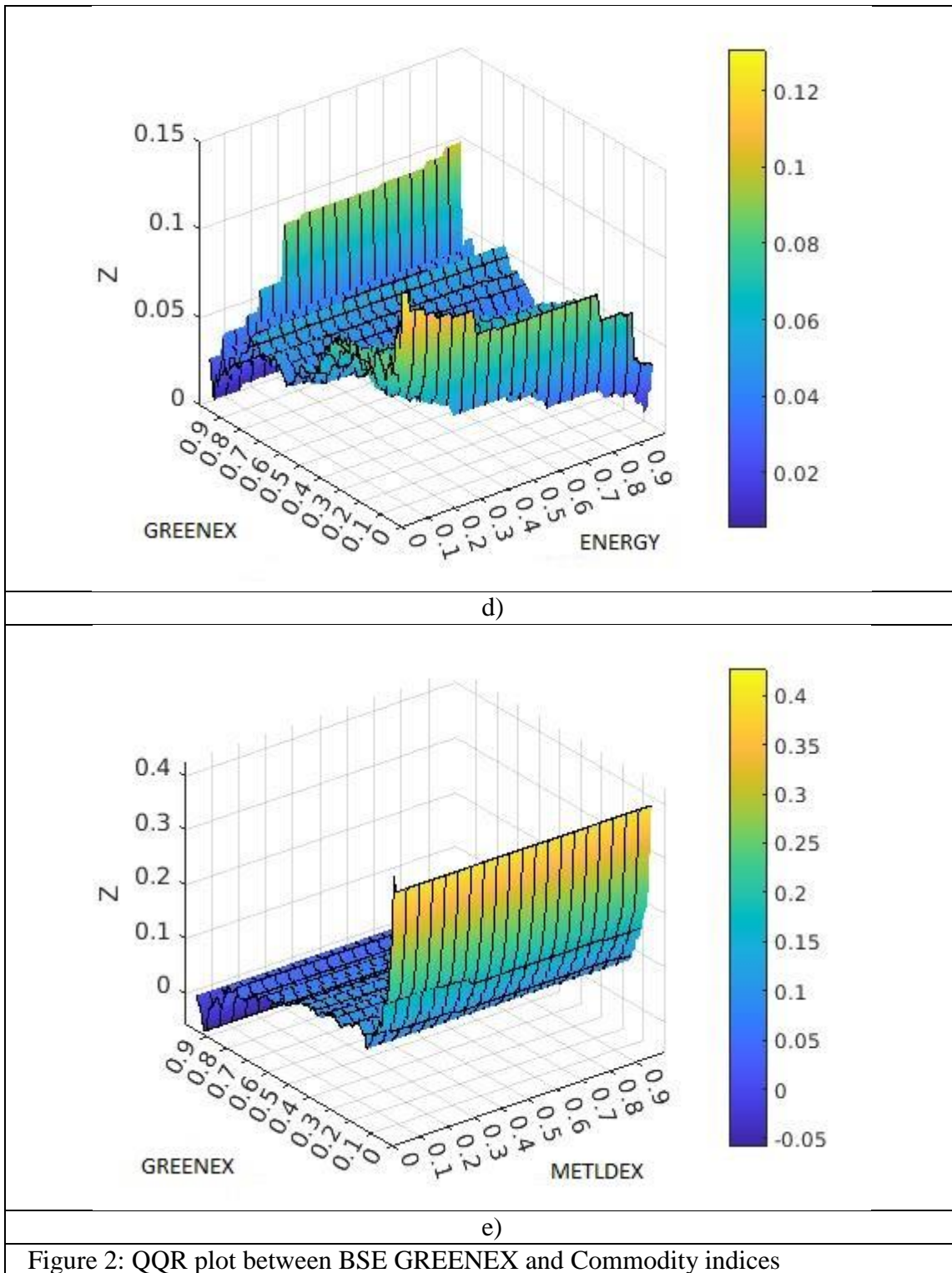


Figure 2: QQR plot between BSE GREENEX and Commodity indices

5.2.2. Robustness analysis

The robustness of the Quantile-on-Quantile regression model is validated by comparing the results of QQR with standard quantile regression model estimates. The results are graphically presented in Figure 4. The BLUE line indicates the QQR coefficients and ORANGE line indicates standard quantile regression coefficients across 0.05 to 0.95 quantiles. The results for CARBONEX and GREENEX against each commodity It can be observed that the slope coefficients of the QQR model are closely matching to that with the standard quantile

regression estimates, thereby indicating that the main features of the quantile regression model can be recovered by summarizing the more detailed information contained in the QQR estimates, which provides a simple validation of the QQR methodology.

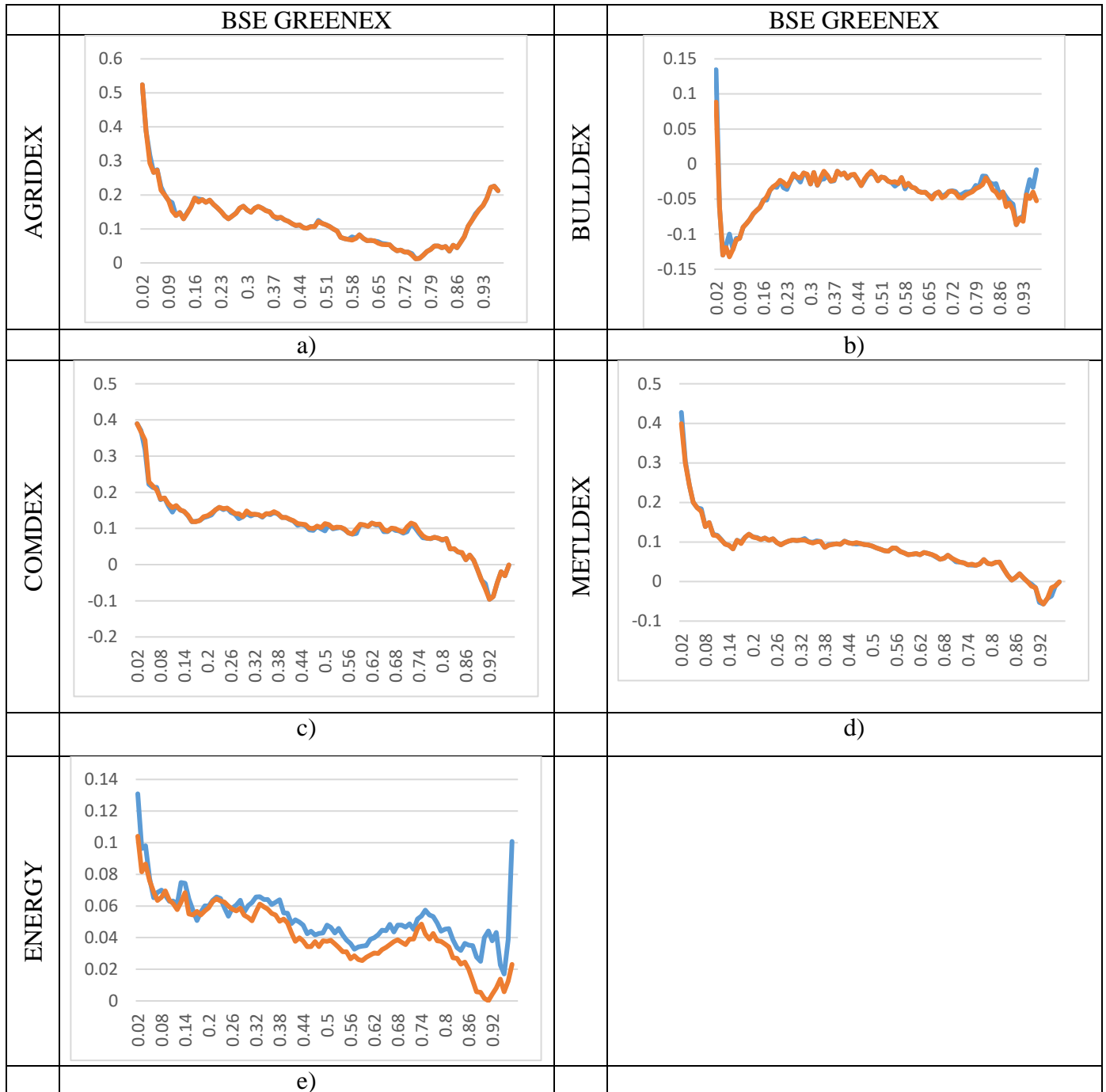


Figure 3: Robustness test by Comparison of QR and QQR result

5.2.3. Granger Causality in Quantiles

The results for Granger causality in quantiles between GREENEX and commodity indices are presented in Table -6. It can be observed that causal relationship is significant and bidirectional between GREENEX and AGRIDEX in lower quantiles (0.10-0.40) and upper quantiles (0.6, 0.7 and 0.9). For median quantile (0.50) and upper quantile (0.80) the relationship is unidirectional from AGRIDEX to GREENEX. Similarly, for BULLDEX, COMDEX, and METLDEX the relationship with GREENEX is bidirectional in all quantiles except for the 0.50 quantile where it is unidirectional from the respective commodity index to GREENEX. The results highlight that GREENEX has feedback relationship with commodity indices in extreme quantiles, whereas in median quantiles or normal market condition the relationship is unidirectional from commodity indices to GREENEX. Only for ENERGY index the relationship is bidirectional in all quantiles, thereby suggesting that CARBONEX and ENERGY index portrays feedback relationship in all quantiles.

Table-6: Granger Causality in Quantiles between GREENEX and Commodity Indices

| | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 |
|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| GREENEX → AGRIDEX | 0.041** | 0.002*** | 0.003*** | 0.024** | 0.398 | 0.017** | 0.021** | 0.238 | 0.001*** |
| AGRIDEX → GREENEX | 0.001*** | 0.001*** | 0.001*** | 0.001*** | 0.006*** | 0.080** | 0.004*** | 0.001*** | 0.001*** |
| GREENEX → BULLDEX | 0.001*** | 0.001*** | 0.001*** | 0.001*** | 0.316 | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| BULLDEX → GREENEX | 0.001*** | 0.001*** | 0.001*** | 0.001*** | 0.006*** | 0.080** | 0.004*** | 0.001*** | 0.001*** |
| GREENEX → COMDEX | 0.009*** | 0.001*** | 0.001*** | 0.001*** | 0.159 | 0.050** | 0.001*** | 0.005*** | 0.012** |
| COMDEX → GREENEX | 0.001*** | 0.001*** | 0.001*** | 0.001*** | 0.006*** | 0.080** | 0.004*** | 0.001*** | 0.001*** |
| GREENEX → ENERGY | 0.001*** | 0.001*** | 0.001*** | 0.001*** | 0.020** | 0.011** | 0.001*** | 0.001*** | 0.001*** |
| ENERGY → GREENEX | 0.001*** | 0.001*** | 0.001*** | 0.001*** | 0.006*** | 0.080** | 0.004*** | 0.001*** | 0.001*** |
| GREENEX → METLDEX | 0.030** | 0.001*** | 0.001*** | 0.001*** | 0.275 | 0.498 | 0.001*** | 0.001*** | 0.018** |
| METLDEX → GREENEX | 0.001*** | 0.001*** | 0.001*** | 0.001*** | 0.006*** | 0.080** | 0.004*** | 0.001*** | 0.001*** |

***, ** and * indicate the result is significant at the 1, 5 and 10% level, respectively.

6. Conclusions

In this paper, a quantile-on-quantile regression model is employed to identify the heterogenous impact of Indian commodity market on green equity investment. The analysis captures the impacts of various quantiles of commodity index returns on different quantiles of green equity index returns, thereby providing a more precise dependence structure compared to traditional regression models. Further the causal relationship between the commodity indices and green equity index is analyzed using a Granger causality in quantiles model that helps in understanding the relationship in different market conditions.

The empirical results shows that AGRIDEX has overall positive impact on GREENEX returns with higher impact in extreme quantiles or bearish and bullish market condition. Similarly, METLDEX has positive relationship with GREENEX in lower quantile, which reduces in higher quantiles, thereby highlighting that base metals may be considered as hedge in bullish markets of GREENEX. Further BULLDEX and GREENEX have negative relationship and as such bullion commodities can be considered as an effective hedge against the price risk of GREENEX. When equity market is Bullish COMDEX can be an effective hedge against price rise of GREENEX and can provide diversification benefits. However, in lower and median quantiles the association is positive, thereby it may not provide the desired hedging benefits in bearish and normal market conditions. ENERGY and green equity return shows higher positive correlation in extreme quantiles of both the indices, thereby highlighting that green equity prices perform better when energy commodity prices are high. Overall, the results suggests that commodity markets have heterogenous impact on green equity market performance. Further the causal relationship in quantiles shows evidence of bidirectional causal relationship between

commodity and green equity markets, thereby suggesting the existence of feedback relationship and confirming that extreme movement in any or both of the markets can influence each other. The study is unique in various aspects. First, we looked at the impact of various Indian commodity index returns on Indian green equity returns, which has never been done before. Second, whereas the majority of previous research have looked at the relationship between oil or metal prices and green equity, none have looked at the influence of agricultural commodities. We used the AGRIDEX index in this analysis, which contains most of the agricultural commodities traded on NCDEX. Finally, the application of QQR model and causality-in-quantiles model reveals various unique insights and makes contribution to the evolving literature in this domain.

Our empirical findings are useful for both portfolio investors and policymakers. When combining green equity with alternative commodity groups in a portfolio, investors should be aware of the asymmetric dependency structure. For investors seeking higher returns from green equity investment, realizing the role of commodity markets as a diversifier against fluctuation of equity markets prices encourages the inclusion of specific commodity groups in the portfolio. As a result, the expansion of environmentally friendly portfolios reduces portfolio risk while simultaneously increasing environmental commitment. For policymakers, rise in investment by environmentally conscious investors in green equity markets along with investment in commodity markets helps in development of both equity and commodity markets. The commodity market in India is developing at a slow pace which requires higher participation of investors for better price discovery and risk management potential. Suitable policies are required to be framed to boost growth in both green equity and commodity markets, which would ultimately benefit the environment and assist the climate change initiative. Furthermore, policymakers might use our findings to develop suitable measures to minimize potential and harmful risk transmission during moments of high uncertainty in order to avoid contagious shocks.

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The 'Good' Side of Obsessive Work Passion – Its Relationship with Work-to-Life Interface and Work Role Engagement

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Abstract

This study explores the relationship between obsessive work passion (OWP) and work-to-life interface (WLI), i.e., conflict (WLC) and enrichment (WLE), and the mediating effect of work role engagement (WRE). Data from 229 Indian working adults (majorly male, single, and staying in a nuclear family) was analyzed using Structural Equation Modelling (with SPSS AMOS) to empirically validate the hypotheses. Results showed that OWP was positively related to both WLC and WLE. WRE was positively related to WLE only. WRE partially mediated between OWP and WLE, but not between OWP and WLC. Respondents reported greater WLE when working-from-home, and men reported greater WLE than women (both strongly significant). Theoretical and practical implications of the study are also mentioned therein.

Keywords: obsessive work passion, work role engagement, work-to-life conflict, work-to-life enrichment, conservation of resources theory

A Study on Impact of Technostress on Teachers' Well-Being: Role of Resilience and Acceptance of Change

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Abstract

The study aims to examine the impact of technostress on teachers' well-being moderated by teachers' resilience and teachers' acceptance of change. The study is conducted among school teachers working in private schools in Thoothukodi district and teaching from sixth grade to twelfth grade. The private schools in the district are selected based on random probability sampling technique. During the COVID-19 pandemic, the selected schools are involved in online teaching for their students. The interested teachers of the selected schools are requested to provide data based on their own interest. Moderation regression analysis is used for analysing the data. The study results indicated that technostress has effect on teachers' well-being. The implications of the study provide insights for schools to provide training to teachers.

Keywords: Technostress, Acceptance of change, Resilience, Teachers' well-being at workplace, COVID-19, Tamilnadu.

Introduction

The changes in various sectors due to pandemic has altered the way the functioning of various business processes. Education sector has seen wide challenges in teaching and learning process. The use of technology has become imperative as the situation demands online way of teaching, learning and evaluation. But the degree of technology at the school level varied due to multitude reasons and the online teaching process has created technostress among teachers. The use of online tools, online teaching and preparation for teaching has been new and demanded more time and practice from the teachers. Studies have indicated the stress that has been created due to the use of information and communication technology (Nimrod, 2018; Molino et al., 2020; Pfaffinger, 2020). The technostress is also associated with the personality of the individuals (Maier et al., 2017), social relations problem (Salo et al., 2019) and student well-being (Wang et al., 2020). With the onset of pandemic, educational institutions even at the school level have begun to ICT to a great extent to continue with the teaching process. The challenge arises when the teachers find difficulty in adopting to the new change and face stress caused by the adoption of technology. This study aims to measure the impact of technostress on teachers' well-being. The study also aims to study the moderating effect of teachers' resilience and teachers' acceptance of change in the relationship between technostress and teachers' well-being.

Theoretical framework and hypotheses development

Studies indicated that the psychological problems that employees are facing due to work from home (WFH) and the stress and strain created due to work from home affects the employees' engagement level (Khan, 2021). The WFH has been possible in education sector with the use of technology in teaching and learning process. The use of information and communication technology has an effect on an individual's well-being at a later stage in life due to techno-stress (Nimrod, 2018) and techno-stress included the dimensions of overload, invasion, complexity, privacy and inclusion. Techno-stress is found to show three dimensions including invasion, complexity and privacy and it is found to impact workload, techno-stressors, work-family conflict and behavioural stress (Molino et al., 2020). It is found to show negative effect on well-being that it can be reduced by increasing technology support and by facilitating emotional detachment among employees (Pfaffinger, et al., 2020). Techno-stress measured among students involved in technology enabled learning indicated its positive effect on students' burnout and reduced students' performance (Wang et al., 2020). Based on the discussion on

various studies, it is proposed that technostress will have a significant and negative impact on teachers' wellbeing at work.

H1: Technostress will have a significant and negative impact on teachers' wellbeing at work. Personality of the individual in a way affects the individual's perception of techno-stress and has resulted in U shaped relation with the individual's performance (Maier et al., 2019). The level of resilience varies from person to person for its individualistic nature, alters the level of techno-stress perceived by individuals. It is exhibited at the time of adversity (Kuntz, 2021). Considering resilience as an individual characteristic and being seen to be different by individuals, the level of resilience determines the level at which someone is able to achieve certain desired behaviour. Moreover, the acceptance of change is also an important characteristic of individuals that determine the level of adaptability someone will show at the time of adversity. Acceptance of change is critical when organizations undergo change process such as mergers (Kavanagh and Ashkanasy, 2006). Moreover, some individuals see the adversity as the chance to grow and develop, for whom resilience is an important personality characteristics (Kuntz, 2021).

H2: Acceptance of change will act as a moderator in the relationship technostress and teachers' wellbeing at work

H3: Workplace resilience will act as a moderator in the relationship technostress and teachers' wellbeing at work

Methodology

The respondents of the study include teachers working in private schools in Thoothukodi district. One of the conditions that has to be met is that the teachers must be teaching from sixth grade to twelfth grade. The private schools in the district are selected based on random probability sampling technique and the list of the private schools are taken from online search. The schools are contacted through mail and through telephone call to get approval in conducting the study. Out of 60 schools that are contacted, only 12 schools have accepted to be part of the survey. Further, using snow ball technique, the teachers are contacted. The interested teachers of the selected schools are requested to provide data based on their own interest. Overall the sample size came to 157 usable responses are taken out of 165 questionnaires that are completed. The link to fill online questionnaires are shared through mail and WhatsApp.

Scales used

Techno-stress

Techno-stress" was proposed by psychologist Craig Brod in 1984. Most scholars advocated that techno-stress is a negative direct or indirect impact on the physiological, behavioral and psychological changes of the user, and it can manifest in the form of physical and emotional exhaustion. The present study measures techno-stress using technostress questionnaire of Tarafdar et al(2010).

Workplace Resilience

Workplace Resilience Inventory includes individual's personal characteristics, social support network, initial responses to a significant and life changing event, and self-regulatory processes. The study uses the social support network items of workplace resilience inventory of McLarnon and Rothstein (2016).

Acceptance of change

Acceptance of change refers to the tendency to embrace change instead of shying away from the change. It includes various dimensions of positive reaction to change, change seeking, cognitive flexibility, predisposition to change and support for change. The study adopted the scale of Di Fabio and Gori (2016) that is measured using. A sample items is “I normally seek different ways to do the same thing in my daily routine”.

Acceptance of change (AC) can be seen as the tendency to embrace rather than shy away from change because acceptance is regarded as positive for a person’s well-being.

Well-being at workplace

Well-being indicates employee health and satisfaction (Schulte and Vainio, 2010). It includes the well-being of physical, mental, emotional and social aspects of human experience with other dimensions of well-being. The well-being at work scale includes the items of the factor fulfillment dimension from Demo and Paschoal, (2016). Seven items are used to measure wellbeing at workplace and a sample item is “In my work, I achieve results that I regard as valuable”.

Common method bias

Using Harman's one-factor test, the potentiality of high common method bias suppressing the validity of the data is checked. It is found that the total variance for a single factor is less than the critical mark, i.e., 40 per cent (Podsakoff et al., 2003), suggesting that common method bias does not affect the data.

Results and discussion

The respondents’ demographic characteristics include gender, age, marital status and total experience in teaching. Out of 157 teachers, 62 (39.5%) are male and 95 (60.5%) are female. With respect to age, most of the respondents fall under the category of 27-30 years (21%) and 31-35 years (24%), subsequent to that the respondents of age group between 36-40 years (22%) and age group between 22-26 years (18%) are recorded. The least number falls to the age group of above 40 (15%). Regarding marital status, most of them are married (61%) compared to respondents who are unmarried (39%). With respect to work experience in the current school, 31% of the respondents fall into the category of 2-5 years of experience, followed by 29% of the respondents possess 8-10 years of experience, 19% of respondents possess 6-8 years of work experience, 11% of respondents have more than 10 years of experience and the least of 10% of respondents possess one year equivalent of work experience.

The results of Table 1 indicate the mean, standard deviation (SD), Cronbach’s alpha (reliability), and bivariate correlation among study variables. The mean value for acceptance of change (mean = 3.71) is high and for workplace resilience (mean= 3.13) is moderate. With respect to technostress (mean = 3.57), acceptance of change and workplace resilience showed negative correlation and for wellbeing at workplace (mean = 3.01), acceptance of change and workplace resilience showed a positive correlation with wellbeing at workplace.

Table 1. Means, SD, reliability, correlation of study variables

| Variables | M | SD | 1 | 2 | 3 | 4 |
|------------------------|------|------|--------|--------|--------|--------|
| Technostress | 3.57 | 1.07 | (0.81) | | | |
| Acceptance of change | 3.71 | 0.51 | -0.41* | (0.84) | | |
| Workplace resilience | 3.13 | 0.97 | -0.42 | 0.52 | (0.82) | |
| Wellbeing at workplace | 3.01 | 1.21 | -0.47* | 0.51** | 0.52* | (0.79) |

**p<0.01. *p<0.05

The proposed paths are tested using regression analysis. The study data analyzed using SPSS version 23.0. To test the hypotheses, we conducted hierarchical regression analyses to examine the effects of technostress, acceptance of change and workplace resilience in predicting wellbeing at workplace. In the first step, all the independent variables and moderating variable were in model 1. In the next step, the interaction terms obtained by multiplying the moderator variable by the independent variables were entered in model 2 and model 3.

The independent variable technostress and acceptance of change are loaded separately to find the impact on teacher wellbeing at workplace. Then the interaction effect of technostress and acceptance of change was regressed towards well-being at workplace. The result of moderated regression from Table 2 showed the negative variance ($\beta = -3.73$, $p < 0.01$) explained by the criterion variable technostress is reversed when the same interacts with acceptance of change ($\beta = 2.13$, $p < 0.01$). That is, the negative effect of technostress is reversed and showed a positive effect with acceptance of change towards the teachers' wellbeing at workplace. The effect size, i.e., the adjusted R2 change also indicates the presence of moderating effects. Hence, hypothesis is supported. Further, to support the interaction (proactive) effect, the interaction based on the levels of acceptance of change (high and low level) with levels of wellbeing at work (high and low) is examined. The result of the emphasized that teachers who were possessing higher the level of technostress have less wellbeing at workplace, but the negative effect is buffered if their acceptance of change is higher.

Table 2. Results of moderated regression analysis

| Predictor | Well-being at work place | | |
|----------------------------|--------------------------|--------------------|--------------------|
| | Model 1 β | Model 2 β | Model 3 β |
| Main effect | | | |
| Technostress (TS) | -3.73** | - | - |
| Acceptance to change (ATC) | 3.04** | - | - |
| Workplace resilience (WPR) | 3.12* | | - |
| Interaction effect | | | |
| TSXATC | - | 2.13** | - |
| TSXWPR | - | - | 2.78* |
| R2 | 0.311 | 0.359 | 0.346 |
| Adjusted R2 | 0.291 | 0.343 | 0.352 |
| F Value | 6.338 | 6.512 | 6.414 |

**p<0.01. *p<0.05

Technostress affected the teachers' wellbeing at workplace. The results can be explained based on Conservation of resources theory (Hobfoll, 2018). Technostress made the teachers to use more resources that affected the various components of well-being. It had created resources loss which is the key reason for lowering of wellbeing of teachers. According to COR, the human behaviour is based on the acquisition and preservation of resources. Due to technostress, teachers' face lack of resources such as hope, vigor and self-efficacy that reduces their energy and motivation to carry out the work. Moreover, it affects the maintenance of workplace relationships. The moderating role of acceptance of change alters the relationship between technostress and teachers' wellbeing. When teachers' level of acceptance of change and workplace resilience is high, the effect of technostress on wellbeing is less and vice versa.

Conclusion

The study results proved the presence of technostress among teachers and its impact on teachers' wellbeing at work. When the teachers accept change and prepare themselves towards the change, their wellbeing is better. Moreover, when the level of workplace resilience perceived is high, the effect of technostress on wellbeing at work is less. Thus, organizations have to find ways to improve workplace resilience and involve in activities that will increase teachers' acceptance of change. The change management initiatives have to be well communicated and teachers' have to be involved in the change management activities.

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Exploring Inclusion of PwD at Vindhya

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Abstract

Employees at Vindhya are high on organizational citizenship behavior and organizational performance. A Case study research design was adopted to understand the success of Vindhya (Vindhya e-Infomedia Private Ltd). The interview methodology was utilized to seek insights of the processes and policies adopted for inclusion of persons with disabilities (PwD) at workplace that had contributed to its success. In addition, a thorough analysis of the secondary data was also carried out to realize the objectives of this research. The example of social entrepreneurship by the leaders at Vindhya gives a direction to frame an organizational vision which uplifts and integrates PwD at the workplace. This case dissembles as a precedent for all business houses to achieve their business goals through inclusion of the PwD.

Keywords: Transformational Leadership, Equal Opportunities, Social Inclusion, Persons with Disabilities.

Crafting Meaningful Work: A Gendered Perspective

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Abstract

Based on in-depth interviews among urban women entrepreneurs operating through social media in India, findings elaborate upon the existence of creating meaningful work experiences situated within new 'digitalized' work settings. The women entrepreneurs' experiences account for the gendered tensions that they face on a day-to-day basis. Being a part of urban middle-class families, these gendered tensions are also guided by the conflicts rising from the need to balance both work and non-work domains as also operating within the digitalized contexts, thereby replacing old traditional ways of working. Thus, I find that everyday practices contribute to their 'being' and 'doing' of meaningful work, helping them adapt to the new age work.

Keywords: Meaningful work, women entrepreneurship, gender, India, digitalized context, virtual work

‘Let me watch just another episode!’ Exploring the linkages among Binge Watching, Employee Engagement, Goal Conflict and Role Overload in the context of Remote Work

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Abstract

While remote work can be advantageous in the light of the ongoing crisis across the globe, it can also be a source of new kinds of problems that managers have to deal with (Zheng, 2020; Parker, Knight and Keller, 2020). The major issues in remote work that managers and employees face are associated with home-office constraints, work uncertainties and inadequate tools (Ipsen et. al 2021).

Ipsen et. al (2021) especially discusses about how people are struggling to find meaning in their work and also suffer from difficulties in focusing on the work at hand, because of ambiguous and unclear work situations. This adds to the stress and exhaustion levels of employees, thereby increasing the need for recovery from work in general.

In the work recovery literature, authors have investigated the different kinds of recovery activities that employees engage in to replenish their lost resources and energies (Througakos et. al, 2008; Fritz, Lam and Spreitzer, 2011; Kim, Park and Niu, 2017). However, this area of research is still at a very nascent stage and requires further exploration. One of the activities that employees often engage in is, online streaming or watching shows or series on OTT (over-the-top) platforms.

On the basis of the Uses and Gratifications theory and the Escape Model that assumes that people are active and motivated to use media in a goal-directed manner, this article explains how binge watching content on OTT platforms can be a source of recovery from work and it's adverse consequences on one hand, while it can have multiple negative impacts especially in terms of work-related outcomes of employees.

After conducting a literature review, the authors take inspiration from both the uses & gratifications theory and the escape model, and propose the hypotheses of the study. The article is a research in progress and therefore it discusses the constructs in detail followed by the proposed model for the study and the hypotheses development.

This study positions binge watching and its consequences in the HR and OB domain, in the context of employees. The study will also extend the theoretical underpinnings of Uses and Gratifications theory as well as the Escape Model which are mainly limited to consumer behavior research.

Keywords: Binge Watching, Work engagement, Remote Work, Goal Conflict, OTT platforms

The Phoenix: Death and Resurrection Lives of Subaltern daily wage women workers in patriarchal society amidst COVID-19

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Abstract

The COVID-19 has worsened the vulnerabilities related to the individual's daily life. The worst affected individuals are the daily wage workers. This study focuses on the lives of Subaltern daily wage women workers in patriarchal society amidst COVID-19. We conducted semi-structured interviews among the daily wage women workers to understand the lives of the subaltern women during the COVID-19 pandemic. The findings highlight that the subaltern women daily wage workers are the family's breadwinners but are still not recognized by the family members or the society. "Can subaltern women speak?" or "living dead within the death world?" Do they resurrect like a phoenix?

Keywords: Subaltern women, daily wage workers, gendered identity, care work, nurturing slave, COVID-19, patriarchal culture.

Assessment of Higher Education Institutions Ranking for Promoting Sustainable Development

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Abstract

The role of the university sector is indispensable in the sustainable development of the country. Therefore, the holistic performance of Indian institutions ranked in the national institutional ranking framework 2019 is evaluated based on the five criteria. For this purpose, three groups have been formed: high, moderate, and low-performing institutions based on the performance in five criteria. The results revealed that most (60 %) of the institutions had formed the low-performing institutions' category for research and professional practice and peer perception. Besides this, the performance of top-ranked institutions is unsatisfactory for outreach and inclusivity criteria. Further, the study developed a model for predicting the relative position of institutions in three groups.

Keywords: Ranking, Sustainability, NIRF, Higher Education, Performance

Impact of Work from Home Regime on Women in the Formal Sector: A Qualitative Analysis using IPA

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Abstract

The COVID-19 pandemic has disrupted life, economy, employment and livelihoods in innumerable ways. The impact of the pandemic, however, has been felt with differing intensities on varying sections of the labour force. According to the McKinsey report 2020, women's jobs are 1.8 times more vulnerable to the crisis caused by the pandemic when compared to men (Madgavkar, White, Krishnan, Mahajan, & Azcue, 2020). A study done on 286 US residents also revealed employed women being overburdened with disproportionate household and childcare work leading to loss of productivity at work (Feng & Savani, 2020). The proposed research seeks to understand the lived experiences of working women in India during the work from home regime and to highlight how such pandemic situations disproportionately affect women more than men.

Keywords: women, gender, work, productivity, work models, pandemic & labour, COVID 19, career development, diversity & inclusion

Women, their work, and the equity it receives is an important topic that has received a lot of attention in the past couple of decades as we move towards a more diverse, inclusive and equitable world. While a lot of progress was seen in this arena, the pandemic struck and set us back in ways that were never predicted. The COVID 19 pandemic affected the labour force in varying ways with differing intensities. According to the McKinsey report 2020, women's jobs are 1.8 times more vulnerable to the crisis caused by the pandemic when compared to men (Madgavkar, White, Krishnan, Mahajan, & Azcue, 2020). The report states that if no measures are taken to understand and work towards alleviating the problems faced by working women because of the work from home scenario, there could be a global GDP fall of \$1 trillion by 2030 - especially if women drop out of jobs due to this unmanageable situation. Given this, creating a conducive atmosphere, enhancing the working conditions of women and building a gender conscious and inclusive strategy to ensure the participation of women in the global labour workforce is a matter that needs urgent attention.

Literature Review

A study conducted on 286 US residents revealed women being overburdened with disproportionate household and childcare work leading to loss of productivity at work (Feng & Savani, 2020). The current study seeks to understand the lived experiences of working women in India during the work from home regime and their perspectives on different work models being proposed by employers in the formal sector. There is significant burden of unpaid work on women such as taking care of children and the elderly, other than the domestic chores that disproportionately fall on them. On the other hand, the job losses during the pandemic have also disproportionately affected women more than men. In the US alone, 5.4 million jobs were lost for women, higher by 1 million more than their counterpart men (Boesch & Phadke, 2021). According to the International Labour Organization (ILO), these job losses have increased the inequalities between the two genders as a result of the pandemic and will continue to persist as fewer women than men are expected to regain employment post the current phase of the pandemic (International Labour Organization, 2021). It is shocking that there will be 13 million fewer women at work in 2021 as opposed to 2019 while it is expected that the number of working men in 2021 may go back to 2019 figures – at least in the formal sectors of employment. The highest reduction in numbers is seen in USA followed by the middle-eastern

countries. However, South Asia may not be any better, and it is just a matter of conclusive studies and data that will shed light on the declining trends.

Design and Methodology

For this study, ten women from different industries and familial backgrounds were interviewed and their lived experiences of the work from home regime was documented to ascertain the challenges they faced and their aspirations for future, as the economy slowly crawls back to a pre-pandemic situation. While the third wave is still being dreaded, the current scenario in India is one where people are slowly getting back to work with the hope that life will get better as things progress. Domestic workers have also returned to work and many organizations are now planning to or have already opened up offices for a hybrid work model.

This study bases itself on qualitative research methodology. Since the study involves understanding the impact of the work from home regime on working women in India – especially from the formal sector, in-depth, face-to-face interviews must be carried out to understand their perspectives. The data collected through such interviews will be analyzed using the Interpretative Phenomenological Approach (IPA). The idea is to make sense of their lived experiences as Smith, Flowers, & Larkin (2009) point out when talking about interpretative phenomenological approach. IPA studies are done using small sample sizes and detailed case-by-case analysis of the transcripts is gathered through semi-structured interviews (Smith, Flowers, & Larkin, 2009). Qualitative research is best suited for this study because qualitative research is aimed at understanding the perspective of the participants about this topic and study the underlying conflicts and challenges they face (Flick, 2017). To gauge different types of lived experiences, women participants chosen for the study belonged to different cities, professions and industries and had varying familial and cultural backgrounds. Purposive and snowball sampling was employed to find suitable participants for this study. All interviews were conducted virtually.

Adapting to Work from Home

The COVID pandemic engulfed us suddenly; organizations had little time to prepare for moving to a completely online work environment. When I spoke to Ms. Sheeba, a publishing professional in her fifties based in Noida, she described work from home as a pleasant experience. She is in a senior management position in her organization and lives with her husband. Both her children have flown the nest and while the lockdowns were difficult because of the lack of human interaction, she felt her work was not affected. Ms. Priya, a married woman, in her early thirties, who lives with her husband in her Delhi home, felt that the work from home experience was quite traumatic. She recalled the experience with a lot of discomfort. She now feels better with her organization, an NGO that works in the area of financial accountability, opening its office. She has started going to her workplace almost every day and finds her life slowly getting back to normal. Ms. Rageshree, a marketing professional in her forties, a single woman who lives with her parents, found the work from home situation to affect her physical and mental health to some extent. However, she found that a lot of the travel that she and her team used to do for her work was now not needed as clients were more receptive to virtual meetings, launches and conferences – like never before. She found that a blessing in disguise as it was time saving as well as cost effective. It also reduced the burden of travel and increased time on hand.

Rekha (name changed to protect identity), a government employee, based in Kerala, who lives with her husband and two children, found the work from home situation professionally very stressful. Since Government records are yet to be completely digitized and many tasks are still

not processed online, she found working from home very difficult to manage. She found the interactions with other government and semi-government agencies very taxing. They tried their best to navigate the situation but a lot of work that could only be done offline got added to the pending lists and increased her workload and thereby her stress levels too.

Ms Anuradha, a marketing professional and the mother of a four-year-old, residing in Noida, felt work never ceased for her. She is grateful for the time she could spend with her kid, but it also meant she had to be engaged all the time either at work or managing household work or taking care of the needs of her child. She had very little for her own self. Her sleep and work cycle had to change to accommodate the work from home requirements. She could only do uninterrupted work when her child was sleeping. This meant she had to adjust her work routine considerably. She is now able to laugh at a situation in office when she was interrupted by her child who appeared on video asking to be assisted immediately in the middle of a presentation to her CEO and other colleagues. She had to keep them all waiting and attend to the child. She says the pandemic has made people more considerate and she has felt well supported all along by her colleagues and the senior management team. She is also supported by a full-time help, considered unaffordable in countries like the US (Bateman & Ross, 2020).

Ms Vimala, a schoolteacher in Bangalore and a mother of two, felt the pandemic turned her life upside down. She finds that the process of online teaching is nowhere near as enjoyable and satisfactory as physical teaching was.

Ms Shreya, a millennial, who completed her studies in 2020 and joined her first job at an IT company, had a totally different experience. She didn't get any experience of a workplace. In fact, she never once visited her office. The laptop was sent home and all required support was provided. There was no physical interaction with anyone. She met all her teammates and her manager virtually. She was able to work without any trouble, however, she rued the lack of experiencing the workplace and found that her dreams of living independently were also ruined since she didn't have to relocate to city where her office was with the work from home scenario. Ms Meenu, a young woman working in a multinational and caring alone for her ailing mother, felt the pandemic had a lot of problems but work from home was a blessing in some way as she could care for her mother more with all the time saved from commuting to office. The office people also gradually took a lenient view of work from home compared to when she had many times requested for the same and was denied citing problems in monitoring of work and daily coordination as a problem.

Ms Gautami, who was laid off during the pandemic, took to freelance work to make ends meet. Even though she was laid off, the same organization was willing to give her freelance work. She found that lot of work was available for the interested but not everyone was willing to pay fairly. She joined many communities to source work and realized that the pandemic had left many people jobless. She went through a bout of depression and was able to come out of it with the help of family and friends.

Ms Anshu, a college professor in her mid-fifties, had troubling adjusting to online teaching. She sought help from her kids who were both working from home. While having the family together was good, it added a lot of household chores for her. She contracted COVID and so did everyone in the family and that was the hardest period in her life. She and her husband took over a month to recover and are still finding their feet with memory issues and other physical ailments.

Ms Maya, a nurse at AIIMS, went through a very tough time during the pandemic just like most health workers. The fear of contracting COVID along with full packed double shifts during the peak COVID time created havoc in her life. She had to keep her two small kids away from her yet tend to all their needs. While the husband and everyone else who was not a health worker worked from home, she and her ilk went out everyday and worked day and night to get through the pandemic.

Attitudinal Biases

Priya, Shreya and Rekha both felt that family and/or relatives were not very understanding of the demands of work from home. They felt that they were at some level denied the physical and mental space to be able to work from home. They felt they didn't get the same respect for their work as they would when they physically went to their respective workplaces. At home, people interrupted their work and expected them to also cater to everything else happening at home. For them, the lines between office work and household work blur and felt they worked extra hours every day to ensure everything was managed well. This is also corroborated by a study done in Hongkong which looked at the impact of work from home on "work domain" as well as "life domain". They found that while work from home had a positive impact on "work domain", it seemed to have positive as well as negative impact on "life domain" (Vyas & Butakhieo, 2021).

Anuradha says she hasn't faced any biases during this period, but she relives with pain the attitude of her erstwhile manager who treated her like a newbie when she rejoined work after the maternity leave. In subtle ways she was being asked to start afresh as she rejoined after a small hiatus making her feel that her previous experience had been nullified. She says while managers were supportive during the pandemic, the underlying biases against working mothers still continue deep down.

Household and Care Work

Almost all participants agreed that there were one or two chores that always fell on them as the women of the household – such as cooking and cleaning. While husband and children contributed to other household chores, these were primarily expected of them. Rekha pointed out that other than cooking, the planning of meals is something the woman of the household is expected to do. Rageshree has old parents to take care of whose medical concerns during the pandemic became difficult to manage with the lockdowns and weekend curbs in her city. However, on the positive side, she felt that the work from home situation, in a way, facilitated her day-to-day monitoring of her parents.

An important aspect of care added to their daily routines was keeping tabs on children attending online school. Rekha felt that making sure the children are attending school and keeping pace with work at school unduly fell to her alone. Care work also went up for most of these women with family members getting infected by Covid and requiring months of care. Vimala felt she had a lot of fluid time on her hands and didn't need to rush through the household chores in the morning before rushing to school but on the other hand, evening time that was usually free for social interaction was being taken up with staff meetings, check in meetings and attending calls from parents. While most participants didn't have to deal with any team members leaving because of not being able to manage this new work scenario, Sheeba had two members leaving her team because of not being able to manage the responsibilities of care work at home along with office work. While one opted out of employment, the other team members left to join another organization that opened up its office after the lockdowns got over and welcomed employees that chose to come to work every day.

The situation is very taxing for care givers whether it is the elderly or the children. Meenu at times felt completely sapped with all the household chores, caring for her mother and the office work leaving her no 'me' time.

Maya saw a lot of people scramble for their lives and felt helpless that she couldn't do anything for them. Since they had to quarantine alternate fortnights, she could get some rest and manage the household work but she was always scared of whether she had contracted COVID.

Work and Productivity

Participants across the study, felt productivity was not impacted by work from home. Some pointed out that work was being accomplished as earlier but it took longer now because of the increased number of virtual meetings that was required to accomplish what could have been done faster in a workplace/ physical atmosphere. What could easily have been done face to face now required multiple meetings with team members and other stakeholders. These virtual meetings took up most of the office hours and the residual work, strategizing, planning ahead, etc. had to be done after office hours. The participants also felt that while they were able to perform their jobs well enough they were not very sure if they had been able to focus much on career development in its entirety. This finds resonance in a study done in Turkey where working women alluded to the fact that while telework allows more time with family, it may not be sustainable and gives them a feeling of shifting away from career development opportunities (Coban, 2021).

Health and Recreation

All the participants felt that physical and mental health was severely impacted during the pandemic induced work from home. While the virus played havoc through its different waves on the lives of people, the impact of lockdowns and work from home has been equally severe. The work hours kept increasing, and the lack of space combined with lack of mobility kept them glued to their laptops and caused health issues such as spondylitis, frozen shoulder and weight gain issues. Health worsened also owing to the large number of hours spent inside the homes where the only means of relaxation was using digital devices to view recreational content. Lack of physical exercises, complete abstinence from outdoor activities and lack of social opportunities for interactions, have played havoc with the body as well as the mind. Aversion to digital devices and phone / zoom conversations, anger management issues resulting in frequent unpleasant situations at home, innate feeling of helplessness due to the vulnerability one felt in facing the virus, all must be marked as cumulative impacts of the situation.

Financial and Infrastructural Challenges

Most participants voiced the need for special and considerate allowances for managing the new work from home scenario. They felt that household expenses had increased with the need for better internet connectivity, continuous use of air conditioners, incidental expenses, etc. While many such costs have become a saving for the employers in the formal sector, they have started directly reflecting in the budget of families, which so far never required multiple gadgets or advanced Wi-Fi connectivity, or even comfortable working chairs and tables at home. Some participants said their organizations were providing reimbursement for internet charges, but they also felt they should be provided electricity charges as well as some support for setting up better workspaces at homes. Many respondents felt such infrastructure was essential for some of their team members who have been struggling with space and financial constraints.

Discussion

Covid-19 provided organizations with opportunities and challenges that were not anticipated. Most organizations, especially in the formal sector, were quick to react and ensured that work was least affected. While the pandemic affected everyone, working women seemed to see their challenges exacerbate as has been brought to light by many studies done in various parts of the world (Bateman & Ross, 2020) (Coban, 2021) (Feng & Savani, 2020) (Madgavkar, White, Krishnan, Mahajan, & Azcue, 2020). During the course of this research done specifically on working women in the formal sector in India, four specific themes came to light. Working women in the formal sector had mixed feelings about work from home; they were able to enjoy the advantages such as getting more time with family, having fluid schedules, reduction in commute time leading to more time at hand, etc. They also experienced having to work longer hours to manage work at home and office work which had an impact on their physical as well as mental health. They all felt this was not sustainable and looked forward to going back to work either in a hybrid work model or even going back to work like in the pre-pandemic days. Career development took a backseat as they managed their jobs but were unable to focus on their careers.

Recommendations

Organizations, governments and the civil society must take note of the challenges faced by working women to ensure that pandemic situations such as this that disproportionately affect women more than men are mitigated. Young mothers, caregivers to elderly people clearly are more affected than other women who don't have such responsibilities. Policies specifically catering to these women are the need of the hour to ensure they don't drop off from employment. Organizations have to be sensitized to develop a growth plan for women workers that keeps them focused on their long term as well as short terms goals that may get sidelined when presented with situations that demand them to unduly focus on care giving activities for a longer period of time.

Conclusion

This study specifically focused on working women in the formal sector whose life situations are starkly different from those in the informal sector. India definitely requires a lot of structured research to understand the physical and mental impact of both the pandemic and lockdown related issues on working women across the board keeping in mind the exponential loss of employment and livelihood and lowered quality of working conditions. There must be academic interventions to assess the cumulative impact of the same on the women workforce in the country. Differentially understanding the situation of formal as well as informal sector workforce, especially, women workers, such studies must bring forth both data and constructive social analysis to empower futuristic interventions.

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Celebrating gender diversity in leadership in Higher Education

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Abstract

Globally, women have historically been overlooked for leadership positions in the higher education sector. While the significance of able leadership cannot be denied, yet higher education has been a gendered space, thereby denying access to women who seek leadership roles. A gender homogenous leadership group often engages in a lopsided perspective which restricts the multiple viewpoints that can be achieved through a gender-diverse leadership. This paper, thus, aims to highlight the gendered higher education scenario and women leaders experiences' in higher education.

Keywords: diversity, higher education institutions, leadership

Introduction

The word 'leader' was noted in the year 1300, but the word 'leadership' has been used since the late 1700s (Stodgill, 1974). Active scientific research on the topic began in the twentieth century and has been engendering considerable interest amongst scholars over several decades. Burns (1978) defined leadership as 'one of the most observed and least understood phenomena on Earth'. The ability to navigate successfully through turbulent waters and trying times lie on the shoulders of the leader. It is, thus, imperative to have myriad skills and characteristics to become an effective leader. An effective leader must understand how to define the job and get it done by engaging all available resources. Living in an era of pandemic, ambiguity and unprecedented changes, the crucial factor that can make a difference is early anticipation of changes and leading people with dexterity and foresight towards a sustainable society. While the fundamental function of any business is to generate profit to stay afloat in the market, the impact of the business on society and the surrounding environment is also a matter of great concern. Ackerman (1973) suggests that business has a duty to society, and the ultimate impact of any business should be positive (Handy, 2002).

The education sector is one of the critical areas for developing leaders, thereby playing a vital role in furthering the sustainability agenda by contributing to the generation and dissemination of knowledge (Ghara, 2016). As the higher education sector has a considerable impact on the habit of students and their contribution to a prosperous society (Žalėnienė and Pereira, 2021), it is essential to understand how the students are being led as higher education has a profound impact on the thought process and personality development of students. A standard leadership style is rendered inadequate in present times because ongoing momentous changes and challenges mark the academic arena. With the expansion of the student base to include students from all walks of life, it is mandatory to have diverse views in leadership to accommodate all preferences and reduce bias in decision-making procedures. Leadership can, thus, be envisaged as one of the most extensively discussed research topics in the fields of industry and academia as it paves the way for the successful functioning of any organisation, and with the evolution in definitions of leadership from the Great Man theories to Situational theories, it can be inferred that leadership is not a gender restricted phenomenon anymore.

Evolution in the conceptualization of Leadership

Thomas Carlyle (1840) remarked "the history of the world is but the biography of great men." The Great Man Theory thus propagated that the impact and decisions of the great men who were recognised for their charisma, intelligence, and wisdom, impact and decisions expound

history. Carlyle further added that these great men were responsible for shaping history through their personal attributes and divine inspiration.

However, with the onset of the twentieth century, there was an increased understanding of the different shades of management and strategic leading. Up until the 1940s, majority of the leadership studies concentrated on the personality traits of individuals that differentiated leaders and followers. After several years of demanding trials and experimentations, researcher Ralph Stogdill in 1948 established that leadership exists between people in a social situation and that leaders in one situation may not essentially be leaders in other situations (Stogdill, 1948).

Stogdill's comments opened doors for researchers to look at other aspects of leadership in the late 1940s. It highlighted the importance of studying the behaviour of those leaders for predicting effective leadership. Rather than focusing on the traits of the leaders, it is perhaps essential to look at what a leader does to understand effective leadership. Behavioural theories of leadership propose that certain behaviours can help identify leaders, and that leaders can be trained.

However, behavioural theories had limited success in ascertaining reliable relationships between leadership behaviour and group performance as none of these theories considered the situation as a factor. As none of these behavioural theories could elucidate the situational differences, hence researchers started to look at contingency theories which considered the leader and the situation. The situational theory of leadership proposed that a single best leadership style did not exist. Instead, it is contingent on the type of leadership and best suited strategies.

According to this theory, effective leaders are competent to reorient their style to the situation and understand indicators such as the nature of the task and the group and other factors that facilitate getting the job done. This shift in the leader being perceived as a dominant male to someone who adapts to the nature and situation of the work opened doors for women to enter the leadership paradigm. Women and men see the world through a diverse lens. Hence, their interpretation of the requisites for leadership are dissimilar. Women are seen as relationship builders and results-focused collaborators, with remarkable expertise at settling conflicts. While these leadership traits are mostly overlooked, they are now in high demand for long-lasting organisational change.

Given the scenario today, the traits possessed by women leaders are given more value. It suggests an increasing pragmatic shift in the way a successful leader is now being conceptualised. Women are used to being the change maker and playing the role of harmony keeper at the individual, organisational, community and societal levels as they accept change in the best interest to produce ingenious results.

Gendered leadership scenario in the Higher Education Sector

Women, globally, have statistically outshone men in higher education participation in recent times, but their representation drastically falls as they ascend the ladder to leadership positions. Women are now earning degrees at a faster pace than men and their educational attainment rate has tripled globally between 1995 and 2018 except for Central and Southern Asia and sub-Saharan Africa.

In India, there has been an increase of 18% in female enrollment in higher education from 2015-16 to 2019-20. In the recent times, India has witnessed a considerable progress in the percentage of women graduates (University Grants Commission, 2018), which has eventually paved the way for women to take up jobs across various domains. All India Survey on Higher Education (AISHE) 2019-20 states that the Gross Enrolment Ratio (GER) in higher education in India is 27.3% for women and 26.6% for men, which indicates that women are more actively participating in education. While women have registered an overall increased participation than men till the post graduate level, their representation slowly starts decreasing at the Ph.D. level (Table 1), although the gap is gradually decreasing with time.

Table 1. Gender distribution in various courses

| % | Ph.D. | | M.Phil | | Post-graduate | | Under-graduate | |
|---------|-------|--------|--------|--------|---------------|--------|----------------|--------|
| | Male | Female | Male | Female | Male | Female | Male | Female |
| 2015-16 | 59 | 41 | 42 | 58 | 48 | 52 | 53.3 | 46.7 |
| 2016-17 | 58 | 42 | 40 | 60 | 45 | 55 | 52.7 | 47.3 |
| 2017-18 | 57.4 | 42.6 | 36 | 64 | 47 | 53 | 51.9 | 48.1 |
| 2018-19 | 56.18 | 43.28 | 35 | 65 | 40 | 60 | 51 | 49 |
| 2019-20 | 55 | 45 | 36 | 64 | 42 | 58 | 50.8 | 49.2 |

Source: GoI, MHRD. Report of All India Survey on Higher Education for respective years (2015-16 to 2019-20)

But interestingly, the increasing level of women in tertiary education in India has not translated in senior position holders in the higher education domain. Women are mostly concentrated in the lower ranks of academia, and they struggle to reach higher positions such as Professor and equivalent roles (Table 2).

Table 2. Number of females out of 100 males

| # | Professor and Equivalent | Reader and Associate Professor | Lecturer and Assistant Professor | Demonstrator/Tutor | Temporary Teacher | Visiting Teacher |
|---------|--------------------------|--------------------------------|----------------------------------|--------------------|-------------------|------------------|
| 2015-16 | 35 | 53 | 65 | 151 | 88 | 66 |
| 2016-17 | 35 | 56 | 69 | 171 | 95 | 78 |
| 2017-18 | 37 | 58 | 74 | 189 | 101 | 79 |
| 2018-19 | 37 | 58 | 74 | 190 | 98 | 80 |
| 2019-20 | 38 | 59 | 75 | 190 | 96 | 80 |

Source: GoI, MHRD. Report of All India Survey on Higher Education for respective years (2015-16 to 2019-20)

Even at a global level, while women have outnumbered men in tertiary education, they are still inadequate in STEM fields, with a little over 35%. However, in totality, 41% of women are in tertiary education compared to 36% of men. (Department of Economic and Social Affairs, United Nations). However, their percentage seems to drastically fall as they make their way towards the ladder to leadership in the academic sector with 41 positions (or 20%) out of the top 200 universities in the world, which is a very short leap from 39 in 2019 and 34 in 2018 (Times Higher Education 2021 report). The issue of gender imbalance has, thus, been constant through cultures and countries, in leadership in higher education (Redmond et al., 2017).

While able leadership holds paramount importance in shaping the future of the institutions, the issue of gender in leadership is not prominent in the vision of higher education institutions. It is an underrepresented and under-researched area. With this increasing gap in representation

across leadership positions, women leaders gradually start seeing themselves as 'others' with depleted motivation and confidence levels. The dearth of diversity in the academic domain is a concern as it constrains an individual's success, more if they are women as they see themselves as a minority, with voices either sometimes suppressed or ignored. When there is a failure to recognise leadership capabilities in women, there is a reduction in the talent pool for replacements, further widening the gnawing gap and eradicating possibilities for responsible business and sustainable leadership. Therefore, it is crucial to study women's leadership in educational leadership, and the paucity of literature in this field makes it more imperative to take up this topic for active research.

Women Leadership in Higher Education

The under-representation of women in the higher education sector indicates that the managerial talent pool that exists within each country is not effectively put to use (Ghara, 2016). The encounters of women in senior leadership positions highlight the existing gendered nature of leadership at universities and highlight how the policies of equity are not similar to overt action (Kloot, 2004). Although the present number of women in senior leadership roles would indicate that gender equality has been attained though, Eagly (2007) comments that such scenarios are merely 'manifestations of gender relations that have changed dramatically yet have not arrived at equality between the sexes'. The 'equal access' in academia has not exactly translated to 'equal access' in positions of power, pay, dominance and research for women leaders in higher education sector. When women fail to gain inclusion in leadership ranks, it shows that they are judged against criteria and standards that reflect male dominance (Oakley, 2001) and the dominance of masculine styles (Miller, 1995).

This underrepresentation has damaging and far-reaching impacts through cultures, communities and countries. Researchers have recurrently highlighted the myriad benefits of varied viewpoints on the table (Catalyst 2013; Woolley et al. 2010). Additionally, several other scholars have underlined the significance of women's voices in the decision-making process (Eagly 2015; Madsen et al. 2015) to attain diversity. Women's leadership, therefore, needs stronger analysis and definition as it may be in tune to the needs of social development across all domains including, higher education.

Unquestionably, leadership studies are now gradually moving women's leadership (Madsen 2008; Eagly 2007; Eagly and Carli 2007; Kloot 2004), yet not many studies have delved into the approach adopted by women leaders into conceptualizing management and leadership of the department. As the head of the department (HoD) is uniquely positioned to influence and 'implement goals and policies at higher levels' (Yukl 2002), hence reviewing the ways in which women heads lead may result in treasured understanding of their leadership and management which is a complex blend of conceptual, technical, and entrepreneurial expertise (Yukl 2002). Women's leadership is frequently equated with the 'feminine' leadership style, which focusses on teamwork and collaboration. It can be inferred from literature that morals such as collaboration, cooperation, rapport building, compassion, contribution and inclusiveness (Daft, 2005) are pertinent to organisations in the recent times (Yukl 2002). Although stereotypes and theories of leadership and management are still predominantly male (Chemers 2000; Coleman 2003; Eagly 2007), the emerging research stresses that the experience and attitudes of women and men are not similar and a single male model of leadership in educational settings is insufficient (Coleman 2003; Bush and Coleman 2000). According to Coleman (2003), women have the capability to usher in strengths to leadership and management, which are required for effective educational leadership today. Women are, thus, more effective as leaders than men in middle management positions as they can negotiate with intricate and multifaceted

interpersonal skills (Eagly 2007). There is also mounting experiential indication towards the inclination of female leaders to be transformational in their leadership style (Eagly 2007), which is also substantiated by Rosener's (1990) term 'interactive leadership' which is indicative of the leadership which dynamically works towards making positive interactions with subordinates.

Discussion and Conclusion

Women's leadership in academia is an under-researched and under-represented area. In most cases, it is not a feature in the vision in the higher education blueprint. The presence or absence of women in higher education can lead to extensive bearings on the institutions and the length and breadth of research and knowledge that impacts us all, as they bring multiple perspectives to the table. With the growing consciousness of globalisation, gender diversity is an innovative tool to differentiate itself from its counterpart and stay in the business with a responsible and sustainable outlook. Looking at women who are in leadership positions, several possibilities of alternative leadership styles are revealed. This global pandemic that has disordered lives and economies worldwide showcased the impact and significance of diverse leadership in high-risk and ambiguous situations, and how equal representation of women in decision-making can help us regain the existing in an improved manner. For a sustainable and responsible business, women leaders must not be relegated to the margins or expressed as tokens. While policy makers must take appropriate steps and actions for female representation, women should voice their thoughts, demands and ambitions and espouse credibility for their roles and decisions. The equitable treatment of women leaders can facilitate the goal of an equal world. Colleges and universities must ensure that the potential and capabilities of women leaders are harnessed, and provide them with the opportunities and choices that they warrant for a gender equal world. It is crucial to understand that efforts have to be made to attain a parity between graduating women with higher qualifications and occupancies in leadership positions in higher education sector.

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Implementation of Maternity Benefit Act: An overview

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Abstract

Social security provide economic and health security to the individual and ILO convention 2012 (No. 202), mandate to consider maternity leave as basic social security to protect women & new born health and economic security¹. Resulting, the central government has recently amended maternity benefit act in April 2017 with the extension of paid maternity leave of 26 weeks and some other benefits. If we see India is probably the only country where 26 weeks paid maternity leave is given with the financial burden is supposed to be borne by the employer fully. In most countries, the government, employer, insurance agency and other social security programs share the cost of maternity leave. For example, public funds bears the full cost of maternity benefit in Australia and Canada², in Singapore, the cost share by the employer and public funds for 8-8 weeks³, in France the cost bear by the social insurance scheme⁴, in Brazil also the cost is shared among the employer, employee and the government⁵. Study suggest for the increment in FLFP from additional benefit in maternity facility like child care, flexible working condition, sharing of cost for maternity facility, along with the concept of parental leave may also reduce gender gap. According to the catalyst report 2020, in India 73 percent of working mother leave their job after giving birth to baby for caring the child⁶. If we see in India Female Labour Force Participation rate has been declined from 32 percent in 2005 to 21 percent in 2019⁷, which through the light that there is need of modification in the current Maternity Benefit Act in India.

Keywords: Implementation of Maternity Benefit, Maternity Benefit Act, Maternity Benefit Amendment 2017

“Unleashing Factors of Online Education, An Exploration of Existing Literature”

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Abstract

Necessity is the mother of all inventions, this phrase reflects at its best when the world comes across innovation in online education. The global pandemic has made online education as democratic as it was never before. Online education has brought a lot of changes in the education sector. This massive usage of online education made stakeholders working on, how to make effective academic activities. Earlier online education was just an instructional delivery process that includes any learning that takes place via the internet. But in recent times educators have realized that it's an altogether different pedagogy and it is beyond just an instructional platform. This study focuses on identifying factors of online education through existing literature & further, elaborates on parameters of improving those factors.

Keywords: Online Education, Literature Review, Factors of Online Education

Introduction

Online education or online learning can be termed as a tool that can make the teaching–learning process more student-centered, more innovative, and even more flexible. Online learning is defined as “learning experiences in synchronous or asynchronous environments using different devices (e.g., mobile phones, laptops, etc.) with internet access. In these environments, students can be anywhere (independent) to learn and interact with instructors and other students” (Singh & Thurman, 2019). “Most of the terms (online learning, open learning, web-based learning, computer-mediated learning, blended learning, m-learning, for ex.) have in common the ability to use a computer connected to a network, that offers the possibility to learn from anywhere, anytime, in any rhythm, with any means” (Cojocariu et al., 2014). The synchronous learning environment is structured in the sense that students attend live lectures, there are real-time interactions between educators and learners, and there is a possibility of instant feedback, whereas asynchronous learning environments are not properly structured. In such a learning environment, learning content is not available in the form of live lectures or classes; it is available at different learning systems and forums. Instant feedback and immediate response are not possible under such an environment (Littlefield, 2018). Synchronous learning can provide a lot of opportunities for social interaction (McBrien et al., 2009). The indepth study of the concept called online education system leads to emmergance of several factors. All such factors play direct/indirect role in overall all learning processes.

Methodology

The goal of the review is to identify gaps in current knowledge and support the development of a guideline to online education and online learning process. We conducted a comprehensive search of the following specialized database sources. EBSCOhost and Web of Science in addition, Google Scholar searches were carried out. After analysing the articles and reviewing the literature about online education and related factors industry, constructs such as Online Mentor and Online Coaching, Student and Faculty Satisfaction, Online Technology Used, Self-Directed Learning and Online Teaching and Learning are identified. The integrative technique is utilized to shape the literature analysis. With help of "snowball" strategy of using the most significant advances to identify similar publications mentioned in them, more literature was referred. Because research paper keywords aren't based on a set of rules, some of the literature is likely to have been missed.

Review Discussions

Online Mentor and Online Coaching

The primary consideration of instructors as they design online learning environments should be that each learner is a unique being. The instructor needs to be open and honest with each student and respect each person as an individual who has experience that may be valuable to the classroom. (Cercone, 2008) in addition to this, not only can training improve online mentoring but online mentoring can also improve training. Providing ongoing support via an online mentor after the conclusion of a training program would be an excellent way to reinforce and improve transfer of learning. (Ensher et al., 2003) It is all evident that, online education focuses on well-designed course content, motivated interaction between the instructor and learners, well-prepared and fully-supported instructors; creation of a sense of online learning community; rapid advancement of technology. (Sun & Chen, 2016) Online relationship with a dedicated coach of the same gender could provide the support in terms of quantity and quality and there is appropriate understanding with in the same gender. (Fielden & Hunt, 2011) As, Executive coaching is one of the most rapidly growing and effective methodologies within an organization to educate individuals for personal and professional leadership development. Digital coaching is associated with higher performance. (Chandler et al., 2011) and psychologist coaches (consistent with their training) tend to use multiple methods of assessment and evaluation, which may provide them with a richer picture of a client's needs and more rigorous outcome evaluation. (Bono et al., 2009)

Student and Faculty Satisfaction

Online courses offer student access, higher degree completion rates, and the appeal of online courses to non-traditional students, online instructors invest more time than instructors who teach face-to-face, online teaching requires commitment from faculty and can be time consuming and demanding (Bolliger & Wasilik, 2009). Along with this, incentivising the achievements of learners and teachers with grades, certificates will encourage more teacher and student participation in online education. Online learning process will foster good study habits in them without compromising their professional (Zayapragassarazan, 2020). It is also knowing that, older students have more confidence than younger ones in computer proficiency and learning skills. They are more motivated, show better attitudes and are less anxious (Technology, 2007). It is interesting to know, learner characteristics and skills needed to be successful and satisfied with online learning (Kauffman, 2015). The online learning model should not only present the information and materials to students but also incorporate the social aspects of learning in both the design and instruction of online courses (Richardson & Swan, 2003). Many scholars have also commented that, retaining students is a greater problem for online courses than it is for face-to-face courses (Education & States, 2009). Recent studies indicate that university students who have been enrolled on e-learning courses outperform those being taught on traditional courses (Samir Abou El-Seoud et al., 2014). Course design should be attractive, interesting, and relevant learning elements that foster student motivation; quality of faculty and student interactions as the second highest factor leading to student (Muljana & Luo, 2019).

Online Technology Used

Appropriate digital learning platforms, designing of educational activities and proper planning and scheduling of activities based on the proposed learning experiences and expected learning outcomes (Zayapragassarazan, 2020). It is also said that, rapid advancement of technology must be used (Sun & Chen, 2016). In a study it was found that the most-used devices are laptops (50%) and phones (42%) followed by tablets (7%) and desktop computers (0.5%).The

most important element that supports the use of technology in the educational system is the Internet (Al-Hariri & Al-Hattami, 2017).

Technological developments like digital cameras, projectors, mind training software, computers, Power point presentations, 3D visualization tools; all these have become great sources for teachers to help students grasp a concept easily (Maslin et al., 2010). Technology has made information accessible / transmittable from anywhere and by / to all groups of people (Matthews, 1974). It is interesting to know that, instructors perceived traditional tools to be less effective than course/learning and social and interactive tools (Buzzard et al., 2011). The tablet devices in the classroom setting has an impact on both teaching and learning practices (Montrieux et al., 2015). The computer-based technology influences student engagement, however, additional research is needed to confirm and build on these findings (Schindler et al., 2017).

Self-Directed Learning

One important technique is to allow students to moderate their discussion in small groups. This will actively engage most learners in a committed and free manner (Garrison, 2003). The considerable time and effort were spent on specific content of the courses and that tutors did not focus on the meta-cognitive level of the students' learning processes (Silen & Uhlin, 2008). The utility of SDL as a potent learning strategy for students of foreign languages because this format could lead to improvements in knowledge domain, meta-cognitive skills, and motivation (Du, 2013). Self-Directed Learning is an important aspect of adult education. It is both a goal of adult education and the process that leads to successful learning (Hill, 2013).

Online Teaching and Learning

Online learning provides certification and recertification programs, virtual teaming or collaboration, critical thinking, idea generation and creativity (Kim & Bonk, 2006). Shifting to online- mode to ensure continuity of teaching-learning and assessment processes. Online mode allows student to take more responsibility for their own learning (Zayapragassarazan, 2020). Online instructors should include grading rubrics to assess discussions, assignments, projects, and collaboration; include collaborative assessments (Lin & Dyer, 2012). In addition to this, online learning to be superior to classroom-based instruction in terms of declarative knowledge outcomes, with the two being equivalent in terms of procedural learning (Barbara, 2009). The design and construction of the course content, learning activities, and assessment framework constitute the first opportunity for teachers to develop their "teacher presence." Timely assessment of students leads to motivation and moulding their behaviour (Anderson, 2008). Online distance learning, and comparative analyses with more traditional forms of individualized distance learning are needed before we can be satisfied with our expectations (Taylor & Maor, 2000). Online learning is a new social process that is beginning to act as a complete substitute for both distance learning and the traditional face-to-face class (Hiltz & Turoff, 2005). The evidence of the effectiveness of online learning by organizing and summarizing the findings and challenges of online learning into positive, negative, mixed, and null findings (Nguyen, 2015).

Conclusion

Online education comes with advantages and shortcomings, but it is an excellent instrument of education system that can help develop a student's performance. To succeed in online education, it is important to understand the existence of these factors and one should choose an ideal way to improve upon it. The consideration of these factors shall help in understanding the extent of use of technology, learning quotient and most important is satisfaction of level of students & faculty. To have effective online education system, be should consider these factors

for Input-Process-Output of online education. With the base of this literature study, researchers are exploring on examining each factor for its effectiveness with different cluster of students & faculty members.

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An empirical study on exploring the significant factors influencing the effectiveness of a recruitment program in a telecom company based in Bangalore

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Abstract

This study is based on the concept of Recruitment program. The Literature review provides an insight on Recruitment programs of a Telecom company and highlights that its agendas need to be evaluated from time to time to test its effectiveness and these policies must match up to the vision and mission of the organization and contribute to the achievement of organizational activities. The research gap explored through a review of relevant literature indicates that, in addition to Recruitment metrics, the perspectives of existing employees on Organizational and Environmental factors that may also influence the effectiveness of Recruitment program. The factors taken into consideration in this study are Reputation of the organization, Geographical location of the vacant position, channel of communication, cultural values, Emoluments offered, Lifecycle stage, Economic conditions and the number of sub decisions about effectiveness of the recruitment program are considered to be dependent variables (Number of successful placements, Number of candidates in selection rounds, time taken). Exploratory factor analysis and multiple regression revealed that Company's policies and economic condition, communication mode & lifecycle stage and basic requirements of the candidate have been found to be significant in determining the effectiveness of a recruitment program with a strength of association as 79.40%.

Introduction

The company chosen is based in Bangalore and offers software for Telecom industry and provides innovative solutions for marketers. It provides solutions for Customer Value Management, Loyalty Management, Data Monetization, etc. Recruitment is the process of seeking and attracting a pool of people from which qualified candidates for job vacancies can be chosen. The factors of Recruitment are organizational factors and environmental factors.

Organizational factors include Reputation of the organization, Organizational Culture, Attitude of management towards employees, Geographical location of the vacant position, Number of resources allocated, Channels and methods used to advertise vacancy and Emoluments offered. Environmental factors include Situation in the labour market, Demand for manpower, Demographics, Knowledge and skill sets available, Development stage of industry to which organization belongs, Culture, social attitudes and beliefs and Legal implications.

The general criteria for judging the success of a recruitment program are number of successful placements, hiring, offers made, applicants, cost involved and time taken for filling up the position. (Garry Dessler (2015)). The present study has focused on finding if the effectiveness of the recruitment program conducted at the Telecom Company chosen depends on the factors affecting its recruitment program from the perspectives of the existing employees of the company throughout its various offices and branches.

Literature Review

Korsten (2003) and Jones et al. (2006) emphasize on describing the various techniques of recruitment and selection and outline the benefits of interviews, assessment and psychometric examinations as employee selection process. Successful recruitment techniques involve an incisive analysis of the job, the labour market scenario/ conditions and interviews and psychometric tests in order to find out the potentialities of job seekers. Any management process revolves around recruitment and failure in recruitment may lead to difficulties and unwanted barriers for any company, including untoward effects on its profitability and inappropriate degrees of staffing or employee skills.

Erasmus (2005) explains that the recruitment policy and procedure document should be a crucial element that provides guidance to the committee and should be consulted. The recruiter should bear in mind broader institutional plans when consulting document. In addition, this document should reflect the institution's views regarding the approach and procedures to be followed in the institution and could include steps in the recruitment process. The policy document will indicate, for example whether recruitment should be done internally or externally and will specify the cost limitations.

Sinha and Thaly (2013) state that recruitment approaches to be used depend on the job position. There are a variety of recruitment approaches (e.g., employee referral, campus recruitment, advertising, recruitment agencies/consultants, job sites/portals, company websites, social media etc.) and most organizations will use a combination of two or more of these as part of a recruitment process or to deliver their overall recruitment strategy. Recruiting channels should be used must depend on the job position, on the company's employer brand, on the resources the company and budget. One can use them all and find out which suits the best. Every recruiting channel offers different benefits and limitations and works better for certain situations and Companies.

Consolidated Research Gaps

It is not only important to recruit, but to recruit effectively and efficiently is what that matters. For growing organizations, it is important to identify the factors which impact the success or failure of the recruitment program. The research gap explored through a review of relevant literature indicates that the evaluation of recruitment programs is mostly restricted to Quantitative Recruitment metrics like Quality of hire statistic, Source cost per hire, Productivity ratios, etc. However, in addition to these metrics, the perspectives of existing employees on Organizational and Environmental factors that may also influence the effectiveness of Recruitment program.

Research Objectives

The objectives of this study are: To explore the factors which influence the success or failure of Recruitment program of the Telecom company and to find which of the explored the significant factors influence the effectiveness of a Recruitment program of the Telecom company.

Research Methodology & Data Analysis

Survey and Sampling

The present study involved personal interaction with the respondents of the telecom company by asking them to fill a questionnaire based on recruitment factors and recruitment effectiveness. The questionnaire has been administered to employees of the telecom company across all its offices and branches/subsidiaries with a job experience ranging from less than a year to more than ten years. A simple random sampling method was used to categorize the responses from the entire population of the on-roll employees of the company

Variables Identified for Analysis

Dependent variables (Garry Dessler, 2015)

1. No. of successful placements: The number of successful placements is the most important criteria for determining the success or failure of a recruitment program. This is the bottom line of the whole program.
2. No. of applicants turning up: If the number of applicants is less, then there is probably a problem in attracting job seekers. Therefore no. of applicants must be taken into consideration in order to

- understand discrepancy has occurred due to which the recruitment program has become ineffective.
3. Time taken to fill vacancy: It is the total time taken to get the vacancy filled during the recruitment program.

Independent Variables (Garry Dessler, 2015)

1. Reputation of the organization: An organization's reputation depends on its size, area of business, profitability, management etc. in addition to its philosophy and values.
2. Geographical location of vacant position: The success of a recruitment program depends on the geographical location of the organization. Prospective candidate might not be too eager to work in a remote place unless they belong to that place.
3. Organizational Policies: An organization that is known for its employee- friendly policies would certainly be preferred over an orthodox and rigid organization
4. Emoluments offered: The emoluments that the company offers also influence the decision of a candidate and thereby the success of the recruitment program.
5. Channels: The channels and methods used to advertise the vacancy also determine the success of a recruitment program. The reach of advertising has to be wide and its effect deep enough to attract the right talent.
6. Life Cycle Stage: The stage of development to which the organization belongs also influences the result of the recruitment program.
7. Situation in the economy: The situation in the labour market, the demand for manpower, the demographics, the knowledge and skill set available all determine the response to a recruitment program.

Sampling procedure

Sampling is the process that uses a small number of items out of a population to provide conclusions with respect to the entire population. The following are the multiple stages of the sampling process:

- Stage I-Define the target population: The collection of respondents that possess the information sought by the researcher and about which inferences are to be made. The target population of this study includes: Employees of various companies' branches across India.
- Stage II-Specifying the sampling frame: A sampling frame is a list of elements from which the sample may be drawn. In this case, the sampling frame is the list of the employees who are working with various companies having job experience ranging from one year to more than 10 years.
- Stage III-Selecting a Sampling Technique: The technique that was considered suitable for this study depending upon all the practical difficulties, is the one in which an element cannot be included in the sample more than once i.e. sampling without replacement.
- Stage IV - Determination of sample size: The sample size plays a crucial role in the sampling process. In the case of a probability sampling; formulae are used to calculate sample size. However, it is essential to consider three factors while determining sample size for problems involving means. They are standard deviation of the population, acceptable level of sampling error and the expected confidence level.

Sample Size Calculations

Table 1 Standard Deviation- Effectiveness of Recruitment

| Type of variable | S.N (As per questionnaire) | Name of Variables | N Statistic | Std. Deviation statistic |
|------------------|-----------------------------|---------------------------------------|-------------|--------------------------|
| Dependent | 1 | Reputation Of the Firm | 40 | 1.19802 |
| Dependent | 2 | Job Location | 40 | 1.22762 |
| Dependent | 3 | Channel Of Communication | 40 | 1.18511 |
| Dependent | 4 | Cultural Values | 40 | 1.39574 |
| Dependent | 5 | High Emoluments | 40 | 1.23101 |
| Dependent | 6 | Lifecycle Stage | 40 | 1.19722 |
| Dependent | 7 | Economic Conditions | 40 | 1.34712 |
| Independent | 8 | No. Of Candidates in Selection Rounds | 40 | 1.37538 |
| Independent | 9 | Time Taken | 40 | 1.28002 |
| Independent | 10 | No. Of Successful Placement | 40 | 1.40603 |
| | | Mean Standard Deviation | | 1.284327 |

The standard formula for sample size is given as:

$$n = (ZS/E)^2$$

Z= Standardized Value corresponding to a confidence level (90%) =1.64 (Normal Distribution Table)

S= Sample standard deviation

E= Acceptable level or Margin of error = 0.1(Approx.) (Malhotra & Dash, 2009)

$$Z = 1.64$$

$$S = 1.284327$$

$$E = 0.1$$

$$n = (1.64 * 1.284327 / 0.1)^2 \quad n = (21.06296)^2$$

$$n = 443.6484$$

The total number of responses collected and received was 450.

Reliability Analysis

The survey questionnaire had to be tested for its reliability. An analysis was conducted for checking the reliability of the questionnaire and the results were obtained. The Cronbach's alpha (a measure of reliability) score has been calculated.

Table 2

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| 0.956 | 10 |

Factor Analysis

The following are the variables used in this analysis: Reputation of the firm, Geographical Location, Employee Friendly Policies, Emoluments offered, Channel of Communicating Vacancy, Lifecycle stage of the company and Market Situation.

H1: Variables are uncorrelated in the population (The population correlation matrix is an identity matrix).

The Approx. Chi Square value is 2700.745 and it has found to be significant which indicates that the null hypothesis can be rejected and it may be concluded that variables are correlated in the population. The chi-square statistic value under Bartlett's test of sphericity indicates that the factor analysis is appropriate. The Kaiser- Meyer-Olkin (KMO) measure of Sampling Adequacy is found out to be 0.902 which indicates that factor analysis is adequate.

Table 3

| KMO and Bartlett's Test | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.902 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 2700.745 |
| | df | 21 |
| | Sig. | 0.000 |

Table 4

| Total Variance Explained | | | | | | |
|---------------------------------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|
| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
| | Total | % Of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 5.142 | 73.451 | 73.451 | 5.142 | 73.451 | 73.451 |
| 2 | 0.595 | 8.502 | 81.953 | 0.595 | 8.502 | 81.953 |
| 3 | 0.375 | 5.356 | 87.309 | 0.375 | 5.356 | 87.309 |
| 4 | 0.309 | 4.413 | 91.722 | | | |
| 5 | 0.237 | 3.379 | 95.101 | | | |
| 6 | 0.210 | 3.001 | 98.102 | | | |
| 7 | 0.133 | 1.898 | 100.000 | | | |

Table 5: (Varimax) Rotated Component Matrix

| Rotated Component Matrix | | | |
|--|-----------|-------|-------|
| | Component | | |
| | 1 | 2 | 3 |
| Reputation of the Organization | 0.406 | 0.554 | 0.580 |
| Geographical Location of the Vacant Position | 0.248 | 0.275 | 0.894 |
| Channel of Communication | 0.349 | 0.615 | 0.526 |
| Cultural Values | 0.787 | 0.523 | 0.164 |
| Emoluments Offered | 0.614 | 0.534 | 0.407 |
| Life-Cycle Stage | 0.321 | 0.842 | 0.304 |
| Economic Conditions | 0.884 | 0.206 | 0.336 |

The summary of rotated component matrix indicated the following:

Table 6: Summary of Factor Analysis

| Factor 1 COMPANY'S POLICIES & ECONOMIC CONDITIONS | Factor 2 COMMUNICATION MODE AND LIFE- CYCLE STAGE | Factor 3 BASIC REQUIREMENT OF THE CANDIDATE |
|--|--|--|
| Cultural values | Channel of Communication | Reputation of the Organization |
| Emoluments Offered | Life-Cycle Stage | Geographical Location of the Vacant Position |
| Economic Conditions | | |

Factor 1: The following are the variables (Cultural values, Emoluments Offered and Economic Conditions) that have the highest loading on the factor 1, after rotation:

- Cultural Values
- Emoluments Offered
- Economic Conditions

The above factor has been named as Company's Policies & Economic Conditions as the variables indicate the policies of the company & state of the economy.

Factor 2: The following are the variables (Channel of Communication and Life-Cycle Stage) that have the highest loading on factor 2 after rotation:

- Channel of Communication
- Life-Cycle Stage

It can be named as Communication Mode and Life-Cycle Stage as the variables are focusing on both communication and life-cycle.

Factor 3: The following are the variables (Reputation of the Organisation and Geographical Location of the Vacant Position) that have the highest loading on factor 3 after rotation:

- Reputation of the Organisation
- Geographical Location of the Vacant Position

It can be named as Basic Requirement of the Candidate as the variables refer to basic information that is associated with the job a candidate.

Multiple Regression

The results of the factor analysis (F1, F2 and F3) were carried forward by which all the independent variables were used to predict the dependent variable by multiple regression. The regression equation (Levin & Rubin, 2002) is as follows:

$$Y = \alpha + \beta_1 F_1 + \beta_2 F_2 + \beta_3 F_3$$

Where Y = Success or failure of recruitment (Mean of the three variables namely Candidates turning up for selection rounds, Time taken to fill vacancy, and Number of placements),
 α = Intercept,

F1 = Company's Policies & Economic Conditions, F2 = Communication Mode and Life-Cycle Stage, F3 = Basic Requirement of the Candidate,
 $\beta_1, \beta_2, \beta_3$ = Slopes associated with F1, F2 and F3.

Inference about the Regression as a whole using an F-test

Null Hypothesis: Y does not depend upon the Fi's i.e. H0: $\beta_1 = \beta_2 = \beta_3 = \beta_k = 0$ and

Alternate Hypothesis: Y depends on at least one of the Fi 's i.e., H1: at least one $\beta_i \neq 0$

Null hypothesis can be rejected and thus Y depends on at least one of the Fi's.

Inference about an individual slope (β)

Null Hypothesis: Fi is not a significant explanatory variable i.e H0: $\beta_i = 0$ and

Alternate Hypothesis: Fi is a significant explanatory variable i.e H1: $\beta_i \neq 0$.

Table 7

| Model Summary | | | | |
|---------------|-------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | 0.714 | 0.510 | 0.509 | 0.89195 |
| 2 | 0.832 | 0.692 | 0.691 | 0.70812 |
| 3 | 0.891 | 0.794 | 0.793 | 0.57984 |

Table 8

| ANOVA | | | | | | |
|-------|------------|----------------|-----|-------------|---------|-------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 371.581 | 1 | 371.581 | 467.064 | 0.000 |
| | Residual | 356.414 | 448 | 0.796 | | |
| | Total | 727.995 | 449 | | | |
| 2 | Regression | 503.854 | 2 | 251.927 | 502.414 | 0.000 |
| | Residual | 224.141 | 447 | 0.501 | | |
| | Total | 727.995 | 449 | | | |
| 3 | Regression | 578.043 | 3 | 192.681 | 573.089 | 0.000 |
| | Residual | 149.952 | 446 | 0.336 | | |
| | Total | 727.995 | 449 | | | |

Table 9

| Regression Coefficients | | | | | | |
|-------------------------|------------------------------------|-----------------------------|------------|---------------------------|---------|-------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 3.546 | 0.042 | | 84.333 | 0.000 |
| | REGR factor score 2 for analysis 1 | 0.910 | 0.042 | 0.714 | 21.612 | 0.000 |
| 2 | (Constant) | 3.546 | 0.033 | | 106.226 | 0.000 |
| | REGR factor score 2 for analysis 1 | 0.910 | 0.033 | 0.714 | 27.222 | 0.000 |
| | REGR factor score 1 for analysis 1 | 0.543 | 0.033 | 0.426 | 16.242 | 0.000 |
| 3 | (Constant) | 3.546 | 0.027 | | 129.726 | 0.000 |
| | REGR factor score 2 for analysis 1 | 0.910 | 0.027 | 0.714 | 33.244 | 0.000 |
| | REGR factor score 1 for analysis 1 | 0.543 | 0.027 | 0.426 | 19.835 | 0.000 |
| | REGR factor score 3 for analysis 1 | 0.406 | 0.027 | 0.319 | 14.855 | 0.000 |

The regression equation is found out to be:
 $Y = 3.546 + 0.910F_1 + 0.543F_2 + 0.406F_3$.

It can be concluded from the above tables that null hypothesis can be rejected and F1 (Emoluments Offered and Economic Conditions), F2 (Channel of Communication and Life-Cycle Stage) and F3 (Reputation of the Organization and Geographical Location of the Vacant Position) are found to be significant explanatory variables. Thus, success or failure of

recruitment program depends on the variables as mentioned above. The coefficient of (multiple) determination (R^2) is 0.794 and the F-ratio is found to be 573.089, which is significant. Thus, one can conclude that regression model is significant to explain the effectiveness (success or failure) of recruitment program.

Table 10

| Excluded Variables | | | | | | |
|--------------------|------------------------------------|---------|--------|-------|---------------------|-------------------------|
| Model | | Beta In | t | Sig. | Partial Correlation | Collinearity Statistics |
| | | | | | | Tolerance |
| 1 | REGR factor score 1 for analysis 1 | 0.426 | 16.242 | 0.000 | 0.609 | 1.000 |
| | REGR factor score 3 for analysis 1 | 0.319 | 10.840 | 0.000 | 0.456 | 1.000 |
| 2 | REGR factor score 3 for analysis 1 | 0.319 | 14.855 | 0.000 | 0.575 | 1.000 |

Since, all the variables are found to be significant there are no such variables that can be included in the excluded variable table.

Conclusion

The factors extracted in this analysis are Company's Policies & Economic Conditions, Communication Mode & Life-Cycle Stage and Basic Requirement of the Candidate. The decision of the candidates to choose workplace entirely depends on the above factors. This indicates that the employees of various organizations believe that the above- mentioned factors impact majorly while making a decision to work and hence the success or failure of recruitment program.

Managerial Implications

1. The results have helped to understand the concepts and importance of Recruitment and Selection. This may help the HR Department and more specifically the Talent and Acquisition Team to understand the components taken into consideration by the candidates when applying for a vacancy.
2. The formats developed will help the department to eliminate subjectivity and be answerable for every step or decision taken during the recruitment and selection process.

Limitations

The results obtained in this study are subject to some limitations as mentioned below:

- This is not a comparative study.
- Since the responses were recorded on a Likert scale, there were no available means to verify the accuracy of the data collected. Thus, it was assumed that the data was error free.
- The ability to generalize the results may be affected by the size and composition of the sample.
- The analyses were limited to only the employees from whom the responses were collected.

Appendix: Questionnaire

On a scale of (1) Strongly disagree (2) Disagree (3) Neither agree nor disagree (4) Agree (5) Strongly agree, please circle (O) the appropriate rating.

| | | | | | |
|--|---|---|---|---|---|
| 1. Reputation of the firm critically influences the attraction of talented candidates. | 1 | 2 | 3 | 4 | 5 |
| 2. Candidates while applying for jobs prefer prime locations over remote areas. | 1 | 2 | 3 | 4 | 5 |
| 3. The decision to appear for a job depends on the channel through which the vacancy is communicated. | 1 | 2 | 3 | 4 | 5 |
| 4. Strong cultural values and employee friendly polices play a role in making decisions to choose workplace. | 1 | 2 | 3 | 4 | 5 |
| 5. Talented pool of candidates seem to be interested if the company provides high emoluments. | 1 | 2 | 3 | 4 | 5 |
| 6. The lifecycle stage of the company plays a role in attracting highly talented employees. | 1 | 2 | 3 | 4 | 5 |
| 7. Stability in the economy is crucial for getting positive responses in the recruitment drive. | 1 | 2 | 3 | 4 | 5 |
| 8. The assessment of a recruitment drive depends upon the number of candidates turning up of selection rounds. | 1 | 2 | 3 | 4 | 5 |
| 9. The evaluation of a successful recruitment drive can be done by measuring the time taken to fill a vacancy. | 1 | 2 | 3 | 4 | 5 |
| 10. The overall effectiveness of recruitment entirely depends on no. of successful placements. | 1 | 2 | 3 | 4 | 5 |

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CSR Employer Branding, Organizational Identification, Person-Organization Fit and Employee Retention: A Dual-Mediation Model

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Abstract

Corporate social responsibility (CSR) is gaining recognition and value among researchers, academicians, and business professionals. Drawing on theories of social identity and person- organization fit, the present research propounds a model that investigates the role of CSR branding in influencing employee retention. Regression technique and PROCESS Macro have been used to conduct mediation analysis. The findings are based on the perceptions of employees regarding employer branding and employee retention. The paper connotes that employee retention is influenced directly by CSR branding as well as indirectly under the presence of organizational identification and person-organization fit (mediators). Results suggest the role of a positive identity and a mutual fit as significant predictors of employee retention. The implications for future research on CSR, employees' stay intentions, employees' identification, and value congruence are further discussed in light of the findings. The novelty of this research insists on shedding light on the indirect mechanisms linking CSR to employee retention that has been overlooked so far, particularly in the Indian setting; studies on an integrated model of organizational identification and person-organization fit are limited.

Keywords: Employer branding, employee retention, India, person-organization fit, organizational identification

Introduction

An accentuating demand for modern skills and competencies in the sphere of technological advancements, changing demographics, and market disruption (Gannon, 2013) has labeled employees as one of the most important stakeholders. In a disruptive market, where it is easy to have access to tangible resources like new technology, equipment, or other assets (Butt, Lodhi, & Shahzad, 2020), organizations are having trouble finding a highly qualified taskforce equipped with the advanced set of skills. Recruiting and retaining skilled employees has become imperative as it helps organizations compete regionally as well as globally. Branding activities have set foot in the field of HRM, commonly labeled as employer branding. It has been contended that a contemporary HR tool, i.e., employer branding aids an organization to acquire and retain employees of particular significance, i.e. required skills and competencies (Bilińska-Reformat & Stańczyk, 2018).

According to Hoppe (2018), the link between employer brand image and favorable employee behaviors has been theoretically derived from the social exchange theory. An organizations' effort to create and maintain employer brand with a unique bundle of benefits has been found to convey a sense of organizational support to employees. With a growing body of literature on employer branding as a bundle of unique benefits, scholars have made several attempts in conceptualizing employer brand attractiveness, where implementing CSR in organizations' operations as an ingredient in the employer branding strategy has considerably received less attention (Carlini, Grace, France, & Lo Iacono, 2019). Despite the importance of CSR in influencing firms' financial performance or external stakeholders groups, research on employees' reactions to CSR has yet to be fully developed (Bharadwaj & Yameen, 2020). More germane to employer brands, organizations' today have recognized the importance of being socially responsible and have started to entail an element of CSR (referred as "CSR branding/CSR employer

branding” in the present study) in their employer branding strategy.

Given the recent call for more research on the intervening mechanism of social identity theory (SIT) that may account for the effects on CSR and employee retention (Khan, Bharadwaj, Khatoon, & Jamal, 2021), the present study aims to examine the intervening role of organizational identification.

More germane to CSR, social identity theory has been advanced as one of the principal theories exemplifying how CSR initiatives have the ability to influence employees’ attitudes and behaviors. It has been contended that employees with a strong identity accept organizational values and goals, and in turn, these values are internalized (Edwards, 2005). Consequently, employees display behaviors that build positive employer-employee relationship.

Additionally, this paper contributes to the literature by assessing the linkage between CSR branding and employee retention, building on person-organization fit theory, an established theory in HRM. An in-depth analysis of past findings revealed that P-O fit increases visibility among prospective employees (Bhatnagar & Srivastava, 2008), where successful brands with desirable and moral organizational values have been addressed to strengthen the overall link employees share with their employers. Thus, examining the function of an intermediate factor, i.e., mediator, a proper understanding of P-O fit relational nature may help clarify how employees’ stay intentions are shaped.

Theoretical Context and Hypotheses

CSR Branding and Employee Retention

Early research on CSR has indicated that employees place importance on organizations that exhibit socially responsible behavior (Biswas & Suar, 2014), where employees are interested in working for organizations that abstain from activities that harm society. Scholars have evidenced CSR to influence prospective and current employees’ perceptions of an organization as a place to work (Tanwar & Prasad, 2016). For instance, Carlini et al. (2019) underscored that employees are attracted to organizational social responsibility, which, in turn, leads to positive employee outcomes such as job satisfaction, employee performance, and organizational trust. Thus, we hypothesized that:

H1: CSR branding will positively contribute to employee retention.

CSR Branding and Organizational Identification

Prior research supports that employees assess the attractiveness of an organization’s image in terms of its distinctiveness that influences their self-concept and social identity (Binu Raj, 2020). It has been asserted that employees identify with their organizations when collective goals supersede individual interests (Afsar, Cheema, & Javed, 2018). Identifying with the socially responsible organization, employees enact CSR values and develop positive perceptions, thus experiencing elevated levels of OI. Prior researchers have cited that employees acquire identity and self-worth due to a socially responsible reputation of an organization that enhances employees’ long term association and self-concept (Isaksson, Kiessling, & Harvey, 2014); thus, combining the above arguments, we can hypothesize that:

H2: CSR branding will positively contribute to organizational identification.

Organizational Identification and Employee Retention

Prior studies have validated lower intention to quit due to the psychological factor of OI,

where researchers have addressed the importance of OI in suppressing employees' turnover intent (Van Dick et al., 2004). For instance, Kumar and Singh (2012) asserted that high OI improves employees' interest levels, depicting a more substantial role played by OI in the turnover process of organizations. Furthermore, recently Bharadwaj and Yameen (2020) highlighted that "employees will not demand an exit from their current jobs if they consider themselves as part of their organizations". Arguments presented in the literature lead to the following hypothesis:

H3: Organizational identification will positively contribute to employee retention.

CSR Branding and Person-Organization Fit

The image of an employer as an attractive brand enables employees to compare their needs, personalities, and values with an organization (Backhaus & Tikoo, 2004). With a better fit between firms' and individual values, employees are more likely to perceive an employer attractive against its counterparts. A study conducted by Tanwar and Kumar (2019) examined that a match between an organization and its CSR values help enforce a person-organization fit among potential employees. The authors further added that engaging in CSR initiatives affects employees' decisions and behavior to identify an organization as an employer of choice. Thus, we can hypothesize that:

H4: CSR branding will positively contribute to person-organization fit.

Person-Organization Fit and Employee Retention

P-O fit being an essential aspect of employment, has been studied to share positive links with organizational attraction and retention (Edwards & Cable, 2009). The links between P-O fit and employee turnover intention are dominated by Schneider framework of ASA theory (Attraction-Selection-Attrition), where an individual's decision to remain or leave an organization is contingent upon perceived fit (Sekiguchi, 2004). Where past studies have witnessed P-O fit mechanism to shape positive employees' attitudes and behaviors, several researchers have criticized the process, linking P-O fit with employees' decision to stay has not received much attention (Peng, Lee, & Tseng, 2014). So, we can hypothesize that:

H5: Person-organization fit will positively contribute to employee retention.

Mediating Effect of Organizational Identification and Person-Organization Fit

More germane to CSR branding, a socially responsible organization showcase a distinct image of an organization, helping employees achieve better congruence, thereby attracting and retaining the required talent (Carlini et al., 2019). The symbolic attribute of CSR was also reported to build an employees' positive identity. Pertinent to CSR, perceptions of person-organization fit have been cited to intervene in the relationship between CSR and employee behavioral outcomes, where P-O fit has been studied to enhance individuals' attraction to organizations (Zhang & Gowan, 2012). Likewise, Tanwar and Kumar (2019) in their work analyzed the role of P-O fit in transferring CSR to become an employer of choice (EOC) among sophomores and reported P-O fit as a significant driver of EOC. Consequently, we can hypothesize that:

H6: Organizational identification will mediate the relationship between CSR branding and employee retention.

H7: Person-organization fit will mediate the relationship between CSR branding and employee retention.

Methods

Sample and research procedures

Three hundred and forty eight executives working in Indian organizations in the Indian industrial hubs (i.e., Delhi NCR and Bengaluru) participated in the survey. The descriptive analysis was performed to assess the demographic characteristics of 348 respondents, as shown in Table 1.

Table 1 Demographic profile n=348

| Variables | Subgroups | Frequency | Per cent |
|-----------------------------|--------------------|-----------|----------|
| Years with the organization | 0-3 years | 127 | 36.5 |
| | 3-5 years | 126 | 36.2 |
| | More than 5 years | 95 | 27.3 |
| Gender | Female | 131 | 37.6 |
| | Male | 217 | 62.4 |
| Age | Less than 25 years | 47 | 13.5 |
| | 25-39 years | 264 | 75.9 |
| | 40-54 years | 37 | 10.6 |
| Designation | Managerial | 124 | 35.6 |
| | Non-Managerial | 224 | 64.4 |

RESULTS

Factor Analysis

Exploratory factor analysis (EFA) was used to verify the factor structure. Principal component analysis-based extraction with varimax rotation was used to determine major study variables. All the loadings achieved the recommended value of .50. Also, all the factors revealed the cumulative variance of 70.45 per cent and “Kaiser-Meyer-Olkin” (KMO) also met the acceptable criteria of .70 (KMO= .89). Furthermore, due to the cross-sectional design, Harman one-factor test was deployed, where the results revealed no issue of CMB as all the items loaded on a single factor explained 39 per cent of variance.

Hypotheses Testing

The hypotheses were tested using PROCESS Macro ‘Model 4’ in SPSS. For H1, the result reported a significant and positive relationship between CSR and employee retention ($c = .24$, $t = 6.98$, $p < .01$). For H2, CSR was positively associated with OI ($a_1 = .15$, $t = 3.95$, $p < .01$). For H3, the result reported a significant positive relationship between OI and employee retention ($b_1 = .45$, $t = 10.60$, $p < .01$). For H4, CSR was positively associated with P-O fit ($a_2 = .67$, $t = 14.51$, $p < .01$). The results supported H5 that revealed a significant relationship between P-O fit and employee retention ($b_2 = .12$, $t = 3.49$, $p < .01$). Also, the results reported a significant mediating effect with a significant indirect effect of OI ($a_1 * b_1 = .07$; .02, .12) and a non-zero value between lower level of confidence interval and upper level of confidence interval, providing support for H6. Furthermore, the analysis reported the significant mediating effect with a significant indirect effect of P-O fit ($a_2 * b_2 = .08$; .03, .14) and a non-zero value between lower level of confidence interval and upper level of confidence interval, supporting our H7.

Also, the total effect of CSR on employee retention is weakened and $c' = .10$, $t = 2.53$, $p < .05$.

.01 is significant in the presence of both the mediators (OI and P-O fit), indicating a partial mediation (refer to Table 2 and Figure 1).

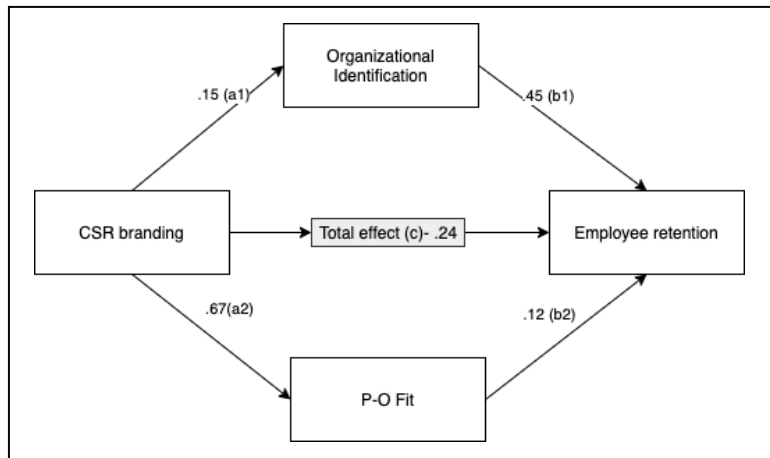


Figure 1 Mediated Model

Table 2 Regression output

| | b | se | t | LLCI | ULCI |
|-----------------------------------|----------|-----------|----------|-------------|-------------|
| Outcome: OI | | | | | |
| CSR (a ₁) | .15** | .03 | 3.95 | .07 | .22 |
| Outcome: POF | | | | | |
| CSR (a ₂) | .67** | .04 | 14.51 | .58 | .77 |
| Outcome: ER | | | | | |
| CSR (c') | .10** | .03 | 2.53 | .02 | .16 |
| OI (b ₁) | .45** | .04 | 10.60 | .37 | .53 |
| POF (b ₂) | .12** | .03 | 3.49 | .05 | .19 |
| Total effect | | | | | |
| Outcome: ER | | | | | |
| CSR (c) | .24** | .03 | 6.98 | .17 | .31 |
| Indirect effect | | | | | |
| (a ₁ *b ₁) | .07 | .02 | | .02 | .12 |
| (a ₂ *b ₂) | .08 | .03 | | .03 | .14 |

Note: *p< .05, **p< .01, b- Unstandardized coefficients, se- Standard error, LLCI- Lower level of confidence interval, ULCI- Upper level of confidence interval.

Discussion

In the present research, we developed and tested a model linking CSR with employee retention, OI, and P-O fit. The present research argues that employees who perceive their employers as strong brands are likely to have high intentions of staying longer than companies without employer brands. The present study suggests entailing an ingredient of CSR in an employer branding strategy to ensure employees' long-term retention. The results support our argument that OI can be a successful intervention to transfer employer branding in accentuating employees' stay intentions (Kashyap & Chaudhary, 2019), where providing unique attributes could elevate employees' OI, thereby impacting their

intentions to remain with an organization. Moreover, the results revealed CSR initiatives to improve the mutual fit between organization and its employees, thereby enhancing employees' interest levels (Chawla, 2020). When employees' CSR values match with those of an organization, they are more likely to display long-term association and are less likely to quit their jobs. However, it should be noted that in the parallel mediation model consisting of OI and P-O fit, the indirect effect of P-O fit was stronger on the links between CSR branding and employee retention; thus reflecting upon the need to entail similar fundamental characteristics shared by employees that could further build a positive identity among employees (Cinar, 2019). For this, organizations should increase the P-O fit and integrate it as a focal variable in the model of employee retention with CSR as an employer branding dimension to become a great place to work.

Conclusion

Implications

First, the results highlight the criticality of integrating CSR into the employer branding strategy. If organizations wish to achieve higher retention levels, they may benefit from implementing CSR initiatives. Managers should treat employees fairly, establish rules and regulations governing employees' behavior, assume a humanitarian approach in addition to a proper mechanism to report an event of misconduct. Second, organizations' social and ethical actions enhance employees' self-identification, and in turn, results in improved retention levels, particularly relevant for Indian employees. Thus, it is essential for managers to properly communicate with employees regarding the CSR policies and hold informal meetings with employees where discussions on issues such as misconduct or unethical behavior could be brought up. Third, the findings put forward that a right job fit help employees in choosing an organization as a desirable place to work amidst intensified competition, where a fit between employees and organizational CSR values is an essential predictor of employees' behaviors. For this, managers are required to make sure that clear and consistent signals are communicated regarding CSR activities of an organization so that employees are better able to judge and match their values, goals, and culture with the organization. With evolving social media, organizations can best utilize these platforms to share the mission, vision, values, and culture of an organization.

Limitations and Future Research

The findings and implications should be considered within the context of the study's limitations. First, the data is based on a cross-sectional approach; thus, a longitudinal approach with causal relationships could provide a better picture. Second, the study assessed CSR perceptions among employees based on their subjective responses. Therefore, it is important to be cautious about the difference in the reality and perception of an organization's CSR initiatives. Third, future studies can test the proposed model by adding other relevant variables; for example, past researchers have provided that a positive identity infuses an element of trust and loyalty among employees (Backhaus & Tikoo, 2004); thus, future researchers could empirically validate the retention process considering these elements. Lastly, further empirical research could examine how CSR might help organizations to attract the right candidate on board, i.e., focused on the recruitment process.

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Perception of Employees on the Usage of HR Analytics for Recruitment

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Abstract

Analytics has become an integral part of most of the business-related activities. In past few years with the tremendous growth in technology, analytics had started to find its use in majority of the HR functions. At the same time, it also becomes a necessity that the perception and thinking of employees regarding the use of HR analytics in various functions must be understood. Hence, to study this aspect with particular importance to IT sector, data has been collected from a sample of 213 employees working in IT field in Chennai and their opinions and perspectives are studied about the usage of HR analytics in three of the HR functions like recruitment and selection, training and development, and talent management. The demographic data of the employees like gender, age, and years of experience has been collected and analyzed.

Keywords: HR analytics, Recruitment and Selection, Training and Development, Talent Management, Perception, IT sector.

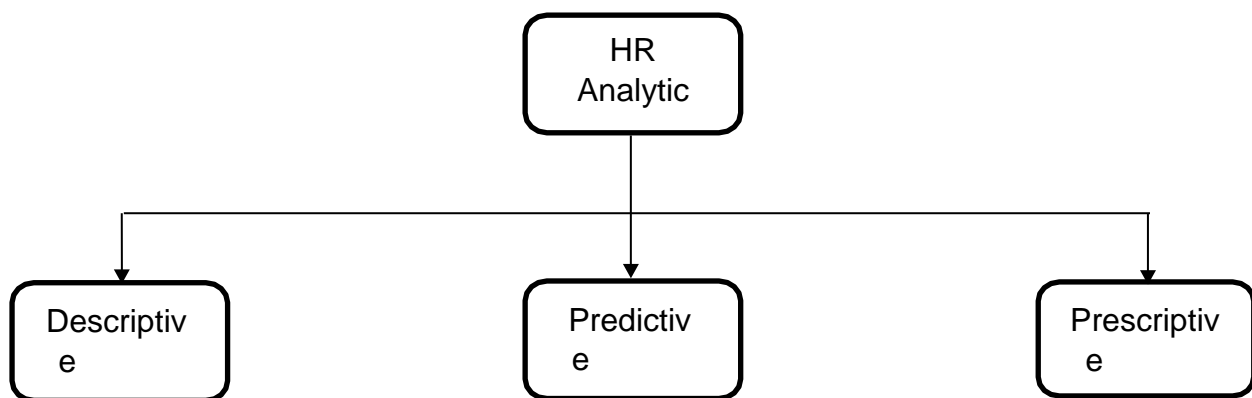
Introduction

In every organization HR has an important role to play starting from the culture of the organization to determining the pay of an employee. The area of analytics has seen a tremendous growth over the past decade, and this is because, the processes have become data driven and organizations were able to get many useful insights from the data collected through which they were able to make valuable business decisions. Hence, HR analytics becomes an integral part in all HR related activities and the following names are widely used interchangeably people analytics, workforce analytics, talent analytics and HR analytics. Analytics has been widely used in other areas of businesses such as finance, operations, sales, and marketing when compared to HR.

Studying various HR functions starting from recruitment, analytics has been widely used in selecting the right type of candidates for a particular job or position, like candidates from a particular location has performed well in a particular role or has stayed for a longer period with the organization. In workforce planning, to maintain gender diversity within the organization and industry point of view it is quite helpful. Analytics helps in identifying skill level of employees present in an organization and can compare it with the competitors or the industry as a whole and can find out at which point the organization or employee lags. Also, it can be used at various stages of the recruitment processes to determine which is the most time consuming or costly process or at which stage of the process the candidates drop out. In case of employee turnover, analytics can be used to predict the employees who are more likely to quit the organization and by analyzing this HR people can either concentrate on retention strategies or can forecast the recruitment needs for the next quarter. Likewise, on training and development front, by considering the performance of the present employees and the training which they received, future training plans can be analyzed, designed, and implemented for new joiners to improve their efficiency. In addition to this the reward system of the employees can be optimized in such a way to the likings of the people working in that organization, by analyzing to find out which reward package is favorite among the employees. Another use of it is while identifying the underperforming employees and to build a training and development plan to increase their potential to a maximum extent possible. It is also quite helpful in creating a succession plan so that proper back up has been created for high performing.

Louie from Nielsen has made use of this and using data found out that internal mobility was one of the key reasons for retention of employees in the organization and hence changed projects and role of employees on a consistent basis. The attrition rates among competitors and industry peers could also be studied and proper action can be taken by the employers in accordance with it and which roles, responsibilities have high attrition rate can be understood and average stay period of an employee in an organization can be calculated. Amid all this, article in HR focus states that about analytics many of the organizations are still lagging. Many organizations collect and record large amount of data but their ability to turn the data into useful information is limited to an extent which serves as a set-back for them.

Mohammed (2019) has discussed about how HR analytics can be classified into 3 categories. There are



Descriptive analytics, Predictive analytics, and Prescriptive analytics

Figure 1: Types of HR analytics

Descriptive analytics: Descriptive analytics is the use of past data collected by the organization that can be converted with the help of analytics into valuable insights from which certain trends can be found out and analyzed. In the case of certain metrics like time to hire, cost involved in the process, rate of absenteeism can be found out and can be taken care off.

Predictive analytics: Predictive analytics is the use of past data to forecast the future or predict what might happen in future based on the insights obtained. In case of forecasting the employee turnover like which employees are most likely to leave the organization, predicting the ROI of training, estimating future recruitment needs and other such predictions and forecasting can be seamlessly done with the help of predictive analytics.

Prescriptive analytics: Prescriptive analytics is making informed decisions based on the predictions obtained through forecasting. In case a particular employee is set to leave an organization, then decisions like how he can be retained can be promoted or future recruitment needs can be taken care off.

While it has been identified that majority of the companies or organizations are still in the descriptive analytics phase, while few of the organizations have gone on to the predictive analytics phase as process of predicting the future, while very few organizations have moved on to the prescriptive analytics phase of the analytics process.

Literature Review

Analytics has become a common and most used term in day-to-day activities of a business through which a lot of time can be saved, gaps can be found out and rectified with the support of data and the field of HR cannot be exempted from this. We can find that companies and organizations cannot always have unproductive workforce at their disposal, also by doing this their cost increases and it places a hold on their revenue too. To avoid this, predicting employee turnover will help to satisfy the recruitment needs in future or for the immediate quarter and in the journal published by Valluru (2019), they were predicted by time series technique and machine learning technique as well and the better technique among them which can give better results were found out. Nocker and Sena (2019) has researched about the various opportunities in terms of benefits and cost which big data has to offer HR professionals. Further, it explains about the help of analytics in areas like turnover, management, rewards, compensation, engagement, wellbeing, recruitment, and planning to improve performance, increase profits and satisfaction, which eventually leads to improvement in efficiency from organizational perspective. Also, through the analysis of case studies importance between big data and analytics is established and their importance is studied like the need for having some knowledge about analytics, collection of data and gaining insights from the data collected. Towards the end, importance of trust is explained about how it plays an important role in successful implementation of talent analytics. In addition to the functions stated in the above-mentioned research paper the use of predictive analytics in training and performance were also understood from the works of Mohammed (2019), which further introduces to the types of HR analytics like descriptive analytics – analyses past historical patterns, predictive analytics – predicts the future trends and prescriptive analytics – provides the best possible outcome among many alternatives.

While fine tuning to IT sector Afzal (2019) has presented the various challenges in the form of individual factors related to employees working in an organization and organization while adopting HR analytics, the benefits of using it in various activities inside the organization and the future scope of it. Madsen and Slatten (2019) in their research has emphasized about the role of analytics in various fields and to analyses its popularity over the last few years. Choughri and Soubjaki (2019) has researched in detail regarding the usage of HR analytics in training and development activity of HR professionals.

Mahalakshmi (2018) in her paper has conducted a research about the widespread existence of HR analytics on certain organizations in Tamil Nadu and all-important aspects of the HR analytics has been covered such as its functional use, effectiveness and stages involved in implementing it. Fred (2018) in his study, has considered the recruitment which is happening in business process outsourcing sector based on HR analytics in decision making. Not only in IT sector HR analytics can be put to great use even in banks, between branches in the same bank and in case of people policies as well as how the location and neighborhood can drive people's performance as described by Patton (2018). Das and Reddy (2018) has done a research about the perception of employees in manufacturing sector regarding the use of analytics in various competitive decision-making processes of the organization. Kumari (2018) has analyzed about the factors which render retention of employees in IT sector. According to her study, certain factors like growth, respect, policies, stress reduction, etc. are considered and are classified into primary, secondary, and tertiary factors and analyzed.

According to Marler and Boudreau (2017), the name HR analytics first appeared in the literature published in 2004, which further differentiates and states that HR analytics is different from HR metrics. Both mentioned HR analytics as a data driven decision-making

process in various functions related to HR. The importance of predictive analytics as found by Malisetty, Archana and Kumari (2017) in their paper had shown its use in various areas of HR like employee loyalty analysis, profiling, forecasting recruitment needs, sentiment analysis, attrition, and profile selection, basically as mentioned before, predictive analytics.

Chattopadhyay, Biswas and Mukherjee (2017), in their paper they had discussed about HR analytics and its usage and implications in private and public sector companies. Rajbhar, Khan and Puska (2017) has studied about the importance of HR analytics in some of the strategies which the HR professionals need to make on a consistent basis further it establishes a correlation between performance of the employees and the impact of their performance on increasing their productivity and thereby impacting the growth of the organization. In general, because of this study which has been explained with few case studies has been proved that HR analytics plays an important role in many of the HR functions such recruitment, selection, planning, training, and other areas related to HR which has helped in improving the efficiency and productivity of the organization on a broader perspective. Marazanye (2017) in his study has discussed regarding what employees in organizations think about people analytics and the advantages of using it in various processes in the organization.

Singh, Kumar, Rajbhar and Pushkar (2017) has conducted a detailed research on the factors that can help in successful adoption of analytics in various HR function in Indian organizations. As a result of this, certain most influential and least influential factors were identified from the respondents answer for the use of analytics and majority of the respondents went with analytical skills about individual factor and training about organizational factor. Sunanda (2017) in her paper has discussed about the impact which attrition creates to a company. As the attrition rate increases the cost incurred in hiring and training new talent increases.

Sharma (2017) in her research paper has put forth a model to predict employee turnover for the next quarter or in a future period. Ray (2016) has emphasized the importance of recruitment like how the number of candidates joined is significantly less than the number of offers made in many organizations and the leakage that happens between offers made and accepted phase then between offers accepted and candidates joined phase and the ways to plug these leakages through smarter talent analytics. Further, Leon (2016) has suggested the importance of metrics in talent acquisition like at which stage of the recruitment process the leakage happens. Even many of the companies has made use of HR analytics like in the case of Cisco where they analyzed the human resources that would be available for them in a particular location made decisions about opening a new office in that region and Thales, similarly, had closed an existing office and opened the office in a new location as described in financial director (2016).

Angrave, Kirkpatrick, Lawrence, and Stuart (2016) have described that only the positive impact of analytics in HR has been considered while making strategic decisions till now but at the same time it is also important to consider the drawbacks of it, in order better understand the strength and weakness before making a more important strategic decision.

Spahic (2015) has conducted a study on HR intelligence methods that are followed in some of the global firms and the questionnaire was designed in such a way to identify the importance of HR analytics and research on decision making in their organization. Narula (2015) had highlighted the use of HR analytics, the forms in which it can be used, the level of competencies required at each stage, how Motorola and HP had made use of it. Vargas (2015) has conducted a detailed study about the factors which has a greater impact on HR analytics based on the response from 302 human resource professionals on topics such as self-efficacy, external

influences, need for data, need of proper platform for conducting analysis, negative effects of forcing analytics, expectancy, the effort that is required after implementation of HR analytics and their impact on individual's performance.

Rouhonen (2015) has stressed about the benefits of using analytics in various HR functions by analysing its value, steps that needs to be followed while implementing it and the challenges that exists upon using it in important functions. Saini (2014) has collected samples from around 600 employees working in the mentioned sectors and tried to understand the differences and similarities between these sectors in terms of attrition. Dooren (2012) has collected data from 69 organizations in Netherland and conducted a research on how certain factors has its effects on the applicability of HR analytics. Absar (2012) has conducted a study about the recruitment and selection practices in manufacturing sector considering the private sector and public sector companies.

Zachariah and Roopa (2012) has stressed the need for creating proper retention plans for employees in IT sector as a constant attrition rate may have a huge impact on the organization. While it has been found out that there is no significance difference observed between the Indian IT companies and other IT companies' certain factors like job security, learning which employees feel are most important should be taken care off to reduce attrition and promote retention on a larger scale. About recruitment Jacques and Bough (2009) in their article, has stressed about the importance of analyzing the skills of a particular candidate to evaluate if he or she is the perfect fit for a particular job and recruit in accordance with it.

Theoretical Framework

Perception and thinking of employees working in an organization plays an important role as it has a greater impact on the organization, because on a certain processes or ideas some employees have negative view while others have positive view. So, understanding their point of view becomes significantly important in certain processes or technologies. In this study what employees feel or think or perceive about the use of HR analytics in various HR functions like recruitment and selection, training and development and talent management has been studied and analyzed with respect to the various demographic profile of the respondents like gender, age, marital status, educational qualification, experience in IT sector and annual income.

About the statements framed in this questionnaire under recruitment and selection, training and development, and talent management, they were referred from the thesis work done by authors from various universities.

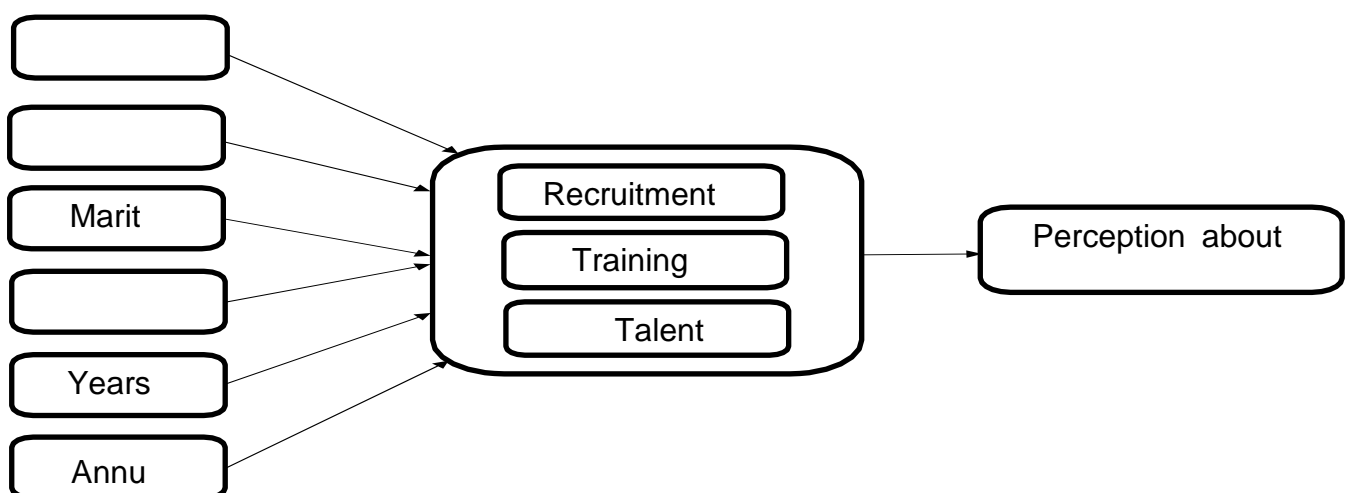


Figure 2: Theoretical framework

Industry Profile

Information Technology industry plays a major role in the growth of the nation by contributing to the growth of the economy and it is estimated that this industry contributes about 10% of the India's overall Gross Domestic Product. Specifically, IT industry in India has seen a tremendous growth in the past few years as its exports market has grown over 37%, while the main destinations for exports were US, UK and rest of Europe, and the domestic market has grown nearly 30% over that last 5 years. Among the IT industry market, technology service contributes to a major chunk of the market share, followed by business process and engineering services, products, and hardware, in terms of export revenue generated technology services is the clear leader followed by other sectors.

The workforce associated with this sector has also seen a constant increase over the years like in the case of 2019 there were around 41 lakhs people employed in this industry which eventually increased to around 43 lakhs in 2020, an increase of around 2 lakhs in the total workforce. Around 10% among these workforce works in the Mumbai based Tata Consultancy Services in India, which has established many delivery centers around the world followed Infosys and other companies like HCL technologies, Wipro are few that follows the line.

Majority of the IT companies in India are in these five states such as Tamil Nadu, Maharashtra, Telangana, Karnataka, and Andhra Pradesh. The National Capital Region also holds a good number of IT parks and companies. Further, it is a well-known fact that India has been a preferred destination for IT services as it has a huge knowledgeable workforce and the cost involved in the process of service delivery has been quite cheap when compared to other developing and developed markets. With specific regard to Chennai, which is just behind Bengaluru in India for exports related to software has a good number of people working in IT industry. Mahindra city and Tidel Park in Chennai are the major IT parks. It also has a wide range of companies starting from TCS to Hexaware. Growth of technologies like artificial intelligence, cloud computing and machine learning will further fuel the growth of this industry to a larger scale in India. Over the last year few acquisitions and mergers have taken place which has resulted in the growth of the IT industry in India by creating more job opportunities. In such a huge industry of national importance, managing people becomes a most important activity that is when the role of Human Resource Management team comes into play, as they play an important role in all people related activities.

Research Methodology

The important research methodological procedures adopted in this study includes data source, survey methodology covering sample selection, data collection and statistical analysis of the research report. The sample was collected from 213 respondents working in IT organizations in Chennai. The sampling method used was convenience sampling and the tool used for collection of data is survey questionnaire. After the initial questionnaire was framed with demographic variables and 45 statements, a pilot study was conducted on the questionnaire and because of which few of the statements were altered and deleted i.e., out of the 45 statements framed only 24 were altered and chosen for the purpose of main study for which the responses were obtained, and the study was conducted.

The primary objective of this paper is to analyze the IT employees view on the use of analytics in human resource management functions. Some demographic information like gender, age,

marital status, educational qualification, years of experience and annual income were collected with help of this survey questionnaire. The questions have been structured expecting responses on the 5-point scale like strongly disagree, disagree, neutral, agree and strongly agree which are assigned the scores starting from 1 to 5 respectively for the affirmative question or statement and reversibly in case of response categories for negative type statement or question. The analysis was conducted with the help of SPSS through statistical tests like t-tests, ANOVA, and factor analysis.

Objectives:

Primary Objective:

To study the perception of employees on the usage of analytics for recruitment and selection, training and development, and talent management.

Secondary Objective:

To compare the perception between men and women regarding the usage of HR analytics in the specified functions.

To analyze how different age group of people feel about HR analytics in HR functions.

To analyze the opinion between single and married people regarding the usage of HR analytics in the specified functions.

To study the relationship between perception of the respondents on HR analytics on the different HR function and their years of experience.

Data Analysis and Interpretation

Factor analysis:

To divide the statements into different group's factor analysis has been performed on the 24 statements and the statements that fall under the similar groups are clubbed together.

Table 1: KMO and Bartlett's test

| KMO and Bartlett's Test | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .683 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 4605.337 |
| | df | 276 |
| | Sig. | 0.000 |

From the table 1 for KMO value which is greater than 0.6 is a good fit. The factor analysis of all the 24 statements yields a KMO measure of 0.683, which is a good fit. This indicates that the data is suitable for factor analysis. Also, the Bartlett's test of sphericity has a significance of 0.000 which shows that the data is a good fit and valid.

Table 2: Factor analysis on HR functions

| Rotated Component Matrix | | | |
|---|-----------|------|------|
| Statements | Component | | |
| | 1 | 2 | 3 |
| I think analytics can predict the optimum level of training to be offered for employees | .827 | | |
| I feel analytics doesn't have a strong role to play in eliminating performance gaps | .819 | | |
| I feel analytics plays a vital role in identifying and developing existing talent for scarce skill role and leadership positions | .803 | | |
| I believe analytics doesn't have the potential to develop future career plan for potential employees | .749 | | |
| I expect analytics to predict the Return on Investment of training | .711 | | |
| I think analytics cannot be used in designing an appropriate training plan | .639 | | |
| I think analytics cannot reduce the time required for training of employees | .614 | | |
| I prefer using analytics for forecasting skills needed in future | .595 | | |
| I feel analytics doesn't have the ability to identify best skilled candidate for a particular job | | .834 | |
| I believe analytics cannot measure the strength and weakness of the employees before making final recruitment decision | | .821 | |
| I think analytics cannot identify which sources yield best candidates | | .778 | |
| I think analytics cannot help in picking high performing talent for leadership and succession positions | | .777 | |
| I expect analytics to eliminate biased decisions during recruitment process | | .750 | |
| I believe analytics can reduce the cost involved in the recruitment process | | .612 | |
| With the use of analytics, I expect the time consumed in the recruitment process to be reduced | | .566 | |
| I think analytics can estimate the future recruitment needs | | .521 | |
| I feel analytics cannot forecast the employee turnover | | | .791 |
| I expect analytics to identify the causes of employee turnover | | | .739 |
| I believe analytics can analyses similar attributes of employees who left the organization in a short time and who stayed for longer time | | | .728 |
| I feel analytics cannot predict the well- being activity required for the employees | | | .695 |
| I feel using analytics, potential and high performing employees can be retained | | | .565 |
| I feel analytics can be used in improving productivity of employees | | | .504 |
| I think analytics cannot measure employee performance | | | .482 |
| I think analytics doesn't have the ability in designing a proper reward program | | | .427 |
| Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. | | | |

Factor 1 (Recruitment and selection): All the statements that are associated with the process of recruitment, hiring and selection are clubbed under this category.

Factor 2 (Training and Development): All the statements that are associated with training of employees and developing them fall under this category.

Factor 3: (Talent management): All the statements that are associated with attrition, retention, performance fall under this category.

Influence of gender:

Table 3: t-test on gender

| Group Statistics | | | | | | |
|---------------------------|--------|-----|--------|----------------|--------|------|
| Function | Gender | N | Mean | Std. Deviation | t | Sig. |
| Recruitment and Selection | Female | 87 | 3.3405 | .60781 | 1.811 | .072 |
| | Male | 126 | 3.2024 | .50121 | | |
| Training and Development | Female | 87 | 3.2112 | .64116 | -1.514 | .132 |
| | Male | 126 | 3.3333 | .53151 | | |
| Talent Management | Female | 87 | 3.3319 | .61351 | -.538 | .591 |
| | Male | 126 | 3.3750 | .54635 | | |

From the table 5 for a two tailed t-test on gender, it has been observed from 87 female and 126 male respondents that for all the cases (sig.=.072,.132,.591) there is no significant difference between the perception of male and female regarding HR analytics as all the values are more than

0.05. Hence null hypothesis (H1o) is accepted, and alternate hypothesis (H1a) is rejected. A low standard deviation value for male (.501, .531,.546) indicates that the values are closer to the mean than for female (.607,.641,.613). While positive t (1.811) value signifies that the mean of female (3.340) is slightly more than that of male (3.202). In case of negative t (-1.514, -.538) value it has been observed that the mean of male (3.333, 3.375) is slightly more than that of female (3.211, 3.331). Based on gender we can conclude that for talent management the means of both male and female are almost similar which states that their thinking is far more similar than for other functions like recruitment and selection, training, and development.

Correspondence analysis:

To study the relationship between the demographic variables and their opinion towards the use of analytics in the specified functions, correspondence analysis has been conducted.

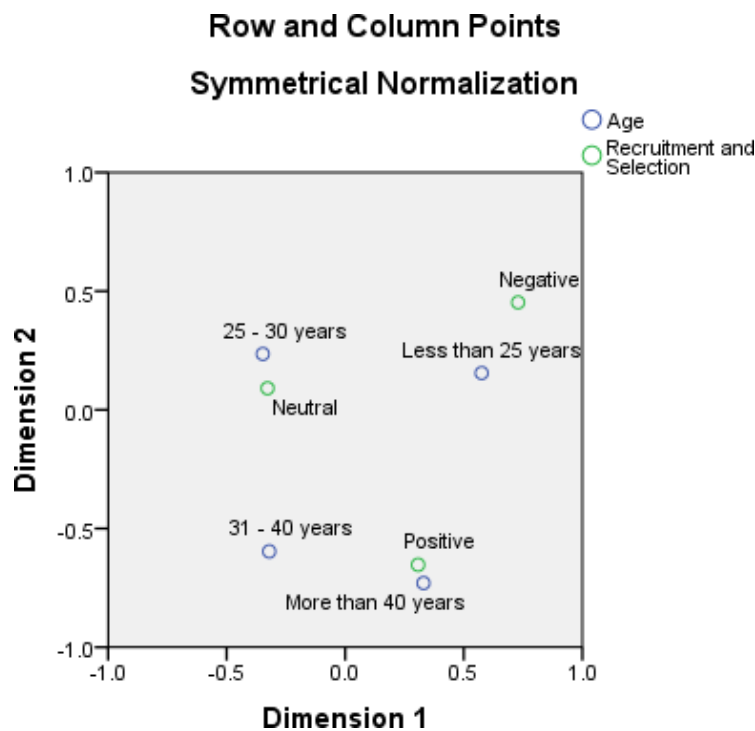


Figure 3: Age vs Recruitment and selection

From the figure for age and recruitment and selection, it can be identified that people who are in the 40+ age groups are more optimistic towards the use of analytics, while those in the 25-30 years category are neutral in their stand and while the people in the less than 25 years group have taken an opposite stand towards the use of analytics in recruitment and selection.

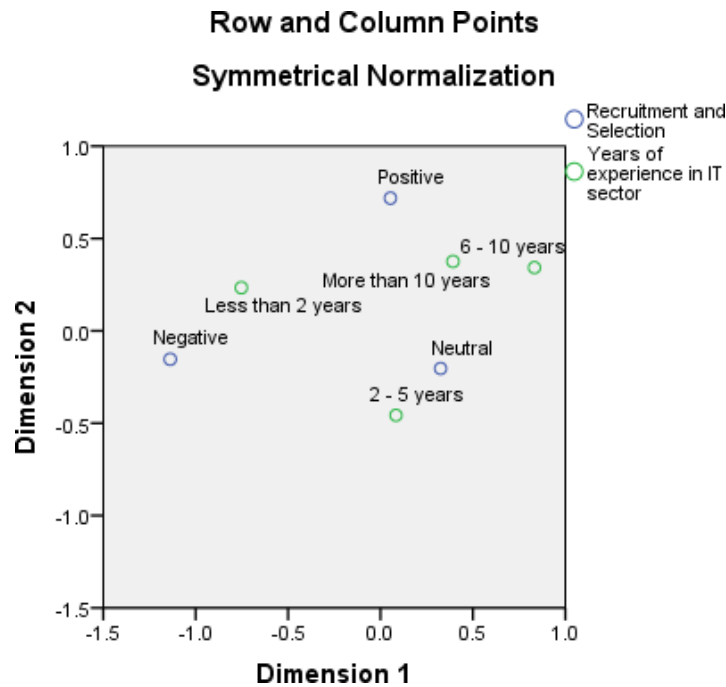


Figure 4: Experience vs Recruitment and Selection

In terms of experience of recruitment and selection, it has been observed that people who have more than 10 years of experience are closer towards the use of analytics in recruitment and selection, while those with 2-5 years of experience have taken an almost neutral stand and those with less than 2 years of experience has been inclined towards those who do not agree with the use of analytics in recruitment and selection.

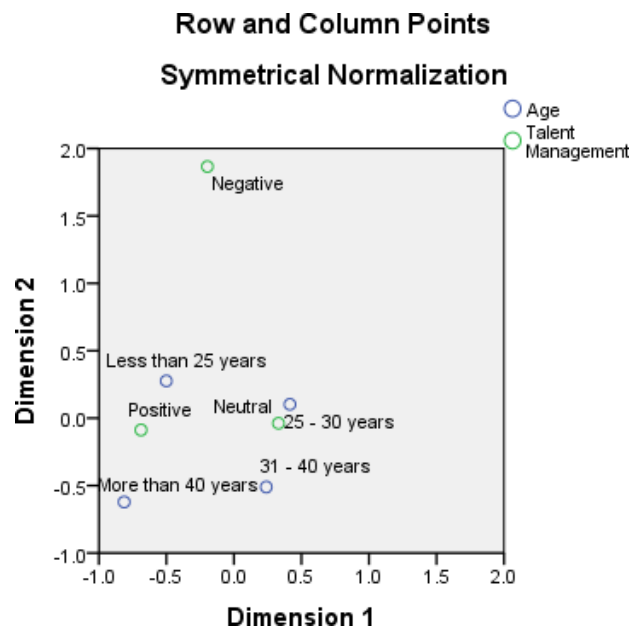


Figure 5: Age vs Talent Management

From the figure for age and talent management it has been found out that people in the age range of 25-30 years were almost neutral in their stand while those in the less than 25 years old category and more than 40 years are slightly inclined towards the positive side of using analytics in talent management.

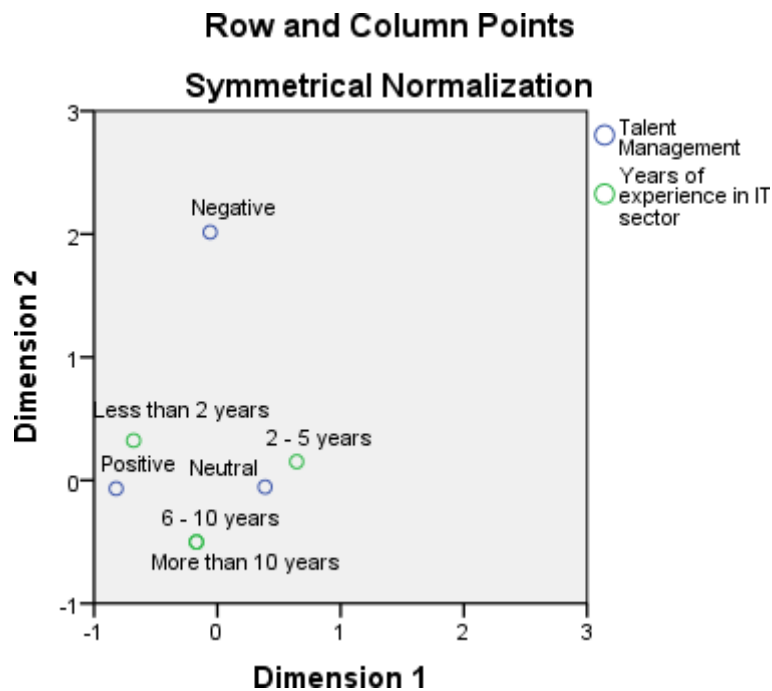


Figure 6: Years of experience vs Talent Management

From the figure for experience and talent management it has been found out that people with less than 2 years of experience have a more positive view towards the use of analytics in talent management when compared to 2-5 years group who are more neutral in their stand. While the remaining groups are undecided between being on the positive side and neutral side

FINDINGS

From the above interpretations it has been identified that because of factor analysis, the variance on each of the component has been studied and it has been identified that among the various statements contained in the study, the statements were grouped together under three variables like recruitment and selection, training and development, and talent management. Further there was no significant difference established between the understanding of the employees working in IT sector regarding the use of HR analytics in various functions like recruitment and selection, training and development, and talent management based on demographics characteristics like gender, age, and annual income.

RESULTS AND DISCUSSIONS

By analyzing and interpreting from the inferences and findings, it has been found out that, the perception of male and female regarding the usage of HR analytics in recruitment and selection, training and development and talent management are the same as there was no statistical difference explained between the two groups and also the male to female ratio was quite high in IT sectors which further satisfies the findings of Mahalakshmi (2018) where the percentage seems to be slightly high in favor of male. While the male respondents are slightly in favor of using analytics in training and talent management when compared to female, who favor the use of analytics in recruitment and selection? Further it can be analyzed that majority of employees in IT sector fall under the less than 30-year age group which shows high number of freshers

and youngsters in the field of IT, or the attrition rate is quite high when compared to other sectors which further coincides with the work of Dhillon (2016) regarding attrition in Indian IT sector where young talents seem to be joining the organizations and experienced people keeps on moving out of the organization. While it can be concluded that respondents in the 31-40 years group are slightly in favor of using analytics in recruitment and training than other groups, respondents in the above 40 years group are slightly in favor of using analytics in talent management than other groups.

Married and unmarried people do not have a significant difference in their thinking regarding HR analytics usage in training and development, and talent management and their thinking seems to be the same.

Based on the years of experience, employees do not have a significant difference in their perception regarding the usage of analytics in recruitment and selection i.e., their perceptions are same. But about other two functions like training and development and talent management, the thinking among the group differs i.e., significant difference has been established. Majority of the employees in the 6-10 years of experience group feel that analytics finds its greater applicability in talent management than employees with other experience. In addition to this, employees with less than two years of experience have a positive thinking towards the usage of analytics than other experience levels.

They were either not aware of the use of analytics or mentioned processes potentiality or willing to adapt to changes on the technological front in the current scenario. While about 23% of the employees were against the use of HR analytics or do not like numbers and data. Overall, 50% of the employees are quite positive towards the use of analytics in the HR process in recruitment and selection, training and development, and talent management functions. Hence based on these suggestions IT organizations can adjust the use of analytics in certain processes or explain about the potential advantages and uses of analytics in those functions.

CONCLUSION

The study showed mixed response in their opinion towards the use of analytics. Further, the employees think that HR analytics also plays a major role in certain process under these functions for ease of decision making and simplification of the processes, while they think few processes do not need the use of it. The workforce in IT sector constitutes to a larger amount when compared to other sectors hence having a proper HR analytics system in place can help in attracting, hiring, retaining, to people management in large scale IT organizations. Understanding and taking into consideration the employees' point of view can increase their commitment towards their work which further reduces attrition. HR analytics and the use of it has been widely accepted by employees working in IT organizations and they have a constructive point of view towards it which further leads to the expansion of HR analytics in other relevant functions as well.

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Interplay of Job Feedback, Resource-Based Job Crafting and Person-Job Fit

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Abstract

In a complex and dynamic business environment, it is difficult for both employees and employers to create jobs that always result in a high person-job fit. Person-job fit plays an important role in workplace outcomes. Acknowledging this aspect, the present study empirically examines the role of 'job feedback' and 'resource-based job crafting' on person-job fit, using job demands-resources theory and their interrelationships and underlying mechanisms. A mediation model of job feedback, job crafting and person-job fit were tested on responses collected from 433 executives of Indian public sector enterprises using PROCESS (SPSS). The study found a positive relationship of job feedback with person-job fit, and three increasing dimensions of resource-based job crafting, i.e., increasing social resources, structural resources and challenging job demands. No significant relationship was found in the case of 'reducing hindering job demands'. Job feedback had a positive effect on person-job fit both directly as well as indirectly through 'increasing challenging job demands'. Significant theoretical contributions and practical implications have been discussed.

Keywords: Job characteristics, VUCA, person-job fit, public sector, job designing

Introduction

Background, Research Gap and Problem

Job feedback or feedback is one of the crucial aspects of job characteristics (Hackman & Oldham, 1975, 1980; Oldham & Hackman, 2010). It provides necessary indications to individuals about the effectiveness of their performance in the process of undertaking various activities associated with their job. In a job with great feedback, the actual work itself provides clues about how well an individual is doing –aside from any feedback co-workers or supervisors may provide. Just doing the work required by the job provides many chances for the person to figure out how well he (she) is doing. As feedback is an essential component of motivating job characteristics, and is likely to have an encouraging effect on job performance; an individual is more likely to do the needful to improve his (her) work outcomes further if he (she) obtains it on time (Hackman & Oldham, 1975, 1980).

Ensuring the desired level of person-job fit has always been very challenging for an organization. There is a growing demand of employees to their employers for allocating jobs that match well with their abilities and preferences i.e. provide them with a job that has higher person-job fit (e.g., Deloitte, 2020). However, due to various personal and organizational factors, it is tough for employers to always provide the most appropriate jobs to every employee (Cable & DeRue, 2002; Edwards, 1991). This situation gets further complicated due to volatility and ambiguity of the prevailing business environment that makes employees' job demands highly dynamic and complex. Managing such job demands become difficult, and may lead to person-job misfit for some of the employees. As person-job fit plays a significant role in many favourable organizational outcomes, it is crucial for the organization to suitably address this issue.

Job designing has been considered as one of the active processes of making the required changes in the job by managers to make it much nearer to the expectation of an employee. Among various job attributes such as task identity, task significance, feedback, skill variety, and autonomy; job feedback appears to be an easily implementable job designing option as its presence or absence could be assessed relatively quickly than other job attributes. However,

there is not much information regarding its role in enhancing person-job fit. Therefore, acknowledging its relevance and research gap, this paper aims to examine the effect of job feedback on person-job fit. The study also aims to understand the underlying mechanism and intermediary processes involved in this linkage.

Traditionally, job designing has been construed as an organization-led action (Hackman & Oldham, 1975, 1980; Oldham & Hackman, 2010). While employers take initiatives to improve the 'job' side of the person-job fit; employees can also initiate specific actions to redesign their job and enhance their person-job fit. One of such self-initiative is known as job crafting which involves efforts towards increasing social resources, structural resources and challenging job demands, and reducing hindering job demands at their workplace (Tims & Bakker, 2010; Tims, Bakker, & Derks, 2012). This is also known as resource-based job crafting as it considers job resources as critical enablers for job demand management (Bruning & Campion, 2018).

Job crafting contributes in many personal and organizational level positive outcomes such as enhanced job performance (e.g., Rudolph, Katz, Lavigne, & Zacher, 2017) and work engagement (Bakker, Tims, & Derks, 2012; Bruning & Campion, 2018). However, doing job crafting efforts depends on many personal and job-related factors (e.g., Rudolph et al., 2017). Nevertheless, how specific job attributes, mainly job feedback, affects all such initiatives, is still not known. Therefore, another objective of this paper is to examine the role of job feedback in the job crafting process and its consequent effects on person-job fit. Further, this article also investigates the role of job crafting as a mediator in the feedback-person-job fit relationship.

The study is based on the job demands-resources theory, which states that individuals try to leverage/mobilize necessary resources in order to manage their job demands (Bakker & Demerouti, 2007, 2014). The findings of the study are likely to provide an understanding of the unexplored direct and indirect relationship between job feedback, job crafting and person-job fit. Thus, the research is likely to extend the existing literature on resource-based job crafting. This study may also provide a tool to organization how they can implement job designing in a more involved manner to enhance the person-job fit of their employees and bring positive outcomes. It may also sensitize employees regarding how best they can enhance their person-job fit using their self-initiated action in the form of four different types of job crafting. Results of this study may also help organizations to design a context-specific job crafting intervention. By doing so, they may be able to encourage their employees to job craft in a more effective manner so that they can manage their dynamic job demands easily and simultaneously enhance their person-job fit.

Objective of the Study

The objective of the study is to examine the relationship between feedbacks, four forms of resource-based job crafting, and person-job fit. This paper also compares the role of each of the four job crafting forms in enhancing person-job fit using job feedback as a resource. Likely mediation effect of resource-based job crafting in the relationship between job feedback and person-job fit has also been examined.

Methodology

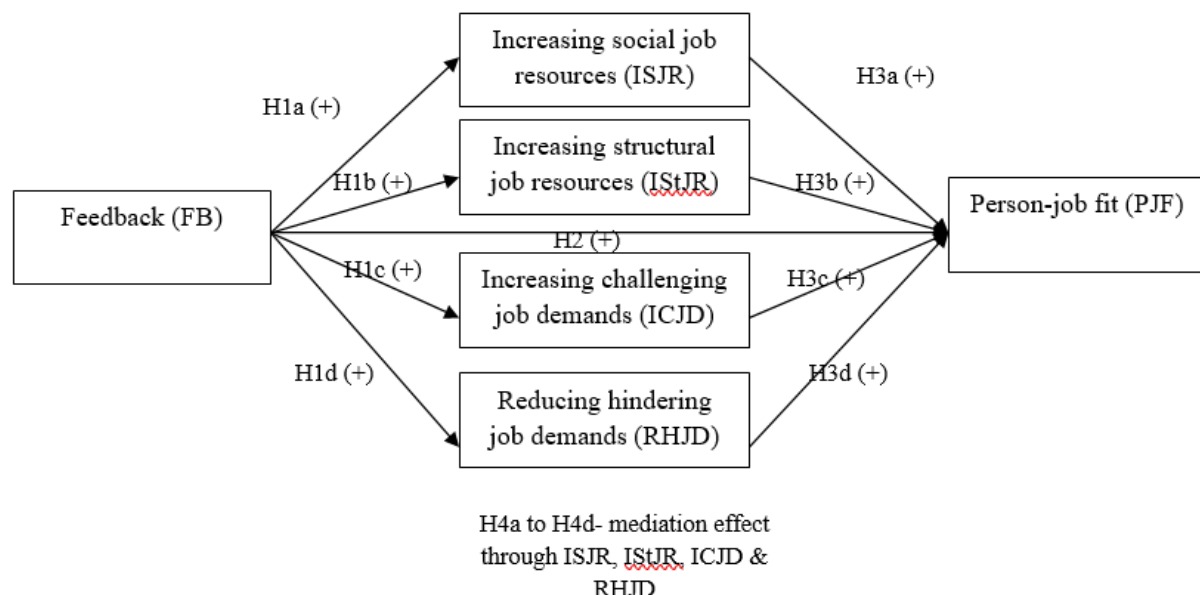
Like other commercial organizations, public sector enterprises (PSEs) are also facing challenges on multiple fronts: sustaining businesses in a complex and highly competitive market, managing stakeholders' expectations, and employees' demands. Such dynamic

conditions also bring new job demands and job requirements for their employees. Under such situations, employees' person-job fit gets affected, thus calling for a suitable response from them as well as their employers. Job crafting type self-initiated action becomes very critical for these employees to manage these job requirements effectively. Acknowledging this relevance, the present study was undertaken in a public sector context.

Data from 445 executives from ten Indian PSEs operating in the energy sector were collected using a survey questionnaire by following a mix of purposive and convenience sampling. Out of this, 433 responses were found usable for the final analysis. The final sample consisted of 91.2% male employees with mean age as 37.3 years ($SD=9.9$ years) and mean work experience as 12.1 years ($SD=8.9$ years). PROCESS macro of SPSS (Hayes, 2013) was used to test various hypotheses. Age, gender, work experience and job level were used as control variables.

Hypotheses and Proposed Model

According to job-demands resources theory, individuals tend to manage their job demands by optimally utilizing their resources. These resources could be personal, social as well as job-linked. Job feedback is one of the central attributes of motivating job characteristics which can act as a resource for employees and empower them to make efforts in the form of four job crafting strategies namely increasing social job resources, increasing structural job resources, increasing challenging job demands and reducing hindering job demands to balance their job needs and preferences with the available resources in the form of person-job fit. Recent job crafting literature (e.g., Bruning & Campion, 2018) also provides a support to this proposed relationship. Also, these four forms of resource based job crafting is also hypothesized to act as a mediator between feedback and person-job fit as they act as a necessary medium to realize gainful utilization of feedback as a resource for person-job fit, a result of job-demands and resources optimization. Accordingly, the following model is being proposed:



Results and Findings of the Study

Analysis was carried out using Model no. 4 of PROCESS Macro of SPSS (Hayes, 2013). Results of the analyses are provided in Table I.

Table I: Results of Hypotheses Testing

| Hypothesis | Relationship | B (β) | 95%LLCI# | 95%ULCI # | P-value |
|------------|---|------------------|----------|-----------|---------|
| H1a | FB \rightarrow ISJR | 0.087 (0.154) | 0.034 | 0.141 | <0.001 |
| H1b | FB \rightarrow IStJR | 0.077 (0.185) | 0.038 | 0.116 | <0.001 |
| H1c | FB \rightarrow ICJD | 0.130 (0.239) | 0.080 | 0.180 | <0.001 |
| H1d | FB \rightarrow RHJD | 0.045 (0.069) | -0.016 | 0.105 | 0.150 |
| H2 | FB \rightarrow PJF | 0.093 (0.134) | 0.033 | 0.153 | 0.002 |
| H3a | ISJR \rightarrow PJF | 0.041 (0.034) | -0.073 | 0.155 | 0.481 |
| H3b | IStJR \rightarrow PJF | 0.089 (0.053) | -0.082 | 0.259 | 0.308 |
| H3c | ICJD \rightarrow PJF | 0.252 (0.198) | 0.116 | 0.388 | <0.001 |
| H3d | RHJD \rightarrow PJF | 0.007 (0.006) | -0.088 | 0.101 | 0.887 |
| H4a | FB \rightarrow ISJR \rightarrow PJF (Indirect effect) | 0.004 | -0.008* | 0.016* | |
| | FB \rightarrow PJF (Total effect) | 0.137 (0.197) | 0.077 | 0.197 | <0.001 |
| H4b | FB \rightarrow IStJR \rightarrow PJF (Indirect effect) | 0.007 | -0.007* | 0.023* | |
| H4c | FB \rightarrow ICJD \rightarrow PJF (Indirect effect) | 0.033 | 0.012* | 0.060* | |
| H4d | FB \rightarrow RHJD \rightarrow PJF (Indirect effect) | 0.000 | -0.006* | 0.007* | |

Note: n= 433, B= Unstandardised coefficient, β = Standardised path coefficients

95% Confidence Interval (LLCI = lower level confidence interval, ULCI = Upper level confidence interval)

LLCI and ULCI shown with respect to unstandardised coefficient.

*Bootstrapping – 5000 samples.

FB = feedback; ISJR = Increasing social job resources; IStJR = Increasing structural job resources; ICJD= Increasing challenging job demands; RHJD= Reducing hindering job demands

Results are controlled for age, gender and work experience.

As shown above, a positive and statistically significant relationship was found between feedback and three forms of resource-based job crafting, namely increasing structural job resources, increasing social job resources, and increasing challenging job demands. No significant effect was observed in the case of reducing hindering job demands. A direct positive effect of feedback and increasing challenging job demand on person-job fit was observed. However, the effect of the other three job crafting forms on the person-job fit was non-significant. The study found a mediating role of only ‘increasing challenging job demands’ in

the relationship between feedback and person-job fit. No such effects were observed for other three job crafting forms.

Theoretical Contributions

The study proves that feedback as a job characteristic indeed plays a significant role in enhancing person-job fit. It acts as a useful job resource which can be leveraged by employees at their workplace in mobilizing other structural and social job resources. Presence of this feature in the job also encourages them to take up challenging job demands. However, its mere presence does not help in avoiding a certain set of job demands which are hindering in nature. This study also establishes that not all forms of job crafting may act as a mediator between feedback and person-job fit. Only when individuals increase their challenging job demands, they succeed in further enhancing their person-job fit. Making efforts on increasing other job resources (e.g., structural and social) do not contribute much towards increased person-job fit. These findings explain how and when job feedback and job crafting can contribute towards person-job fit enhancement. By doing so, the study not only fills up the research gap but also expands our understanding of the job crafting process.

Practical Implications

Employees are likely to witness multiple challenging job demands at their workplace under the prevailing uncertain and dynamic business environment. In such conditions, if they take up these challenging job demands and use feedback as a job resource, they will be able to enhance their person-job fit easily. Enhanced person-job fit has many positive consequences for an organization such as improved work engagement (Chen et al., 2014), job/task performance (Li & Hung, 2010), job satisfaction, and turnover decision (Cable & DeRue, 2002). Therefore, acknowledging the critical role of feedback in enhancing person-job fit, both directly as well as indirectly through job crafting, organizations should promote redesigning of the job by focusing on this particular job characteristic.

All forms of job crafting may not actually enhance person-job fit. Therefore, employees need to pursue only a more appropriate form of job crafting. In fact, an individual can enhance person-job fit by increasing their challenging job demands rather than avoiding hindering job demands or increasing other job resources. This is equally true for a more bureaucratic work context like the public sector.

Realizing the implications mentioned above, employers may like to design a suitable job crafting intervention so that more number of employees feel encouraged to pursue 'increasing challenging job demands' form of job crafting and enhance their person-job fit. This will also help organization to adapt to ever-emerging business requirements. Its relevance is even more under the present situation of heightened uncertainty.

Limitations

The study uses a cross-sectional research design. Therefore, issues related to the cause-effect relationship are likely to be present. Similarly, there was a limitation of scope as the study was undertaken on only six substantive study variables. There may be other important factors, at an individual as well as organizational level, that has not been explored in this study. The detailed paper will cover all aspects of the study, including the development of a theoretical model, methodology, data analysis results, discussions and implications, limitations and areas of future studies in a greater detail.

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Role of Identical Elements, Transfer Design, and Trainer Performance in Transfer of Learning: Evidence from the Indian Industrial Sector

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Abstract

Transfer of learning comprises utilization of acquired skills, knowledge, and attitude to job performance. The extant literature evidence the failure of leadership intervention highlights a gap between development intervention and transfer of learning. Hence, there is a need to understand antecedents of transfer of learning. This study attempts to explore intervention variables that can help to enhance the transfer of learning. Responses were collected from 250 managers, who attended leadership intervention to explore antecedents of motivation to transfer, and transfer of learning. Structural equation modeling technique (AMOS 24) was used to validate the proposed model. The results indicate that motivation to transfer is a significant mediator between identical element, transfer design, trainer performance, and transfer of learning. The practical and theoretical implications are discussed in the paper.

Keywords – Motivation to Transfer, Leadership Intervention, Transfer Design, Transfer of Learning, Trainer Performance

Introduction

Organizations spend huge amounts on training for nurturing complex managerial competencies (Brion, 2020). The extant literature highlighted the failure of training in terms of trainees' inability to utilize the learned competencies in the workplace (Muduli & Raval, 2018). Transfer of learning is an indicator of the effectiveness of training, yet understudied and remains as gap (Hughes et al., 2019). Organizations may achieve a positive return on training investments through the transfer of learning. Therefore, leadership intervention is intended at enabling trainees to utilize, generalize, and maintain competencies at the workplace. Understanding the ways trainees utilize acquired competencies may be contingent on the interaction of training design and motivational predictors (Gegenfurtner, Knogler & Schwab, 2019; Tafvelin & Stenling, 2020).

The analysis of the influence of intervention design factors, and trainees' motivation on the transfer of learning will encourage organizations to formulate strategies that could minimize the transfer of learning difficulties in leadership intervention. Researchers (Velada et al., 2007; Yaqub, Singh & Dutta, 2021) explored training design factors and transfer outcomes, few studies have explored the linkage between training factors, motivation to transfer (MtT), and utilization of leadership competencies in the workplace. Previous studies on the transfer of learning focused on employee training (Velada et al., 2007; Muduli & Raval, 2018) while neglecting complex leadership competencies transfer. Individual and organizational predictors of transfer are extensively explored in the literature (Kodwani and Prashar, 2019), and training design factors are less explored and remain a gap in the literature (Gegenfurtner, Knogler & Schwab, 2019). The lack of understanding about the transfer of learning from complex leadership intervention is a major gap in the literature. Harris et al., (2014) call for further research on the role of trainer performance to facilitate the transfer of learning. Addressing this gap in the literature we have analyzed the impact of intervention design predictors namely, identical elements, transfer design, trainer performance, and competencies utilization at the workplace. MtT is proposed as a mediator between intervention design factors and the transfer of learning.

Precisely, this study adds to current transfer literature. First, studies exploring intervention design predictors in leadership intervention context are scarce and remain as gap. Therefore, this study explores the effect of intervention design factors on the transfer of learning in the context of a complex leadership intervention. Secondly, studies that focused on leadership intervention are limited (Deakins et al., 2012). Hence, this study addresses the literature gap by exploring identical elements, transfer design, trainer performance, motivation to transfer, and transfer of learning from leadership intervention. The study's purpose is to analyze the impact of intervention design factors, and MtT on the transfer of learning in a post leadership intervention context. The second objective is to examine the mediating mechanism of MtT between the aforementioned intervention design factors and the transfer of learning.

Theoretical Background and Hypotheses Development

Signaling Theory

The presence of identical elements, transfer design, and influential trainer performance signals (Connelly et al., 2011), the effectiveness of the intervention. Trainees perceive these signals that training intervention will enable them to utilize the acquired competencies in their work activities. These signals significantly enhance trainees' motivation for performance improvement through the transfer of learning to work context. However, the absence of these signals in training intervention appears as an obstacle in achieving positive transfer.

Identical Elements, Motivation to Transfer, and Transfer of Learning

Identical elements refer to the extent to which the content of the training is similar to the actual job situation (Saks & Belcourt, 2006). The identical elements theory (Thorndike & Woodworth, 1901) implies stimuli and responses in training and workplace context should be identical for the transfer of learning. Leadership intervention mostly focuses on learning of soft skills such as strategic decision making, interpersonal, and leadership skills. Therefore, the inclusion of identical elements is crucial to utilize learned skills in varying situations. The relevance of training content enhances trainees' expectations that the application of new learning will enhance their performance (Burke & Hutchins, 2007). Trainees' MtT plays a central role in the transfer of learning (Paulsen & Kauffeld, 2017). Burke and Hutchins, (2007) pointed that when training content signals resemblance with job activities; enhances trainees' motivation to transfer learning for performance improvement. MtT is the most vital antecedent for transfer of learning (Iqbal & Dastgeer, 2017). The inclusion of more identical elements in training improves trainees' perceptions and expectations for transfer of learning (Locht, Dam & Chiaburu, 2013). Based on this evidence we proposed the first hypothesis:

H1: MtT will mediate between the identical element and transfer of learning

Transfer Design, Motivation to Transfer, and transfer of Learning

Transfer design refers to the combination of instructional approaches and delivery styles to link acquired learning with trainees' performance improvement (Muduli & Raval, 2018). If trainees perceive that training was designed to enhance their capability to transfer acquired learning to the workplace enhances motivation to transfer, and transfer of learning (Holton III, 1996). The extent to which intervention design included transfer mechanisms is referred to as transfer design (Chauhan et al., 2017). Transfer design differs across organizations depending on culture, intervention content, and organizational factors (Holton, 1996). The congruence of intervention instructional approaches with trainees' job requirements; enhance the transfer of learning (Velada et al., 2007). Training effectiveness depends on the clarity of transfer design (Bhatti & Kaur, 2010; Yaqub, Singh & Dutta, 2021). Transfer design enhances learning and motivation to transfer (Kirwan & Birchall, 2006). Trainees' perception of transfer design

enhances the effectiveness of intervention (Devos et al., 2007). Integration of transfer design in intervention enhances trainees' self-efficacy and transfer of learning (Bhatti & Kaur, 2010). The review of literature directed authors to propose the second hypothesis:

H2: MtT will mediate between transfer design and transfer of learning

Trainer performance, Motivation to Transfer, and Transfer of Learning

Trainer performance influences trainees' motivation for performance improvement and training effectiveness (Noe & Schmitt, 1986). Trainer performance in terms of their delivery styles influences trainees' motivation to transfer skills in the job context (Finn et al., 2009). Trainees' interest in intervention and motivation to learn is aroused by the quality of trainer performance (Towler & Dipboye, 2001). Trainer performance motivates trainees to learn, retain and recall training content, which facilitates the transfer of learning (Kelley & Gorham, 1988). Furthermore, trainer performance activates trainees' active engagement in training enabling them to transfer what is learned to their work. Harris et al., (2014), found a significant impact of trainer directiveness on trainees' satisfaction with the intervention and transfer of learning. To measure trainer performance on the transfer of learning through the mediation of motivation to transfer in managerial intervention we proposed the following hypothesis:

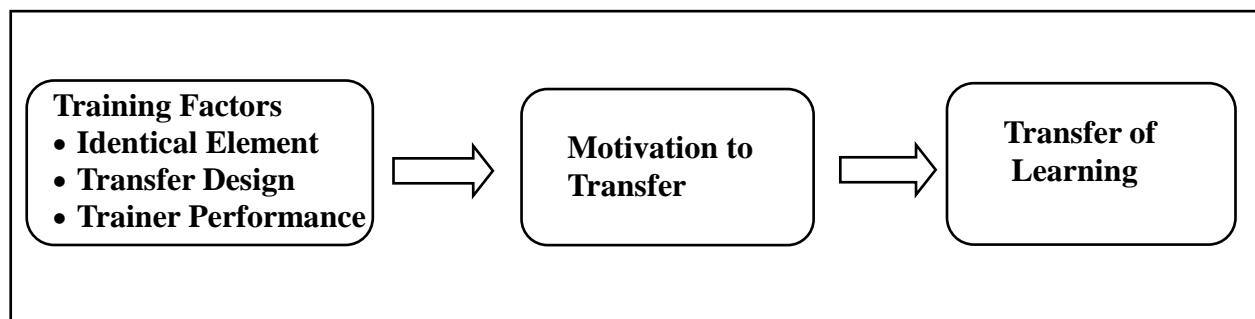
H3: MtT will mediate between trainer performance and transfer of learning

Research method

Sample and Demographics

Respondents (n=250) were managers working in a large Indian industrial organization. Participants were selected who attended one or more training in the preceding year. One year time frame was based on extant research (Lancaster, Milia & Cameron, 2013). Respondents filled an online survey related to organizational leadership intervention. The ratio of male and female participants was 90 percent and 10 percent respectively. 47 percent of respondents were between 28 to 50 years age group, and 53 percent were above 50 years. Job tenure ranges from 5 to 37 years. Authors send the link to an online survey to the potential participants. Of the 410 respondents who accessed the online survey, only 250 responses were complete. Hence, the final sample of 250 respondents was used for the analysis.

Figure 1: Theoretical Model



Measures

With five items (Xiao, 1996), we measured transfer of learning, and the sample item reads "I feel I have a stronger foundation for solving the problems related to my work after attending training". MtT was gauged with four items (Machin and Fogarty, 2004), and the sample item

was "I review course materials to develop the skills that I have learned". The identical element was measured with four items (Locht, Dam & Chiaburu, 2013), and sample item reads "In training activities included were similar to my work". To measure transfer design authors used three items (Velada et al., 2007), and the sample item was "During the training process teaching was focused on how to apply learning on my daily job activities". Trainer performance was gauged with four items (Seiberling & Kauffeld, 2017), and the sample item reads "The trainers are experts regarding the training content".

Results

Test of Measurement Model

To test the discriminant validity of study constructs CFA (confirmatory factor analysis) was performed on the scales mentioned in the measures section. As Table 1 shows, the result of CFA, five-factors model compared with other models as a better fit with the data ($\chi^2 = 194.90$, $df = 109$ ($p < 0.001$), $GFI = 0.92$, $CFI = 0.96$, $RMSEA = 0.05$). The hypothesized measurement model indices show that the model fits well with the data as the minimum cut-off limit of all indices is met. Accordingly, the discriminant validity of study constructs established, and the proposed model supports unidimensionality of measures (Hair et al., 2019).

Table 1: Model fit summary, and comparison of measurement model

| Measurement Model | X^2 | $\Delta\chi^2$ | df | p | GFI | CFI | RMSEA | AIC |
|--------------------------|--------|----------------|-----|--------|------|------|-------|--------|
| Five factor Model (M1) | 194.90 | - | 109 | <0.001 | 0.92 | 0.96 | 0.05 | 282.90 |
| Four Factor Model (M2) | 474.46 | 279.56 | 113 | <0.001 | 0.80 | 0.82 | 0.10 | 555.48 |
| Three Factor Model (M3) | 626.15 | 151.69 | 116 | <0.001 | 0.76 | 0.75 | 0.12 | 700.15 |
| Two Factor Model (M4) | 752.66 | 126.51 | 118 | <0.001 | 0.73 | 0.69 | 0.13 | 822.66 |
| Single Factor Model (M5) | 918.96 | 166.30 | 119 | <0.001 | 0.69 | 0.61 | 0.15 | 986.96 |

Note. X^2 , Chi-square; df, degree of freedom; GFI, goodness of fit index; CFI, comparative fit index;

RMSEA, root mean square error of approximation; AIC, Akaike information criteria.

Reliability, strength and nature of study variables

The reliability coefficient Cronbach's alpha (α) have been shown in Table 2, which ranges from 0.71 to 0.89 (Hair et al., 2019), suggests good internal consistency of the study constructs. The mean and standard deviation also been shown in Table 2. The correlation coefficients of all the antecedents, and mediating variable were significantly and positively correlated with transfer of learning.

Table 2: Descriptive Statistics, Correlation Co-efficient of Study Constructs

| Variables | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | |
|------------------------|------|------|------|---------------|---------------|---------------|--------|---------------|---------------|
| Identical Elements | 3.52 | 0.74 | 0.08 | (0.89) | | | | | |
| Transfer Design | 3.90 | 0.59 | 0.04 | .49** | (0.84) | | | | |
| Trainer Performance | 4.04 | 0.50 | 0.10 | 0.38** | 0.49** | (0.77) | | | |
| Motivation to Transfer | 3.90 | 0.54 | 0.30 | 0.37** | 0.33** | 0.38** | 0.33** | (0.71) | |
| Transfer of Learning | 3.89 | 0.56 | 0.09 | 0.39** | 0.43** | 0.45** | 0.43** | 0.40** | (0.81) |

Notes: $n = 250$. ** Correlation is significant at the level of 0.01 (two-tailed). Reliability coefficients are represented across the diagonal.

Mediation Analysis

We used Hayes's (2013) process Model 4 to analyze mediation. As shown in Table 3, the confidence interval did not contain 0, which suggests that MtT significantly mediated the impact of identical elements, transfer design, and trainer performance on the transfer of learning. Hence, hypotheses H1, H2, and H3 were accepted.

Table 3: Results of Bootstrapping Analysis

| Mediation | β | SE | BC 95 % CI | |
|--|---------|------|------------|------|
| | | | LLCI | ULCI |
| Identical Element → MtT → Transfer of Learning | 0.13 | 0.04 | 0.03 | 0.24 |
| Transfer Design → MtT → Transfer of Learning | 0.17 | 0.05 | 0.08 | 0.28 |
| Trainer Performance → MtT → Transfer of Learning | 0.19 | 0.05 | 0.09 | 0.30 |

Note: MtT, Motivation to transfer; β , Standardized beta coefficient; SE, Standard Error; BC 95% CI, Bias-Corrected 95% Confidence Interval; LL and UL, Lower Limit, and Upper Limit of Confidence Interval.

Discussion

This study analyzed the mediating mechanism of MtT between identical elements, transfer design, and trainer performance with the transfer of learning. All the proposed hypotheses are supported by the findings. Consistent with the theory of the Identical elements (Thorndike & Woodworth, 1901), a match between stimuli and responses in both training, and job settings enhance trainees' motivation to utilize acquired learning to work performance. Also, transfer design was found as a predictor of MtT for transfer of learning. Organizations could make policies for the inclusion of more identical elements, and transfer design while designing leadership development intervention for transfer of learning. Trainer performance was found equally important for the motivation of trainees and transfer of learning.

This study has some limitations. First, the authors tested the theoretical model post hoc only. The analysis of factors pre-during-post intervention would have given us more confidence in study findings. The second limitation consists of a cross-sectional survey employed for data collection. Future studies would use longitudinal design, and gather responses at different periods to predict trainees' motivation and transfer of learning.

Conclusion

This study is relevant as it aims to contribute towards the understanding transfer of learning process by exploring intervention design factors through mediating mechanism of motivation to transfer. Eventually, this study highlighted that the quality of the transfer is determined by focusing on organizational and individual capabilities, paying less attention to intervention design. This may be one of the vital reasons for insufficient transfer of learning.

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The Influence of Technology Acceptance on HRM Effectiveness: HR Roles as a Mediating Factor

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Abstract

Anchored on the role theory, this study's purpose is to construct and analyze a model of mediation to examine the relationship between technology acceptance, HRM effectiveness, and HR roles. This study investigates the process by which technology acceptance is connected with HRM effectiveness by looking at HR Roles as a mediator for the technology acceptance-HRM effectiveness relationship. SEM and regression models were used to assess the hypothesized link between the variables under research using data obtained from 384 HR professionals working in construction organizations. The research discovered that HR roles play a mediating function in the association between technology acceptance and HRM effectiveness. The outcomes of this study reinforce the importance of technology acceptance in influencing HR roles and HRM effectiveness.

Keywords: Technology acceptance, HR Roles, HRM effectiveness, Mediation.

Harmony of Relationships - Defining the Interorganizational Network Construct

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Abstract

The networks literature is quite vast comprising of studies from social networks to research on interorganizational networks and beyond. Although there has been significant progress in understanding what networks are, their structure, their function, the understanding of the interorganizational network construct remains a research area requiring attention. A construct cannot be effectively used unless a common agreement on its definition is achieved. Such is the case for the interorganizational network construct which has multiple definitions and various terms that are being used interchangeably in the literature, creating a lack of consensus on what interorganizational networks mean. Therefore, the objective of this study is to examine the existing research on networks to understand the concept of “interorganizational networks” and to provide an all-encompassing definition for it.

Keywords: Networks, Interorganizational Networks, Interorganizational Collaborations, Interorganizational Relationships

Introduction

Cooperative strategies are of significance in today’s turbulent environment wherein organizations are confronted by powerful external forces, issues of resource scarcity and intense performance pressures (Schermerhorn, 1975). Earlier business dealings were conducted either using discrete market transactions or internal hierarchy, but over the years the number of organizations joining various interorganizational relationships to perform business operations has drastically risen (Ring & van de Ven, 1994). Proponents of cooperative strategy have emphasized that organization’s crucial resources could extend beyond its boundaries providing a source of competitive advantage that can only be generated by the combined idiosyncratic resources and capabilities owned and controlled by specific partners than by either partners operating in isolation (Dyer & Singh, 1998). Thus, Cooperative relationships are defined as formal or informal linkages formed among firms to achieve a strategic purpose (Mário & Heiko, 2012). Over the years, networks have been examined from multiple theoretical perspectives at different levels of analysis and outcomes (Ahuja et al., 2012; Gulati et al., 2000; Kilduff & Brass, 2010). A growing body of research in strategy is recognizing the influence on a firm’s economic action of the social context in which they are entrenched. Therefore, in this study firms are regarded as embedded entities present in a network of relationships (harmony of relationships) with other actors, a relational view instead of an isolated atomistic one (Brass et al., 2004; Gulati et al., 2000). Scholars who study interfirm ties usually use terms like Interorganizational Relationships (IORs), Interorganizational networks, Business Ecosystem, Organizational Fields, Alliances, Clusters, Platform-Mediated Networks, Consortia, Network Organization, Constellations, Joint Ventures (JV’s), Partnerships, Interlocking Directorates, Hybrid Organizational Arrangements, Franchises etc. (Podolny & Page, 1998) interchangeably and overlappingly to denote connections among multiple entities but the construct of “network” is not always used appropriately.

Interorganizational networks are a specific form of collaborative relationship among firms, although this phenomenon is widely studied by organizational scholars there is not enough clarity on what exactly they mean while using this term creating an extremely fragmented literature without a common language for studying constructs, even though all these terms indicate a shared meaning of connectedness, social linkage, relationships, cooperation and collaboration (Provan et al., 2007). There is a need for a common language for studying the

interorganizational network construct which is not yet established, leading to a jumble of meanings for those who study networks. Such ambiguity in construct definition demands a deeper examination of the phenomenon of interorganizational networks for clearly defining this term and distinguishing it from other closely related similar constructs. This paper contends that without an understanding of interorganizational network construct, the knowledge of network outcomes is potentially erroneous and incomplete. Further, this endeavour is important in order to obtain an improved understanding of network antecedent and network outcomes, which will only be partial without an appreciation of the boundaries of the term interorganizational network. Also, defining the interorganizational network construct is essential for creating beneficial interorganizational network structures, overcoming interorganizational network constraints and being able to carry out appropriate network modifications for enhanced firm perform. Therefore, the objective of this study is to examine the existing research on networks by reviewing and synthesising the various definitions of interorganizational networks and other similar constructs to understand the concept of “interorganizational networks” and its boundaries for providing an all-encompassing definition for it.

Definitions of Interorganizational Networks

Network Architecture refers to three basic elements — **nodes** that comprise the network, the **ties** which connect the nodes, and the resulting **patterns & structures** that form these connections. Any of these basic elements if modified gives rise to an emergence of a new structure, evolution of an old structure and change in the architecture of the network over time (Ahuja et al., 2012). The constructs of Partnerships, Joint Ventures (JV's), Franchisees, Alliances, Interlocking Directorates and Hybrid Organizational Arrangements form the basic elements of interorganizational networks and these linkages are usually dyadic or bilateral in nature. While the constructs of Interorganizational Relationships (IORs), Business Ecosystem, Organizational Fields, Constellations, Clusters, Consortium, Platform-Mediated Networks, Networks, Interorganizational networks, Business Groups, Network forms of organization, Network organizational forms, Network Organizations and Network Governance involve a collection of relationships with number of ties greater than two. Each of these linkages are examined in detail and an assessment of each of these constructs and its similarity and differences with interorganizational networks is depicted in **Table 1**.

| Term | Assessment with respect to Interorganizational Network Construct | |
|------------------------------|--|---|
| | Similarity | Difference |
| Partnerships | <ul style="list-style-type: none"> involve mutual enduring commitment between parties to obtain goals that cannot be achieved independently. involves open communication and mutual trust among members. provide benefits of access to a variety of resources but also lead to certain constraints. | <ul style="list-style-type: none"> usually dyadic/ bilateral in nature consisting of a buying and a selling organization, while interorganizational networks comprise of a collection of partnerships, generally involving two or more members. |
| Joint Ventures (JV's) | <ul style="list-style-type: none"> involve long-term commitment of resources by the member firms having shared business goals. generally formed during situations of high uncertainty. | <ul style="list-style-type: none"> leads to the creation of a new legal entity where partners gain shared ownership and control of the organization for carrying out cooperative activities. typically involve dyadic or bilateral arrangements, while interorganizational networks occur as a result of an assemblage of individual joint ventures. |
| Franchisees | <ul style="list-style-type: none"> involve a mix of legal as well as relational linkages, normally formed by a legal contract but the continuation and termination of contract are dependent on both the economic returns as well as the social relationship between the parties. generally, tend to be long-term in nature. enables the enterprise to grow rapidly than would otherwise be possible. | <ul style="list-style-type: none"> agreement is formed between two parties, the franchisor (parent firm) and the franchisee (local firm), therefore involving a dyadic/ bilateral relationship. Networks cannot be formed by a single bilateral arrangement, for an interorganizational network of franchisees to exist, the franchise network must comprise of an array of franchisees. One party provides the other with the right to market their product or service and managerial assistance in return for a lump sum amount and yearly royalty. |

| | | |
|---|--|---|
| Alliances | <ul style="list-style-type: none"> are voluntary cooperative relationship between entities to pool resources to achieve shared goals. involve a mix of contractual ties and relational exchanges among members. constellations are a special type of strategic alliance and involves complex multilateral alliances comprising of multiple partners (at least 3) instead of bilateral alliances (two). | <ul style="list-style-type: none"> essentially dyadic exchanges, while an interorganizational network – alliance network in this case, occur when firms enter into multiple alliances with a number of partners (Koka & Prescott, 2002). Since, constellations are viewed as a particular form of strategic alliance, many constellations together would form a network, but not a single constellation. |
| Interlocking Directorates | <ul style="list-style-type: none"> involves economic actors (individuals affiliated to one firm being a part of the board of directors of another firm) embedded in social relationships, like network actors. | <ul style="list-style-type: none"> unlike interlocking directorates which are completely based on informal social ties, interorganizational networks in addition to informal social ties also involve formal contractual linkages between entities. the person affiliated to a firm is the unit of analysis under study, while in interorganizational networks the firm itself is the unit of analysis for study. |
| Hybrid Organizational Arrangements | <ul style="list-style-type: none"> comprise of vast forms of cooperative arrangements that can take place between the two extremes of markets and hierarchy. involves two or more autonomous entities joining to pursue collective interests by continuous pooling of resources while maintaining some amount of independence. represent an accelerated mechanism to obtain access to resources outside the firm without risking the possibility of losing organizational know-how. | <ul style="list-style-type: none"> include both formal entity formation as well as formalized relations that are not properly organizations, while interorganizational networks only involve formalized relations that are not properly organizations. |
| Interorganizational Relationships (IORs) / Interorganizational | <ul style="list-style-type: none"> are cooperative, interfirm associations which are negotiated in a continuing communicative process. | <ul style="list-style-type: none"> are described as being short-term or long-term in nature, while networks generally involve durable long-term cooperative associations between entities. |
| links / Interorganizational collaboration | <ul style="list-style-type: none"> are formed to achieve joint business goals that are difficult for firms to achieve independently. involves sharing resources while maintaining independent control over their entities. | |
| Business Ecosystem | <ul style="list-style-type: none"> if the business ecosystem is strong (healthy), the members flourish and if the business ecosystem is weak (unhealthy), the members suffer severely; same is the case for interorganizational networks and its members. | <ul style="list-style-type: none"> includes a wider range of relevant players such as the actors, technologies, and institutions and broader boundaries as compared to an interorganizational network that only includes organizational actors. comprises of a loosely connected and less formal relationships who have a shared vision while networks involve durable formal (legal) contracts where the economic actions are embedded in the social context and have common business objectives. |
| Organizational Fields / Institutional Field | <ul style="list-style-type: none"> comprise of a group of organizations that tend to interact more regularly with each other than with others external to the field. | <ul style="list-style-type: none"> encompasses constellations of actors that are involved in common tasks and have a shared meaning system – this includes the institutions/ institutional environment whose rules direct the entities' practices, performance and survival. While interorganizational networks involve long-term, goal-oriented arrangements among distinct but connected firms (Greenwood et al., 2017). |
| Clusters | <ul style="list-style-type: none"> comprise of concentrations (critical masses) of highly specialized and knowledgeable entities that are interconnected to each other in a variety of interrelated industries. allows members to benefit from advantages of scale, access to information, powerful incentives and other efficiencies without losing its flexibility. | <ul style="list-style-type: none"> are generally geographically restricted having collective vision while networks need not be geographically restricted and usually comprise of common business goals. networks provide access to resources at lower costs while clusters attract specialized resources to a region. membership is restricted in networks and is mostly based on contractual agreements but comprises of both formal & informal linkages while clusters have open membership based on social values (trust & reciprocity) networks involve cooperation while clusters involve a combination of both cooperation and competition – Coopetition (Rosenfeld, 1997). |
| Consortium | <ul style="list-style-type: none"> involves arrangements among two or more firms that share resources to take on initiatives beyond the resource scope of individual members while still retaining their independence. typically, has more than two members and are likely to continue functioning even after a member leaves. membership are usually more restricted (Rosenfeld, 1997). | <ul style="list-style-type: none"> leads to the creation of a new legal entity for carrying out cooperative activities. it is difficult for members to achieve consensus on specific goals while in interorganizational networks agreement is achieved on business goals and the loss of commitment to the initiative is penalised. |
| Platform-Mediated Networks | <ul style="list-style-type: none"> comprise of a system of entities or nodes such as individuals, teams or organizations that enables two (or multiple) sets of entities to connect with each other. requires a critical mass of members to pool in resources with for existence, survival and grow. | <ul style="list-style-type: none"> involves the interactions of participants being facilitated by intermediaries (the platform) that provides the various network members with a common architecture to connect with one another. This platform services two (or multiple) sets of users by charging a fee for the infrastructure provided, which is not the case in networks (McIntyre & Srinivasan, 2017). |

| | | |
|--------------------------------------|---|--|
| Networks | <ul style="list-style-type: none"> the components of a network – a) nodes/ vertices; and b) ties/ edges are also the building blocks of interorganizational networks. the ego-network and whole-network can be analysed at the interorganizational level of analysis. the relationships in a network and interorganizational networks are formed by regular interactions between the nodes based on both formal (contractual) & informal linkages. | <ul style="list-style-type: none"> Networks can be examined from different levels of analysis individual, team and organizational levels. Interorganizational networks mostly considers associations at the firm level, but the individual and team level networks play a major role in understanding the interorganizational relationship since all three level of analysis are interconnected in nature (Brass et al., 2004). |
| | <ul style="list-style-type: none"> the network density (quantity/ number of ties) and strength of ties (quality/ intensity of ties) play a crucial role in the performance of the members of an interorganizational network. numerous variables that explain interpersonal and intraorganization networks, also explain the interorganizational networks such as the role of boundary spanner (individual level) and its impact on interorganizational networks (Brass et al., 2004). | |
| Business Groups | <ul style="list-style-type: none"> comprises of sets of legally separate firms with multiple stable formal and/or informal relationships in same or related industries. | <ul style="list-style-type: none"> is composed of a powerful parent company and other offspring organizations (group affiliates) in which the core organization holds a controlling share (administrative or financial control), while in a network no network member is subject to the dominant control (administrative or financial) of a single core firm. |
| Network forms of organization | <ul style="list-style-type: none"> involve features of collaboration, interdependence, and reciprocity with durable and recurrent ties. | N A |
| Network organizational forms | <ul style="list-style-type: none"> are composed of lasting relations among organizations based on interdependence, expectations, obligations and mutual interest. | <ul style="list-style-type: none"> are largely based on social rather than legal contracts while interorganizational networks mostly involve contractual agreements amongst parties but also considers the social capital of entities in the network (Rosenfeld, 1997). |
| Network organizations | <ul style="list-style-type: none"> Network organizations tend to form a cluster of firms that are linked together more by market mechanism than by hierarchies. | <ul style="list-style-type: none"> follows a hub-spoke model with a central unit (core organization) and the related organizations (upstream & downstream players) being dominated by this leader organization, need not necessarily be the case for Interorganizational networks where members cooperatively decide on the use of their resources while maintaining independent control over them (Brass et al., 2004). |
| Network Governance | <ul style="list-style-type: none"> involves durable exchanges among autonomous entities and includes a set of members that frequently interact with each other than with others outside the network. | <ul style="list-style-type: none"> is largely based on social rather than legal contracts while networks are mostly based on contractual agreements amongst parties but does comprise of both formal & informal linkages (Rosenfeld, 1997). |

Table 1: Differing Terms and their similarities and differences to Interorganizational Network Construct

Therefore, based on the above assessment, in this study **interorganizational networks are defined as conscious, long-term, goal oriented, formal but embedded in a social context, cooperative, non-equity collaborative arrangements among three or more legally autonomous organizations in a variety of interrelated industries that work together for achieving independent as well as collective business objectives that are beyond the resource scope of individual firms.** For interorganizational networks to exist, survive and grow a critical mass of at least three highly specialized and knowledgeable member firms are required to pool in resources. These interorganizational networks can take up multiple forms of cooperative arrangements between the two extremes of markets and hierarchy, thus enabling firms to grow rapidly by creating harmony of relationships than would otherwise be possible by operating in isolation. Membership in interorganizational networks is restricted and expensive, comprising of groups of organizations that tend to communicate more regularly with each other through formal (contractual) & informal linkages than with others outside this network. Further, interorganizational networks are embedded in a relational context (harmony of relationships) wherein firms through interdependence, mutual interest and reciprocity gain benefits of scale, access to information, powerful incentives and other efficiencies without losing its flexibility.

The Interorganizational Network Construct

Theorizing in networks comprise of two different but complementary views: the individual organization perspective (**egocentric network**) and the whole network perspective (**entire collectivities of organizations**) (Provan et al., 2007). Both the egocentric networks and the whole networks can further be classified across four dimensions: **dyad level; portfolio level; net level; and market level** (Mattsson, 1997; Möller & Halinen, 1999; Ritter & Gemünden, 2003).

1. **Dyad level Networks (Micro level)** – involves focus on collaboration between two actors, it is the cumulative of individual exchanges between two actors.
2. **Portfolio level/ Hub-Spoke Networks (Meso level)** – usually considers a focal firm (hub) and its set of relationships. This level does not include all relationships that a firm has, but considers a special subset of relationships of the focal firm eg: distributors relationships or customer relationships etc.
3. **The Net level (Meso level):** Considers all the relationships of a firm with all other firms in the network.
4. **Market level Networks (Macro level):** examines the whole market as networks, which can include any relevant market entity – need not necessarily be firms, they can be any type of organization eg: government institutions, regulatory bodies, policy makers etc.

Using these dimensions, a framework categorizing the different levels of Interorganizational Network Studies is proposed and it indicates the possibility of eight different types of interorganizational network research (**Table 2**).

| | Egocentric Network | Whole Network |
|-------------------------------------|---|---|
| Dyad level (Micro level) | Involves the set of all dyadic ties of the focal firm. | Involves the set of all dyadic ties of all the network actors. |
| Portfolio level (Meso level) | Considers a special subset of relationships (similar relationships) of a focal firm. | Comprises of a special subset of relationships of all network actors. |
| The Net level (Meso level) | Includes all the relationships of the focal firm with all other firms in a network. | Considers every relationship of all network actors with all other firms of the network. |
| Market level (Macro level) | Examines the relationships of the focal firm with all relevant entities in the entire market. | Explores the relationships of all network actors with all relevant entities in the entire market. |

Table 2: Categorization of different levels of Interorganizational Network Studies

Conclusion

Scholars of interorganizational network research must examine these four network types at two different levels of analysis, the egocentric network and the whole network to gain a better understanding of the network antecedents, network outcomes, the network structures etc studied in the literature, the knowledge of which will only be partial without an appreciation of the boundaries of the term interorganizational network and its various types. Therefore, an understanding of dyadic ties at the ego network and the dyadic ties at the whole network level are prerequisites for investigating all the other three layers at the two levels of analysis. Based on the issues and facets concerning the definitions of interorganizational networks and its boundaries as well as that of other similar closely related constructs **Figure 1a.** depicts an integrated model of the eight different but interrelated interorganizational network types and **Figure 1b.** provides a demarcation of the key interorganizational network constructs

illustrating their boundaries. It is important to acknowledge that even though interorganizational networks at each level are related, they are also distinct, hence the need for categorization (Ahuja, 2000; Ahuja et al., 2012). It indicates that all members of a dyad network are members of the portfolio network that in turn belong to the net network and market network hence signifying the harmony of relationships. Within the dyad network various components that aid in forming networks exist such as partnerships, franchisees, alliances, some forms of hybrid organizational arrangements; along with the components in the dyad network the portfolio network comprises of platform mediated networks and network organizations; in the net network, in addition to the elements of dyad and portfolio network various forms of linkages like interorganizational relationships, constellations, clusters, business groups, network forms of organizations, network organizational forms and network governance exist; and lastly, the market network includes organizational fields and business ecosystem over and above the elements of dyad, portfolio and net networks.

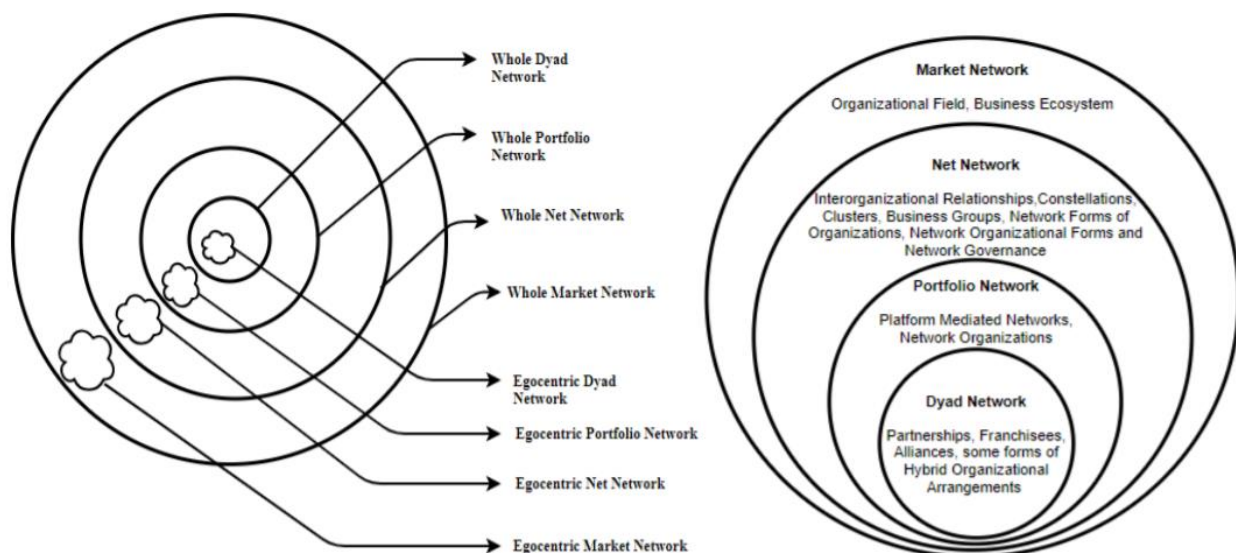


Figure 1: a. Integrated Model of All Network Types

Figure 1: b. Demarcation of key interorganizational network constructs

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Survival Strategies of Small Businesses in Odisha during Covid-19 (With Special Reference to Street Vendors in Bhubaneswar)

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Abstract

Hit by Covid-19 slouch, businesses are facing major blow, due to Covid-19 and its impact has been severe on small businesses as well. Since, it is difficult to gauge how long Covid-19 will last, it has become challenging for most businesses to continue operations due to meager returns and uncertainty in the global business environment.

The objective of this case is to assess the impact of Covid-19 on very small businesses i.e. the street vendors in the capital city of Odisha through a primary survey and find out the measures taken for business continuity and survival. The innovation and creativity of these small vendors propose an interesting case which may be used by entrepreneurs in different fields to make a proper assessment of their existing businesses which will also provide them a clear picture of where the company stands and also make plans in the current unsettled market.

Keywords: Innovation, Pandemic, Small business, Street vendors and Survival.

Background of the Study

Small businesses across the country faced many obstacles in 2020 due to the pandemic led lockdowns, shutdowns and other localized restrictions. As the number of Covid-19 cases resurge and the pandemic takes a new turn with the second wave in the country, the scenario of small businesses has become grim repeating in some form that were faced last year with varied localized restrictions across states. Early closure of shops and small time establishments in view of Covid-19 is taking a huge toll on the businesses

Increasing debts, weak finances and inability to cope with changing consumer behavior due to Covid-19 protocols have been grounds due to which thousands of small businesses are disappearing. Many more distressed firms are looking for exit and trying to sell their businesses due to very low sales and rising costs due to mandated operational restrictions. The size of businesses being small, they are also not able to empower themselves digitally, being another reason for shutting down of the business.

Although, the investment in small businesses is less, but still, their closure could result in long lasting employment and broader economic dent since their contribution is huge to the national income of the country. The unplanned national lockdown in 2020 pushed many of these small businesses to the edge and later when things were slowly getting back to normal, the situation again changed to worse. The failure of many small businesses is often unaccounted, since the real time data of small time businesses are scarce. By looking at the intensity and duration of the devastation caused by the pandemic, threats are likely to persist in near future as well.

In spite of too many hardships, there are few small businesses who have survived these trying phase by devising innovations in order to stay afloat. Many small time business owners also switched to an entirely new and different business in order to endure and sustain during such times.

The situation in Odisha is no different. The capital city which was once a dream destination of people from other districts looking for employment opportunities now lies in a dismal state with many being forced to leave the place due to loss of job and others due to inability to sustain their business.

Review of Literature

A study was made (Fairlie R. 2020) on the impact of Covid-19 on active small businesses in United States and it was found that there was a dip of 22% in the number of active businesses during the window period February to April 2020 and this drop was largest on the record. Continuing the analysis further, it was seen that the active business owners went down by 15% and 8% respectively. These observations and analysis were significant from the point of view of policy implications, losses of income and future economic inequality. In order to explore the impact of Covid-19 on small businesses (Bartik, et.al 2020), a small survey was conducted on more than 5800 small businesses in the month of March & April 2020. It was concluded that mass lay-offs and closures had already begun and there were various beliefs associated with likely duration of Covid-related disruptions. The results also highlighted the financial fragility of many small businesses. The Covid-19 pandemic witnessed the largest fall in the number of active businesses (Kalogiannidis, S. 2020) globally and the study provided an idea of how the pandemic affected small businesses. Due to this, the supply chain got affected and impacted the global trade. An assessment on the impact of Covid-19 on small and medium enterprises in Armenia was made (Beglaryan, M. Shakhmuradyan, G., 2020) through a nationwide survey which revealed that the SME workers were more affected by the crisis and the findings suggest for more targeted government assistance to SMEs and low skilled workers. A comprehensive assessment on the short term impact of Covid-19 pandemic on businesses worldwide (Amah., A. et.al. 2020) was done with a focus on developing countries. The paper proved several stylized facts and the findings provide a better understanding on the magnitude and distribution of the shock, the main channels affecting businesses and how firms are adjusting themselves. A study on the impact of Covid-19 on SME's business norms and performance in China was made (Tiezhui, et.al., 2021) based on primary data. The SEM technique was applied where CFA test was conducted to confirm the model's reliability and validity and the results of path assessment were presented to examine the association between the variables. The findings of the study suggested that there is a significant impact of Covid-19 on innovative operational procedures, profitability, remote work along with stakeholders' satisfaction and safety. (Akby, C. et.al., 2021) examined the impact of Covid-19 on small businesses in the Northern region of Iraq. Based on primary data, the results indicated that a majority of respondents suffered huge losses and there has been a steady rise in sales on debt. The study also pointed out that during this time people paid more attention to price rather than quality of the product.

Method

The capital city of Odisha is full of small business vendors selling a variety of things as per the preferences of customers. These small time vendors come from all parts of the state with a desire to earn a little more and take better care of their family. They sell a variety of things starting from plastics to ladies cosmetics, garments, however, street food dominates them all. Starting from gupchup to dahivada, all lip smacking eateries can be found almost everywhere in Bhubaneswar. They even used to earn well. However, their world came crashing down when Covid-19 pandemic started spreading its tentacles almost everywhere in the world. In order to contain the virus, lockdown, shutdown, social distancing and other norms were introduced. This led to a deep impact on these small time street vendors whose income used to come on a daily basis depending on sales. Moreover, such business owners do not usually have too much of savings. Many of them usually engage an assistant to help them in their daily chores. Paying salary to them was again a challenge. In order to know how Covid-19 impacted these small time business owners, a survey was made through a structured questionnaire in different parts of the city to know how Covid-19 has impacted business and what innovations and survival strategies have been adopted in order to earn a living. The questionnaire consisted of both open

and close ended questions relevant to the study and their responses were recorded. The survey was done physically keeping in mind all Covid-19 protocols.

Discussion

A total number of 351 small time vendors were interviewed from all major areas in and around the capital city of Odisha. The responses of 279 vendors were found to be valid. Others were rejected as their responses didn't meet the objective of the study.

It was found that about one-third of the small business owners left for their village and out of which, a majority of them were unmarried youth. Some other respondents who had eaterie related business learned the use of the internet and started partnering with food delivery platforms and sell their stuff on zomato and swiggy etc. Some others who couldn't make use of the internet tried to create a loyal customer base through personal contacts and served them with their favourite delicacies as and when required. Some even started with cloud kitchen services, preparing and delivering home-made healthy and nutritious food to people suffering from Covid-19 for a price. Since the consumer preferences of purchase changed overnight due to the pandemic, a no. of small business owners left their businesses, observed the existing scenario and started new businesses like sanitization of homes and vehicles, selling of masks and sanitizers, providing necessities at doorstep, etc. Some started selling fruits, vegetables and other necessary stuff as people feared stepping out of their homes.

More than half of small businesses have lost employees and are not sure whether to re-hire them as the situation still remain murky. In all the above cases, though their income has not as much compared to pre-covid times but it is good enough to make a decent living. It may be noted that business confidence among small business owners have modestly improved and are willing to make necessary changes like adhering to all major covid protocols in order to bring back the confidence of the customers but situation still remains overall gloomy as the removal of lockdown and restrictions have led to a meager rebound in sales.

Conclusion

The pandemic and then its subsequent second wave have affected small businesses and while the crisis of Covid-19 continues to create havoc, it has also led to creation of opportunities. Many small businesses have started their journey during this phase. Many others have used this time to rethink what is important, what drives them along with their passion. It also helped them to find out gaps which were not earlier taken care of. These gaps can be filled by small businesses which can act as support systems and bring about a difference in their lives and society as well. These small businesses have found options to keep their business continuity. During this period, a significant acceleration of digital migration can be seen emphasizing the importance of innovation and technology and those embracing it gradually are more likely to survive in the times to come. MSME, being the backbone of the economy, a number of relief measures are being provided by the centre and the state in order to boost the confidence of small businesses.

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VIBGYOR: A Regenerative Framework for Organisations to Thrive in an Evolving World

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Abstract

Work is not working anymore. Taylorism still prevails even though the scope of work has moved from physical work to knowledge work. We need a paradigm shift to make work, work. To address this need, “VIBGYOR” framework is proposed based on available studies and experiments conducted. The VIBGYOR framework, comprises of seven dimensions that includes competence, circles, cadence, catalyst, conversations, context and clarity, to create employee experience where work becomes play. Based on the outcomes observed from experiments done at five product based startups for more than ten quarters, it is believed that this alternate approach will help to get work done better. The observations includes an alignment to a larger purpose, increased employee engagement, accountability and a steady rise in predictability of team outcomes.

Keywords: Regenerative, Thrive, Evolving, Culture, Work, Play, Employee experience.

Introduction

Frederick Winslow Taylor, introduced the concept of systemising work, more than a century back through his book, “The Principles of Scientific Management” (Taylor, 1919). While this did improve the efficiency and outcome of people at work then, today unfortunately, many organisations are stuck with old and irrelevant management principles even when work has shifted from physical work to knowledge work (Dignan, 2019; Hamel & Zanini, 2020; Laloux, 2014). Taylor (1919) differentiates people as a ‘thinker’ and ‘doer’ through his concept of Task idea, which has since then continued for more than a century, even though it was ineffective. With automation of physical work, most of today's work aligns to knowledge work, where everyone is a ‘thinker’ and everyone is a ‘doer’. However, the unfortunate truth is that Taylorism continues to prevail today in the form of bureaucracy even in many progressive organisations leading to inefficient use of human capital (Dignan, 2019; Hamel & Zanini, 2020; Laloux, 2014). Now that work is not working, we need alternatives in this evolving world to capitalise on the hidden potential of people (Hamel & Zanini, 2020; Laloux, 2014). Many organisations are looking for readymade how-to-templates rather than creating an approach that best suits them. Sanford (2017) believes that our attachment to older way of working and habitual patterns of thoughts are the biggest barrier that most of us face. Paradigms provide us context; they determine our perspectives and shape the choices we make and the actions we take. We need to change our perspectives and move out of our comfort zone to design the new way of work.

Literature Survey

There has been many studies related to building great organisations. Research says that when an organisation exists to serve a larger cause than profits and there is alignment among all stakeholders, the organisation thrives (Birkinshaw, 2014; Ulrich & Ulrich, 2010). Denning (2018) talks about three core characteristics of an agile organisation: (a) The law of the small team (b) The law of the customer (c) The law of the network. A well-designed communication strategy is key for ensuring alignment at all levels, and will serve as a connecting bridge between the desired outcomes and actual results (Wollmann et al., 2020). Bungay (2012) emphasises the importance of creating an operating rhythm within the organisation. Sanford (2017) observes that members need to comprehend the circumstances constituting the background of an event, challenge, idea or statement to make decisions. Any change initiative

needs an owner (Crawford & Nahmias, 2010) and a sponsor (Mento et al., 2002). Based on the literature reviewed, we identified seven dimensions that are critical for an organisation to thrive.

Competence

Meaningful work contribution requires a growth mindset (Dweck, 2012) and the ability to learn, unlearn, update and react to the changing environment. Self-efficacy (Bandura, 1982) is positively associated with work related performance and nature of work performance can be explained through underlying mechanisms of task strategies, task focus, ability conception and skill acquisition (Stajkovic & Luthans, 1998). The quality of having sufficient attitude, knowledge, skill, and, intention and ability to upgrade regularly, sets one apart from the other. Hence, early identification of factors contributing to change and mapping the competencies required to respond to change, will be key to thriving in an evolving world.

Clarity

Unearthing clarity amidst today's chaos, gives a sense of direction (Birkinshaw, 2014; Wollmann et al., 2020) as well as meaning for both organisation and its employees. A well-designed communication strategy is key for ensuring clarity at all levels, and will serve as a connecting bridge between the desired outcomes and actual results (Wollmann et al., 2020).

Circles

Circle is a structure that helps realise the three core characteristics of an agile organisation (Denning, 2018) and may consist of about 5-9 members. Each member may belong to one or more circles, and holds a specific role in each circle they are part of. Designed for an hierarchy of competence instead of a hierarchy of authority, members in a circle interact directly without intermediaries. Every circle has an elected chief, who acts as information radiators.

Cadence

Cadence enhances predictability of results, and certainty across circles, with clear and measurable outcomes. The ceremonies agreed upon by the members are conducted in a rhythmic fashion, to bring in predictability.

Catalyst

The catalyst is the single accountable person for the transformation initiative. Being the torchbearer, the catalyst acts as an agent that enables or speeds significant change. The role of the catalyst includes identifying the drivers of change, enabling change through communicating the need, and driving change initiative to achieve business results through the members in the organisation.

Conversations

Conversations are result based interactions scheduled among and within the members of circles. Hastings and Meyer (2020) observes that a clear and concise communication among all its stakeholders at regular cadence is critical to ensure that the organisation achieves its desired outcomes. The conversations ensures clarity and create opportunities for regular learning and information sharing (Drawbaugh et al., 2019).

Context

The context (both internal and external) is critical and requires a thorough understanding to lead and manage in a world of change and disruption, to drive business results (Gothelf & Seiden, 2017). To help people better connect and respond to change, it may be necessary to put in place certain context enablers that will help explain the evolving environment.

Changing Paradigms

In most of the traditional organisations, bureaucracy has not helped, instead created silos, overheads and added to the overall complexity of the organisation (Hamel & Zanini, 2020). Laloux (2014) states that the need of the hour is to redesign the organisation to be free of pathologies including but not restricted to politics, bureaucracy, stress, burnout, resentment to

name a few. Dignan (2019) speaks about Evolutionary organisations that use purpose, transparency and reputation to create a culture of freedom and accountability. A more humanistic approach as advocated by the unsung mother of modern management, Mary Parker Follett will bring in a win-win outcome for all parties involved. Evolutionary organisations are people positive, where there is an environment of trust among the employees and employers.

Repositioning Today's Organisation

In their study, Sathianathan and Anish (2021) shares results of experiments conducted to explore the current gaps and identify alternatives to achieve organisational excellence. These experiments have given new insights to leverage the full capabilities of the workforce involved in an organisation. Based on these understanding of current deficiencies and possibilities, we are proposing an enhanced framework to help organisations thrive in this evolving and volatile, uncertain, complex and ambiguous (VUCA) world. The enhanced framework named as the VIBGYOR framework is the outcome of experiments and iterations conducted over a duration of ten quarters in multiple organisations. We use the metaphor of rainbow to describe the organisation. For any organisation, to thrive in these uncertain times, it is important to have competence as well as clarity, which forms the base of the framework. The other five dimensions are built on competence and clarity.

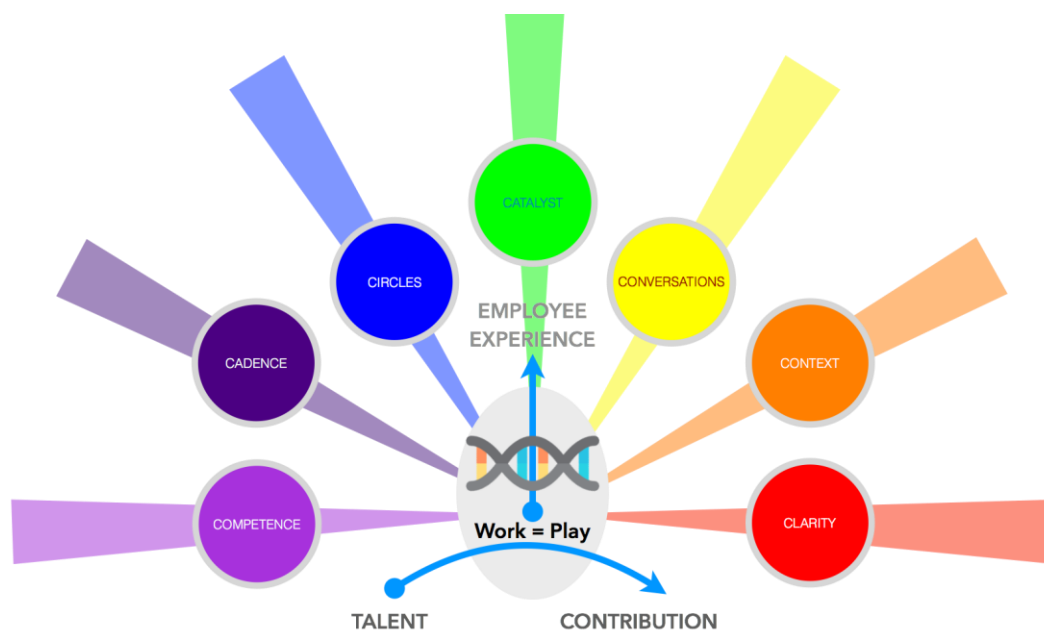


Figure 1. VIBGYOR framework

Talent and Contribution

Netflix believes that a company with dense talent is a company everyone wants to work for and high performers thrive in environments where the overall talent density is high (Hastings & Meyer, 2020). Collins (2001) emphasises the importance of having the right people, the ones who are intrinsically motivated to deliver their best for the team and organisation. Having the right talent helps the organisation achieve the desired outcomes through the contributions of their members.

Work and Play

Csikszentmihalyi (2009) introduced the concept of flow, and described it as a state where people are so involved in an activity that nothing else seems to matter; the experience is so enjoyable that people will continue to do it even at great cost, for the sheer sake of doing it. Pink (2018) observes that for intrinsically motivated members, work does not feel like work. When work

becomes play, the members enjoy and flourish within the organisation because for them work is its own reward (Roth, 2016; Sathianathan & Rajan, 2017).

Employee Experience

For any organisation, an engaged workforce are the source of its competitive advantage (Macey et al., 2011). When various factors required to make the members and team deliver are taken care of, their experience within the organisation peaks (Hastings & Meyer, 2020; Bock, 2017). An organisation that focuses on employee experience gets the best results out of their employees (Pink, 2018; Roth, 2016).

Culture

Every organisation has its own culture, whether we like it or not. For any organism, its DNA is fundamental to it and provides its distinctiveness, similarly, culture is the signature of an organisation. An organisation where the members have mutual respect and feel psychologically safe (Edmondson, 2019) provides a conducive environment for the members to thrive (Hastings & Meyer, 2020). Over a period of time, the culture evolves and becomes inseparable to the organisation which gives it a unique flavour (Wollmann et al., 2020).

Method

Based on the studies and experiments, a framework was iteratively derived to identify the necessary ingredients to reposition today's organisation. The study were done across five organisations. The organisations for study were shortlisted based on the readiness as perceived by the leadership team, availability of sponsor and catalyst. Table 1 provides details of the organisations included in this study.

Table 1. Summary of five organisations considered

| Details | Org1 | Org2 | Org3 | Org4 | Org5 |
|-------------|-----------|------------|-----------|------------|-----------|
| Start date | Mar, 2019 | Mar, 2020 | Jul, 2020 | Sep, 2020 | Nov, 2020 |
| End date | Mar, 2021 | Ongoing | Ongoing | Ongoing | Ongoing |
| Duration | 25 months | 17 months | 13 months | 11 months | 9 months |
| Employees | 100+ | 50+ | 40+ | 20+ | 30+ |
| Founder(s) | 3 | 2 | 1 | 2 | 1 |
| Operational | >10 years | 5-10 years | <5 years | 5-10 years | <5 years |

The agile way of working (Agile WoW) was introduced through bootcamps where the members discussed and clarified the understandings from readings shared prior to the session, moderated by an agile coach. Post the bootcamp, the members formed circles, and agreed on their way of working as well as the ceremonies they will align with. Retrospective was the only ceremony mandated to ensure that the circle members reflects on opportunities for improvement. The circles also identified their 'definition of done' to align on expectation of their work outcomes. As part of the Agile WoW, the circles and its members agreed on the necessary conversations and the cadence that will happen among them, which included a monthly heartbeat conversation to assess the progress of commitments at the organisation level and individual level. The purpose and values of an organisation helps employees align. Among the five organisations, we adopted one of the following approaches (a) leadership team co-created the purpose and values and communicated with the entire organisation, (b) leadership team co-created the purpose and values and later aligned with core members of the organisation, (c) leadership team co-created the purpose and values and later aligned with all members of the organisation. Involving core

members and other members helped to have a better buy-in from other stakeholders. The Objectives and Key Results (OKRs) were introduced after the Agile WoW and purpose and values alignment. The organisation level OKRs were finalised by the leadership team, based on historical data and communicated to the members and each circle derived their OKRs to work towards during the quarter. At the end of the quarter, the circles reflected on the progress made with respect to the OKRs and further actions to improve the results. Table 2 summarises the sequence of approaches followed to implement various experiments.

Table 2. Summary of approaches

| Dimension | Org1 | Org2 | Org3 | Org4 | Org5 |
|-----------|---------------|---------------|---------------|---------------|---------------|
| Step 1 | Agile WoW | Agile WoW | Align purpose | Align purpose | Agile WoW |
| Step 2 | Align purpose | Align purpose | Agile WoW | Agile WoW | Align purpose |
| Step 3 | OKR | OKR | OKR | | OKR |

Discussion

Table 3 provides the summary of approaches and interventions against each of the seven dimensions.

Table 3. Summary of approaches and interventions

| S.no | Dimensions | Approaches, interventions |
|------|---------------|--|
| 1 | Competence | Onboarding the right talent, developing competence through continuous learning, measuring contributions and taking corrective actions wherever required. |
| 2 | Circles | Dynamic teaming for desired results , clear accountabilities., circle chief as enabler. |
| 3 | Cadence | Daily, weekly, fortnightly, monthly and quarterly cadence of various ceremonies. |
| 4 | Catalyst | Single accountable person for the initiative, from C suite or a nominated representative who reports directly to either the CEO or the board and to be supported by other teams |
| 5 | Conversations | One-to-one conversations, circle and organisational level conversations at various cadence, including heartbeat conversations, huddles, learning circles, demos and retrospectives, OKR alignment and reviews. |
| 6 | Context | Internal and external factors impacting the organisation. |
| 7 | Clarity | Purpose and values to bring in alignment, OKRs to drive results |

The data collected during the course of intervention at these organisations were analysed and the results showed (a) increase in predictability of teams outcomes, (b) increase in individual and team accountability resulting in improved performance/ outcomes, (c) increase in employee

engagement, and (d) alignment to organisation's purpose, values and goals. The Agile WoW enabled the circles to focus on sprint deliverables and the cadence of ceremonies (Donnelly, 2016; Baumeister, 2017) brought in better predictability of team outcomes. When the overall predictability increased, it also resulted in improving the quality of deliverables as well as the outcomes expected. The dynamic teaming (Helfand, 2019) approach provided a platform for the circle members to collaborate better improving the engagement among them. The clarity (Wollmann et al., 2020) of organisational purpose and values along with the OKR (Doerr, 2018) brought in better alignment to organisational goals.

Conclusion

The VIBGYOR framework enables the Catalyst to wear the hat of a facilitator (Sathianathan & Aravind, 2021) to bring in alignment to a larger purpose, increased employee engagement, accountability and a steady rise in predictability of team outcomes. Based on the results observed, following recommendations are being made. Initiating the teams with Agile WoW, followed by purpose orientation and OKR has been found to be better than other approaches mentioned in Table 2. We believe that the organisations embracing an agile mindset and best practices are ready and better prepared to be exposed to higher level thinking required for organisation purpose and values. We recommend practitioners to adopt an approach to involve all the members if possible or at least the key members in the organisation to co-create the purpose and values that defines the organisation. This helps prepare the mindset to embrace and assimilate the importance of purpose and values in context of the organisation. The VIBGYOR framework provides a reliable structure for organisations to flourish in the upcoming days of a VUCA world and organisations may find this approach to be indispensable in their journey to reinvent itself (Pralhad & Hamel, 2017; Sathianathan & Ramasamy, 2021). The observations also implies that the success of the transformation journey using the VIBGYOR framework is tightly coupled to the catalyst role.

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Impact of Competitive Intensity on Product Diversification Choices across Technological Environments: Evidences from India

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Abstract

Product diversification decisions enable firms to remain relevant and sustain growth. However, despite a steady focus from the research community, the explanations for related and unrelated diversification have been less clear. Taking clues from Prospect Theory and the Behavioral Theory of the Firms, we successfully establish the relationship between states of prior performance and these strategic outcomes. While superior prior performance leads to related diversification, poor prior performance leads to unrelated diversification. These relationships are moderated by the market competition whose impact is further moderated by the technological environment of the industry in which the firm is operating. The number of firms observed in this study closely approximates the population of data that is available for the Indian market. We observed 4800 registered firms for 10 years.

Keywords: Product diversification, Competitive intensity, Aspiration level, Prior Performance.

Introduction

Product diversification is a risky strategic choice that a firm can choose to remain relevant and sustain itself (Griffith and Rubera, 2014; Luo and Du, 2012, Chiang, 2010). Related diversification is a low-risk strategy when compared to unrelated diversification as the firms have the choice to use their existing resources, skills and capabilities in case of the former. Though scholars have asked for a comprehensive study of the various triggers for these strategic choices, we find less documentation of the antecedents for related and unrelated diversification in the literature. We explore various states or levels of prior firm performances as one of the triggers. Prior performances are reflections of the health of the businesses and managers consider risky choices either to maintain or the alter the status of the business health (Hoskisson, Chirico, Zyang, and Gambeta, 2016).

Most strategic and marketing choices are made to outperform the prevailing market competition and hence competitive intensity becomes a major factor in such decisions (Lusch and Laczniak, 1987; Zahra, 1993). It appears that competitive intensity will factor in while exploring options for product diversification too. however, we find limited exploration of the same in the literature. We propose competitive intensity would moderate the impact of prior performance on related and unrelated diversification strategies. Taking this further, the firm needs to have access to various capabilities and competencies to be successful in their diversification activities. Firms operating in different technological environments have different capabilities at their disposal to experiment with various new ideas and thus would react differently on risky choices in the face of competition. We think technological intensity of the industry would moderate the moderation impact of competition on the prior performance based strategic choices of related and unrelated product diversification for the firms.

Theoretical Background

Related diversification signifies diversifying the product portfolio within the same industry group while unrelated diversification is diversifying within different industry groups (Palepu, 1985). Literature highlights multiple reasons why related diversification is perceived to be less risky than the unrelated diversification (Montgomery and Singh 1984, Barton 1988). Resource based view and transaction cost economics suggest sharing of both tangible and intangible resources, skills, capabilities, markets, distribution etc. among the relatedly diversified products

(Wan et al., 2011; Barney, 1997; Rumelt, 1974; Teece, 1980; Prahalad and Bettis, 1986). However, this is not the case with unrelated product categories (Chatterjee and Wernerfelt, 1991) due to the decreased scope for synergy (Jones and Hill, 1988).

Firms generally undertake bold and risky actions looking at the current business health with an expectation about the future. In this case, we expect prior performance to impact the product diversification choices. Two prominent theories seem to support our argument. Prospect Theory (Kahneman and Tversky, 2013) and the Behavioral Theory of the Firms (BTOF hereafter) (Cyert and March, 1963) both suggest that senior managers generally take action when the firm performance deviates from the expectation or aspiration level (Cyert and March, 1963; Park, 2007). BTOF points towards the phenomenon of problemistic search when the performance falls below the expectation and this has been shown to influence high-risk decisions like that involving overall firm strategy (Miller and Chen, 1994), mergers and acquisitions (Iyer and Miller, 2008) etc. Hence, we propose:

Hypothesis 1: Performance below the aspiration level would lead firms towards unrelated product diversification.

While a state of high performance relative to the aspiration would initially be satisfactory to the decision makers, with time competition would kick in. Thus, along with growth, maintaining or improving the rate of growth starts drawing attention of the decision makers (Bothner, Kim, and Smith, 2012; Derfus, Maggitti, Grimm, and Smith, 2008). At this stage, the presence of extra resources acts as a cushion and hence the system can accommodate experimentations (Jeffrey, Onay, and Larrick, 2010; Singh, 1986). This would lead firms to explore further for incremental benefits and would lead to low- risk explorations like related diversification. Formally, we propose:

Hypothesis 2: Performance above the aspiration level would lead firms towards related product diversification.

Competitive Intensity

It can be thought of as the pressure that the rivals exert on a firm which in turn influences its strategic moves (Barnett 1997, D'Aveni 1994). Consequently, Zahra (1993) suggests companies to innovate, produce new products and explore new markets during fierce competition. Consistent superior performance not only puts the firm in a comfortable position, it also allows experimentation due the increased shock absorbing capacity created by the excess returns along with the red queen effect (Dermus et al. 2008). Hence, we propose:

Hypothesis 3a: Competitive intensity positively impacts the firms' decision for related product diversification.

During stages of extreme poor performances, firms generally look for survival strategies (Ketchen and Palmer, 1999) as instead of spending more and investing, there is a propensity towards cost cutting and overall risk aversion (March and Shapira, 1992) save and look for a safe exit during further downturn. Thus, despite the rise in competition, it seems unlikely that the firms would increase their risk-seeking propensity along with the gradual decrease in the performance. Formally, we propose:

Hypothesis 3b: Competitive intensity negatively impacts the firms' decision for unrelated product diversification.

Technology Intensity

In the face of rising competition, firms with access to matured technology have more incentive to innovate and escape the competition. Scholars have found evidences of high growth rates among the high technology intensive industries (Stuart, 1998; 2000). Even with high competition, firms operating within low technology intensive industries, may find it difficult to make changes in their offerings and vice versa. Formally, we propose:

Hypothesis 4. Technology intensity moderates the moderation impact of competitive intensity on product diversification choices

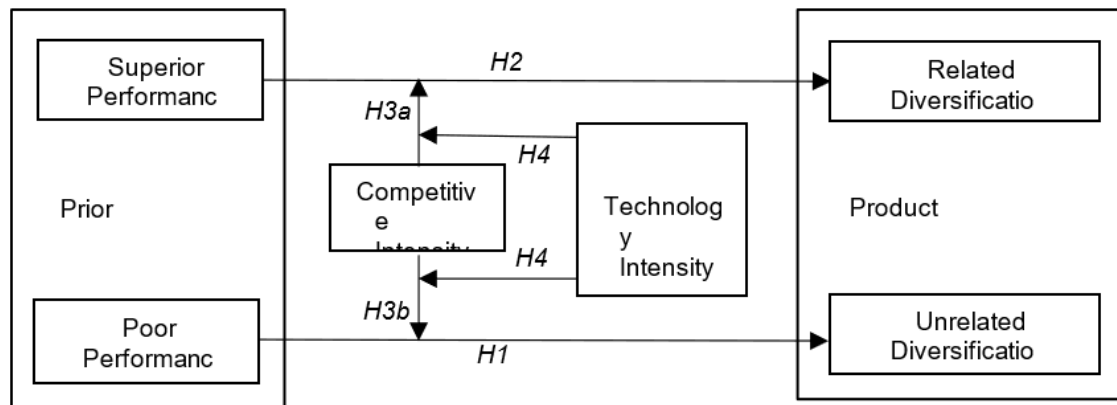


Figure 1. Hypothesized Relationships and Theoretical Model

Variables And Measurements

Product diversification

The data for the study consists of 4,800 listed Indian companies for nine years (FY 2009 – FY 2018) from CMIE Prowess (Popli, Ladkani, and Gaur, 2017; Vishwasrao and Bosshardt, 2001). Like previous scholars in this domain, we have used the entropy index (Su and Tsang, 2015; Park, 2007) to measure product diversification as $\sum_i S_i \ln \left(\frac{1}{S_i} \right)$. Here S_i denotes the proportion of the firm's sale within industry i at the five-digit NIC code level (i.e., at the firm level). The first two digits denote the industry, whereas the last three digits indicate the product group. Unrelated product diversification is also calculated the same way however, here S_i would be the proportion of the firm's sale within industry i at the two-digit NIC code level (i.e., at industry level). Subsequently, we obtained related product diversification by subtracting unrelated product diversification from total product diversification.

Firm Performance and Aspiration Level

We have adopted return on sales (ROS) as the measure of firm's performance as this is one of the prominent measures and is being used by various researchers in related studies (Greve, 2003; Audia, Locke and Smith, 2000 etc.). Following Kim, Finkelstein, and Halebian (2015), O'Brien and David (2014), we calculated aspiration level as: $AL_{it} = \alpha SA_{it} + (1 - \alpha) HA_{it}$. Here, AL_{it} is the aspiration level of i^{th} firm in time t which is a function of the social and historical aspirations of the firm. The two independent variables are performance above aspiration level (PAS) and performance below the aspiration level (PBS) which are calculated using two spline functions as:

If $P > AL$, $PAS = P - AL$ and $PBL = 0$; and If $P < AL$, $PBS = AL - P$ and $PBL = 0$;

Competitive intensity is the market share held by the competitors of the firm divided by the number of competitors that the firm was facing (Wu & Pangarkar, 2010). Following Ang (2008), we adopted the OECD 2016 classification (Galindo-Rueda & Verger, 2016) for the measure of industry technology intensity.

Controls and Instruments

We have controlled other possible factors that may influence the related and unrelated product diversification like firm size, firm leverage, industry effects, R&D intensity and Advertising intensity (Tallman and Li, 1996; Qian et al., 2008 etc.). We incorporated 9 dummy variables for 10 financial years, 148 dummy variables for 149 product categories and 4 dummy variables for 5 technology intensity levels. In presence of possible endogeneity concerns, the OLS results may be inconsistent. Hence, we incorporated instrumental variables after the required validity tests like compensation intensity, Financial slack and asset-to-sales ratio (Feng, Wang, and Saini, 2015; Bromiley, 1991 etc.). We use generalized methods of moments (GMM) which is more suitable for panel data models (Qian, Li, Li, and Qian, 2008) and is robust to heteroskedasticity conditions unlike the two-stage least square method.

Results

The output from the multiple models is presented below in Table 1. Model 1 is the baseline model and is used to validate hypotheses I and II. Model 2 includes the moderation impact of competitive intensity and is used to test hypotheses 3a and 3b. The Model 3 is the full model comprising the moderated moderation impact of technological intensity and it is used to validate hypothesis 4.

Table 1: 2-Step GMM estimation

| <i>Variables & Interactions</i> | Model I | | Model 2 | | Model 3 | |
|---|-----------------------|---------------------|-----------------------|---------------------|-----------------------|---------------------|
| | Unrelated | Related | Unrelated | Related | Unrelated | Related |
| | Div. | Div. | Div. | Div. | Div. | Div. |
| Sup. Performance | -0.0207 (0.264) | 3.204** (0.002) | -0.0205 (0.276) | 3.528** (0.002) | -0.0196 (0.312) | 3.581** (0.001) |
| Poor Performance | -0.629* (0.017) | 0.869 (0.752) | -0.643* (0.019) | 1.406 (0.538) | -0.698* (0.020) | 1.997 (0.298) |
| Size | -0.0163* (0.013) | 0.105 (0.142) | -0.0167* (0.015) | 0.113 (0.069) | -0.0224* (0.017) | 0.151* (0.011) |
| Leverage | -0.000276 (0.896) | -0.0189 (0.368) | -0.000326 (0.880) | -0.0201 (0.333) | -0.0000851 (0.971) | -0.0131 (0.458) |
| R&D Intensity | -0.00759* (0.016) | -0.00479 (0.851) | -0.00772* (0.017) | -0.00218 (0.918) | -0.00874* (0.024) | 0.00284 (0.876) |
| Marketing Intensity | 0.00204*** (0.000) | 0.00935 (0.515) | 0.00204*** (0.000) | 0.0109 (0.480) | 0.00201*** (0.000) | 0.0112 (0.476) |
| International Diversification | -0.00129 (0.561) | -0.0888* (0.018) | -0.00131 (0.560) | -0.0704* (0.035) | -0.000833 (0.698) | -0.0511 (0.063) |
| Competitive Intensity (competition) | | | -0.00399 (0.510) | -0.204* (0.030) | -0.000455 (0.940) | -0.247* (0.020) |
| Poor Performance * competition | | | -0.0109 (0.312) | | -0.237* (0.024) | |
| Sup. Performance * competition | | | | 0.788** (0.001) | | 2.184** (0.002) |
| Tech Intensity | | | | | 0.146 (0.363) | -2.154** (0.010) |
| Poor Performance * Competition * Tech Intensity | | | | | 0.123* (0.022) | |

| | | | | | | |
|------------------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|
| Sup. Performance * | | | | | | -0.854** |
| Competition * Tech Intensity | | | | | | (0.007) |
| Constant | 0.152 (0.355) | 1.050 (0.192) | 0.150 (0.362) | 0.728 (0.280) | -0.482 (0.540) | 9.885* (0.011) |
| Observations | 44569 | 44569 | 44569 | 44569 | 44569 | 44569 |

p-values in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Its apparent from Model 1 that superior performance significantly impacts related diversification ($\beta = 3.204, p < 0.05$) and poor performance significantly impacts unrelated diversification ($\beta = -0.629, p < 0.05$). In fact, we find similar outcomes for all the three models. Hence both the hypotheses 1 and 2 are supported.

From Model 2, the main effect of competition seems to impact the firm's decision for related diversification only during superior performances ($\beta = -0.204, p < 0.05$). We do not find significant impact of competitive intensity on the outcome of unrelated diversification based out of poor prior performance. Again, the interaction effect of superior performance and competitive intensity seems to be valid in case of related diversification ($\beta = 0.788, p < 0.01$). However, the interaction effect of poor performance and competitive intensity on unrelated diversification is not significant. Hence hypothesis 3a is supported and we do not find support for our hypothesis 3b.

Model 3 highlights some interesting outcomes. Here, (unlike in Model 2) the interaction effect of poor performance and competition shows significant impact on choices of unrelated diversification ($\beta = -0.237, p < 0.05$). The main effect of competition on related diversification choices stands valid here also ($\beta = -0.247, p < 0.05$). However, the main effect of technological intensity of the industry only impacts the choices for related diversification ($\beta = -2.154, p < 0.05$). The 3-way interaction (or the moderated moderation) effects of performances, technological intensity and competitive intensity is significant both for related ($\beta = -0.854, p < 0.01$) and unrelated diversification outcomes ($\beta = 0.123, p < 0.05$). Hence our hypothesis 4 is supported.

Discussion And Conclusion

In this research, we attempted to explain product diversification choices as the consequences of prior performances at the firms. We find evidences that prior performance impacts product diversification choices. From Prospect Theory and the BTOF we theorize firms to get engaged into low- risk related explorations like that of related diversification during states of high performances. We find significant moderation impact of high performance and competition on related diversification choices. As the competition in the market rises, the propensity of related diversification comes down. However, during low performances firms are trying to alter the situation by exploring risky approaches because of their expectation of a better outcome with or without competition.

The above dynamics changes when we include technology maturity of the industry into consideration. We see the main effects of technology to be a significant factor in case of related diversification during high performances. But this is not significant for unrelated diversification during poor performances. There could be a few possible explanations for these findings. Technology is a critical resource to the organizations and firms having access to high end and better technologies can have significantly more influence as compared to their peers. In line with the same, access to the required advanced technology will make incremental innovations or changes in the product offerings comparatively easier to implement. However, no access to the required technology can make firms' progress difficult. During poor performances, managers are facing tough situations and they are willing to consider high-risk solutions like unrelated diversification. In this case, in absence of required technology and the learning curve associated with them can make the job further difficult. It seems when the firms are anyway exploring options for unrelated explorations, they are not bothered about the technology intensity of their existing portfolio.

We find the three-way interaction effect of performance, competitive intensity and technology intensity to be significant in both the cases for related and unrelated diversification. Thus, the moderation impact of competition on the related and unrelated diversification gets impacted by the technological maturity of that industry. Also, the negative coefficient of this 3-way interaction in case of related diversification suggests an interesting phenomenon. It appears with the rise in competition, the propensity for related diversification decreases among the firms operating in high technology intensive industries. This seems plausible as these firms may already be producing niche products and thus, they are already highly differentiated in the market which makes them less prone to risk seeking even in the face of competition.

Limitations and scope for future research

Every research comes with a set of limitations and ours is not an exception. Though we considered the impact of prior performance on the product diversification choices, however, we have not considered the impact of temporal differences between the cause and the effect. Future researchers may decide to look into this aspect of time of decision making in the context of product diversification. Literature indicates that middle management's role in organizational politics and their trust in the top management team can influence decision-making and decision-implementing processes (Lampaki, & Papadakis, 2018; Gallicano, 2013). Future can look into these aspects which we could not cover in this study.

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Survival to Revival Deals in the Indian Tourism Sector – A Case Study

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Abstract

This paper examines the possibilities of integrating the tourism sector with corporate hospitals during pandemics by developing revival strategies. The aim of this research is to find an ethical pricing system to use during the pandemic by adopting standards for interoperability. The data is collected from patients who are asymptomatic to Covid but under quarantine. A case study has been done on a hotel that successfully implemented its revival strategy. It is concluded that a successful mechanism can be developed by combining technology with a health care partner. This study developed a pricing mechanism that could run the tourism industry without glitches during post-pandemic periods.

Key words: Revival strategy, Travel and Tourism Sector, Covid,

Introduction

Covid-19 has significantly affected the travel and tourism industry during the pandemic. Globally, the Covid-19 pandemic is estimated to cost the tourism industry USD 22 billion and will lead to losses of almost 50 million jobs, according to the World Travel and Tourism Council (WTCC). Consequently, it is no surprise that tourism in India declined significantly following the Covid in 2020. Despite its revenue of Rs 38,000 crore in India every year, the sector is facing massive losses. Tourism resorts are used as quarantine centres for Covid treatment to eliminate, as much as possible, pandemic period loss. Many hotels in India are being converted into paid quarantine facilities in partnership with hospitals, where patients with COVID-19 who are asymptomatic or mildly symptomatic and have an aversion to hospital care will be housed. To boost these businesses, private hospitals and hotels have established Covid quarantine centres. Depending on the room type, the hotel charges Rs 9,900 and Rs 11,900 per day for its packages. Columbia Asia in Bangalore offered a 14-day home isolation package for Rs 15,000 per person. Patients may opt for a 17-day home quarantine for Rs 8,000 at Fortis hospitals if they are asymptomatic or mildly symptomatic. Under Apollo Hospitals' Project Kavach initiative, offering two different 14-day home isolation plans, it has partnered with Oyo, Lemon Tree.

The basic plan is priced at 2,499 and the advanced plan is 8,399. Travel ontology standards of OTAs are used to track hotels. It has been developed to use semantic web technologies. Patients and hospitals can find hotels for quarantine purposes on the website. In India, a unique standard for travel ontology has been developed. In this pandemic situation, Indian technology providers integrate clients (hotels), hospitals and patients. Customers are unhappy with the prices and services provided by the hoteliers. (News 18, 2020). As the value chain of hotel transactions is very long, hoteliers have a hard time fixing prices. Even then, few hoteliers managed the pandemic period and set up transformation strategies with hospitals. The hotel industry partnered with hospitals to establish medical tourism packages and mitigate losses from the pandemic (Arun 2021). Against this backdrop, the present study seeks to identify revival strategies for the hospitality sector and aimed to implement a fair pricing system using semantic web technology. We investigate the non-technical aspects of creating online travel software that helps to gain insight into hospitals' and hoteliers' interoperability.

AIM

This research aims to determine the interoperability standard necessary to integrate patients, hospitals, and hoteliers using online travel portals during pandemic times. In order to attain this

goal, the following queries have been addressed in the research.

- What are all the problems in integrating the stakeholders, i.e., patients, hospitals, and hoteliers?
- What are all the non-technical requirements for establishing a collaborative information-sharing system among hotels and hospitals in times of pandemics?
- How to achieve the ethical pricing system that can be adopted during pandemics by adopting interoperability standards?
- What will be the proposed model for integrating the stakeholders in the proposed information system?

The managerial implication of the research aims to create revival strategies for travel and tourism during the post-pandemic period.

Approach

Simulated booking systems used by the Oyo agents under the Apollo hospitals' Project Kavach for fifty major hotels in Chennai and Bangalore were identified. Customers booking through these portals were identified with a special code. 300 Covid asymptomatic and mildly symptomatic COVID-19 patients booked rooms through these portals from 1st October, 2020 to 30th March, 2021 were listed at random. The data flow for each customer transaction has been observed and price sharing mechanism was listed. Table-1 shows the different stages and analysis used in the research.

Table -1; Input-Process-Output Table

| Stage | Purpose | Input | Process | Output |
|-------|--|---|--|--|
| I | To identify the phenomenon. Is there any non-interoperability in on-line semantic web technology provided by software vendors for e-tourism? | 300 transactions between hospitals and hoteliers were observed. | Data flow mapping system | Prices fixed by the hospital were unknown to hoteliers in 246 observations. Hence there is no interoperability in data communication system. |
| II | To identify the non-technical factors to create interoperability. | Primary data from 50 hoteliers. | Factor component Analysis. 19 variables were identified and filtered to 3 variables. | Three factors i.e. price sharing, demand sensing and health care services were identified. |
| III | To identify the discriminating variable among the hospitals and hoteliers | Three factors from the above stage | Discriminant Analysis | Health care service is the main factor. |
| IV | How demand sensing can be incorporated by the software providers? | Case study from a hotel which has been linked with a hospital | Flow chart | Decision Support system for technology providers. |

The concept of online resource sharing through cloud computing among the hoteliers is excluded in this research.

Knowledge gap

Tourism information system is heterogeneous in nature. It should enable the user to identify the cases that are brought by the ontologies to solve the integration and interoperability problems.(Niemann et al, 2009). More complex e-tourism services are beyond informationservices and it benefit from Semantic Web Services technology (Cardoso,2006). Maedche and Staab (2003) explored the merits of using the web semantics and P2P computing for interoperability standards in the travel domain. Sakkopoulos et al. (2006) research created new techniques to facilitate semantic discovery and interoperability of travel web services that manage and deliver web media content. Even though, there are significant researches in the quality of service (QoS) provided by the network providers with respect middleware and online payments, the result has been limited in the operational aspect. The Crossflow researches in QoS have integrated the past process collected in a log with the present process in the same log. (Klingemann, Wäsch et al. 1999; Damen, Derks et al. 2000; Grefen, Aberer et al. 2000). These projects identifies the future demand but unable to identify the automated efforts to gear up the services based on demand. XML-based specification messages (such as OTA specifications) are not sufficient to enable the creation of dynamic travel packages and the travel industry requires the ability to compose travel packages dynamically from the aggregation and orchestration of distributed Web services.(Cardoso, 2004). The present research identifies the non-technicalstandards used to integrate the web services based on client needs during the pandemic period.

Non –technical interoperability factors

To find out the non-technical factors that hindering the interoperability standards between the hospital authorities and hoteliers, primary data were collected from hoteliers. Nineteen variables were identified by conducting a pilot study. Two variables ie, security and corporate espionage are given priority by all the respondents. The remaining variables were considered for the factor analysis. Factor analysis was carried out to filter the seventeen variables. They are marginal pricing, promotional offers through hospitals, health care infrastructure, customer price discounts, quarantine period SOP, patient log in web, metrics on patient booking system, content sharing, payment mode, patient recovery period, patient rejections, patient transfers, percentage of prices among value chains, price discount to hospitals, price escalations, service descriptions and demand forecasting. The variables are appropriately measured through summated scaling method. The null hypothesis, that the population correlation matrix is an identity matrix, is rejected by the Bartlett's test of sphericity. The approximate chi-square statistic is 956.034 with 170 degrees of freedom, which is significant at the 0.05 level. The value of Kaiser-Meyer-Olkin statistic (0.638) is also large (> 0.5). Thus factor analysis may be considered an appropriate technique for analyzing the correlation matrix. Principal component analysis is used to determinethe three factors. It can be revealed that the communality for each variable, V1 to V 17 is 1.0 as unities were inserted in the diagonal of the correlation matrix. Only factors with eigen values greater than 1.0 are retained. The cumulative percentage of variance extracted by three factors is 74.4 and these factors have eigen value greater than one. Hence three factors are considered to berelevant. The variables having factor loading less than 0.5 were deleted from the scale and the factor analysis was performed on the remaining items. Table 2 shows the factors extracted through the factor component analysis.

Table 2: Factors Component Matrix

| Sl.No | Name of the Factor (Defined) | Percentage of variance explained | Variables | Factor Loading |
|-------|-------------------------------|----------------------------------|---|----------------|
| F1 | Price Sharing in Value chains | 29.61 | Promotional offers from hospitals | 0.69 |
| | | | Payment mode | 0.68 |
| | | | Price discounts to Hospitals | 0.61 |
| | | | Price escalations | 0.58 |
| | | | Marginal Pricing | 0.56 |
| F2 | Demand Sensing | 27.3 | Demand Forecasting | 0.67 |
| | | | Patient log time in hospitals, SOP for quarantine periods | 0.67 |
| F3 | Health care services | 17.5 | Patient Rejections | 0.61 |
| | | | Patient Transfers | 0.58 |
| | | | Medical Service descriptions | 0.57 |
| | | | Patient recovery period | 0.58 |

Principal Component Analysis is used for extraction and five variables having factor loading less than 0.5 is filtered out. The variables such as promotional offers from hospitals, payment mode, price discounts to hospitals, price escalations and marginal Pricing account for 29.6% variance. Hence first factor is named as ‘price sharing in value chains’. The variables such as demand forecasting, patient log time in hospitals and SOP for quarantine periods account for 27.3% variance. Hence the second factor is named as ‘demand sensing’. The variables such as patient rejections, patient transfers, medical service descriptions and patient recovery period account for 17.5 % variance. Hence the third factor is named as ‘health care services’.

Non-technical discriminant factor among the value chain

Based on the factor component analysis, we identified that demand sensing, health care services and price sharing among the value chains are the non-technical hindrances in resource sharing. In the next stage, we wish to identify the influential factors that divide the hoteliers’ expectations and hospital expectations. Hence discriminant analysis was carried out to find out the discriminant function in resource sharing. The hoteliers sharing the resource are coded as 1 and not sharing are coded as 2. The decision to ‘share’ or ‘not to share’ is considered as the criterion variable (dependent variable). The predictor variables (independent variables) are the factors scores of variables ie, demand sensing, health care services and price sharing. The Wilks’lambda (0.697) is significant and hence two group discriminant analysis was carried out. The canonical correlation associated with this function is 0.81. The square of this correlation indicates that 65% of the variance in the dependent variable is accounted for by this model.

Table- 3: Structure Matrix for Discriminant Function

| Variables | Function |
|----------------------|----------|
| Health care services | 0.643 |
| Price Sharing | 0.411 |
| Demand Sensing | -0.121 |

The significance of the univariate ‘F’ ratio indicates that only ‘health care services’ significantly

differentiate the resource sharing among the hoteliers and hospitals. This is due to seasonal variations in covid waves. The hotelier expects health care services are to be integrated with the model. Hence the technology providers and hospitals should integrate the Meta data about the seasons while establishing events (pandemic period), axioms and relations for creating the ontology standards for tourism and travel industries.

Axioms for travel ontology – case study

Based on the 300 customer queries (in the sample), we decided to fix axioms for the travel ontology standard for Indian travel industries to be integrated with hospitals... It is interesting to note that the hoteliers did not know the price paid by the 82% of the customers (246/300). The hospital authorities know the demand better than the hoteliers. Except two hotels (out of 30), standard pricing sharing system has been followed. In two of the hotels, collaborative price sharing system has been followed. The hotelier themselves created the customized software package and integrated with the software used by the hospitals. The case of the one among those two hotels was considered to know the axioms used by the hoteliers. The sample hotels selected for the case study were situated around Bangalore and all the hotels are coming under the Project Kavach of Apollo Hospitals. Figure 1 explain the operational hierarchy used by the hotel

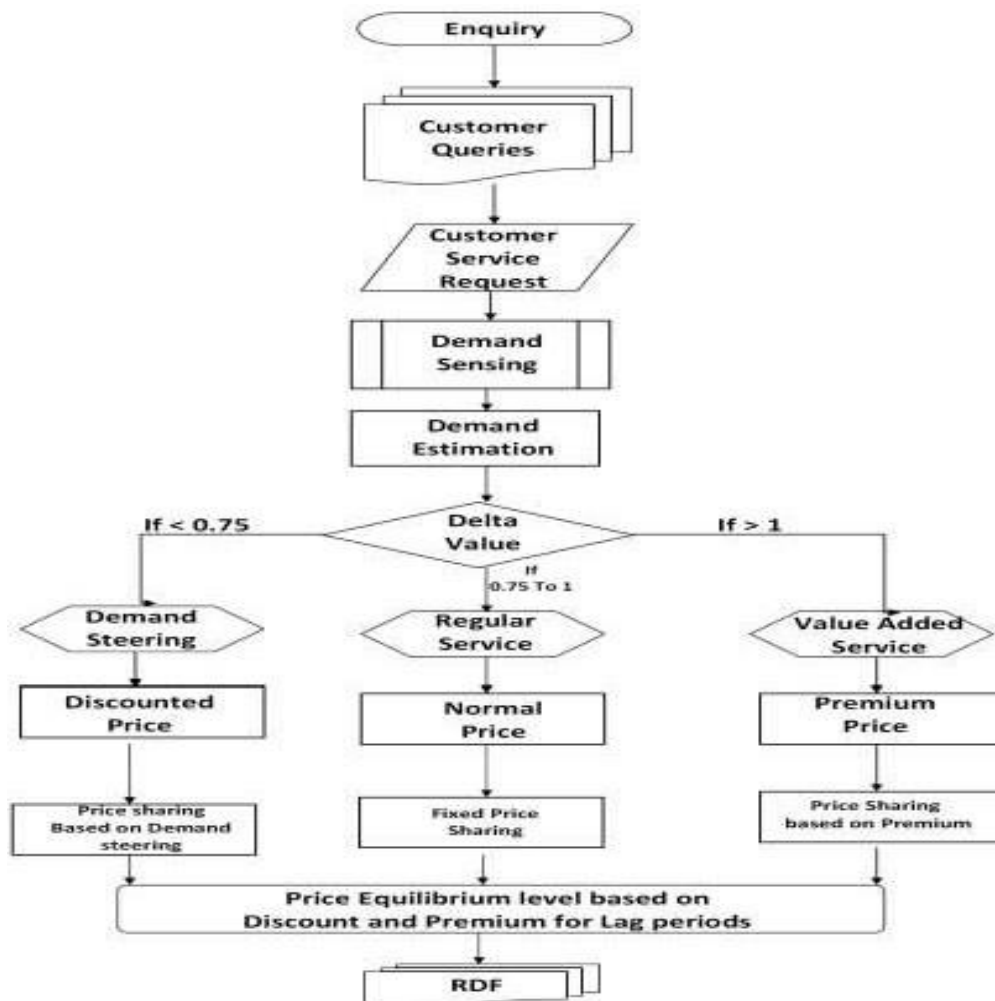


Fig.1. Operational Decision Flow

Through the web content sharing system, customers' (patients) queries have been stored by the hoteliers. Based up on the query received every day, the demand has been forecasted based on the exponential smoothing method with moving average as the base. The SAP demand sensing system has been used for that purpose. The delta co-efficient value in exponential smoothing equation has been used as the standard for determining the customer service needs. If the delta value is more than one, there is a heavy demand. If it is between 0.75 and 1, then the hotel will run in full occupancy level. If delta co-efficient is less than 0.75, then it is presumed that demand is low. During the heavy demand period, the customers are paying a high price. Hence value-added services are provided for them. Through the semantic web matching system between the customer queries and event calendar (prepared based on past events according to Indian cultural values), the purpose of the visit has been identified. In the sample hotel, there was heavy demand in the second week of January. All the rooms were booked by Apollo hospital patients. Almost all the customers' habitat was alike during that period. They used to prefer immunity providing dishes. Customer service menu has been added with value added services - such as providing customized food, additional common palace in the hotel to offer prayers, separate quarantine area and dietician service. The price paid by the customers was doubled during that period.

During the fourth week of January, the DSS predicted that the demand would be low. The hotelier system decided to have heavy promotional offers. Along with Apollo hospitals, the hotelier promoted the medical tourism. The automated information system (DSS) in the software remains about the promotional measures taken by the hospital authorities. The medical services has been done by the Apollo hospitals. Because of the efforts taken by the hospital authorities, the hotel was able to run with 80% occupancy rate in the form of 'Medical Tourism'. The customer services were also changed by the hotelier. Yoga and meditation programmes were arranged without any additional cost to the customer.

The opportunity cost lost by the hoteliers during the period of slack season was offset by the gain derived them during the peak season. The discounted price and the price to be shared by the hospital are purely based on the premium price paid by the customers during the peak season. For that purpose, the lag period was calculated. Lag periods are that period in which the average price with 90% occupancy rate is to be maintained. The lag period decided by the hotelier is also

based on the covid positivity rate in Bangalore. The lag period usually consists of one off-period and boom period. The hotel was able to run at 91% occupancy rate during the less positivity rate of covid pandemic. The automated built-in-system in the software enables the collaborative pricesharing mechanism during lag period. The interoperability standards between the hospitals and the hoteliers with respect to price sharing system are standardized and it enables to take automated decision. During the period of the research, the delta value in that hotel during the peak time was 0.92 and during the off- season it was -0.54. Due to the promotional activities of medical tourism, the delta value reached -0.37 during the off season which indicates an increase of 0.17 in the value of delta.

Findings

Past researchers found that hotels must be renovated to accommodate patients and provide a proper mapping of medical needs. In order to map the personal data of patients and assess compliance with data privacy laws, new insights are required. Hotels that are going to be

converted into shelters for the homeless will need to make arrangements with authorities and partner organizations to demarcate who is responsible for which type of care. Many hospitality businesses are heavily dependent on increasing demand for their services and products to remain in business, given that the breakeven point is high due to high operating costs (Gurosy, 2020; Kaushal, 2021; Baker, 2020).

Present research identified that demand sensing, providing medical services and pricing in the value chain are the three main factors influencing interoperability standards. Interoperability between hospitals and hoteliers is distinguished primarily by the availability of medical services. Since the demand for hotels increases during the Covid waves, the flexible time-driven mechanism is essential to ensure technology interoperability.

Hotel standards are being tailored frequently to meet changing customer demands. During the pandemic period, the online web portals adopted a demand sensing system to measure demand. Medical services provided by hospitals determine the price charged to the hoteliers. Therefore, semantic web portals must identify the hospital network within the value chain and fix the price during the pandemic. The following conclusions are drawn from the empirical research.

When dealing with pandemics, interoperability standards are crucial to integrate hospitals, hotels and patients. These include providing health care services, implementing a price sharing mechanism, and anticipating demand.

Establishing a cooperative information sharing system between hospitals and hotels is not based on technical requirements but on the willingness to provide health services.

As part of the ethical pricing system, the delta value of the pandemic period demand sensing is used. Pandemic positivity rates in a locality affect this ratio.

According to the case study, revival strategies can be simplified by promoting quarantine wards in pandemic periods and medical tourism during non-pandemic times.

Conclusion

According to the research, technology providers should include a demand forecasting system to reflect pandemic situations in their integrated support systems. Using the decision support system, hoteliers can apply successive levels of the pricing system to charge their customers. Due to the need for a time-based decision system during pandemic times, the technology provider can collaborate with travel agents and become a partner in the hospital network. Client-based online services will benefit from reduced lead times. In order to make the best decisions, the medical tourism value should be considered. It is crucial to employ cascading network systems to determine the equilibrium price for patients during pandemics. A tie-up between hospitals and hotels must balance medical tourism and quarantine periods. The hoteliers may be able to depend on medical tourism during non-pandemic periods. As part of a revival strategy, hotels can work with health care providers to establish the basic medical infrastructure that will help mitigate the losses from the pandemic period.

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Searching for hedging and safe haven assets for Indian Equity market – A comparison between Gold, Cryptocurrency and Commodities

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Abstract

The paper evaluates the hedging and safehaven properties of gold, cryptocurrency and commodities against the Indian equity market. Analyzing the daily data from 2013 to 2020 we find that gold, cryptocurrency and most of the commodities have significant hedging abilities. However, only natural gas, crude oil and aluminum have the safe haven property. We further verify whether such properties vary across the broad stock market indices and over the different degree of market volatility. Next, we use the multivariate GARCH framework to calculate the dynamic hedge ratios and hedging efficiencies to compare the hedging properties of the alternative asset classes. Finally, we establish that the general findings of the paper remain robust during the recent crisis emanating from the outbreak of the COVID-19 pandemic.

Keywords: Gold; Cryptocurrency; Commodities; Stock indices; Hedging; Safe haven

Do Capital Market Reforms Improve the Efficiency of Capital Allocation and Spur Economic Growth? Evidence from Indian IPOs

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Abstract

There is little evidence to show that capital markets allocate capital to the most efficient uses. We bridge this gap by examining Indian IPOs. When market regulations are weak, more firms go public and firms with poor fundamentals raise more capital. Over time, primary markets do not necessarily allocate more capital to firms with higher profitability or to those with more growth opportunities. However, the probability of failure declines and the liquidity of IPOs improves. Our results suggest that capital market reforms are not uniformly effective in directing investments to firms with higher investment efficiency or in accelerating economic growth.

Keywords: Financial Market Policy, Financial Regulation, Investor Protection, IPOs

Investor Behaviour towards Sin Stocks and Firm Level Returns

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Abstract

Since the ancient times, investors have shunned stocks of companies in the business of alcohol, tobacco and gambling. Such stocks are popularly called as sin stocks and are considered to be morally or socially objectionable. The Literature has mainly focused on the returns provided by sin stocks in context of developed nations only. However, there are cultural differences between developed nations and developing nations. Jo and Na (2012) argue that attitude of investors towards sin stocks will vary with culture and also on the basis of products and services offered by the business. Hence, this study tries to fulfil the gap in the literature by studying the returns of sin stocks in developing countries. The study is primarily focuses on sin stocks in context of India, a developing nation. Fama-French three factor model and Carhart four factor model are used to check the presence of abnormal returns from sin stocks in India. The study highlights that sin stocks provide negative abnormal returns in Indian Context. This is in contrast with existing literature on developed countries that sin stocks provide positive abnormal returns.

Keywords: Sin Stocks, Abnormal Returns, Momentum Effect, Developing Economies.

Effect of Foreign Exchange Interventions on Corporate Hedging Activities: Evidence from Indian Firms

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Abstract

This purpose of this study is to examine the impact of foreign exchange interventions on corporate hedging. By analysing a sample of Indian firms from April 2001- March 2019, the results reveal that firms leave their exposure unhedged or partly hedged in response to high forex intervention. This may indicate that firms perceive interventions as a guard against the high volatility of exchange rates. The findings are important for firm managers and policymakers.

Determinants of Sustainability Reporting Practices of Financial Institutions in India

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Abstract

The Indian banking system, with its widespread reach and varied services, has the potential to impact different sectors of society. Thus, it is crucial to provide transparent and reliable disclosures to various stakeholders. In this study, we examine the determinants of sustainable reporting practices of retail banking firms in India. The content analysis method is used to score the sustainability reporting disclosures. Overall, the sustainability reporting scores are low for Indian retail banks. Notably, the environment disclosures by banks are lower compared to economic and social disclosures. Based on the extant literature, three main determinants of sustainability reporting are analyzed: firm age, ownership, and corporate governance. The empirical results show a significant positive impact of age on sustainability reporting score. Corporate governance is found to have a negative effect on the sustainability disclosures of financial institutions. The present study contributes to the literature on sustainability accounting and reporting.

Keywords: Sustainability reporting, GRI, financial institutions

High Performance Work Systems and Employee Outcomes: The Role of Responsible Leadership and Work Engagement

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Abstract

The study proposes the relationship between HPWS and employee behavior studied in terms of turnover intentions, employee creativity and well-being with the moderating impact of responsible leadership and mediation of work engagement. Responsible leadership is a new philosophy of leadership that is relevant in the changing business context. Moreover, attributing to the recent COVID-19 pandemic, and the changed style of working across the globe, the study of employee creativity, their intention to quit the organization and their well-being has become all the more essential. Responsible Leadership has been scantily studied in reference to the SHRM. Based on the existing AMO Framework, SET and the COR theory, we propose the impact of HPWS on the distinct employee outcomes mentioned above through the mediation of Work engagement and the moderation of responsible leadership.

Effectiveness of Virtual Meeting Platforms in Facilitating Online Activities: An Empirical Estimation

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Abstract

COVID-19 pandemic has drastically altered the nature of communication worldwide and across contexts by mainstreaming Virtual Meeting Platforms (VMPs). Going beyond the usual debate on effectiveness of an in-person versus a VMP facilitated online interaction, we propose that the effectiveness of VMPs will vary even with the type of online activity. This paper examines and finds support for this very proposition. Drawing on extant literature and deploying a sample of 100 experts from academia and industry, we first identified five generic components of group interaction and empirically estimated the relative effectiveness of VMPs in facilitating five common online activities (including classes, meetings, interviews) by devising a metric called Media Effectiveness Score. Finally, implications for academics and practitioners are discussed.

Keywords: Virtual Meeting Platforms, Group Interaction, Online Communication

'Which hat do I wear?' Revisiting the Role of the Middle Manager*Sowmya Kannan¹ and Diptiprakash Pradhan²**^{1&2} Indian Institute of Management, Indore***Abstract**

Middle managers are key to the success of strategic decisions in organizations. In conjunction with the typology developed by Floyd and Wooldridge (1992), we examine and test multiple levers that determine the upward and downward roles of middle managers. Drawing on a sample of 165 middle managers from 76 organizations across various industries in India, we argue that the top management team's support plays a crucial role in middle managers' organizational strategizing. Specifically, we find that necessary resource allocation is associated with middle managers assuming upward roles, whereas favoritism in promotions accompanying factors in middle managers assuming downward roles. Surprisingly, we find that regular feedback on performance is associated with middle managers assuming downward roles.

Keywords: Middle managers, TMT support, upward and downward roles

Influence of Digital Technology on Learning and Development Capability of Employees at workplace

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Abstract

It is becoming a real challenge to engage and motivate employees to achieve their goals in today's world. The educators and trainers are also in need of tools that are more effective and lead to the engagement of employees who are highly digital savvy and with a minimal span of attention. The tools should be associated with fun and some learning experiences. To understand the overall concept of gamification and how informal learning can help the employees of organizations to learn in a safe environment. A research survey is done on employees of different organizations in Mumbai metropolitan city analyzing the gap between the perception of educators and trainers and expectations of learners. The research contributes not only to the understanding of the benefits but also explores on critical analysis of the concept. Results help the organizations to strategize themselves which could help in employee retention and producing a better pool of potential skilled employees into the workplace.

Keywords: Gamification, Learning and Development, Employees

Introduction

In year 2002, the term gamification was introduced for the first time by Nick Pelling, a British born computer programmer and since then it had such a huge impact that it is implemented in almost every aspect of the lives. Game and Gamification are two entirely different terms where games are simple competitions restricted by rules to determine skills but gamification are the best qualitative games which can be applied to non-game activities to result into certain behavior.

Hence there is a gap between the demand and supply. To overcome the gap there are number of additional skill developing courses and programs which have been designed and initiated by the government and many private bodies. Apart from this learning and Development in organizations need to be upgraded so that it can impart skills to the employees otherwise this learning would be arbitrary. Therefore it is suggested to modify the existing training so that it can synchronize with the rapid changes taking place in the fast moving world through digitalization and automation. But till then it is necessary for the corporates to set up a strong L & D department which could upgrade the skills of employees from time to time.

By earlier research it has been found that in one's normal life he/she uses number of hours a week, playing games on computer and other digital equipment. Hence if this is incorporated into learning modules it will be a win-win situation for both employees and employer. It will not only add fun and enjoyment in the training module but also pump motivation among the employees. As the gaming technology gradually grew, more serious games are introduced which are based on role playing, targeting on some critical issues, strategy planning and executing them. Need of an hour is how to allocate time and optimize them for the maximum results.

The potential of gamification can be defined by various features like

Rules: They are set up before the game played. These are different from the day to day life which direct the players about the scope of the game and also the choice of actions which could be taken throughout the duration of game played.

Feedback system: It is prompt and open. As soon as the players are taking the actions to reach the goals it results into the output and consequences. These principles of games helps individual to configure their experiences which will help them in long lasting memorizing of the facts and concepts

There are major type of games which generally are common are Nano crafter, foldit. Linkdin, Foursquare, Minecraft etc.

There are four freedom of play under gamification.

1. Freedom to Experiment:-This allows the player to explore the various alternative plans of action and getting resources required from different ends.
2. Freedom to Assume: As a player he can presume any identity in the game and play accordingly with which he can understand the problems and complexities associated with identity.
3. Freedom to fail: Allow the players to make as many errors with negligible consequences and bounce back.
4. Freedom of Effort: this allows the players to do intense activities and relative in action.

Gamification is not a universal remedy to all problems. It is necessary for educators to teach employees that gamification is not to make them isolated by using the technology. Employees also expect immediate rewards for their efforts during gamification but educators need to teach define values in learning itself. Gamification helps to add values to learning. This is done through projects which to design properly, address valid challenges and focusing on new areas

With help of gamification one can add maximum value. This value can be seen on working with the existing curriculum and fulfilling the objectives of classroom instead of finding different ways of pedagogy which would be challenging to the employees. This system requires the total support from the management and administrative staff, in both the terms like money and time creating a platform and continuously improving it. The right mechanism should be chosen by targeting the right employees and the most challenging element which are required to develop them. There has to be separate meaningful assessing criteria and structure and consistent monitoring of whether the employees are achieving their aims must be developed.

The most important thing in gamification is voluntary nature of participants and primarily for enjoyment. The three important elements related to gamification out of many for educators are Mechanical elements: the mechanical element means need of incremental progression along with onboarding and instant reviewing of the performance of the employee.

- Personal elements: the personal element is the presence of an individual which is visible to many through status, moving up in the ladder in the form of ranking and showing a team work.
- Emotional elements: It is correlated to the psychological state of flow of an individual.

Gamification presents opportunities which is very significant. It helps the Employees to develop technical skills which will be helpful in the future for them working in the organizations.

Some of the competencies of gamification are **(Muntean, 2011), (Henrick, 2013):**

1. Avatar: - it is a profile picture which a employee adds on profile of the employee.
2. Progression Visibility: - the employees' progress can be assessed by the authorities through progression bar which will show the information about how much activities and resources is incomplete through the visual charts.
3. Results display: - There is another block where the results of the employees are displayed regarding the knowledge and skills. Here comparatively results are shown of employees (highest & lowest) or may be as a team results.
4. Levels: - Here the teachers can prepare different number of levels based on amount of experience required and employee can achieve the experience points according to

predefined set of rules.

5. Feedback: - The feedback is effective when it is instant and constructive which makes Employees to be active and completely involved. Games help employees to correct themselves and motivate them for the future course of work.

Badges:-At certain point of achievements employees can be given some badges as a recognition to their competence and knowledge. Hence it is a display of rewards and success by demonstrating therecognition.

6. Leaderboard: - Everyone can see their position as compared to others and identify themselves in relation to rewards and achievements as they are ranked on the basis of points achieved and it is visible to all users. Hence it motivates the employees to be active and perform much better.

Review of Literature

Experts from gamification has revealed out that games help an individual to develop self-determination which in turn helps to increase motivation. Motivation has three elements. They are independence, capability, and empathy (**Werbach and Hunter, 2012; Ryan and Deci, 2000**). Accepting the mechanisms that support gamification's impact on behavior has thus been the center of recent gamification research (Seaborn & Fels, 2015)

Definition of Motivation has been defined as when one moves ahead to do something (**Ryan & Deci, 2000**) whereas the unmotivated people do not take efforts to move in any direction.

There are people who are extrinsically motivated people who works in order to attain results. There are in intrinsically motivated people who are motivated to does task to get some fun enjoyment and happiness (**Chen, Burton, Vorvoreanu, & Whittinghill, 2015; Ryan&Deci, 2000; Werbach& Hunter, 2012**). For gamification it is necessary some game mechanics to be present like leaderboards, badges, points, rewards, challenges and levels which need to be at proper place otherwise there can be a possibility of gamification to fail. (**Hamari, Koivisto, & Sarsa, 2014; Hanus & Fox, 2015**). The two most important element that is skill and knowledge do not impact gamification on the contrary gamification influences employees behavior, commitment and motivation which leads in the enhancement of awareness and skills. (**W. Hsin-Yuan Huang, D.Soman, 2013**).

This has important implications for behavior change given that research in contexts such as exercise (**Schneider & Kwan, 2013**). Gamification influences the appeal of avoidance, making conducts or responsibilities different and new (**Przybylski, Weinstein, Ryan, & Rigby, 2009**). The objectives of learning can be achieved by the participant's progression or advancement as he step by step he moves up. The more the employees try to acquire knowledge and skills the more he rises in his learning route (**Glover, 2013**). Gamification is "using game-based procedure, aesthetics and game thinking to involve people, encourage action, stimulate learning, and resolve complications." (**Kapp, 2012**).

Objectives: -The main objectives are as follows:

- To understand concept of gamification and its application in Learning
- To analyze the gap in perception of HR Trainer and Expectations of Employees in relation to gamification through SERVQUAL method.

Hypothesis:-

Ha1: There is a gap in the perception of the Trainer and expectations of employees in relation to the gamification in learning.

H01: There is no gap in the perception of the Trainer and expectations of employees in

relation to the gamification in learning.

Research methodology

The study is descriptive and mostly focuses on gamification and its impact. The respondents are mostly from the organizations from like banks, pharmaceutical and automobiles, Total employee respondents were approximately 90 from (90 respondents) from different department like Marketing, Finance, HR and Operations. The time duration into which the data collected was July 2019-October 2019.

A questionnaire where Servqual questions on five dimensions like reliability, tangibility, responsiveness, assurance and empathy on five point Likert scale was assessed from both Trainers and learners respondents. The questionnaire was redesigned on few questions after some challenges faced by the respondents during the pilot study conducted on 25 sample size. The respondents gave their responses which was discussed with the subject experts. After getting high satisfaction score from the experts it was floated to the actual respondents from different organizations of Mumbai in soft copy format as well as in a hard copy. The questionnaire was sent to 140 learner respondents and out of which 90 respondents filled and reverted. Similarly questionnaire to 120 trainers was distributed and approximately 90 questionnaire were reverted.

The demographic profile has been shown in Table No1.

Table 1. Demographic Details of Learners

| Dimensions | Variables | Learners (Trainees) | Trainers |
|---------------|----------------|---------------------|----------|
| Gender | Male | 67% | 48% |
| | Female | 33% | 52% |
| Organizations | Banking | 71% | 67% |
| | Pharmaceutical | 17% | 30% |
| | Automobile | 12% | 3% |
| Department | Marketing | 42% | 51% |
| | Finance | 32% | 37% |
| | HR | 13% | 10% |
| | Operations | 13% | 2% |

Servqual Analysis: -

To identify the gap between the expectation of employees regarding gamification and perception of training staff the servqual analysis was done. The table 2 reveals the reliability check which is having good reliability scale as per the score received from SPSS 25 ver over the 5 point likert scale questionnaire.

Table 2. Cronbach's Alpha for each Dimension

| Dimesions | N of Items | Cronbach's Alpha (Perceived) | Cronbach's Alpha (Expected) |
|----------------|------------|------------------------------|-----------------------------|
| Reliability | 5 | .805 | .745 |
| Responsiveness | 4 | .853 | .896 |
| Assurance | 4 | .719 | .881 |
| Empathy | 5 | .734 | .834 |
| Tangibles | 4 | .845 | .747 |

The questions were grouped into five dimensions where the respondents were asked to rate the significance of various dimensions (Reliability, Responsiveness, Assurance, Empathy and Tangibility)

Similarly Table 3 gives the information about the weightages about the various dimensions which all together results into total 100.

Table 3. Weighted Score for each quality dimensions

| Service Quality Dimension | Weighted score | Ranking |
|---------------------------|----------------|---------|
| Reliability | 20 | 2 |
| Responsiveness | 27 | 1 |
| Assurance | 19 | 3 |
| Empathy | 18 | 4 |
| Tangibles | 16 | 5 |

Table 4. Gap in Service Quality Dimensions

| Dimensions | Perceived/Expected | Mean | Difference |
|----------------|--------------------|-------|------------|
| Reliability | Perceived | 4.361 | 2.232 |
| | Expected | 2.129 | |
| Responsiveness | Perceived | 3.727 | 1.515 |
| | Expected | 2.212 | |
| Assurance | Perceived | 4.315 | 1.004 |
| | Expected | 3.311 | |
| Empathy | Perceived | 3.259 | -0.981 |
| | Expected | 4.240 | |
| Tangibles | Perceived | 3.538 | 1.071 |
| | Expected | 2.467 | |

Analysis: the main aim of the study is to find the gap between the perception and expectation values. Here most of the dimensions have high perceived value as compared to low expected value. The employees are having low expectation score as compared to training staff's perception which indicates that very high level of perception is present. The gap is present in only one dimension that is reliability where the difference between the two categories of respondents are significant whereas the other dimensions most of the respondents have similar thoughts and has mutual agreement on the various variables.

Findings and Discussions

Gamification helps in the economic, Psychological, Logical and many other fronts which would be helpful for the individual employee. Out of all the dimensions tangibility, responsiveness, empathy and assurance matches with the perception and expectations of employees and training staff except the reliability dimension where the gap is present. Hence organizations should try to reduce the gap by creating a trust among the employees.

Conclusion.

Employees do not require expertise in one area instead need to be good on all fronts whether managing people, finances, operations or customers. Hence multitasking is required but the current L&D is not able to train the employee as per the required standard. The innovative

pedagogy is through gamification which will help the organizations to design the strategy of loyalty program which will give employees retention. Gamification also helps in keeping the various sector at par with other developed sector which is rapidly digitalizing and automating. The challenges related to behavioral and psychological issues of studies will be reduced to high extent as gamification is more structured progressive, result oriented, team spirit etc. Therefore more and more games need to be designed carefully. Dedicated employees from different stream along with technological experts need to sit and come up with many more such games which would really help the organizations to overcome boredom, absenteeism, Assessments, grievances, unskilled labor. Hence it is a win-win situation for both employees and employers.

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Workplace Romance: A Review & Agenda for Future Research

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Abstract

The article introduces a conceptual model considering the antecedent and consequent conditions of engaging in a workplace romance. It integrates the existing literature to comprehensively review the phenomenon, which suffers from a lack of definitional clarity and different operationalizations. The review takes a global view of workplace romance identifying the individual factors, work factors, organizational and external factors involved in the discussions about workplace romance. The review majorly has three contributions: 1) provides an inclusive definition and operationalization of workplace romance 2) integrates the existing literature to provide a framework explaining the whole phenomenon 3) prepares a research plan for future work in the domain.

The Influence of Dialectical Reasoning on Amazon Product Reviews

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Abstract

In the present work, we model both Amazon review ratings and the sentiment of review text across a variety of product categories in the United States and Japan. We find that for the same products, reviewers in Japan are significantly more likely to assign two-, three-, and four-star ratings than those in the United States. Using natural language processing methods, we find evidence of dialectical reasoning, a logical tendency to balance positive and negative evaluations regardless of overall opinion, in the reviews written by consumers in Japan. Among reviews written by consumers in the United States, we find evidence of non-contradiction. This work suggests that culture may play an important role in consumer evaluations of products and subsequent expressions of opinions based on these evaluations.

Keywords: natural language processing, word of mouth, online reviews, electronic commerce

The Differential Appeal of Middle Values

Though there is a well-documented polarity and positive-imbalance in online review ratings, especially those posted to Amazon (Schoenmueller et al., 2020), little research has considered whether this phenomenon is unique to the United States. Naive dialecticism, for example, would predict that consumers in Japan, a culture in which dialectical reasoning is prevalent, might have a greater tendency to assign middle values (e.g., three stars) than those in the United States, a culture that predominately emphasizes non-contradiction and exclusion of the ambiguous middle (Peng & Nisbett, 1999; Spencer-Rodgers et al., 2010). We begin to explore this prediction by testing whether, in fact, the assignment of star ratings by reviewers in Japan follows a different distribution from that of the United States.

Method

We first collect reviews from the camera product category, one which has been used extensively as an exemplar in past literature (Bronnenberg et al., 2016; Irmak et al., 2013; Litt & Tormala, 2010; Lin et al., 2013; Moreau et al., 2001; Shoham et al., 2018; Spann et al., 2015), from Amazon.com in both the United States and Japan (Amazon, 2020).¹ This category includes digital and film SLR cameras, digital and film point-and-shoot cameras, camera lenses, and accessories including specialized cleaning supplies, bags, etc. In total, the data set contains 6,931,167 individual reviews from the United States and 26, 2432 individual reviews from Japan. To make the data sets more comparable, we first subset the reviews to include only products available and reviewed in both the United States and Japan. This results in 14,398 individual reviews from the United States and 3,651 individual reviews from Japan. For the distribution of ratings and proportion of ratings in each market, see Figure 1 and Figure 2, respectively.

1 See Appendix A for replication with additional product categories.

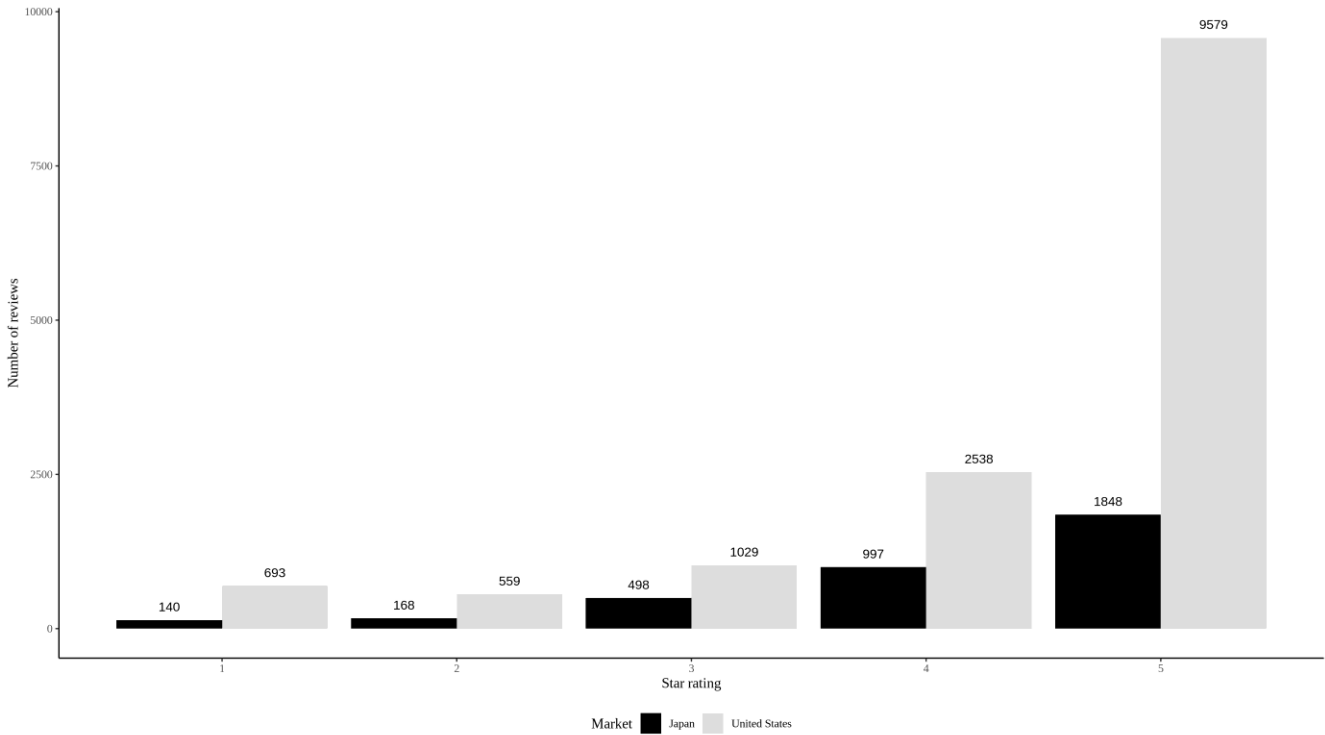


Figure 1. The distribution of star ratings across Amazon reviews in the camera category in the United States and Japan.

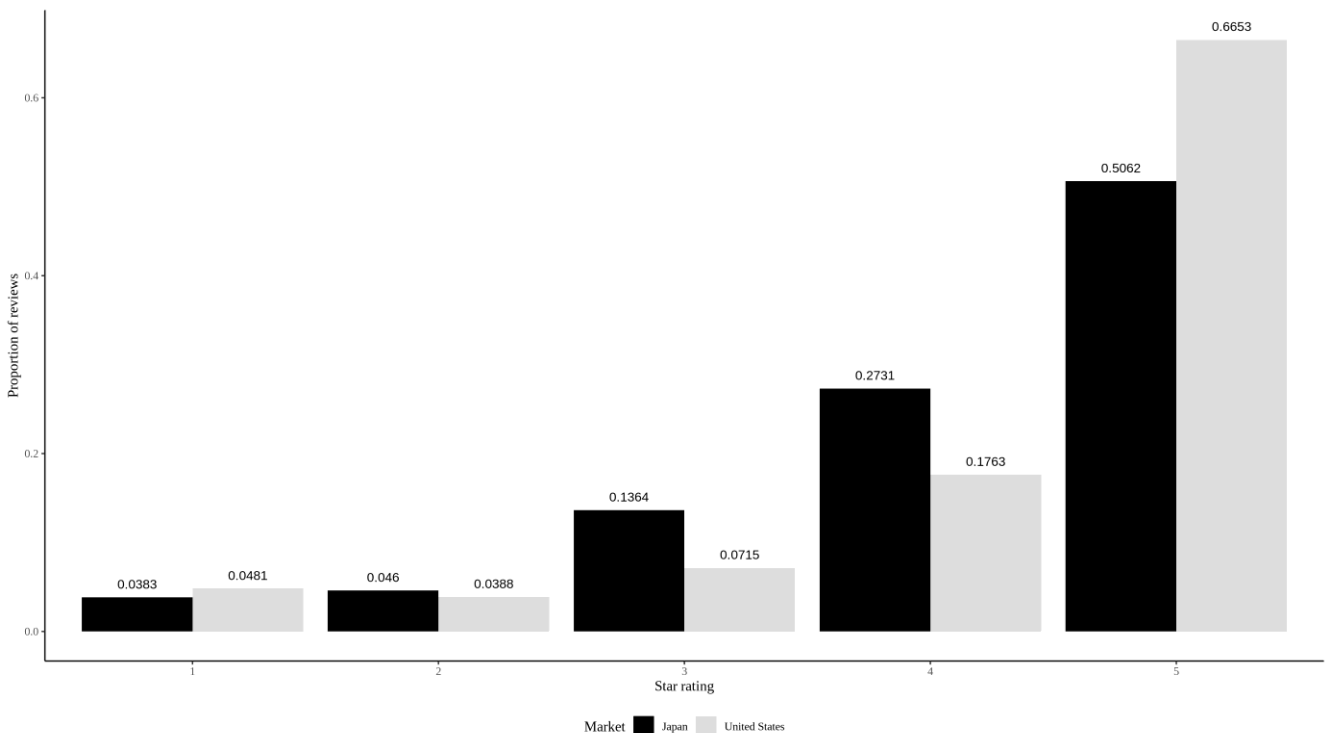


Figure 2. The proportion of star ratings across Amazon reviews in the camera category in the United States and Japan.

To test the prediction that reviewers in Japan might be more likely to assign middle scale ratings, we utilize a multinomial logistic regression in which the outcome variable is the categorical star rating from one to five and the predictor is a categorical dummy variable indicating whether the review was made by a reviewer in Japan or the United States. Such a

specification treats the assignment of a star rating as a discrete choice (Iacobucci, 2012; Train, 2009). Since reviewers do not have the option of assigning incremental ratings (e.g., 4.5 stars) and past research has found that consumers do not interpret star ratings as a continuous normal distribution (De Langhe et al., 2016; Fisher et al., 2018; Rozenkrants et al., 2017; Watson et al., 2018), we feel treating ratings as categorical is the best representation of the underlying data generating process. Formally, the choice to assign a star rating to a given product is a utility in which the probability of reviewer i selecting choice k from all options K is (Train, 2009):

$$P_{ik} = P(V_{ik} + \epsilon_{ik} > V_{iK} + \epsilon_{iK} \forall K \neq k) \quad (\text{Equation 1})$$

Where V is the representative utility and ϵ captures error, or factors influencing utility that are not directly captured by V . Errors are assumed to be an independent, identically distributed extreme value. In the present analysis, we consider the association of an individual specific variable (marketplace: Japan, United States), which varies between individuals but not choice options. Thus, V_{ik} is specified as:

$$V_{ik} = (\xi_k - \xi_0) + X_i * (\beta_k - \beta_0) + \epsilon_{ik} \forall k \in K \quad (\text{Equation 2})$$

Where X_i is the marketplace of individual i , β_k is the influence of marketplace on the selection of option k as compared to the reference option, ξ_k is the intercept of option k as compared to the reference option, and ϵ_{ik} is the influence of unobserved factors in the representative utility. We set the reference option for the outcome variable to three stars to estimate the likelihood of a reviewer selecting a star rating other than the absolute middle of the scale. Representative utility is estimated with a shallow feed-forward neural network consisting of an input layer, a sigmoid perception hidden layer, and a log-linear output prediction. Such models have been demonstrated to be analytically similar to traditional multinomial logistic estimation techniques, while simultaneously easing some limiting assumptions such as independent variance between choice options and strict linearity or monotonicity in the underlying utility function (Bentz & Merunka, 2000; Bridle, 1990; Hertz et al., 1991; Ripley, 1994). For ease of interpretation, exponentiation of logit-scale coefficients is performed to report odds ratios (OR).

Results

In general, there is evidence of positive-imbalance in United States, with both four (OR = 2.467, $p = 0.0175$) and five star (OR = 9.309, $p < 0.01$) ratings appearing much more likely than one, two, or three star ratings. Indeed, in the United States, one and two star ratings are not more likely than three star ratings (see Table 1). In Japan, we do not see evidence of positive-imbalance when compared to the United States, with neither one, two, four, or five star ratings appearing relatively more likely than three star ratings (see Table 1).

Table 1.

Odds of a review receiving a rating of two through five stars, as opposed to one star, in Japan and the United States.

| | Two stars | Three stars | Four stars | Five stars |
|---------------|------------------|------------------|--------------------|---------------------|
| | e^b | e^b | e^b | e^b |
| | (SE) | (SE) | (SE) | (SE) |
| Japan | 0.418 (1.114) | 0.62 (1.109) | 0.812 (1.068) | 0.399 (1.062) |
| United States | 0.673 (1.05) | 0.543 (1.054) | 2.467** (1.038) | 9.309*** (1.033) |

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

These results suggest that in Japan, there is a greater tendency to balance overall evaluation ratings across the provided scale than there is in the United States. On its own, such a difference in the distribution of star ratings offers support for the predictions of naive dialecticism in aggregate. However, we cannot, from this result alone, make an inference as to whether individual reviewers are attempting to balance positive and negative attitudes when making an evaluation. To assess whether individual reviewers engage in naive dialecticism when forming evaluations, we next analyze the sentiment of the review text associated with each rating.

Balancing Positive and Negative

While the previous study suggests that, in aggregate, reviewers in Japan have a greater tendency to assign ratings from the middle of the scale (e.g., three stars) than reviewers in the United States, it does not offer insight into the individual mechanism that might lead to such balancing. Thus, a second analysis was conducted to explore a possible psychological process contributing to the pattern observed previously. Specifically, naive dialecticism predicts that reviewers will use both positive and negative language equally when assigning five stars as compared to one star. However, in the United States, we expect the language used in a five star review to be overall more positive than that of a one star review.

Method

To test these predictions, we begin with the same set of reviews used in the previous analysis.² However, in addition to the star rating for each review, we also utilize the text of the review. We split each review into individual sentences, resulting in 56,796 review sentences from the United States and 15,004 review sentences from Japan. In addition, English sentiment words taken from past literature (Caliskan et al., 2017; DeFranza et al., 2020)³ were translated to Japanese using the Google Translate API (Dodds et al., 2015). A back-translation method was used to validate the translation. Each word was first translated from English to Japanese, then the resulting Japanese word was translated back to English. Any resulting infinitive statements were collapsed (e.g., “to be” becomes “be”) and both initial words and those resulting from the series of translations were stemmed (e.g., both “vacation” and “vacationing” becomes “vacat”) before being compared (Bender, 2013; Bird et al., 2009; Jurafsky & Martin, 2020). Only those words which demonstrated translational stability, that is, produced an exact match after back-translation, were retained (Dodds et al., 2015). In total, 14 words from the initial list failed validation and were removed (for the final sentiment lexicon, see Appendix C).

Next, the sentence-level sentiment was measured using word-embeddings and representative construct dictionaries (Garten et al., 2018). Word embeddings are distributed language models that provide low-dimensional, dense, vector representations of each word commonly appearing in a language. Such models rely on the distributional hypothesis (Harris, 1954) which is often summarized by Firth’s aphorism “you shall know a word by the company it keeps” (1957, p. 11). Simply, the meaning of a word can be derived from the contexts in which it most frequently appears. Thus, we would expect to find a close association between “water” and “steam” and “ice” and “glacier” but relatively less association between “glacier” and “steam.” Association, in this case, is construed as the geometric distance between each word in a vector space. Specifically, we calculate association using a metric of orientation, cosine similarity. Formally, cosine similarity S is calculated as:

² See Appendix A for replication with additional product categories.

³ In addition, the results were validated using an alternate lexicon representing positive and negative sentiment (Mohammad & Turney, 2010, 2013). See Appendix B for results using this alternate lexicon.

$$S(w_1, w_2) = \frac{v_{w_1} \cdot v_{w_2}}{|v_{w_1}| |v_{w_2}|} \quad (\text{Equation 3})$$

Where v_{w_1} and v_{w_2} are the vectors representing word one and word two respectively and $|v_{w_1}|$ and $|v_{w_2}|$ are the norms of the Euclidean lengths of the respective vectors.

Importantly, such a representation is not based on word or co-occurrence frequency, but rather an estimation of the probability of co-occurrence. This results in a much more expressive representation than, for example, methods dependent on a term-frequency matrix (e.g., LIWC; Baroni & Lenci, 2010; Baroni et al., 2010; Jaidka et al., 2020; Turney & Pantel, 2010). For example, a comparison of word embeddings is capable of estimating associations of words that occur infrequently in the training text, words that are logically associated but co-occur infrequently, and is also capable of collapsing the meaning of various forms of a word (e.g., plural, progressive) or similar words (e.g., synonyms, related concepts) into a single representation, as necessary (Garten et al., 2018). In addition, while a comparable term-frequency matrix is sparse (mostly values of zero) and high-dimensional ($V \times V$ where V is the total number of unique words in a language), a word embedding is dense (every value is meaningful) and set to an arbitrary number of dimensions (D), typically 300, resulting in a $V \times D$ matrix for an entire language.

Word embeddings used in this research were trained using the fastText method (Bojanowski et al., 2017; Grave et al., 2018; Joulin et al., 2016), which is an extension of the skip-gram with negative sampling procedure first implemented in word2vec (Mikolov et al., 2013). A detailed tutorial of this method is out of the scope of the present manuscript. However, it can be summarized as a dual optimization task in which the objective is to maximize the probability of predicting a focal word in the training set appears among its immediate context words (the left side of equation 4), and minimizing the probability of predicting the focal word appears with any word out of the immediate context (the right side of equation 4). Formally, the object is defined as:

$$\sum_{t=1}^T \log \frac{1}{1 + e^{-S(w_t, C_t)}} + \sum_{n \in N_t} \log \frac{1}{1 + e^{n, C_t}} \quad (\text{Equation 4})$$

Where T is the set of all training words, w_t is the focal word, C_t is the set of context words, S is cosine similarity, and N_t is the set of all words not in the current context window. The context window, C_t , varies randomly around each focal word, including between two and 10 words on either side. The objective is optimized by streaming each word in a very large corpus, one word and its context window at a time, through the input layer of a shallow neural net. The middle, hidden, layer is a $V \times D$ weight matrix used to estimate the word co-occurrence probabilities in the output layer. Prediction accuracy is estimated during forward propagation using a softmax, or normalized multinomial logistic function. Based on the error of this function, the hidden weight layer is updated incrementally and proportionally after each prediction using gradient descent through back-propagation. After training, the output layer is dropped and the hidden layer of prediction weights is taken as the word embedding matrix (Mikolov et al., 2013). Such word embeddings have been used to detect the presence of implicit attitudes (Caliskan et al., 2017), assess attitudes toward social class (Kozlowski et al., 2019), chart the evolution of stereotypes over time (Garg et al., 2018), and detect the presence of prejudicial and stereotypic associations across languages (DeFranza et al., 2020).

For each sentence in the data set, an aggregate word embedding was calculated by taking the mean of each vector of each word in the sentence (Garten et al., 2018). Initial vectors were extracted from publicly available pre-trained word embeddings, originally trained using the

fastText protocol on the Wikipedia and Common Crawl corpora (Grave et al., 2018).⁴ The same process was followed to create an aggregate embedding for the positive and negative sentiment dictionaries. Then, cosine similarity was calculated between each aggregate sentence vector and each of the aggregate sentiment vectors (Caliskan et al., 2017; Mikolov et al., 2013). A net sentiment score was calculated by taking the difference of the positive cosine similarity and negative cosine similarity, thus a larger positive net sentiment score indicates a greater association with positivity.

Results

In general, positive constructs are more closely related to negative constructs in Japanese ($M = 0.1989$, $SD = 0.0866$) than in English ($M = 0.1213$, $SD = 0.0762$; $t(635.77) = -11.814$, $p < 0.001$). In addition, reviewers in the United States make statements more closely associated with positive sentiment ($M = 0.3575$, $SD = 0.0785$) than reviewers in Japan ($M = 0.1562$, $SD = 0.0102$; $t(63346) = 529.84$, $p < 0.001$) and statements more closely associated with negative sentiment ($M = 0.2805$, $SD = 0.0677$) than reviewers in Japan ($M = 0.1651$, $SD = 0.0066$; $t(60638) = 398.19$, $p < 0.001$). When writing reviews associated with a five star rating, reviewers in the United States have a higher net positive sentiment ($M = 0.0839$, $SD = 0.0472$) than reviewers in Japan ($M = -0.0088$, $SD = 0.0079$; $t(40852) = 341.59$, $p < 0.001$). Interestingly, reviewers in the United States also have a higher net positive sentiment when writing reviews associated with a one star rating ($M = 0.0614$, $SD = 0.0417$) than reviewers in Japan ($M = -0.0089$; $SD = 0.0069$; $t(3612) = 87.32$, $p < 0.001$). Importantly, there is a significant difference between the net sentiment of one star and five star reviews in the United States ($t(3781.7) = 28.395$, $p < 0.001$) but not in Japan ($t(756.64) = 0.5044$, $p = 0.6141$; See Table 1 for descriptive statistics). In light of this, it is perhaps not surprising that a 2 (product rating: one star, five star) x 2 (market: United States, Japan) interaction is significant ($F(1, 45194) = 129.42$, $p < 0.001$).

Table 1. Sentence-level descriptive statistics for camera reviews in Japan and the United States.

| Market | Rating | N | Positive Similarity | Negative Similarity | Net Sentiment |
|---------------|--------|-------|---------------------|---------------------|---------------------|
| | | | M (Std.dev) | M (Std.dev) | M (Std.dev) |
| Japan | 1 | 612 | 0.1564 (0.0104) | 0.1653 (0.0075) | -0.0089 (0.007) |
| | 2 | 755 | 0.1552 (0.0081) | 0.165 (0.0058) | -0.0098 (0.0047) |
| | 3 | 2102 | 0.1570 (0.0113) | 0.1658 (0.0079) | -0.0089 (0.0068) |
| | 4 | 4446 | 0.1555 (0.0088) | 0.1646 (0.0058) | -0.0091 (0.0059) |
| | 5 | 7089 | 0.1564 (0.0109) | 0.1652 (0.0066) | -0.0088 (0.008) |
| United States | 1 | 3053 | 0.3536 (0.0754) | 0.2922 (0.0637) | 0.0614 (0.0417) |
| | 2 | 2491 | 0.3566 (0.0748) | 0.2951 (0.0611) | 0.0615 (0.039) |
| | 3 | 5226 | 0.3569 (0.0753) | 0.2938 (0.0607) | 0.0631 (0.0375) |
| | 4 | 11582 | 0.3565 (0.0766) | 0.2865 (0.0640) | 0.0701 (0.0397) |
| | 5 | 34444 | 0.3584 (0.0801) | 0.2744 (0.0702) | 0.0840 (0.0472) |

4 <https://fasttext.cc/docs/en/crawl-vectors.html>

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The Effect of Product Time Usage on the Usefulness of Online Customer Reviews

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Abstract

The effect of eWOM through online customer reviews and its effect on the customer decision making is well recognized. A review is considered useful by the customers if they think that it provides additional quality information to them and helps them in decision making process. Although there is vast literature on the usefulness of the online reviews, several studies have showed different results regarding the determinants and consequences of the helpfulness votes. The current study investigates the effect of product use time on the recommendation usefulness moderated by the product type. Using experiment, the study found that the moderating effect of purchase type as experiential and material was not significant on the relationship between product use time and recommendation usefulness.

Keywords: Review helpfulness, product use time, eWOM, online customer reviews

Introduction

In this research, we examine the relationship between customer's recommendation behaviour and time taken till reviewing the product, henceforth 'product use time'. Extant research on word of mouth recommendations have explored the role of product or service quality, customer satisfaction, and loyalty, and brand experience to understand customer recommendation behaviours (de Matos and Rossi 2008; Alexandrov et al., 2013). However, a nuanced understanding of what drives customers to recommend or not recommend a product based on the length the of time customer spends with the product is not available. In this research, we examine the temporal characteristics of an online recommendation. Our findings help us to understand how customer recommendation behaviour is related to the time taken till review. Time taken till review is shown to have further influence on how customers react to or use the review. Managers armed with this understanding would be able to manage the marketing mix and the review platforms better.

With the advent of internet and social technologies customer's troubles with decision making have compounded because they get overwhelmed with the amount of information and choices at their disposal (Häubl & Murray, 2003). Customer recommendations take the help of decision aids available to reduce the effort required using peer recommendations (Gershoff et al., 2003; Häubl & Murray, 2003). Consumers have been found to share their experiences and opinions about products/ services online and this has become source of information for other consumers resulting in reduced decision making times and better buying decisions (Hennig-Thurau et al., 2003; Ratchford et al., 2001). These customer recommendations are found to be providing fast up to date information (Kaplan & Haenlein, 2010) which are treated as more trustworthy by customers than seller information or recommendations (Li & Hitt, 2008) (Huang & Chen, 2006). Customer recommendations are found to have a more pronounced effect in experiential goods such as movies and games, in which accessing product quality becomes even more difficult (Zhu & Zhang, 2010).

Extant research on customer recommendation behaviour has examined important dimensions such self, social, and brand related factors influencing customer recommendation behaviour (de Matos And Rossi 2008; Alexandrov et al., 2013). One of the important factors missing in extant literature is treatment of the temporal characteristics related to customer product or service usage. Different customers spend different periods of time with the product before reviewing or recommending the product to someone else. A quick analysis of the reviews posted on a

particular product in Amazon.com showed that the length of time after which customers post their reviews vary between 1 day and 30 days. It would be interesting to understand how that duration possibly influence customer recommendation behaviour.

This research is expected to make the following contributions. To the best of our knowledge, this is one of the first studies on product use time, and unfolds its effect on how a recommendation is generated and used. Product use time is absent in most reviewing platforms, and less understood of its potential influence. It is important to consider its influence because considerable heterogeneity exist in how reviews are written after different duration of product use. Our research will help consumers generating such reviews and using such reviews to use this temporal cue better to increase the effectiveness of their endeavours. Managers armed with insights on product use time would be able to present consumers with more relevant information, design and manage review platforms better.

The next section covers the literature review and hypothesis generation. The paper discusses about one of the study conducted and its results.

Conceptual Development

Product Use Time and Review Reliance

Studies have found that people behave differently in the case of material good versus experiential good consumption (Carter and Gilovich, 2010; Nicolao et al., 2009). Experiential purchases are defined as purchases which are made with the primary intention of acquiring a life experience while material purchases are defined as purchases made with the primary intention of acquiring a material good into one's own possession (Van Boven and Gilovich, 2003). Studies have shown that people rely less on customer reviews made for experiential purchase than material purchase (Dai et. al, 2020). This is because the attributes of material goods are more objective and comparable as compared to experiential purchases (Holbrook et al., 1982), and thus, due to lack of objective quality in the assessment of reviews, people vote reviews as less useful in experiential purchases than the material purchases (Dai et. al, 2020).

We expect the nature of the product to moderate the effect of product use time on review reliance. Specifically, since customers can evaluate material purchases based on its features, the product use time is less likely to be important than when it is used to evaluate experiential purchases. Product use time is likely to act as an objective parameter for the assessment of reviews for experiential purchases. For instance, for a game (experiential purchase), a customer can assess the quality of the review more objectively when he or she knows that the game was reviewed after playing for 50 hours compared to 1 hour. This means that the review of an experiential purchase would also be considered to have objective quality by the consumers due to product use time while the objectivity is not affected significantly in a review for a material purchase due to product use time. So, the enhancing effect of product use time on the review reliance tend to be more positive for experiential purchases than material purchases.

Hypothesis: Product use time increases the review reliance of experience purchases to greater extent than the material purchases.

Methodology

Study: The moderating influence of product type on product use time and review reliance

In this study, we investigated whether purchase type, experiential vs material purchases, moderates the effect of product use time on review reliance. We argue that since customers can evaluate material purchases on the basis of its features, the product use time is less likely to be important than when it is used to evaluate experiential purchases. Thus, the enhancing effect of

product use time on review reliance is expected to be more positive for experiential purchases than material purchases.

Participants

We recruited 431 participants from Amazon Mturk (48% female, Mage = 38.31) using the condition that participants should be the citizens of United States.

Design and Procedure

The study comprised a 2 (experiential vs material purchase) X 2 (high vs low product use time) between subject design. We assessed consumer reliance on reviews by testing the influence of reviews on among participants deciding between two material or two experiential choices. Therefore, our dependent variable of review reliance is actual consumer choice than measured purchase intention. Within each pair of choices, we randomly varied the order of presentation, and the reviews accompanying the choice. To make the whole procedure realistic we entered the participants in to a chance drawing, and winners receive their chosen option.

Within each choice pair, we randomly varied the product use time. If our prediction of customers relying on reviews with high product use time, we expect to observe that customers will choose the product with high product use time more often.

Purchase type manipulation

Our initial attempts to manipulate experiential and material purchases were not successful. Finally, we took the same options used by Dai et al (2020) in manipulating them. They had used two options of cooking class (experiential condition) or two options of espresso machine (material condition). We also used the same type using Mechanical Turk so that our manipulation of experiential and material purchase would be stronger. To replicate their stimuli, for our pretests and main study we used the exact picture and product description, and presentation style, the two options within each choice pair presented side-by-side with order randomized. Dai et al. (2020) had found on a sample of 172 that cooking and espresso machines differed in how experiential (vs. material) they were (Mcooking class=6.44 vs. Mespreso machine = 4.42, $t=4.89$, $p < .001$) (1 = “purely material”, 9 = “purely experiential”), but not in participants caring, desire, or knowledge of these purchases.

We replicated the manipulation check using a pretest (N=99) using the same design, stimuli, and sample used by Dai et al (2020) (Mcooking class=6, SD = .87 vs. Mespreso machine = 4.42, SD = 1.67, $F = 7.97$, $p < .01$). Participants were presented with the definition of material and experiential purchase (adapted from VB). They rated the extent to which they think the given purchase (cooking class or espresso machine) is material or experiential purchase (1= purely material, 9= purely experiential). We also used tested for the possible confounds influencing the manipulation such as participant’s caring, desire, knowledge, and familiarity and found them not to be influenced by the manipulation of purchase type. Also, offerings having similar price range were selected (around \$80 for each).

Product use time manipulation

We did a pretest (N=100) to understand the consumer usual expectation of how long the reviewer would have spent with the product before reviewing. We displayed the same of stimuli, cooking classes and espresso machines, and asked participants, “According to you, how many minutes the customer should use the espresso machine/ attend the cooking class so that his/her review/feedback is credible?” Out of the 100 responses we removed outlier cases (one 900 minutes and five 1 minute). The mean time reported by the rest of the respondents was 26.64. After some qualitative exploration with participants in an executive program, we decided

to use 15 minutes as low product use time and 120 minutes as high product use time. Manipulation tests confirmed the same.

Results and Discussion

Manipulation check

The manipulation check was successful; it confirmed that cooking class is viewed as more experiential ($M = 7.2$, $SD = 1.36$) than an espresso machine ($M = 6.5$, $SD = 1.86$, $F = 9.44$, $p < .05$).

Reliance on consumer reviews

Participants chose the option with high product use time ($N = 239$) than the option with low product use time ($N=192$) (X -squared (1) = 5.12, $p = .02$).

However, our prediction on the moderating effect of purchase type as experiential and material was not significant (X -squared (1) = .125, $p = .72$). Considering our initial failures in manipulating experiential and material conditions, this might be due to lack of strong manipulation. This can also be due to the fact the consumers rely on reviews with high product use time equally in experiential and material purchases. Another explanation could be that the difference in reliance on consumer reviews for the two purchase types (Dai et al., 2020) becomes negligible when the variable of product use time is introduced.

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Personal Branding on Instagram in the Age of Social Media: A Study on Indian Female Actors

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Abstract

Personal branding is a phenomenon related to the marketing effort that one adopts to promote oneself in the competitive market of their respective fields. In today's world, it is an advantage for celebrities to maintain and improve their public image using social media. This study focuses to identify how personality traits are communicated by Indian female actors on the popular photo-sharing social-media-site Instagram. Likewise, the trend analysis of different celebrities and personality traits was done to identify the pattern of expression of such traits at different time intervals. From a practical perspective, this study provides important insights regarding how these personality traits play a critical role in successful personal branding on Instagram, for those who are interested in building a strong personal brand on Instagram.

Keywords: Personal Branding, Celebrity Marketing, Instagram, Social Media Marketing

Introduction

Tom Peters introduced the term 'personal branding' in his essay "The Brand Called You." (Peters, 1997) in 1997. In the essay, Peters asked people to start thinking of themselves differently, not as employees or just as a part of human resources working for companies, but as unique brands. Personal branding is the process in which individuals promote or market themselves to the public and today's globalized world makes it mandatory to 'stand out' from the crowd to achieve success in almost all aspects of our daily life (Brooks & Anumudu, 2016). In today's world, social media has significant importance in building a 'brand', even if it is a product, service, or personal brand (Labrecque, Markos, & Milne, 2011). And in this age of social media, it is comparatively easy and less time-consuming for an individual to build a personal brand (Khedher, 2015). Researchers suggest that this will also apply to celebrities to maintain and improve their public image using social media. This study aims to explore the concept of personal branding in the context of social media. The active presence of most of the celebrities in social media platforms such as Instagram is a cue to analyze personal branding activities; this research aims to find out which aspects of brand personality are communicated on Instagram by the topmost followed Indian Female Actors in creating a personal brand image.

Theoretical Background and Literature Review

Personal Branding

A brand can be considered as a relationship rather than just a statement. A brand itself is an important influencer in purchasing a product or a service and it provides information about the products or services and creates associations that will affect the mind of the consumer in the purchase process. Several studies suggest that the principles used in developing a business brand apply to build a personal brand as well (Shepherd, 2005). So if an individual is interested in making himself or herself a successful personal brand, creating meaningful content is the best way to stand out from their competitors. Besides intense interaction, authenticity, and creating trust in the minds of the followers can enhance constant user interaction and develop a positive brand image (Vilander, 2017). People branding can be considered in the same way as product branding, however the basic assumption is different because product branding is more tangible while people branding involves more intangible associations. This makes people branding more complicated and challenging than traditional product or service branding. How to create brand associations to maintain a positive personal brand image are the topics of relentless discussion (Hietajärvi, 2012).

Effects of Social Media on Personal Branding

Social media has emerged as an important communication platform to connect individuals and organizations without geographical barriers. Unlike conventional communication mediums, social networking sites utilize their interactive images to make the content more informative and representational in an overall context (Gilbert, Bakhshi, Chang, & Terveen, 2013). The concept of personal branding is not entirely new, but it has become increasingly relevant in this digital era, because of the excessive influence of the internet and globalization. Similar to the more widespread idea of product branding, self-branding begins with defining a distinct brand identity before actively communicating it to the targeted market to achieve a specific goal, such as gaining employment, establishing a new friendship, or as a way for self-expression (Baccarella, Maier, Eibl, & Voigt, 2019).

Methodology

Social network service or social networking service (SNS) site Instagram (www.instagram.com) was chosen for this study due to its increasing significance in modern marketing and it is particularly suitable for personal branding activities (Khamis, Ang, & Welling, 2017). The visual representation feature and simplicity in providing visualized associations and perceptions about the brands have made it more attractive and convenient for people to interact with each other and to showcase their attractive personal side (Lim & Yazdanifard, 2014). Instagram being used free of charge and more user-friendly is one of the reasons for being attractive among the young generation (Kaye, 2011).

To gain a better understanding of the research objectives, the 100 most popular Instagram profiles were selected using the help of a popular website, www.trackalytics.com (Trackalytics, 2019). The profiles were selected based on the number of followers as the current status of their follower base indicates the influence of that celebrity on social media (Barnes & Jacobsen, 2014). The actors' category was chosen for this research, as their influence as brand ambassadors of different product brands is much wider. This study chose the Indian celebrities due to limited existing studies on Indian actors, while most of the works were from the U.S. In the topmost followed category there were one male and eight female Indian actors. So the top most followed 5 Indian female actors were selected for the study which includes Priyanka Chopra Jonas, Deepika Padukone, Alia Bhatt, Shraddha Kapoor, and Anushka Sharma. All these profiles were active during the time of study and any unconventional communication patterns such as posting identical pictures multiple times were considered as one post and then re-analyzed later. All profile contents were collected and categorized over six months 14 days from July 1st 2019 to January 14th 2020. Overall, data collection resulted in 786 posts across all analyzed profiles. From these 786 posts, 250 posts (31.8%) were posted by Deepika Padukone, 124 posts (15.7%) by Priyanka Chopra Jonas, 205 posts (26.08%) by Shraddha Kapoor, 117 posts (14.8%) by Anushka Sharma, and 91 posts (11.57%) by Alia Bhatt. For each post, we first examined whether the post was an advertisement post or a regular Instagram post and then the selected posts were categorized into deductively derived brand traits based on Aaker's (Aaker, 1997) brand personality scale: sophistication, sincerity, competence, excitement, and ruggedness, and points were given accordingly. The methodology followed for sample selection is described in the flow chart - Figure 1.

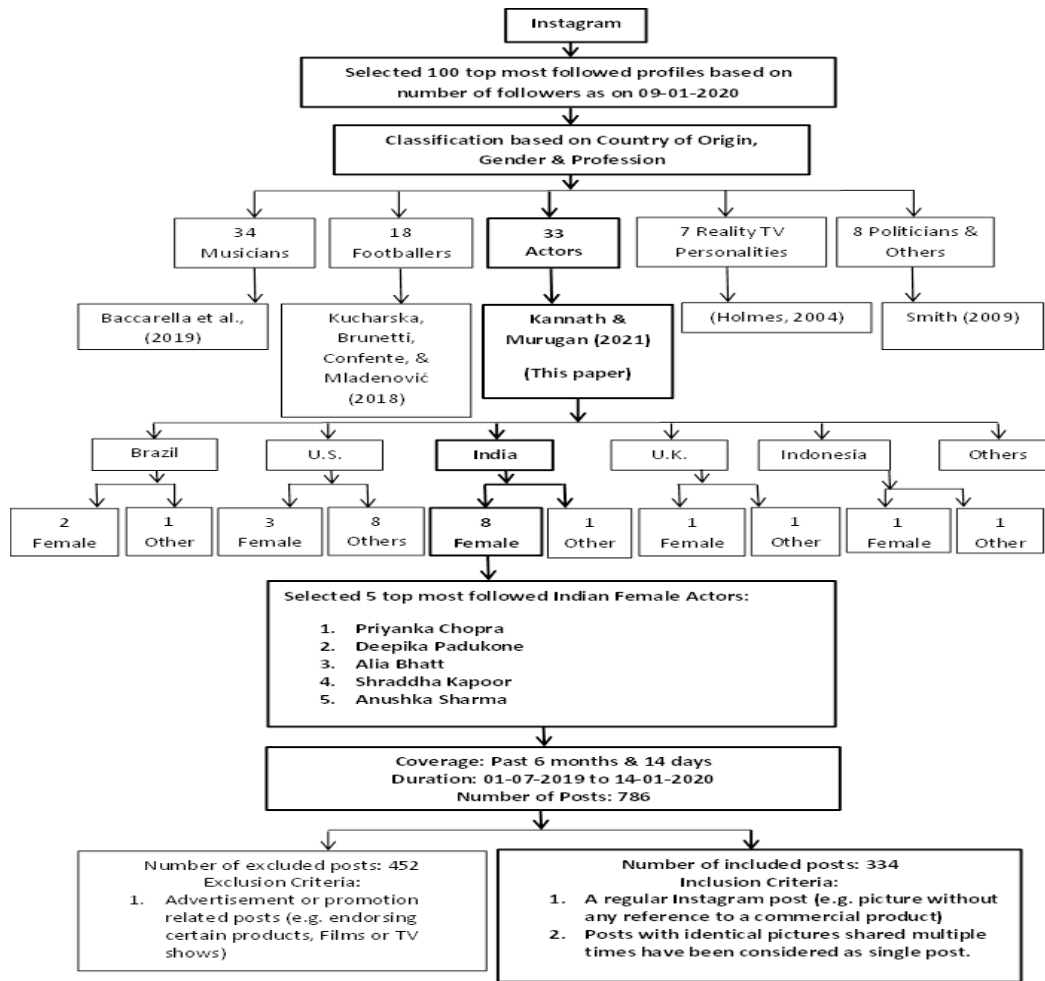


Figure 1. Sample Selection Methodology

Results and Discussion

General Results

From the analyzed 786 posts, 452 posts (57.5%) communicated an invitation to buy or at least to use a commercial offering (for example the invitation to watch a movie or a TV program that features the artist or intimation about the upcoming award functions). The remaining 334 posts (42.4%) contained cues related to the artists’ personal brand identities and served as our final sample. From these 334 posts, 73 posts (21.8%) were contributed by Priyanka Chopra Jonas, 79 posts (23.6%) by Deepika Padukone, 86 posts (25.7%) by Shraddha Kapoor, 53 posts (15.86%) by Alia Bhatt, and 42 posts (12.57%) by Anushka Sharma. Each of the five personality traits was found in the communication activities of the artists, however, the occurrence of them differed considerably. For an overview of the different personality traits across the artists see Figure 2.

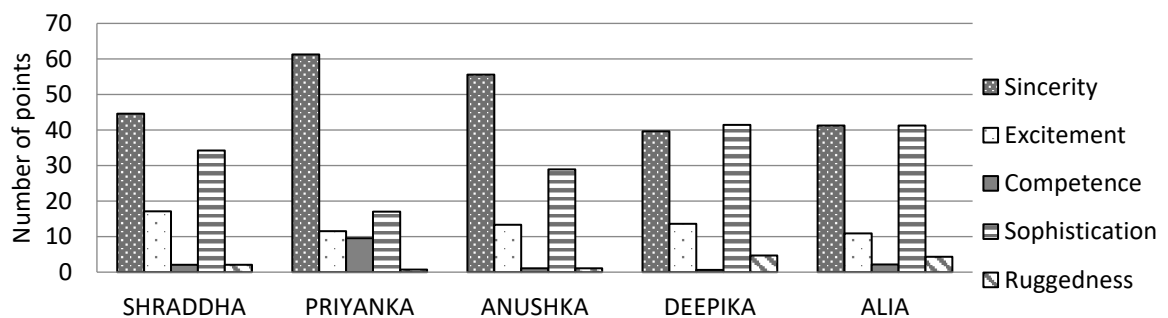


Figure 2. Distribution of Personality Traits across the Actors

In particular, the findings show that the most frequently communicated personality trait is sincerity (47.9%). Sincerity includes being down-to-earth, family-oriented, small-town, honest, sincere, real, wholesome, original, cheerful, sentimental, and friendly (Aaker, 1997). Accordingly, the category sincerity highlights the representation of everyday activities, but also universal values such as family and friendship of the person. The second most communicated personality trait is sophistication (32.56%). The personality trait sophistication relates more to the physical appearance of a person (Baccarella et al., 2019) that includes sub-traits such as upper class, glamorous, good-looking, charming, feminine, and smooth (Aaker, 1997). The category sophistication highlights the physical appearance of the person. The next most communicated personality trait is excitement (13.74%). The personality trait excitement describes the presence of energy and activity (Baccarella et al., 2019) that includes the sub-traits daring, trending, exciting, spirited, cool, young, imaginative, unique, up-to-date, independent, and contemporary (Aaker, 1997). The personality trait competence is communicated by 3.18% of the posts. The personality trait competence includes sub-traits such as being reliable, hard-working, secure, intelligent, technical, corporate, successful, leader, and confident (Aaker, 1997). Within this personality trait, artists most often communicate subcategories reliable (54.54%), intelligent (4.54%), and successful (40.90%). Even though competence generally receives less attention on social media platforms, the researchers find that the presentation of professional competence in the case of celebrities is important for building a strong personal brand (Baccarella et al., 2019). Only 2.60% of posts contained the personality trait ruggedness and both the sub-traits of ruggedness showed up with the same intensity, outdoorsy (50%), and tough (50%).

Figure 3 shows examples of Instagram posts that display the personality traits Sincerity, Sophistication, and Competence respectively.



Figure 3. Example of Different Personality Traits (Instagram, 2019)

Trend Analysis - Person-wise Results and Trait-wise Results

To gain further insights on the trends of the posts and their reflection on the personality, trend analysis for the 6 months of the study on 15-day intervals was analyzed. The personality trait sincerity was the most communicated trait among the top Indian celebrities and the trend showed a similar pattern during the study period. The trait was measured in terms of expressing their personality through sharing of moments with family and friends, interestingly all the top Indian celebrities expressed it on a higher note especially during festivals and celebrations. And another interesting finding is that most of them have not expressed the personality trait ruggedness, which may be because ruggedness (or rudeness) can be connected with negative associations in terms of popularity (Baccarella et al., 2019).

Figure 4 shows the results of the trend analysis across different artists and personality traits.

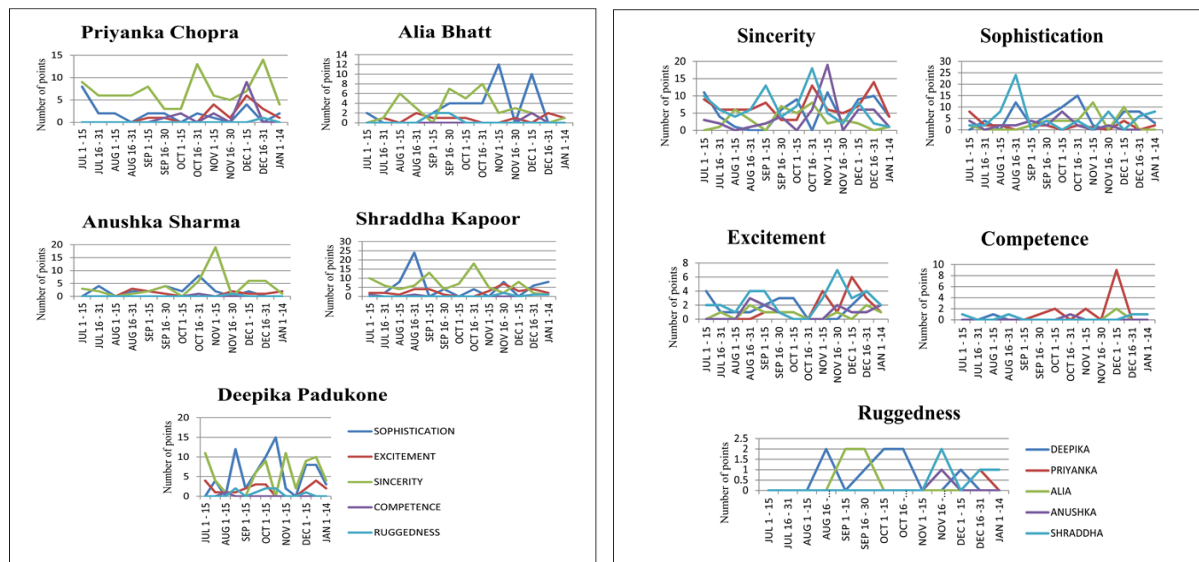


Figure 4. Trend Analysis Results (Person-wise and Trait-wise)

Conclusion

The celebrities and their social media managers have already started to realize the importance of managing the celebrity's brand image on social networking sites (Thomson, 2006). As it is important to maintain a positive personal brand image and reputation by preventing the unauthorized and offensive use of images, posts, etc. (Halpern, 2005), this research provides insights on managing a personal brand by illuminating factors that influence the celebrity's perceived brand image in the minds of their followers. Moulard et al. (2014) stated that perceptions of an artist's authenticity positively affect attitude toward the artist and subsequent behavioral intentions (Moulard, Rice, Garrity, & Mangus, 2014). Therefore, managing a positive brand image and authenticity for a person will help in gaining a better response from the fan follower base. Though the importance of digital communication activities is increasing recently, there is still a lack of studies that deal with direct personal branding activities on social media. From a theoretical perspective, this study deals with the power of social media in different aspects of personal branding. From a practical perspective, this study provides important insights regarding which personality traits have been showcased in an Indian context which helps social media managers, artists and all those who are interested in building a strong personal brand on Instagram.

Findings from this research show that sincerity and sophistication are the most expressed brand personality traits by the topmost followed Indian female actors on Instagram. Indian Institute of Human Brands (IIHB) had come up with a new study on couples as brands 'The Sparklers' in 2019, which had focused on the aspect of getting the maximum return on marketing by choosing the right couple for the brand endorsements. In this study, the Virat Kohli – Anushka Sharma couple alias 'Virushka' scored the highest on the 'Made For Each Other' (MFEO) parameter (Sengar, 2019). This indicates the sub-trait, family-oriented, sentimental, and friendliness under the personality trait sincerity worked well for Anushka's endorsements. Virushka can communicate the personality trait sincerity more as a couple to appeal to a new segment of consumers and to endorse products and services such as home loans, insurance plans, cars, etc., which are the critical investments that consumers decide on in consultation with their families (Phelps, 2018). Deepika has been endorsing the online travel portal, Goibibo since 2017 and in 2016, she became the first-ever brand ambassador of Vistara airlines as well. Both of these brands carry the personality trait excitement which is also one of the most

expressed traits on Deepika's profile. In August 2018, Caprese the handbag collection from the house of VIP Industries revealed that Alia Bhatt, the brand ambassador of the brand is working with the brand's creative team to design an exclusive, limited-edition handbag collection (Upadhyay, 2018). This brand is associated with the sub-traits such as glamorous and good-looking traits of sophistication, which is one of the most expressed traits in Alia's profile during the period of study. So these examples show that a celebrity who expresses a particular trait more on social media (here Instagram) is more suitable to endorse the product or service brands with similar traits.

Limitations and Future Research Scope

This study has some limitations that will provide possibilities for future research. First of all, this study only considered the social media platform Instagram for analysis, to gain a more deep understanding of how to build strong personal brands on it and future research should also consider other social media platforms (e.g. Facebook, Twitter, or LinkedIn) in the analysis. Samples are from the film industry in India directed towards top female actors only therefore caution should be taken before generalizing to other countries, industries and gender. Finally, this study was focused on a period of six months 14 days, and the sample size of 786 posts, which can be further, increased in future studies for getting more accurate results.

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What Drives SNS Users to Share? Through the Lens of Social Capital Theory

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Abstract

Social network sites are ideal for receiving and sharing information to generate reciprocity. Research has found that as social capital increases in a SNS network, the norms of reciprocity strengths. Despite online media having unprecedented speed of diffusion, there does little understand as to how it is generated and shared is not fully known. The aim of this study was to test the model of Social capital theory to investigate why users on SNS share information to others and antecedents of norm of reciprocity. The study used partial least squares (PLS) structural equation analysis to test the hypotheses. The results indicate that norm of reciprocity is a significant predictor of information sharing behavior and utilitarian value has significant influence on Norm of reciprocity.

Key words: Social capital theory, norm of reciprocity, utilitarian value and hedonic value, pass on behavior

Introduction

Social network sites (SNSs) provide unique opportunity for people to connect and share information (Boyd and Ellison, 2007). Research found sharing of content on Social media is possible due to reciprocal interdependence which allows a smooth flow of information across different users using different media (Lou et al. 2000, Wattal et al. 2010b). SNS are an increasingly popular venue for marketing (Taylor, Lewin, and Strutton, 2011). Reciprocity is a sense of mutual indebtedness and is essential to accumulate social capital (Hur, 2016). Brandtz, (2012) suggests SNS usage relates to social capital. This makes the understanding of how and why people reciprocate important (Stocks et al., 2018). Norm of reciprocity has been studied both in offline (Putnam, 2000) and online (Pelapat and Brown, 2012) context. Reciprocity deals with an individual tendency to reciprocate others' behavior, and is based on the individual's own internalized values. (Li-Chun Huang and Wen-Lung Shiau, 2014, Dholakia et al., 2004, Tsai and Pai, 2014, Pai and Tsai, 2016) that are utilitarian and hedonic. Jang et al. (2008) suggested both utilitarian values and hedonic values influence reciprocity. Nambisan and Baron (2007, 2009) state that consumers gain hedonic value in sharing while Rudat and Buder (2015) find "high informational values" messages spreads fast.

Social capital theory highlight reciprocity as a motive for knowledge contribution but do not investigate the antecedents of reciprocity (Mathwick et al., 2008, Liou et al., 2016, Myers, 2016, Feng and Ye, 2016, Pai and Tsai, 2016). Harcup and O'Neill (2016) recommended examining new elements that leads to shareability of content on social media. Considering the importance of norm of reciprocity among the network users for online sharing, this study focusses on the antecedents of reciprocity in perspective of social capital theory in online sharing behavior and whether the norms of reciprocity mediates between the hedonic and utilitarian value gained during information sharing. The current study has conceptualized the use behavior as pass on behavior which is frequency of forwarding an online content while using the Social Network site (Hongwei (Chris) Yang and Liuning Zhou, 200

Conceptual model and Hypotheses

Based on the review of literature on Social capital theory (Bassani, 2007, Diriye 2019, Durlauf and Fafchamps, 2005, Häuberer, 2011, Schweinfurth and Call, 2019) the study conceptualize Fig. 1 information sharing is determined by norm of reciprocity and in turn this is determined by hedonic and utilitarian values.

- H1: Norm of reciprocity has a positive effect on pass on behavior on SNS.
 H2: Hedonic value has a positive effect on norm of reciprocity with SNS users
 H3: Utilitarian value has a positive effect on norm of reciprocity with SNS users.
 H4. Hedonic value has a positive impact on pass on behavior on SNS
 H5. Utilitarian value has a positive impact on pass on behavior on SNS.
 H6a: Norm of reciprocity will have a significant mediating effect on hedonic value
 H6b: Norm of reciprocity will have a significant mediating effect on utilitarian value

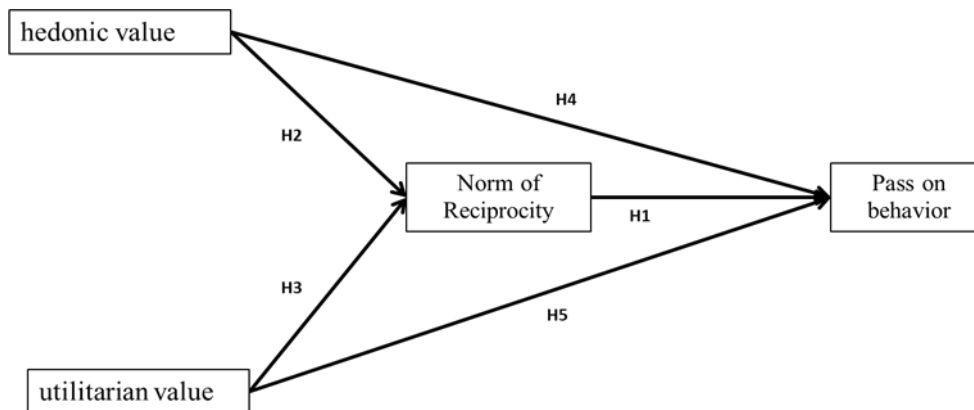


Fig 1. Framework for hypotheses

Methodology

This research uses SEM as multivariate analysis technique by adopting “Two-Stage Approach” proposed by (Ringle et al., 2012 and Hair et al., 2014). Considering population of SNS users, a non-probability sampling technique – convenience sampling method was employed (Leong et al., 2013a) This was a cross sectional study. The results in the first stage were analyzed using internal consistency and validity was computed. To analyze the direct and indirect relationships between these variables, a structural equation model (SEM) utilizing the Smart PIs V.3 statistical package (Bentler, 2006). The constructs of this study were all measured using validated scale. A sum total of 432 responses were computed for study.

Data Analysis

The items yielded satisfactory reliability, construct and discriminant validity with no problem of multi- collinearity of indicators. The structural model or inner model is accessed via the path correlation between indicators and their constructs Examining individual paths hypothesis H1- norm of reciprocity (beta= 0.465, p= 0.0000), H4 Hedonic value (beta = 0.174, p= 0.000) and H5 (beta = 0.089, p= 0.0330) for POB and H2- Hedonic value (beta 0.363, p= 0.00000) and H3 utilitarian value (beta = 0.459. p= 0.00000) for Norm of reciprocity were supported. Overall, the R-squares for POB, for online sharing were 0.45, followed by 0.608 for Norm of reciprocity showing a moderate prediction (Hair et al., 2010). The mediation analysis (Preacher and Hayes 2004) found that norm of reciprocity partially mediating utilitarian factor (t= 5.033, p=0.000) thus H6b is supported and less strong hedonic factor to pass on Behavior (t= 4.48, p=0.000) thus H6a is supported.

Implications

The model of Social capital to investigate information sharing behaviors on SNS found norm of reciprocity moderately predicts R² (0.46) the pass on behavior. This substantiates that accumulation of social capital is an important influencer in sharing behaviors. Social capital is defined as a network(OECD) with shared norms and values that accumulates over a period of time due to common interest among members and this strengthens connections among

individuals and facilitates co-operation within or among groups. Thus, study provides evidence that social capital with shared norms, values develops and plays an important role in information sharing, and it has also examined the antecedents of reciprocity behavior in the online context. Norm of reciprocity is the most robust predictor of pass on behavior on SNS for sharing online information. The tendency to reciprocate favors are more driven by utilitarian and informative values than hedonic benefits. The model suggests that over time users look to forward more content with informational and instrumental value that can help others. Mediation effects of utilitarian and hedonic on pass on behavior operate partially through norm of reciprocity behaviors. Such partially mediating effect indicates a stronger relation with utilitarian value than hedonic value. These empirical findings are consistent with previous research and also close the gaps identified previously. From a managerial perspective, the study examines new elements that lead to shareability of content on social media. Unlike previous studies utilitarian value is stronger in inducing reciprocity norms than hedonic value. So also, hedonic factors are significant driver of pass on behavior whereas has emerged as less important than utilitarian value in reciprocal behavior. These findings offer practical implications for social media developers by being able to leverage different gratification (utilitarian and hedonic) for the usage and this also provides an insight to content creators who need to increase their subscribers base by offering content that is more informative rather than fun and pleasure hedonic content.

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Social Media and Information Seeking: A Qualitative Study of Female Instapreneurs' Information Seeking Behaviour

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Abstract

Recent years have seen a rise in social media-based micro -entrepreneurial ventures. Instapreneurs are a type of informal entrepreneurs based on the content sharing platform – Instagram, who sell products, services or advertisements utilizing their content popularity. Even with the increased interest in mechanisms of social commerce and the uniqueness of this niche set of entrepreneurs, extant research has not investigated the information behaviours of social media-based entrepreneurs. To this end, our study draws from Wilson's model of information behaviour and social media affordance literature to examine female instapreneurs information needs, process of information seeking and the role of social media in the process. We conduct qualitative interviews of a variety of instapreneurs to gather fruitful insights on information seeking behaviours using social media.

Keywords: instapreneur, information seeking behaviour, entrepreneurship

Introduction

Web2.0 and the smart phone revolution have given way to the advent of social media-based entrepreneurship. These nascent entrepreneurs are quite prevalent in emerging economies of India and middle east, utilizing the business side affordances of Instagram, LinkedIn and Facebook. Instagram based businesses have emerged as a cost effective and cool business model among youngsters and particularly women, even from peri urban and village settings of India and middle east (Gibreel et al., 2015; Porter, 2019). These entrepreneurs are popularly known as 'instapreneurs' who are micro entrepreneurs with a large following on Instagram platform where s/he sells products, services and advertisements. Pandemic and social distancing has seen a 40% increase in the platform usage and a boom in instagram based businesses (De' et al., 2020). Without the benefits of formal training or experience of the formal entrepreneurs, instapreneurs rely on social media platforms to satisfy their business information needs. To this end, we are motivated to investigate female instapreneurs and their information behaviours in social media platforms. Social media and entrepreneurship have received a lot of research interest in past decade (Olanrewaju et al., 2020). While many studies have explored information seeking of entrepreneurs in general (lillard, 2002), few have specifically looked at women informal entrepreneurs based on social media platforms like Instagram. We assume that information acquisition and seeking behaviours of informal women entrepreneurs, specifically instapreneurs would be different from their formal counterparts due to their varying information needs, their environmental context, lack of business knowledge and networks. Further, there would be distinct characteristics for online seeking behaviours compared to offline mode, owing to the varying capabilities of the social media platforms. While many studies examine the role of social media in empowering women entrepreneurs descriptively in various developing contexts (Beninger et al., 2016; Dewi, 2020; Melissa et al., 2013), none of them theoretically explain the process of information seeking. Thus, it would be interesting to explore the various mechanisms employed by women instapreneurs in information seeking and acquisition in social media platforms. Against this backdrop, we propose the following research questions.

RQ: What are the business information needs of female instapreneurs in India and how do they seek information? What is the role of social media platform affordances in aiding their information seeking?

Literature Review

Informal entrepreneurship can be defined as an endeavour where monetary transactions from the business are not declared to the government for tax, benefit and/or labour regulation purposes but which is legal in all other aspects of the informal institutions' unwritten socially shared rules (Williams 2014; Williams et al. 2017). Till recently, female informal entrepreneurship has received little research interest (Thai & Turkina, 2014). Nevertheless, it warrants special attention in Indian context due to various reasons; for instance, the huge proportion of informal entrepreneurs in Indian job market, the differential barriers faced by women in business and the rising trend of women owned stay at home businesses (Mehtap et al., 2019). Specifically, with the surge in digital platform based, micro businesses, there is a need for studies theoretically examining the behaviours of informal entrepreneurs on platforms like Instagram and Facebook. To the best of our understanding, none has examined the motivations and information behaviours of instapreneurs, a type of informal Instagram based entrepreneurs. Further, this internet-based entrepreneurship is particularly prevalent among women who are just starting up because either they are not big enough for formalization, do not know how to go about the formalization process or they are seeking some advantages it holds over getting and sustaining a traditional 9-5 job (Mehtap et al., 2019).

While women in informal entrepreneurship have grabbed some attention, they are mostly empowerment oriented, especially in lines of impoverished, illiterate or rural women trying to make a mark in this world (Beninger et al., 2016; Melissa et al., 2013; Venkatesh et al., 2017). They also investigate the role of ICT and social platforms in helping the business by empowering the women. Our review finds that majority of these studies are descriptive, qualitative and atheoretical (Beninger et al., 2016; Dewi, 2020; Melissa et al., 2013). Apart from that the group we are trying to investigate, instapreneurs are well educated and opportunity driven, contrary to being money driven. Hence, we assume that their information needs and channels would be different from those of the usual category of informal entrepreneurs holistically explain informal entrepreneurs' information seeking in a theoretical sense.

Social media use in entrepreneurship has been avidly studied (Olanrewaju et al., 2020). But these studies were restricted to on one hand, deterministic studies testing the relationship between adoption of social media marketing and success of any specific stage in entrepreneurship like opportunity recognition (Ceptureanu et al., 2020) or on the other hand very exploratory atheoretical empowerment studies based in developing country context (Beninger et al., 2016). To the best of my knowledge, none of these studies examine social media affordances and the resulting information behaviours in the entrepreneurship context. While entrepreneurs employ various information behaviours such as production, reaction, information seeking, collaboration sharing etc., our study investigates the role of social media on information seeking behaviours of instapreneurs, as it has a major role to play in the success of the venture. While many studies have explored information seeking of entrepreneurs, very few have specifically looked at women informal entrepreneurs solely based on social media.

Theoretical Development

We use Wilson's 1996 model (T. Wilson, 1997; T. D. Wilson, 1999) for our study as it is well integrated with theories of self-esteem and coping from psychology which would be appropriate in our context of women empowerment.

Secondly, in comparison with other models which explains at a micro level of information seeking, this model is at a macro level incorporating the contextual, psychological and environmental factors aiding or hindering the process and also presents both active and passive search in information seeking and the role of information processing and use as feedback. The

entrepreneurial context demands such broad coverage as it is observed that a wide variety of factors influence entrepreneurs seeking behaviours. Further, social media context leads to the emergence of new forms of seeking behaviours such as skimming, encountering etc. The framework is presented as figure 1. The starting point of the model is when an 'information need' arises from 'a person performing his role in any environment'. This model can give us the base to gather insights from our sample of women informal entrepreneurs about their information needs, intervening factors and the types of information seeking behaviours performed over social media.

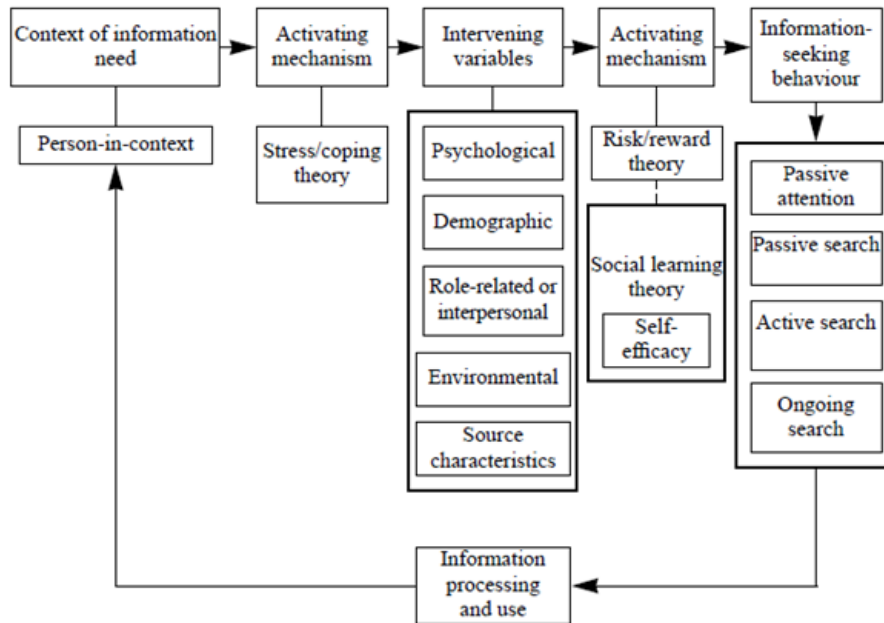


Figure 1 Wilson's Model

Apart from this theory, we also draw from social media affordance literature to investigate the various platform affordances utilized in the process of information seeking.

Methodology

We adopt an exploratory qualitative research design using data collected from in-depth interviews of 5 women based on a semi structured questionnaire followed by analysis using thematic analysis. Subjects were selected using convenience sampling. Participants were screened for – 1) their business predominantly based around the Instagram platform, 2) The venture solely owned and managed by the individual. 3) The individual creates and sells their own products and is not a retailer or an influencer. The participants had low to very large network size. The questionnaire was grounded on themes from Wilson's Model of information seeking behaviour and employed critical incident techniques to elicit incidents of information seeking and challenges. The interviews were conducted for an average of 40 min over phone and were digitally recorded wherever possible and they were transcribed immediately for analysis. We intend to understand the subjective nuances of information seeking and acquisition of these women who mostly rely on social media for running their ventures.

Preliminary Findings

From our findings, we identify and discuss six types of information needs faced by entrepreneurs, sources from which they seek the information and some of the approaches used in information seeking.

| Sl. No | Information Needs | Insights |
|--------|--|--|
| 1 | Product or Service Information | The information needs and its intensity varies in different stages of entrepreneurship. In the initial stage, there is an intense need to know all about the product, its designing and manufacturing techniques. While information seeking is intense at this stage with more of active search than passive attention, the information required is also very broad and at the surface level |
| | Information on how to design, create and effectively manufacture their product or service as per the market standards | Later stage: After some experience in the business, the rate and effort put in information seeking decreases to passive attention and intermittent bouts of seeking narrow niche information. While information sought moved from broad to more specific, the content sought shifted from entire recipes to tips and tricks |
| | | This type of information falls into three categories in the decreasing order of difficulty as general product manufacturing information, innovative ideas and tips/tricks of the trade. While the former two can be easily obtained from public pages on Instagram, YouTube and Pinterest, valid tips and tricks are rare on public pages and difficult to obtain |
| | | Tips sought from other experts may not be comfortable for everyone, hence, it is better to employ self-made tricks appropriated through trial and error |
| | | Source: popular content sharing platforms such as Instagram, YouTube and Pinterest for the younger instapreneurs who are competent with using smart phone and technology, whereas training classes and expert help for beginners |
| 2 | Market Information | Instapreneurs seek only minimal market information mostly after they begin selling. |
| | Information such as 'which product my followers like more? optimum price?' | Voting and commenting mechanism: While seeking follower's product preferences, Instagram stories are floated showcasing the photos of their recent products and asking followers to vote and comment on the same |
| | | The instapreneurs also evaluate the demand of their product based on the likes and shares they receive on their designs |
| | | The Instagram business account features also provide location-based followership data. |
| 3 | Supplies information | |
| | Information about the best raw materials for the products or service, the appropriate dealers and their credibility information and the availability of supplies | Active search: Based on an explicit need or an attraction towards a raw material in a content video showcased in YouTube or Instagram, the instapreneur can begin an active search. E.g., raw material details in metadata of the post mostly as a link to a page |
| | | Ask good network of friends with similar interests- community WhatsApp group or with a role model they admire. E.g., Persistent search on Instagram based on hashtag for any suppliers in India instead of enquiring in her community of friends |
| | | Social media preferred due to anonymous interaction possible as a business and not an individual |
| | | Passive encountering |

| | | |
|---|--|---|
| 4 | Opportunity identification | Highly network driven information need |
| | Information to expand customer base, collaboration opportunities and new ideas | Seek personal details of influencers who could be a good customer of their products, to push influencer marketing. E.g., the baby cloth designer researches on Instagram to find Kerala based celebrities or influencers who have babies or kids or even those who are expecting, their babies' birthdates, names etc |
| | | collect information about locally available collaborators. Eg. party décor instapreneur seeks contacts and details of the locally available cake instapreneur and photography team |
| | | Initial Source: clients, flea markets; Latter source: WhatsApp communities, groups |
| 5 | customer-order information | Instagram clients are unique and choosy compared to other platform clients as they have higher aesthetic sense and interests with exposure to high quality content |
| | Includes client's product specifications if any, approved design details, dispatch or location details, Product photos and feedback from the customer. | Seeks minutest information; henna entrepreneur seeks brides palm photos; party entrepreneur seeks birthday child's dress photo, favourite cartoon character etc |
| | | Business positioning based on availability and ease of seeking information. Eg: baby dress entrepreneur restricted orders to girls attire due to the difficulty of collecting information for boy dress size. |
| | | Information sought depends on the product customization type: generic or custom made. Depth and mode of Information sought depends upon various subjective environmental factors, festive season, busyness of the entrepreneur, closeness of the client. Eg. Google forms during busy times |
| | | WhatsApp more suitable for collecting and exchanging this kind of information - ease of reseeking information, ease of setting order names |
| 6 | Instagram business Tips: | Persistent sharing and seeking information through network |
| | Information on how to improve their Instagram business by increasing followers and viewership | Vicarious learning- Searching strategies adopted by other successful instapreneurs. Rather than imitating, trial and error approach of appropriation followed |
| | | Existing notion that Instagram platform policies do not allow sharing and copying business tips |

| Platform Affordances | Instances from data | Insights |
|--|---|--|
| <p>Visibility An ability to be visible (or invisible) i.e., to make users behaviours, knowledge, preferences, and communication network connections that were once invisible visible to others in their network</p> | <p>“My embroideries are a fusion of European style and my grandma’s designs. It’s only possible because I can actually see them work in real time through their Instagram reels and lives” – Ms_MadeSpecial “I actually check out my customers page before beginning work on her bridal décor. It helps in connecting with her preferences” – Glitter_Pom</p> | <p>-SM platform usage is a gateway to diverse product ideas -Ease of knowing more about the customer without being too nosey -Opportunity identification</p> |
| <p>Persistence Information remains available to users for a long time and do not expire or disappear.</p> | <p>“I wanted to be like this popular Henna artist. I can see all her posts from the time when she used to just doodle circles. I keep looking at my competitors old posts to understand how they grew” – Mehandi by Rashi</p> | <p>Aids in seeking temporal insights and historical content of others and self</p> |
| <p>Association The ability to establish connections between individuals (tie), between individuals and content (tag).</p> | <p>“Just searching with a hashtag #PampasKerala, I can see the content of dealers and artists working with this grass décor. This helps in making meaningful ties” – Glitter_Pom</p> | <p>Social media strong ties speed up information seeking The tags feature makes SM platforms a repository of large network information</p> |
| <p>Meta-voicing Adding metaknowledge to content by reacting online to others posts, profiles, content through likes comments and shares</p> | <p>“I was curious about this golden grass décor found in many European décor videos. Once I found a post in Instagram with the same grass and the post description provided a link to the Pampas grass dealer’s page. I was delighted to know the name”</p> | <p>Ease of retrieving customer emotions and support from the metadata of a post Ease of retrieving supplies and raw material information</p> |
| <p>Networked Association Engaging in the online knowledge conversation informed by relational and content ties</p> | <p>“When Pearlie Manny was expecting, I knew it would be a great opportunity if I get the baby dress orders. Immediately I found her sisters and best friends’ profiles, followed them and made a connection. “-Ms_MadeSpecial</p> | <p>New modes of indirect information seeking through weak ties</p> |

Further, Consistent with Wilson’s model, our analysis reveals that there are certain intervening factors impacting the efficacy of information seeking, namely; network characteristics (specifically large responsive network size, high eigen vector centrality, strong ties), connection with role models, role of WhatsApp communities, perceived ease of using social media and

computer self-efficacy. In the next table, we discuss four social media affordances actively used by the instapreneurs in their process of information seeking and acquisition. These affordances are drawn from prior studies in technological affordances literature.

Discussions

From the current analysis, we expect that the future findings from the study would significantly expand the theoretical lens of Wilson's model by incorporating the role of social media platform affordances in aiding information seeking. The study also shows an effective application of the affordance lens adding to the literature of social media affordances. Apart from the expected theoretical contributions, the study offers practical implications for instapreneurs and platform developers on various platform characteristics and affordances that the users employ to enrich their information seeking experience.

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HR Analytics in Recruitment Strategy: A Systematic Review and Bibliometric Analysis

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Abstract

The study aims to systematically review the scholar knowledge base of HR analytics in recruitment strategy. We argue that useful insights can be gathered through conducting a systematic review using rigorous quantitative bibliometric analysis technique. Bibliometric analysis quantitatively maps the intellectual evidences and knowledge boundaries.

The study finds that HR analytics in recruitment strategy is recent or just one-decade old phenomena. The research topic is majorly published in management, decision science, economics research fields to contribute in human resource management literature. The descriptive analysis explains the overview of the data. Bibliometric analysis demonstrates the most influential research papers and high citation pattern at local and global level. Social network analysis displays that authors are collaborating more at trans-national level for conducting the research on HR analytics in recruitment strategy and a strong pattern has emerged among the USA, UK, and India. The high citation scores and network collaboration among influential authors will bring more attention of scholars and practitioners on the topic.

Keywords: HR Analytics; Recruitment Strategy; Systematic Literature Review; Bibliometric Analysis

Introduction and Background Study

The global network of information sharing, supply chains, and value chains to achieve competitive advantage for organizations led to rampant globalization and bringing digital era which ensuing widespread human resource mobility, resource allocation, homebased working, and digital labour phenomena in multinational companies (Bolton et al., 2019; Garg et al., 2021). On the other hand, recent phenomena of pandemic, heterogeneous abundant data display as data search result, challenge of managing global talent, and developing HR competency for strengthening human resource productivity creates more promising requirement of HR analytics in recruitment strategy at multi-national corporations (MNCs) (Brookes et al., 2017). Recruitment is defined as organizational practices and activities intended to identify and attract potential employees and recruitment strategy explains about decisions and plans of the HR practitioners after finding five major answers about effective recruitment: whom to recruit, where to recruit, what recruitment sources to use, when to recruit, and what message to communicate (Orlitzky, 2007).

Marler and Boudreau (2017:13) defines HR analytics as “a HR practice enabled by information technology that uses descriptive, visual, and statistical analyses of data related to HR processes, human capital, organizational performance, and external economic benchmarks to establish business impact and enable data-driven decision-making”. Contextually, HR analytics acts as a recruitment decision processing tool for HR organization while designing the effective recruitment plan for analyzing the right candidate to fill the vacant position, future talent acquisition, and cost reduction.

Scholars have attempted to review the recruitment strategy (Madia, 2011; Orlitzky, 2007; Lewis, 2006) and HR analytics (Mondore et al., 2011; Marler and Boudreau, 2017; Ben-Gal, 2019; Qamar and Samad, 2021) separately. However, little evidence has found on HR analytics on HR analytics in recruitment strategy. For example, Levenson (2011) has conducted a

prescriptive study on using targeted analytics for talent decisions through used case studies and theoretical models. The reason behind evidence unavailability would be that recruitment strategy has not found common consensus in definitional and theoretical exploration and HR analytics is quite new area for scholars as well as for practitioners.

Understanding these challenges, we argue that useful insights can be gathered through conducting a systematic review using rigorous quantitative bibliometric analysis technique. Bibliometric analysis technique can quantitatively map the intellectual evidences and knowledge boundaries. Therefore, the study aims to systematically review the literature on HR analytics in recruitment strategy by using bibliometric analysis technique.

Research Methodology

A literature review is a tool that assists in highlighting the knowledge boundaries of a research topic and identifying the potential research gaps (Tranfield et al., 2003). We have followed a systematic literature review process (Denyer & Tranfield, 2009) that can be conducted in four phases: (i) identification of topic and associated literature; (ii) screening of documents; (iii) analysis of data; (iv) reporting the documentation, findings, and discussion.

We have designed the search query and collected data from the Scopus due its extensive citation and abstract database of peer-reviewed journals and all-inclusive than web-of-science database ((Fahimnia et al., 2015; Yong-Hak, 2013). We refined the results after using inclusion and exclusion criteria and finally left with 54 journal and book articles for further data analysis. We analyzed the data from certified knowledge documents using R software's 'bibliometrix package' (Aria and Cuccurullo, 2017). Further, we report the findings and discussion of descriptive analysis, citation analysis, co-citation analysis, and network analysis to map the knowledge trend of conceptual, intellectual, and social structure on search query.

Analysis Results and Discussion

Descriptive analysis

The primary analysis of selected data helps to capture basic overview of the literature (Booth et al., 2016). Table-1 presents the overview of sampled data collected from the Scopus database. Our collection comprises 54 journal and book articles from 44 data sources published between 2011 and 2021 (as of February 24, 2021). The average citation per document is 15.85. The documents contain 209 keywords from 137 multi-authored documents of 142 authors.

Table 1: Information Overview about Data

| Description | Results |
|------------------------------------|-----------|
| Timespan | 2011:2021 |
| Sources (Journals, Books, etc) | 44 |
| Documents | 54 |
| Average years from publication | 2.8 |
| Average citations per documents | 15.85 |
| Average citations per year per doc | 2.862 |
| References | 5269 |
| DOCUMENT TYPES | |
| article | 54 |
| DOCUMENT CONTENTS | |
| Keywords Plus (ID) | 27 |
| Author's Keywords (DE) | 209 |

| | |
|--------------------------------------|------|
| AUTHORS | |
| Authors | 142 |
| Author Appearances | 146 |
| Authors of single-authored documents | 5 |
| Authors of multi-authored documents | 137 |
| AUTHORS COLLABORATION | |
| Single-authored documents | 5 |
| Documents per Author | 0.38 |
| Authors per Document | 2.63 |
| Co-Authors per Documents | 2.7 |
| Collaboration Index | 2.8 |

Table 2 demonstrate the snapshot of top 10 outlets of data sources which have published articles on HR analytics in recruitment strategy. Here recruitment strategy solely represents the human resource recruitment under human resource management perspective and not the recruitment strategy for medical field.

Table-2: Most Contributing Data Sources

| Sources | Articles | H-index |
|--|----------|---------|
| INTERNATIONAL JOURNAL OF HUMAN RESOURCE MANAGEMENT | 5 | 107 |
| HUMAN RESOURCE MANAGEMENT | 3 | 87 |
| PERSONNEL REVIEW | 3 | 67 |
| HUMAN RESOURCE MANAGEMENT REVIEW | 2 | 86 |
| INTERNATIONAL JOURNAL OF MANPOWER | 2 | 54 |
| BRITISH JOURNAL OF MANAGEMENT | 1 | 103 |
| BUSINESS HORIZONS | 1 | 76 |
| BUSINESS PROCESS MANAGEMENT JOURNAL | 1 | 76 |
| ACADEMY OF MANAGEMENT ANNALS | 1 | 61 |
| EUROPEAN JOURNAL OF TRAINING AND DEVELOPMENT | 1 | 53 |
| EMPLOYEE RELATIONS | 1 | 48 |

Note: The sources are sorted as per the number of articles published on HR analytics in recruitment strategy; H index as per Scimago Journal and Country Rank (2019) retrieved from www.scimagojr.com.

Bibliometric analysis

The citations assist to reflect the influence and acceptance of article in the research field. The citation analysis aims to show the important documents in the database collection and also helps in visualizing the frequency, patterns, and graphs of citations in documents. Table 3 shows five most influential articles published on HR analytics in recruitment strategy. The total citation shows the number of citations received by an article in the complete Scopus database, whereas the local citation displays the citation count of a particular article being cited by other articles within the studied 54 articles. The article with most global and local citations with highest citations per year is Vaiman et al (2012) that has published in Management Decision under management and decision science research field's journal category. Similarly, highest local citation received by other article is Collings (2014) that publications fall under management and economics category. Shah et al. (2017) and Kellogg et al. (2020) are

published in management and Heavey et al. (2013) under Psychology research category.

Table 3: Most Influential Articles

| Article title [Name of source] (reference) | Local Citations | Global Citations | Citations Per Year |
|---|-----------------|------------------|--------------------|
| Talent management decision making [Management Decision] (Vaiman et al, 2012) | 2 | 136 | 13.6 |
| Causes and consequences of collective turnover: A meta-analytic review [Journal of Applied Psychology] (Heavey et al., 2013) | 1 | 112 | 12.444 |
| Integrating global mobility and global talent management: Exploring the challenges and strategic opportunities [Journal of World Business] (Collings, 2014) | 2 | 109 | 13.625 |
| Big data in an HR context: Exploring organizational change readiness, employee attitudes and behaviors [Journal of Business Research] (Shah et al., 2017) | 1 | 51 | 10.2 |
| Algorithms at work: The new contested terrain of control [Academy of Management Annals] (Kellogg et al., 2020) | 1 | 44 | 22 |

Network analysis

3.3.1. Co-citation network analysis

A co-citation analysis uses to find the degree of connection between two distinct documents. The co-citation phenomena occur when two documents share at least one reference (Walter and Ribiere, 2013). Co-citation indicates homogeneity, similarity, and associated relationships within research topic of two articles. To identify the academic structure in the field of HR analytics in recruitment strategy, this study employs co-citation analysis on the cited references of all the 54 articles selected for this study. Figure 1 displays the co-citation network that represents the historical direct citation network of 54 articles. Figure 2 represents the co-citation network among 54 documents that which author cited to how many other authors. Figure 3 demonstrate the country collaboration map of authors for publishing the articles.

Historical Direct Citation Network

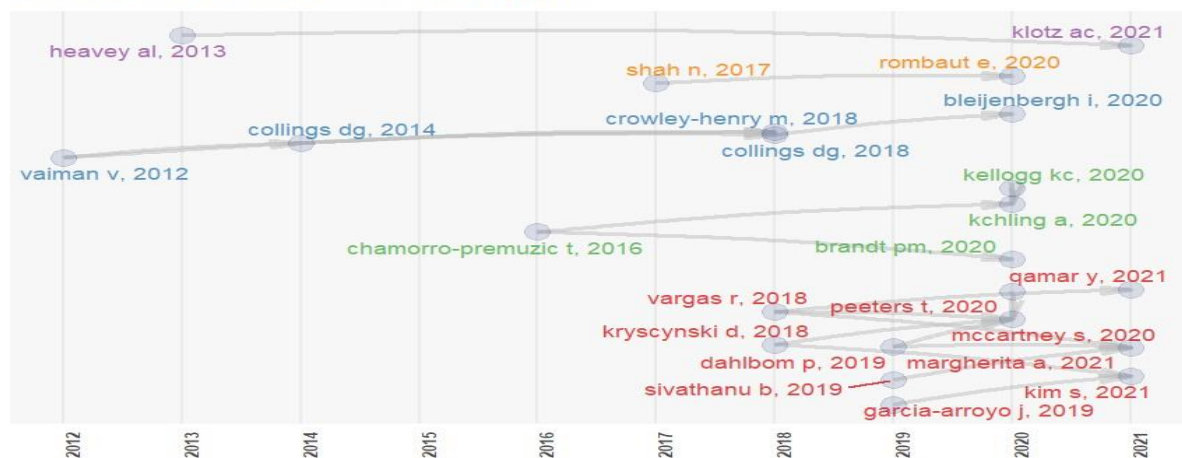


Figure 1: Historical Direct Citation Network

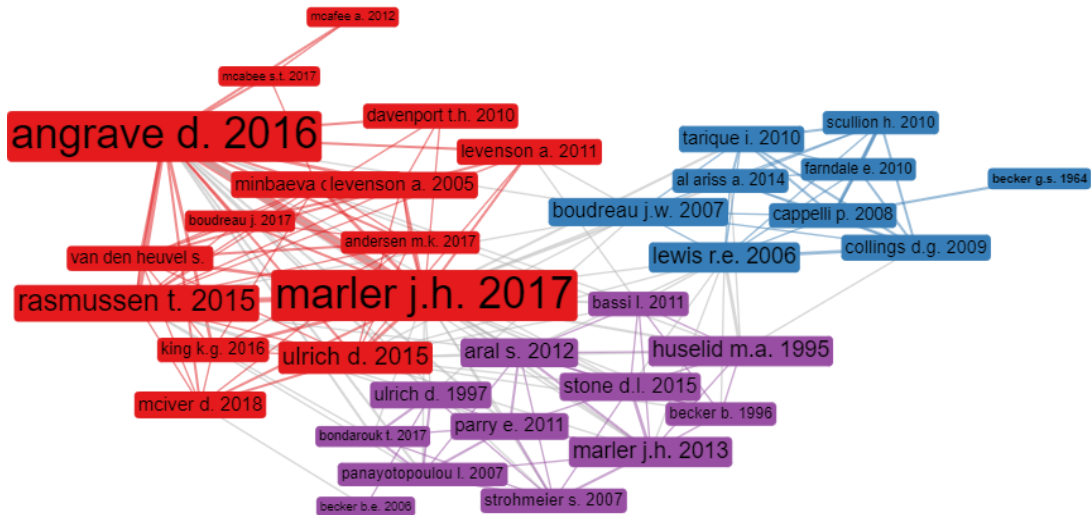


Figure 2: Co-citation Network

Country Collaboration Map

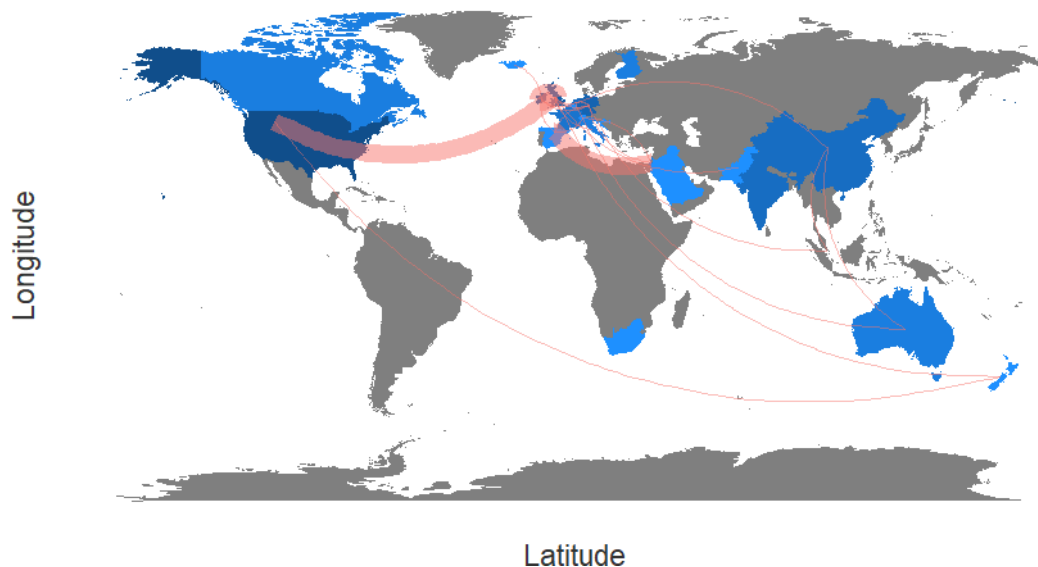


Figure 3: Country Collaboration Map

Conclusion, Limitations, and Study Implications

The study aims to systematically review the scholar knowledge base of HR analytics in recruitment strategy. Therefore, systematic literature review has adopted as methodology approach to conduct this study.

The study finds that HR analytics in recruitment strategy is recent or just one-decade old phenomena. The research topic is majorly published in management, decision science, economics research fields to contribute in human resource management literature. The descriptive analysis explains the overview of the data. Bibliometric analysis demonstrates the most influential research papers and high citation pattern at local and global level. Social network analysis displays that authors are collaborating more at trans-national level for

conducting the research on HR analytics in recruitment strategy and a strong pattern has emerged among the USA, UK, and India.

The study explores only one database for data collection, since the Scopus database has impressive outreach of peer-reviewed journals for certified research studies. However, exploration of other databases will bring some more peer-reviewed articles that will enrich the future research studies. The high citation scores and network collaboration among influential authors will bring more attention of scholars and practitioners on the topic.

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Influence of Green Human Resource Management on Employee Green Behavior through the Mediation of Environmental Knowledge of Managers

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Abstract

There has recently been a growing awareness within business communities about the importance of going green and implementing various environmental management practices. This study examines the impact of Green HRM on EGB through the mediation of Environmental Knowledge of Managers in Patan Industrial Estate that lies in Kathmandu valley of Nepal – one of the polluted cities in South Asia. The Exploratory research design was adopted as the main research paradigm to discover reality. Census method of collecting survey data has adopted to gather information from 113 managers lies in Patan Industrial Estate. The data was evaluated quantitatively by using both descriptive and inferential statistics and SEM was used to analyze the relationships between Green HRM and EGB. The finding of the study shows that Environmental Knowledge doesn't play any mediating role between Green HRM and EGB. This finding gives theoretical relevance in terms of AMO theory. Green HRM is an emerging concept that deserves more attention. Still greater change needs to happen so that employees and organization take that big leap in ensuring greening process in all their activities. The eminent recommendation for successful implementation of Green HRM practices are Revising Vision, Mission & organization policies, ensuring ISO series Certification, Advancement of Technologies, enhancement of GHRM Practices, providing training & empowering employees and Proactive government initiatives.

Key words: GHRM, EGB, Environmental Knowledge, Managers, Patan Industrial Estate

Role of HR Competencies in development of Sustainable HRM - An Empirical Investigation

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Abstract

Although research on human and social sustainability has flourished in the past decade, the role that HRM plays in facilitating more socially responsible and sustainable organizations remains unclear. In practice, this lack of clarity is due to the multiple features and dimensions of potential HR contributions to corporate sustainability and human sustainability. Purpose of this study is to examine the role of HR competencies on development of Sustainable HRM. A quantitative research approach was employed using survey to obtain the data from 60 HR Department Heads and 60 Executives from the top 10 Indian Oil and Gas companies. Findings reveal that Strategic positioner, Credible activist, Capability Builder and Change agent competencies are significantly related to Sustainable HRM. Innovativeness & Integrator and Technology Proponent are not found related to Sustainable HRM in this study. This study has significantly contributed to theory by empirically testing the relationship between HR competencies and Sustainable HRM. This theory has practical implication that HR managers must enhance the competencies which are related to Sustainable HRM to achieve Sustainable objectives of the organization.

Key Words: Sustainable HRM, HR Competencies, Oil and Gas

Introduction

For a long time, the business processes have been focused on achieving short-term financial goals while ignoring longer-term goals related to human issues (Maley, 2014). Subsequently, increasing awareness in the area of ecological, environmental and human/societal concerns have guided the organizations to integrate sustainability into their management practices (Ehnert et al., 2016). Scholars and practitioners from various business disciplines such as marketing, economics and finance, and operations are now evaluating strategies and policies for incorporating sustainability into their management practices. However, the research about contribution of human resource management (HRM) in sustainability remains limited (Aguinis & Glavas, 2012).

A recent approach in HRM has emerged in academia as well as in practitioner's literature. This approach known as sustainable human resource management, incorporates the sustainability perspective in HR management strategies and investigates the impact of sustainable HR systems on not only financial performance but on social and ecological performance, inside and outside of the organization for a long-term horizon (Ehnert, 2009). The sustainable HRM guides HR function in two ways: firstly, by fostering the corporate sustainability and secondly, by developing human sustainability (Chams & García-Blandón, 2019). HRM and sustainability are linked with a common factor i.e., human resource, which is not only the initiator of sustainable practices but also a beneficiary of those practices. Hence the role of HRM becomes critical for integrating sustainability into business (Mazur & Walczyna, 2020). Previous studies also suggest that a right blend of HR professionals' capabilities and HR practices are prerequisite for sustainable organizational performance (Mishra et al., 2013) and HR professionals have the pivotal role in sustainable practices (Jabbour et al., 2012).

Sustainable HRM practices in the organizations can only be promoted, if HR professionals have the necessary competencies (De Stefano et al., 2018). Despite the fact that there isn't

enough empirical research on strategic HR competences and sustainable HRM practices in the extant literature, HR professional competencies has been identified as a critical component in this regard (Anlesinya & Susomrith, 2020). HR competencies are considered important driver for sustainable performance and transformation of organizations into more socially responsible and environmentally conscious entity (Chams & García-Blandón, 2019).

The objective of this study is to fill the existing gap in the literature by empirically testing the influence of Global HR competencies (Ulrich et al., 2012) on adoption of sustainable HRM in organizations.

Literature Review and Hypotheses

Global HR Competencies and Sustainable HRM

HR adds value to organization by enhancing performance and agility of human resources which is achieved by skills and competencies of HR professionals (Ulrich et al., 2007). HR professionals can use competencies to discover strengths and make necessary behavioral changes where performance isn't up to mark. There is a greater need for HR professionals to identify how to contribute, effectively, and insightfully in a world of continuous change, complexity, and competitiveness (Dufrane et al., 2015). Competency can be defined as a combination of knowledge, skills and attitudes to meet job requirements by producing job outputs at an expected level of quality within the constraints of the organizational environment (Kennedy et al., 2009).

Sustainable HRM refers to “the systematic, planned alignment of typical HRM practices with the organization’s sustainable goals” (Jabbour et al., 2012, pp 147-148). Considering the significant development of sustainability concept in organizations, it is imperative for HR policies and practices to be more agile, innovative and aligned to sustainable goals of the organization. Hence it is critical for HR professionals to understand, adapt and bring in change in the changing context. Considering HR professionals are expected to use competencies in responding to contextual changes in the business (Ulrich et al., 2007). Competencies of HR professionals range from individual level competencies such as recruitment, training and performance management to organizational level competencies such as design of organizational structure and culture, thought leadership and strategic planning. HR competencies contribute to the effective HR performance (Ulrich et al., n.d.). This can facilitate an organization to implement its business strategies in a competitive market and achieve sustainable outcome (Tempero, 2019).

HR competencies consists of six domains: strategic positioner, credible activist, capability builder, change champion, HR innovator and integrator, and technology proponent (Ulrich et al., 2012). HR professional have through knowledge of the business environment. They therefore know how to lead change and innovate within organization to remain competitive. They also have the capability to build capability, lead change and innovate to create strong organizations, propose technology for enhancing effectiveness of the organization. Hence, the current study proposes that knowledge and skills of competent HR professionals ensure role of HR practices in development of sustainable goals.

Strategic Positioner

This competency explains that HR professionals are deeply knowledgeable of and they convert external business trends into internal decisions and actions (Ulrich et al., 2012). Strategic positioner’s role of HR professional include involvement in sustainable strategy

formulation, and implementation of strategic decisions. Thus, first hypothesis is
H1: Strategic Positioner competency is positively related to sustainable HRM.

Credible Activist

This competency enhanced HR professional's role by making them self-aware and committed to building their professionalism (Ulrich et al., 2012). HR professionals must be able to influence all the employees through the HR system, ensure their consistent support and make them feel involved. Hence the second hypothesis is

H2: Credible Activist competency is positively related to sustainable HRM.

Capability Builder

An effective HR professional transforms the employees' abilities into an effective and strong organization by building critical organization capabilities (Ulrich et al., 2012). Thus, the third hypothesis is,

H3: Capability builder competency is positively related to sustainable HRM.

Change Agent

HR professionals ensure that organization actions are integrated and sustained through disciplined change processes by initiating change and sustaining change process (Ulrich et al., 2012). Hence, the fourth hypothesis is,

H4: Change Agent competency is positively related to sustainable HRM.

Innovative and Integrator

Effective HR professionals innovate and integrate HR practices into unified solutions that solve business problems (Ulrich et al., 2012). They must be aware of the latest insights of various HR processes such as recruitment, talent management, performance management, appraisals, rewards and organizational development. Hence, the fifth hypothesis is,

H5: Innovative and Integrator competency is positively related to sustainable HRM.

Technology Proponent

HR professionals, who appreciate technology, can improve social relationships inside the organization, and create improved organizational identity outside the organization (Ulrich et al., 2012). Hence sixth hypothesis is,

H6: Technology Proponent competency is positively related to sustainable HRM.

Methodology

Sample and data collection

10 Indian oil and gas businesses were chosen to test the hypotheses. The Economic Times-Research Insights and Consumer surveys report, based on market capitalization of more than INR 100 crores and total income (revenue) in FY 2020, was used to determine the newest ranking of the top 500 Indian firms across all sectors. The top 10 Oil and Gas firms were chosen for this study from a list of 500 companies based on their ranking. Choosing companies in this way gave the study a degree of control. All of the companies examined were from the same industry, were nearly identical in size, used similar technologies, and competed in similar markets. The respondents were chosen through purposeful sampling. First, the HR Department Heads of the selected firms were identified from various HR verticals such as Recruitment, Compensation and Benefits, Performance Management, Employee Relations, Training and Administration, who had worked in the HR department of the organisation for more than 15 years. A total of 12 people from each company were invited to participate. Six of them were HR Department Heads, while the other six were

Line Executives with at least ten years of experience in the same business. A total of 120 respondents (6 HR Department Heads and 6 Executives from each organisation) were asked to complete a questionnaire to participate in the survey. HR department heads delivered information on sustainable HRM, while executives provided information on HR Competencies. To eliminate common method bias, data were gathered from a variety of sources (Jordan & Troth, 2020).

Measure

Global HR Competency

The Global HR Competency was measured by a 20-item Global HR Competency scale (Ulrich et al., 2012). The Executives were asked to assess the extent to which HR competency is present in HR professional on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) A sample item was “HR professionals are improving utility of HR operations” The alpha (α) reliability was 0.756.

Sustainable HRM

Sustainable HRM was measured by a 12-item Sustainable HRM scale (Xuan, 2021). The HR department Heads were asked to assess the adoption of Sustainable HRM in the organization on a five- point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) A sample item was “HRM policy includes a clear statement about sustainable development” The alpha (α) reliability was 0.941.

Results

Responses were collected and analyzed with the help of SPSS version 28.0.0.

Table 1 describes the sample constituting of 120 respondents. Majority of the respondents were males (87 percent). The average age and average experience of the respondents was 43.30 (SD 6.53) years and 17.29 (SD 4.26) years respectively.

Table 1- Demographic data

| Variable | Percentage | |
|---------------------|------------|----|
| Gender | | |
| Male | 104 | 87 |
| Female | 16 | 13 |
| Experience in Years | | |
| 10 to 15 | 37 | 31 |
| 16 to 20 | 50 | 42 |
| 21 to 25 | 29 | 24 |
| > 25 | 4 | 3 |
| Age in Years | | |
| 31 to 40 | 45 | 38 |
| 41 to 50 | 59 | 49 |
| 51 to 55 | 16 | 13 |
| Roles | | |
| HR Department Heads | 60 | 50 |
| Executives | 60 | 50 |

Table 2 displays the mean standard deviation and correlations between Strategic Positioner, Credible activist, Capability Builder, Change Champion, Innovative & Integrator, Technology Proponent, and Sustainable HRM. It is interesting to note that the competencies Strategic Positioner ($r=0.886$, $p<0.001$), Credible activist ($r=0.884$, $p<0.001$), Capability Builder ($r=0.864$, $p<0.001$), Change Champion ($r=0.925$, $p<0.001$) in the companies was to be strongly correlated to Sustainable HRM. ($r=0.873$, $p<0.001$). But neither Innovative & Integrator, Technology Proponent were correlated with Sustainable HRM.

Table 2- Pearson Correlations between Variables

| Variables | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---------------------------|-------|-------|--------|--------|--------|--------|---------|-------|---|
| 1. Strategic Positioner | 8.68 | 3.255 | 1 | | | | | | |
| 2. Credible Activist | 4.15 | 2.335 | .733** | 1 | | | | | |
| 3. Capability Builder | 8.5 | 3.27 | .842** | .771** | 1 | | | | |
| 4. Change Champion | 4.38 | 2.108 | .717** | .966** | .763** | 1 | | | |
| 5. Innovative Integration | 22.55 | 1.62 | -0.095 | -0.045 | -0.021 | -0.038 | 1 | | |
| 6. Technology Proponent | 11.43 | 1.226 | 0.111 | 0.066 | 0.068 | 0.066 | -.344** | 1 | |
| 7. Sustainable HRM | 46.07 | 3.598 | .886** | .864** | .925** | .859** | 0.02 | 0.047 | 1 |

** Correlation is significant at the 0.01 level

To test Hypothesis 1 simple linear regression was run with Strategic Positioner as independent and Sustainable HRM as dependent variable. As predicted, Strategic Positioner was significantly related to Sustainable HRM, $R^2=0.785$, $F(1,58)=212.225$, $p<0.001$. Hence our first hypothesis is supported.

Second hypothesis states that competency Credible activist is positively related to Sustainable HRM. To test again a simple linear regression is used. As predicted, expected relationship, results $R^2=0.747$, $F(1,58)=171.332$, $p<0.001$ show that competency Credible activist is significantly related to Sustainable HRM. This was also reflected in the weak correlation between SHRM and organizational performance ($r=0.233$, $p=0.074$). Hence our second hypothesis is supported.

To test Hypothesis 3 simple linear regression was run with Capability Builder as independent and Sustainable HRM as dependent variable. As predicted, Strategic Positioner was significantly related to Sustainable HRM, $R^2=0.855$, $F(1,58)=342.723$, $p<0.001$. Hence our third hypothesis is also supported.

Fourth hypothesis states that competency Change Champion is positively related to Sustainable HRM. To test again a simple linear regression is used. As predicted, expected relationship, results $R^2=0.738$, $F(1,58)=163.538$, $p<0.001$ show that competency Change Champion is significantly related to Sustainable HRM. Hence our fourth hypothesis is supported.

Fifth hypothesis states that competency Innovative & Integrator is positively related to Sustainable HRM. To test again a simple linear regression is used. Contrary to predicted, expected relationship, results $R^2=0.000$, $F(1,58)=0.023$, $p=0.881$ show that Innovative & Integrator is not related to Sustainable HRM. This was also reflected in the weak correlation between SHRM and organizational performance ($r=0.020$, $p=0.881$). Hence our fifth hypothesis is not supported.

To test Hypothesis 6 simple linear regression was run with competency Technology Proponent as independent and Sustainable HRM as dependent variable. Contrary to predicted, expected relationship, results $R^2=0.002$, $F(1,58)=0.129$, $p=0.721$ show that Innovative & Integrator is not related to Sustainable HRM. This was also reflected in the weak correlation between SHRM and organizational performance ($r=0.047$, $p=0.881$). Hence our sixth hypothesis is not supported.

Table 3- Regression Analysis

| | Dependent Variable (Sustainable HRM) | | | | | |
|------------------------|--------------------------------------|----------------------|----------------------|-----------------------|--------------------|--------------------|
| | M1 | M2 | M3 | M4 | M5 | M6 |
| Constant | 37.56 | 40.539 | 37.418 | 39.639 | 45.076 | 44.486 |
| Strategic Positioner | 0.98 | | | | | |
| Credible Activist | | 1.332 | | | | |
| Capability Builder | | | 1.017 | | | |
| Change Champion | | | | 1.466 | | |
| Innovative Integration | | | | | 0.044 | |
| Technology Proponent | | | | | | 0.138 |
| N | 60 | 60 | 60 | 60 | 60 | 60 |
| R | 0.886** | 0.864** | 0.925** | 0.859** | 0.02 | 0.047 |
| R ² | 0.785 | 0.747 | 0.855 | 0.738 | 0 | 0.002 |
| MSE | 1.681 | 1.825 | 1.381 | 1.857 | 3.628 | 3.625 |
| F- Value | F= 212.225 p=0.000 | F=171.332 p=0.000 | F=342.723 p=0.000 | F= 163.538 p=0.000 | F=0.023 p=0.881 | F=0.129 p=0.721 |

Discussion

The purpose of this study is to understand the role of Global HR Competencies on establishing Sustainable HRM in the organization. To achieve this objective, this study investigated the impact of six Global HR competencies namely Strategic Positioner, Credible Activist, Capability Builder, Change Champion, Innovative & Integrator, Technology Proponent on Sustainable HRM. The results provided support for positive relationship between four competencies Strategic Positioner, Credible Activist, Capability Builder, Change Champion on Sustainable HRM. However, relationship between two competencies Innovative & Integrator & Technology Proponent and Sustainable HRM were not found significant.

The significant positive relationship between Strategic Positioner and Sustainable HRM is the result of HR initiatives in those companies where they cocreated their organizations' strategic responses to business conditions. Almost all organizations have included green product mix in their business lines like Compressed Natural Gas, Blending of Ethanol, Electric Charging stations at Petrol Pumps. Also, all of them are forming joint ventures for foraying in to the business of renewable energy sources. HR has identified such positions and doing recruitment at lateral basis which is challenging in Central Public Sector undertakings.

HR professionals in these companies are seen as Credible Activist by employees. It is reflected in internal consistency in the HR professional's actions. They operate in a principled way which are consistent with company values. HR departments in all these companies are devising and implementing various capability building programs which is

helping employees to perform better in their jobs. This is ultimately helping in regeneration of HR base. The competency Change Agent was also found to be positively related to Sustainable HRM. These organizations HR professionals have transformed the role of HR from transactional to strategic by incorporating employer value proposition in recruitment, work force segmentation and long-term recruitment plan in their staffing and workforce planning, inclusion of sustainability in KPI for performance management. One of the organizations has started the 'Failure Award' also to promote employees to adopt new ways of doing things. They are awarded even if they fail in the project /work but share valuable learnings to the organization on their endeavor.

Competency Innovative & Integrator was not found significantly related to Sustainable HRM. Most of the companies selected in this study are Central Public Sector Undertaking, which is governed by the government guidelines related to recruitment, selection, compensation and promotion. So, HR professionals don't have much leeway to design the HR policy beyond the guidelines.

Competency Technology Proponent was also not found positively related to Sustainable HRM as these companies which are Central Public Sector Undertaking, mostly operates on Standard Operating Procedure. There is a bureaucratic way of working and hierarchy systems. Decisions on various policies are to be approved by competent authority and by following approving route and this process takes some time. Hence this competency in this study was not found significant.

Theoretical Implication

The findings of this study are important for several reasons This study contributes significantly by empirically testing the relationship between HR Competencies and Sustainable HRM. The second contribution of this study is that the scale on Sustainable HRM developed by Yu Xuan (2021) was used in Oil and Gas Sector for empirical assessment of Sustainable HRM.

Managerial Contribution

The major managerial implication from the results of this study is to helps HR managers identify competencies and skills between HRM and sustainability where overlap and synergies between the two areas are possible.

Conclusion

Because of the increased focus on economic, ecological and societal concern based on triple bottom line concept, an increasing number of businesses are incorporating sustainable perspective into their management practice. A large number of studies have recognized the importance of HRM in firms. More so, the role of HR professionals is found to be critical in development of Sustainable HRM. This study attempted to empirically investigate the role of Global HR competencies on development of Sustainable HRM. The study made an important contribution by furthering the sustainable perspective of HRM. This study has advanced the sustainable HRM literature by exploring the relationship between Six Global HR Competency and Sustainable HRM. This study concludes by supporting significant influence of competencies Strategic Positioner, Credible activist, Capability Builder, Change Champion on Sustainable HRM whereas no influence of Innovative & Integrator and Technological Proponent on Sustainable HRM. The HR professionals must possess four Global HR competencies to lead change towards sustainable practices and establish a sustainable organization identity.

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HRM, Information Technology and a Sustainable Integrated Framework for Educational Institutions

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Abstract

Information Technology (IT) has renovated education globally. However, unreflective usage of technology often results in depleting environment. This article integrates IT and HRM and develops a sustainable framework at the individual level which aids Higher Education Institutions (HEIs) to gain sustained competitive advantage. 244 usable data were collected from HEIs employees of India using a questionnaire. SEM analyzed the responses. Findings revealed that GIT (Green IT) knowledge has a significant impact and green hiring has no significant impact on GIT practices. Further, green training moderates the relationship and attitude toward GIT mediates the relationship between GIT knowledge and GIT practices in HEIs. The results of the present paper may help the management of HEIs to devise methods and strategies to facilitate sustainable development in educational institutions.

Mapping the Intellectual Structure of Human Resource Management and Technology Research, 2001–2021: A Bibliometric Study

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Abstract

Research on human resource management (HRM) and technology has gained momentum in recent years. This review aims to create a bibliographic profile of the HRM and technology field using bibliometric techniques, examining 220 articles published in the four major human resource (HR) journals from 2001-2021. We analysed the intellectual structure through bibliographic coupling and identified six major clusters. The dominant themes are virtual teams, strategic human resource management (SHRM), electronic HRM (eHRM), HR analytics, recruitment, and learning and development. Our study contributes to the extant literature of HRM and technology by quantifying the thematic analysis using bibliometric techniques and evaluating the development of the field which entails exploring the possible research strands and related trends that have emerged in the past two decades.

Keywords: Human resource management, technology, bibliometric, bibliographic coupling

Achieving Sustainable Mobility: Exploring the Dynamics of Lithium-Ion Battery

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Abstract

Electric vehicles depend on lithium-ion batteries (LIBs) as the primary power source. Critical materials such as lithium, cobalt, and nickel are required for manufacturing LIBs. These are called critical materials due to the uncertainty in their availability due to supply restrictions. This necessitates an investigation into the significance of recycling LIBs. This research presents a system dynamics model that characterizes the dynamics of the LIB recycling ecosystem. Our study indicates that although LIBs can be recycled, they also find a potential application in stationary storage systems through reusing. Thus, we investigate various trade-offs in recycling versus reusing LIBs. We also look upon the potential for reusing LIBs for renewable energy production, thereby enabling a circular economy with green energy.

Keywords: Lithium-ion battery, electric vehicles, recycling, mobility, renewable energy

Analysis of Barriers towards green marketing in India using Interpretive Structure Modeling

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Introduction

The term Green marketing term was first conversed in a seminar organized by American Marketing Association (AMA) in 1975 and is considered a major drift in contemporary business practices (Kassaye, 2001; McDaniel and Rylander, 1993; Pujari and Wright, 1996). Harrison (1993) proposed to promote green marketing by positioning the benefits of green products to consumers' mindset to impact their buying behavior. Peattie (1995) and Welford (2000) well-defined green marketing as the management process responsible for identifying, anticipating and satisfying the requirements of customers and society in a profitable and sustainable way. For around two decades, numerous studies have been conducted in green marketing domain. Peattie (2001) provided three phases of evolution of green marketing namely – Ecological, Environmental and Sustainable. Chen (2001) presented a green product development model which addresses environmental issues through product design and innovation. Jain & Kaur (2004) assessed the extent of environmental awareness attitudes and behaviour prevalent among Indian consumers. Rawat & Garg (2012) surveyed about customers willingness to pay premium price for green products. According to Sarkar (2012), green marketing is a new concept and there exist certain barriers towards its successful implementation like need for standardization of products, green myopia etc. Maheshwari (2014) conducted her research in few cities of India and expressed that 60% of the respondents were unaware about green products. This research suggested that marketing efforts are required in India to fill the gap between awareness of consumers of green products and marketing efforts undertaken by green marketers. Review of literature implies that manufacturers and marketers are focusing on manufacturing eco-friendly products but still there is a wide gap between their understanding and implementation due to certain barriers.

Research Gap and Research Problem

Hence, a detailed analysis of barriers hindering the success of green marketing efforts becomes crucial. These barriers may influence green marketing and also impact each other as well. Thus, to have a better understanding of these barriers affecting green marketing and the relationship among the barriers, Interpretive Structural Modeling (ISM) methodology has been employed. The outcome would help us in finding out the mutual influences among the barriers and will classify them into three categories namely: Strategic planning variables, Operational variables and outcome variables.

There are certain designed guidelines to "control" green marketing claims. The study also provides a brief comparison of Legal Framework on Green marketing in Australia, US and India. These regulations include the Australian Trade Practices Commission's (TPC) "Environmental Claims in Marketing - A Guideline" in Australia, the US Federal Trade Commission's (FTC) "Guides for the Use of Environmental Marketing Claims" in the US. In India Bureau of Indian Standards (BIS) exists as a regulatory body, but industries did not take it seriously to not delimit themselves from marginal profits consequently (Yadav, Rambalak & Pathak, Govind, 2013).

Objective of the Study

This study attempts to meet following research objectives

1. To comprehensively list and analyze the barriers for Green Marketing in India using interpretive structural modeling (ISM).

2. To provide glimpse of Legal policies related to Green Marketing in the USA, Australia and India.
3. To provide a strategic roadmap for an effective implementation of Green Marketing.

Research methodology

In this paper, an exploratory methodology has been followed to get a qualitative review of the social and economic aspects of Green Marketing. Comprehensive analysis of qualitative data from Green Marketing sources mainly from news Journal articles, websites, etc. has been done for data collection. Experts’ opinions were also taken by direct interaction to substantiate the information collected.

ISM methodology has been employed in this study to understand the mutual interplay among the barriers towards Green Marketing. The specific relationships and overall structure are portrayed in a digraph model to show the direction of relationships among key elements of a system. This will eventually help in deciding about the course of actions to be taken. The steps involved in developing an ISM model for analyzing the barriers towards Green marketing in India are represented using flowchart as shown in Figure 1.

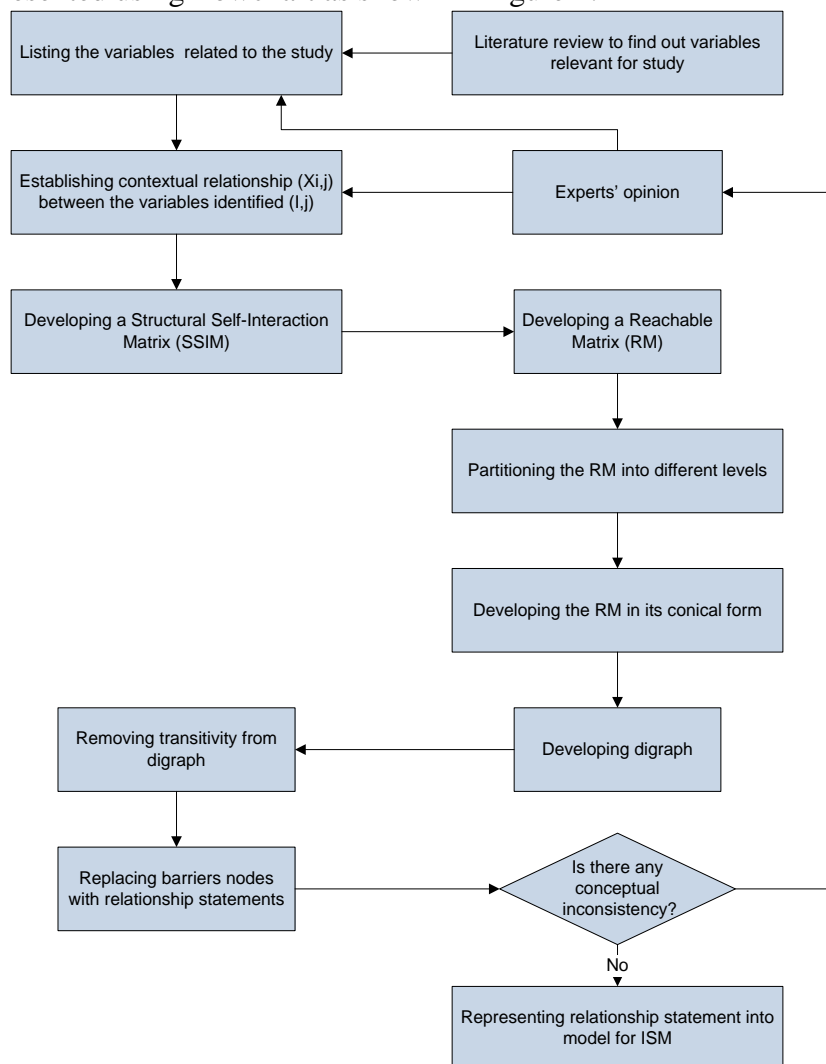


Figure 1: Flowchart showing steps in developing ISM Model

1. Findings of the Study

Based on rigorous review of literature, in all fifteen barriers have been identified which are

listed in Table 1 below:

| Sr. No. | Barrier | Explanation | Literature Review |
|---------|--|--|--|
| 1 | Lack of availability of green products | Very few companies have adapted to green products in consumer markets while high in business markets. There are few varieties of Green products in urban and rural India . | Rawat and Gard (2012) |
| 2 | Myopic view of marketers (Long gestation period) | Initially, the cost of adopting green products had been very high, therefore most of the organizations refrain such practices and focus for short run profits. | Lindner (2008), Welling and Chavan (2010), |
| 3 | Lack of availability of renewable and recyclable material | Low availability of renewable and recyclable materials as a consequence of unorganized recycling sector in India. | Sarkar(2012), Thapar(2018) |
| 4 | High cost in manufacturing green products | Technology involved in manufacturing green products require huge investments. | Rawat & Garg (2012), Welling and Chavan (2010) |
| 5 | Huge investment in R & D(because of technology) | There is huge investment needed in R & D to design and manufacture green products. | Jain & Kaur (2004), Welling and Chavan (2010) |
| 6 | Huge investments in marketing | Green marketing costs high because of its dependence upon literacy levels and selection of effective media based on Indian demography and geography. | Jain & Kaur (2004), Rawat & Garg (2012) |
| 7 | Lack of awareness | Indian literate and urban consumers are somewhat aware about the merits of Green products, but it is still a new concept for the masses. | Jain & Kaur (2004). Peattie & Crane (2005) Rawat & Garg (2012) |
| 8 | Lack of customer willingness to pay higher price | Premium pricing strategy adopted in going green significantly increases the prices of the products. Even if customers are aware of benefits of going green, they may not accept to buy expensive products. | Sarkar (2012), Pandurangarao, Basha, & Satyakumar (2011), Pillai (2013) |
| 9 | Negative effects of Consumerism | Availability of wide assortment of products along with increased consumerism lead to reduced attention by the customers on green products. | Wiwik Handayani (2017) |
| 10 | Low market acceptability | Acceptance of green products in Indian market had been very slow due to varied reasons, which demotivates marketers towards going green. | Rawat & Garg (2012), Pillai, (2013) |
| 11 | Unavailability of authentic green products | It is found that only 5% of the marketing messages from "Green" campaigns are entirely true. Also there is a lack of standardization to authenticate these claims. | Mohansundaram, (2012) |
| 12 | Lax regulations | Despite of introduction of Eco- Mark by Bureau of Indian Standards (BIS), industries did not respond well to this initiative and only a few companies took licenses from Eco-Mark. | Yadav, Rambalak & Pathak, Govind, (2013) |
| 13 | Liability risk from green washing under FTC green guides. | There are many marketers who falsely claim that their product is green and dupe consumers. | Sarkar (2012) |
| 14 | Lack of credibility or trust by end users (Misleading claims)(green washing) | Over a period of few years consumer awareness about green products and services has been increasing, hence false claims about green products lead to negative perceptions about the organization as well as its green practices. | Sarkar (2012), Yadav, Rambalak & Pathak, Govind (2013), Zhao et al., (2014). |

| | | | |
|----|----------------------------------|--|---|
| 15 | Explicit comparative differences | Consumers can't clearly differentiate the differences between Green and other products by looking at them unless they are told about the same. | Sarkar (2012),(Yadav, Rambalak & Pathak, Govind, 2013). |
|----|----------------------------------|--|---|

The Digraph Analysis

A digraph is developed using ISM which classifies the hierarchy of fifteen barriers into seven levels as shown in Figure 2.

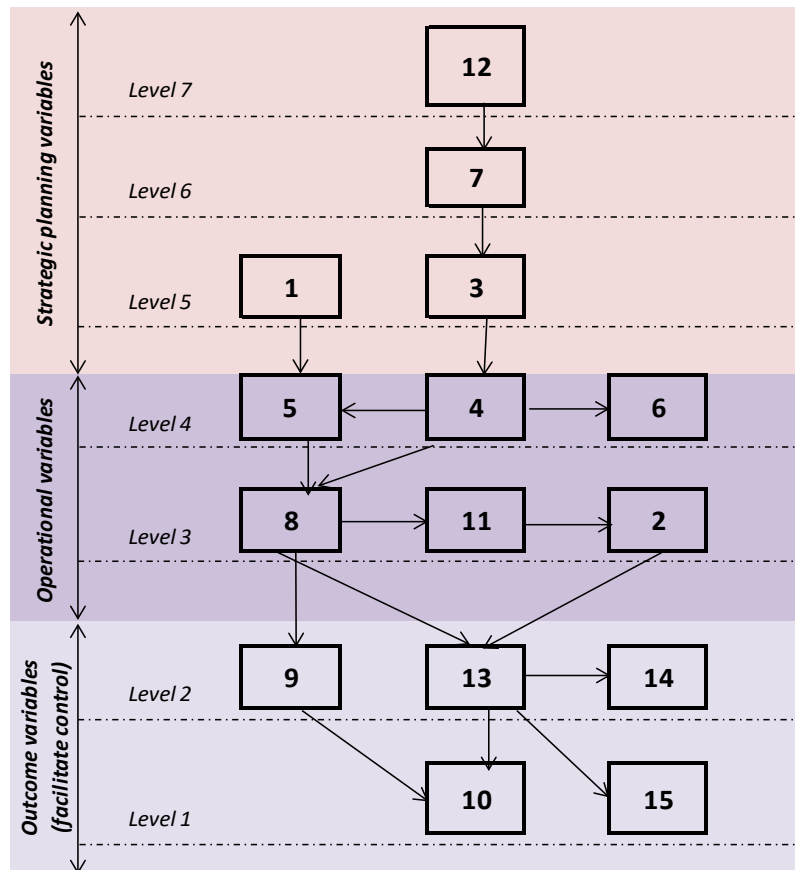


Figure 2- Digraph of barriers towards Green marketing in India

Bottom level barriers are performance outcomes, the ones which depend on other barriers for being achieved. The next level consists of operational barriers. As the name suggests, actual operations can be carried out on these barriers to reach the desired outcomes. The top level of the digraph represents the strategic barriers, these barriers need to be addressed and need strategic inputs from the top executive level.

Conclusion and Implications of the Study

The methodology helped in categorizing the barriers as: Strategic, Operational and Performance outcomes. Lax regulations in green marketing came out to be top strategic barriers. Government shall refer the guidelines of other countries and revise the Indian standards. Also, government should ensure obedience of such regulations. To alleviate the impact, producer should make sure that the consumer is aware of and concerned about the benefits of green products. Initially the profits are very low since renewable and recyclable products and green technologies are more expensive, but the businesses need to plan for long term rather than short term strategy.

Firms should avoid falling into lure of unethical practices to make profits in short term. Leading brands should recognize that consumers expect the green products that they purchase pocket friendly. Firms should understand that if they are charging a premium for their product they should use of higher-quality ingredients Being genuine & Transparent means that companies are actually doing what they claim to be doing in your green marketing campaign and their business policies are consistent with whatever they claim is environmentally friendly. Both these conditions have to be met for your business to establish the kind of environmental credentials that will allow a green marketing campaign to succeed. To clean out the greenwashing, both marketers and consumers need to be educated about what a genuinely environmentally responsible product is. Manufacturers should tie up with recyclers to get recycled materials for making new products. Regulatory agencies such as Bureau of Indian Standards should work towards strict implementation of rules and regulations and promote green products.

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A Resilient Approach to Sustainable Fashion in India - An Overview

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Abstract

The rising concern globally around ecological footprint has urged various industries to view business solutions through a sustainable lens. The Apparel industry, being a major polluter, has necessitated a shift towards sustainability. However, the dynamic nature of the industry introduces numerous hindrances in the implementation of a sustainable supply chain. This paper strives to mediate between sustainable goals and resilient objectives of textile businesses in the Indian context. We have drawn on the DPSIR framework that attempts to correlate these 2 interdisciplinary concepts for developing a social-ecological systems perspective. Firstly, the current scenario in the industry has been depicted, following which consumer behavior patterns have been studied. Further, from this standpoint, sustainable approaches and risk management strategies have been realized.

Keywords: Sustainability, Resilience, Fast-Fashion, Supply Chain

Introduction

India's sustainable apparel market, although at a nascent stage, is slowly finding a larger clientele in recent years. The increasing cognizance about environmental wellbeing has incentivized the textile industry to take the cue and shift towards eco-friendly sustainable clothing. While it is true that willingness to buy sustainable clothing has escalated, several factors hinder the expansion of implementing sustainability in the country. Moreover, why do some business organizations, dealing with sustainability, collapse under the strain of new challenges posed by unforeseen events? This is attributable to the organization's capability to withstand any disturbances and revert to its original state of operations which is in conjunction with the resilience theory (Torstensson & Pal, 2013). Measuring resilience has captured the interest of many considering the dynamic nature of the macroeconomic situations. This research paper primarily targets the flourishing apparel market in India which has been aggravating the carbon footprint per garment. This ascent of India towards occupying the center stage in the fashion industry, as estimated by McKinsey's State of Fashion report, is expected to cross \$59 billion in 2022. Additionally, the National Climate Change Journal (2018), revealed that textile manufacturing is one of the primary polluting industries and produced 1.2 billion tons of greenhouse emissions. This propels the need for textile businesses to employ environmentally sustainable schemes in their supply chains.

Literature Review

Sustainability and resilience are highly important paradigms for any business. While several kinds of researches and theses are available on these independently, researches in which a collaborative approach to mediate between them in the Indian scenario are very scarce. This paper first attempts to understand the effects of fast-fashion trends. This is followed by the DPSIR framework to provide a better understanding of how sustainability and resilience could encompass the core business goals. The following sections will delve deeper into various aspects of the framework.

Fast Fashion- an Antithesis of Sustainability

The rise of Fast fashion is a result of retailers responding to rapidly changing trends, which leads to swift transitions from designing to producing the clothes. The constant emergence of new styles, backed up by continual sales has powered the "fast-fashion" consumer culture. The current clothing consumption rate is 80 billion pieces of clothes a month, which is a 400%

increase from 2 decades ago.

As a result, the industry's wastage is expected to rise by 60% to almost 148 million tons, before 2030, with an added 57 million tons of waste generated yearly (Davis, 2020).

According to the Water Footprint Network, the fashion industry is the second-largest consumer of water supply in the world. The industry's carbon emissions are also estimated to increase by 60% to approximately 2.8 billion tons per year by 2030 (Yousefi, 2020). India alone recorded an annual consumption on garments and footwear of almost 68 billion dollars (Fashion Industry Statistics India, 2016). This increasing buying power of Indian consumers along with the short life cycles of the apparel products has resulted in substantial volumes of post-consumer textile waste (PCTW) (Bairagi, 2017). The pulse report (co-developed by Boston Consulting Group (BCG) and Sustainable Apparel Coalition (SAC)) observed that addressing ecological and societal problems caused by the fashion industry would yield 192 billion dollars overall benefit to the global economy by 2030, further emphasizing the necessity for slow fashion and a closed-loop system (Reichart & Drew, 2019).

Methodology

The methodology of this paper follows a Descriptive Research Design. The DPSIR framework, developed by the EPA scientists, has been used to integrate various social and economic situations with those of environmental issues for making management decisions (Bradley & Yee, 2015). Hence, the inferences from this framework could be adapted by enterprises to develop similar models for integrating resilient approaches into their sustainability schemes.

Drivers

The driver forces are the activities carried out by the businesses for satisfying human wants and needs that ultimately put a strain on the environment (Ahmed et al., 2020). The social and economic drivers in the Indian garment industry include the fast-track changes in fashion trends, social values, and cultural norms that impact consumerism (Palm et al., 2021). Other economic drivers include the cost competitiveness which gives the synthetic garments an advantage over the natural biodegradable materials such as organic cotton, thus creating a global fiber demand of 56% for polyester and 26% for cotton (Synthetic Textiles Industry in India and Opportunities Ahead | Wazir, 2018).

Pressure

Pressures are the social impacts created by the drivers, as a result of consuming or producing the products, which perturb the environment (Ahmed et al., 2020). Cotton cultivation consumes 50% of the total pesticides produced in India and the wasteful usage of water for the same brings irreversible damage to the natural resources (Lalitha & Viswanathan, 2009). Pressure is also exerted on the enterprises by the dynamics of the fast fashion industry which has compelled the retailers to seek cost effective strategies, and innovative designs to maintain their profitable position in the market (Bhardwaj & Fairhurst, 2010).

State

State deals with the conditions of the natural and man-made environments subjected to disturbances by various pressures. The inefficient methods and various inorganic pollutants, namely salts of heavy metals, used in manufacturing results in the fast depletion of freshwater bodies and destruction of the marine ecosystem (Textile Industry's Environmental Effects and Approaching Cleaner Production and Sustainability, an Overview - MedCrave Online, n.d.).

Impact

Impacts can be interpreted as the consequence of the changes in the environmental state which ultimately affects the overall health of humans (Ahmed et al., 2020). The biotransformation products dissolved in the wastewater from dyes that reach the freshwater bodies, without the necessary treatments, can give rise to various diseases resulting in detrimental effects on human beings.

Responses

Response, being one of the key features of the DPSIR framework, enables organizations to make environment-friendly management decisions based on the factors enumerated in the other segments. From the driver portion, it is apparent that farmers show hesitation in using organic cotton primarily because of the lower yield and larger costs involved in the cultivation. Alternatively feasible raw materials like bamboo fibers, that can be cultivated at a faster rate, give the manufacturers a cost advantage and a resilient edge over others in the market (Ali & Sarwar, 2010). Enterprises could also exercise water conservation methods, such as using automatic shut-off valves and reusing the wastewater, to prevent freshwater bodies from getting depleted and reduce the manufacturing costs in the long term (Toprak & Anis, 2017). Owing to the damaging impacts created by the dyes on the freshwater bodies, natural dyes made from eucalyptus, Nilgiri Kozha (a plant found in Munnar), and tea waste can be utilized as substitutes (INDIAN DESIGNERS TO USE NATURE-BASED DYES WITH SUSTAINABLE FASHION - TEXTILE VALUE CHAIN, 2020).

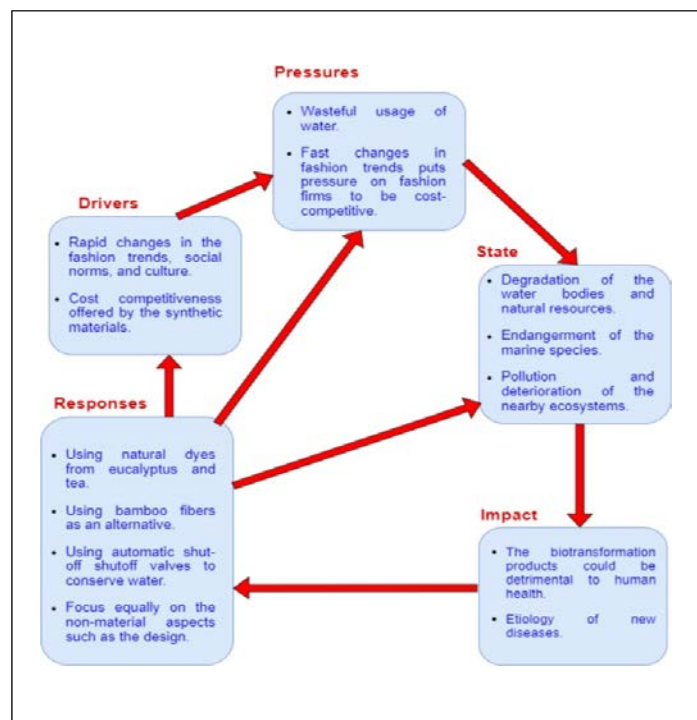


Figure 1. DPSIR Framework

As inferred, it is imperative for companies employing sustainability in their operations to implement a circular economic model that speaks out to the deeper cultural levels of the society, so that these businesses can strive to stay resilient in the market (Palm et al., 2021).

The dynamics of consumer behavior towards sustainable apparel

Consumer behavior is a significant study of how people make purchase decisions and provides vital information regarding the micro-social order (attitudes, cultures, perceptions, and

lifestyle) of the consumer base (Mehta, 2018). Consumer behavior on sustainable fashion, mainly in India, has seen significant changes over the years. Focusing on the buying decision, a YouGov research (July 2019) conducted among 1007 respondents in India revealed that 83% considered buying sustainable fashion, but it is lagging behind other factors like material price (90%), design (90%), fitting (93%) and quality (95%) (Bhatia, 2019). It was also demonstrated that transparency in the sustainable manufacturing process and valid certifications are crucial for buying motives. Moreover only a very small fraction of respondents seemed to have proper insight regarding the subject at hand (Bhatia, 2019), thus necessitating consumer awareness on environmentally sound fashion.

Furthermore, a review article by Nilanjana Bairagi attempted to determine how the Indian population (age group 20-30 years) chose to manage used apparel. The findings show that 53% of the respondents chose to discard their clothing, a small percentage were involved in online thrifting and second-hand clothing, while a few preferred up cycling with the help of professionals or NGOs. Although most of them were eager to donate, the critical lack of awareness signifies the need for developing an organized recycling channel in the country to incentivize effective recycling of post-consumer apparel (Bairagi, 2017). Hence, firms should take into account the changes in consumer behavior, which is vital to understand shifts in market trends, while devising sustainability schemes.

Approaches to sustainability for a greener supply chain

Practicing sustainability has become beneficial for firms in gaining a competitive advantage in today's market since the demand for a sustainable change in fashion is not only from firms but also from consumers whose eco-fashion attitudes directly influence their consumption. The discord between being sustainable and cost-effective is present at every stage of the supply chain, including material production, garment manufacturing, transportation/distribution, consumer awareness, and retailing (Choi, 2013).

The “Triple Bottom Line” is a novel concept that includes aspects revolving around social, environmental, and economic performance. It is becoming imperative for fashion firms to construct a supply chain centered around these 3 aspects starting with the preparation of eco-materials like organic cotton. Global projects, like the Better Cotton Initiative (BCI), which is a multi-stakeholder governance group, are actively promoting better standards in cotton farming across 21 countries (including India).

Whilst in the manufacturing division of the supply chain, monitoring factory compliance and adequate training of suppliers are crucial. According to Choi, “A properly set carbon footprint tax, which depends on the product’s manufacturing and shipping costs, and manufacturer’s profit margin, can successfully entice the retailer to source locally” (Choi, 2013). This would comply with a quick response strategy for fast fashion by reducing the lead time (related to transportation), and thereby keeping carbon emissions under check. For instance, H&M has built an intelligent transportation system to reduce shipping volumes and increase the use of clean modes of transportation (ferry and trains) which in turn reduces carbon dioxide emissions over 700 tons a year (Choi, 2013).

It has become essential to start rethinking value creation due to the ethical consumer market surge. The transparency of information regarding the sustainability of the supply chain can strengthen the customer base and loyalty. Certifications such as the ISO 14000 verify the practices of sustainable manufacturing, which helps firms to strengthen their brand image (Choi,

2013). Additionally, green retailing is an important aspect of consideration. Ethical practices like in-store recycling services and recycling textileremnants that are certified by third parties such as Global Recycling Standard (GRS) have proven to increase consumer awareness and interest. This strategy proved to be rewarding in the case of the H&Mconscious collection initiative wherein a return of old apparel provides a 15% off coupon, resulting in the consumers, H&M, and the environment all receiving benefits.

Implementing risk management responses towards sustainable development goals

Coping with the dynamic economic and environmental states becomes essential when dealing with sustainability paradigms, as there are various stochastic uncertainties, contributing to supply chain risks. These include the external risk; demand risk, supply risk, environmental risk, business risks, and internal risks; manufacturing risk, internal business risk, planning and control risk, mitigation, and contingency risk (A Guide to Supply Chain Risk for the Apparel Industry, n.d).

Table 1

| Risks | Source of risk | Risk management |
|----------------------------|---|--|
| Demand | Incorrectly predicting the consumer's behavior. | Using Predictive analytics to monitor changes in the trends |
| Supply | Disruptions in accessing natural resources | Ensuring proactive warehouse and distribution management |
| Environmental | Economic upheavals, i.e. Covid outbreak. | Repurposing economic activities towards exploiting the online market (Shen, 2014). |
| External Business | Changes in partnership between businesses. | Ensuring transparency to facilitate growing trust. |
| Manufacturing | Changing to sustainable manufacturing. | Creating a systematic training process. |
| Internal Business | Changes in the internal management team. | Regular feedback and assessment on the management team. |
| Planning and Control | Inadequate assessment of the business needs. | Effective data modelling to assess needs. |
| Mitigation and Contingency | Inefficient planning of supply chain disruptions. | Creating effective contingency plans. |

Effective Risk management, which is paramount for the resilience of a business, could be accomplished by devising the solutions in the risk management table. Table 1, which is an extended arm of the DPSIR responses section, was used to discern a number of risks and to devise a few solutions that might prevent and mitigate the effects.

Conclusion

This paper fosters the correlation between environmental compatibility and business stability by a) examining the effects of fast fashion, b) developing an inclusive framework, c) understanding the consumer attitude, d) analyzing possible approaches for a sustainable supply chain and e) developing resilience through risk management for these novel approaches. The DPSIR framework aids in the correlation between the two interdisciplinary concepts in order to develop the social-ecological systems perspective in the textile enterprises.

Although the study presented in this paper developed an overall picture of these business paradigms, it isn't immune to several limitations. Firstly, due to the Covid outbreak the data was

extracted only from secondary sources, which is a major constraint. The study only relied upon the published academic journals, reports from acclaimed organizations, and online articles. Thus, future research could exploit other resources like primary data collection, commercial journals, and relevant books to broaden the scope of this study. Furthermore, the framework employed and the risk analysis devised are preliminary, hence certain factors may not have been taken into consideration.

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Linking Sustainability to Project Success – Model Proposition

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Abstract

While there is an increased discussion about sustainability in various management dimensions, its application within the project management domain is not as pronounced. The paper seeks to investigate how sustainability is linked with project success and proposes a model that integrates the three factors of sustainability, knowledge management and project success. The findings can have a direct and positive impact on project outcomes.

Keywords: Sustainability in Project Management, Project Success, Knowledge Management

Introduction

In the contemporary business environment, sustainability has become a quintessential focus point. The view on sustainability and project management holds that the two subjects are gradually connected for better outcomes. Several scholars and industry practitioners have redirected their focus to include the concepts of sustainability as part of their focus on the Triple Bottom Line (TBL). However, enough evidence suggests that in the context of project management, the challenge of linking sustainability persists. Project success is an imperative expectation in the domain of Project Management.

In this regard, Brones et al. (2014) reckoned that the synthesis between project management and Ecodesign is the "missing link for integrating sustainability". If the perspective of TBL (that is, economic, social and environmental views of sustainability) is considered, the dearth of literary evidence in the field of Project Management is quite visible and has been constantly pointed by several past scholars (Thomson et al., 2011; Singh et al., 2012; Marcelino- Sadaba et al., 2015; Carvalho & Rabechini, 2017). Formulating projects that are driven by sustainability at the core can help the organisations incorporate sustainability within the project management discipline (Labuschagne & Brent, 2005).

According to Bolis et al. (2014), bridging the gap between project management and sustainability requires going beyond the conventional descriptions of sustainability and probing over the use of techniques, tools, and processes that relate to TBL, thereby presenting a positive project outcome further translate into project success. While several scholars have emphasised the initiatives being taken to promote sustainability as an outcome of project success (Carvalho & Rabechini Junior, 2014; Marcelino-Sadaba et al., 2015), the acknowledged Project Management Body of Knowledge (PMBOK) have mentioned the importance of sustainability very faintly. As such, there is a strong need for introspection as to how the concept of sustainability must be incorporated in a formalised body of knowledge (Brones et al., 2014).

Additionally, the field of project management widely exposes the social dimension of sustainability in the form of issues related to labour, contractors, vendors, and management of external and internal stakeholders (Singh et al., 2012).

Drawing from the above introduction, it is evident that the questions of project management not being able to link sustainability to achieve project success effectively stays put with a visible lack of empirical investigation regarding project sustainability management and project success (Marcelino- Sadaba et al., 2015). While the importance of sustainability within project management can be seen as a mere "tick-off" the list or as the need for stakeholder satisfaction,

this paper intends to explore the linkage of sustainability to project success in terms of the derivation of competitive advantage, that is how sustainability fosters project success outcomes. Therefore, this paper seeks to analyse how project success can be linked with sustainability. The first half of the paper presents a review of the literature. In contrast, the remaining part of the paper will provide a detailed discussion on the proposed model for linking sustainability with project success.

Literature Review

Project Success

The origins of defining the criteria for measuring a project success is credited to Kerzner (2003/2013) and Turner et al. (2009). A general agreement regarding project success is concluded over two significant components: critical success factors (CSF) and success criteria of a project. Success criteria are regarded as having an objective orientation. However, several scholars have criticised mere success criteria are not enough to derive the broader scope of the project. For instance, Jugdev & Müller (2005) point out that it is not a behavioural skill. In this regard, critical success factors have a relatively broader significance. They measure the "soft" arenas in a project such as customer satisfaction, team coalition, group cohesiveness and others. Therefore, many scholars consider measuring CSR to bear a pragmatic approach. Müller & Turner (2007) state that the definition of project success must be measurable and evaluated in terms of success criteria for a pronounced meaning. However, the contemporary approach incorporates the TBL aspects within the definition of success criteria, therefore widening its scope (Eweje et al., 2012; Sonderlund, 2008). Nonaka (2014) concluded that imparting a holistic meaning to the definition of project success at the onset of a project lends clarity to objectives, thereby improving the scope of communication within a project.

Project Knowledge Management

According to Fuentes-Ardeo et al. (2017), a common factor relevant to all projects is knowledge. Several scholars cite the linkage between knowledge management and project level success and reckon that knowledge management positively influences the outcomes of a project (Lee & Choi, 2003; Brady & Davies, 2004; Quigley et al., 2007). As per the Project Management Body of Knowledge (PMI Institute, 2015), several discreet knowledge stores are "created, stored, accessed, used and updated" throughout the lifecycle of a project. However, it is also observed that none of the specific arenas contributes to knowledge as primary sources (Reich & Wee, 2006). According to Fuentes-Ardeo et al. (2017), knowledge management leads to the creation of specific BoK critical to the successful execution of project goals. While certain aspects of such knowledge remain implicit, however much of such knowledge needs to be overt, which in turn can be investigated, validated and shared among vested stakeholders (Reich et al., 2012). In this regard, the ideas proposed by Nonaka & Takeuchi (2016) show a separate body of work has been developed that states the knowledge included in the domain of project management. Todorović et al. (2015) extend the argument that the project management environment has not been well-explored. However, Ordanini et al. (2008) confirm that knowledge management and the expertise developed during the project life cycle lead to successful project outcomes.

Sustainability in Project Management

In the context of Project Management, sustainability can be understood through various perspectives. Carvalho & Rabachini (2015) reckon that sustainability has both external and internal views in project management. While the inner aspect relates to project management areas and processes conducted throughout the project life cycle, the external perspective concerns sustainable development, considering the environmental and social impacts. Several

past scholars have researched the cause of the environmental dimension of sustainability (Johansson & Magnusson, 2006; Tingström et al., 2006; Vezolli & Sciama, 2006; Brons et al., 2017; Carvalho & Rabechini, 2017; Fuentes-Ardeo et al., 2017). Likewise, the social dimension of sustainability has been mainly investigated in the construction industry and public sector (Campbell et al., 2008; Almansi & Tammarazio, 2008). However, the gap is primarily witnessed when the dimensions mentioned above are integrated to understand the TBL implications, including social, economic and environmental dimensions of sustainability (Thomson et al., 2011; Martens & Carvalho, 2016, 2017; Marcelino-Sadaba et al., 2015).

Martens & Carvalho (2017) identified that the key issues involve both tactical and strategical perspectives and are guided by four factors: stakeholder management, environmental policies and resource-saving, economic and competitive advantage, and lastly, sustainable innovation business model. According to Labushagne & Brent (2005), integration of sustainable products within the management of project lifestyle can be regarded as the initiating point for aligning the principles of sustainable development within the discipline of project management.

Proposed Model

The study bases its model on the Project of Knowledge Management suggested by Gasik (2011). The author has focused on the various knowledge management processes identified at the project level (Figure 1.). As can be seen in the figure below, the graphical representation shows insights into new modules and phrases that have been incorporated. The author has added "Monitoring Knowledge" as a new phase. To control the received knowledge, the model also makes accommodation for controlling and monitoring the understanding. The rationale is that the information obtained can be processed in a specific phase where it can be monitored over different parameters, and if need be, corrective actions can be taken accordingly to update or improve the existing knowledge.

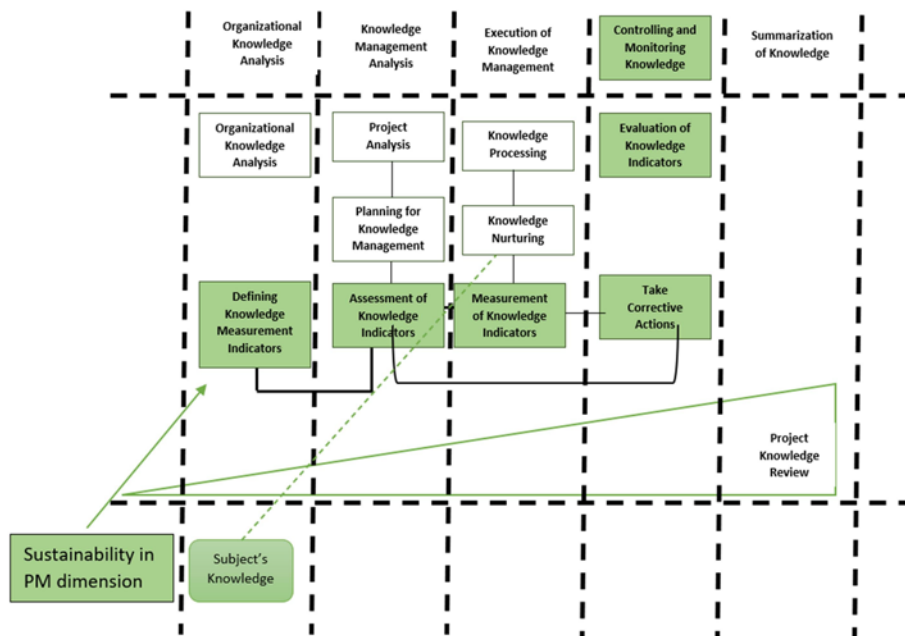


Figure 1 Conceptual Model for integrating sustainability with knowledge management

Gasik (2011) states that the main parameters or indicators developed in the Organizational

Knowledge Analysis phase and assessed in the Knowledge Management Preparation and Executing Knowledge Management phases are sent into the Monitoring Knowledge Phase. Considering the previous stages' input, the new phase's output will be the Used Knowledge Report, which will collect the information supplied by the previously specified indicators and parameters. There will be a section in the report if some corrective action is defined; these corrective measures will be evaluated in three initial phases. Finally, in all other phases of project knowledge management, the process of knowledge summarising, which attempts to gather the knowledge created by a project, is done Gasik (, 2011).

Results and Conclusion

The various factors discussed in the model highlight a lack of knowledge management, one of the primary reasons for unsuccessful project outcomes. As such, the inclusion of sustainability dimensions as knowledge management components can be instrumental for achieving the integration with project success. The model proposed in the current study seeks to investigate which elements of knowledge management are required to synthesise sustainability within project management. The proposal advocates the thought of devising meticulous knowledge banks in project management books where a specific focus on sustainability knowledge can be provided.

The proposal pushes the idea of developing a specific knowledge area in project management books where the sustainability knowledge of the project is included. These are in tune with the suggestions of the Global-level macro knowledge lifecycle model as suggested by Gasik (2011). The author believes that the inclusion of the concepts above in the standard BoK shall help in a logical integration of sustainability in project management. The literature review presented in the section above has also indicated the importance of knowledge possessed by people as a crucial element in producing successful project outcomes. As such, the addition of sustainability components within the definition of Knowledge Management indicators will help indirectly influencing the knowledge of projects with more pronounced successful sustainable project executions. Future research shall focus on validating and improving the proposed model.

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Design of Warehouse for Drone-Based Picking Operations

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Abstract

The fourth industrial revolution has led to faster and more automated logistics processes. In addition, academics are also attempting to revolutionize inventory managing utilizing drones with the new technology brought about by Industry 4.0. This paper enhances the participation of drones in the logistics of e-commerce by presenting a drone-based inventory collection methodology. The new concept substitutes human pickers and conveyor belts in a 3D environment with drones. Along with the inclusion of this technology, the manuscript also proposes a change to warehouse layouts to accommodate the operations of drones better. The paper also proposes future research topics to further the development of drone-based picking.

Keywords: Warehouse 4.0, Unmanned Aerial Vehicles (UAVs), Drones, Operations Management

Introduction

The rise of e-commerce in the past decade has ushered in a new age of increased consumer demand. Companies such as Amazon, Flipkart, and Myntra must constantly improve their supply chain to satisfy customer needs. Thus, as these companies' supply chains grow, they must also find ways to reduce costs to make their deliveries affordable (Ramcharran, 2013). One major opportunity for cost-cutting lies in the warehouse operations of large e-commerce firms. Current methods of transport inside of a warehouse consist of walking, lorries, or a conveyor belt. With the advent of Industry 4.0, new opportunities have arisen to modify warehouse models towards a focus on automation (Alias et al., 2017).

Recent developments in unmanned aerial vehicle (UAV) technology have allowed the use of these flying devices inside indoor environments (Xin et al., 2020). Researchers have studied multiple cases of drone usage in warehouses; however, most of these studies focus not on product transport but on inventory management. Models of inventory management using RFID scanners on drones have been simulated and tested in a real environment (Cristiani et al., 2020). However, if further optimization is to be achieved, a brand new picking system in warehouses must be considered. To this end, this manuscript proposes a drone-based item picking model for warehouses.

Nonetheless, implementing drones for picking will require more changes than the addition of a docking station. Thus, the following sections will answer the questions, “Why is a drone-based picking model needed?”, “What changes must be made to implement this model?”, “How will this model operate?”, and “What are the benefits of this model?”

Literature Review

In recent years, the usage of drones in warehouses has grown. Due to the massive growth in e-commerce demands, warehouses are calling for increased efficiency (Companik et al., 2018). In addition, the need to further enhance efficiency in the warehouse operation has increased by the difficulties of attracting professional workers, growing demand for customer services and increasing e-commerce. To keep up with increasing consumer demands, the 4th Industrial Revolution has made the warehouses more digital as well as connected with ‘Warehouse 4.0’. New scanning technologies, bar codes, QR codes, radio frequency identification (RFID) technologies, and artificial intelligence (AI) enable autonomous operations in warehouses

(Alias et al., 2017). However, due to the diverse profile of technologies available at a warehouse's disposal, it isn't easy to inculcate new transportation methods, such as UAVs (Wawrla et al., 2019).

In regards to logistics, some firms have employed the use of drones for last-mile delivery services. For example, Amazon has a program called Amazon Prime Air, a service that claims to offer customers items within 30 minutes of purchase. In fact, Domino's too had a drone delivery service employing their own 'Domicopter' drone for deliveries. In the early phases, these concepts were highly useful and innovative for firms as compared to the usual modes of delivery. However, these models largely focused on being alternatives to delivery models in specific cases and had no ramifications within warehouses (Pandit and Poojari, 2014).

This was the starting point for researchers to start thinking about proper path planning of UAVs and real-time updating of stocks. In 2017, a study by Modares et al. (2017) on a coverage path planning problem had the objective of finding the most suitable path for a drone swarm and minimizing energy usage. Unlike the conventional multiple traveling salesman problem and the vehicle routing problem (VRP), which only considered the distance traveled by each agent, they managed to incorporate energy consumption in their model. A different approach to the problem of battery life had Tseng et al. (2017) make a model of path planning for drones to automatically incorporate their visits to recharging stations. Chen and Chen (2018) introduced a new path planning model based on a skyline query concept, which returns the objects that any other objects cannot dominate. Their final results showcased that even after assigning three different paths, the processing time remains the same. This would mean that whatever path the drones follow as per the physical conditions, they will always get the same processing time.

Researchers realized to further the use of drones in warehouses; they would need to focus on swarm computing. Thus, Xin et al. (2020) suggested using LIDAR Technology and using the template reduction method for near-neighbor classification. This model significantly reduced the risk of nearby UAVs colliding with each other. Further perfections to the model mentioned above were made by González de Santos et al. (2021). They developed a model for a planned pre-processing algorithm for point cloud and a path planning algorithm to be executed in real-time. This model helped the drones do the assigned tasks properly, but they could not define an execution time as this model works on a real-time basis. A similar study by Cristiani et al. (2020) focused on the path planning of mini-drones to work in warehouses. They proposed a proper stock inventory model, including package identification using QR codes and drone recharging stations.

As seen in the above paragraphs, researchers have conducted plenty of studies on implementing drones for e-commerce logistics. They have designed models not only for last-mile delivery but also for indoor environments. Although work has progressed in path planning and navigation, there has yet to be any study on the use of drones for transportation inside a warehouse. Thus, this manuscript aims to present a model for drone usage in inventory management and for transporting stock within the warehouse.

Model Formation

Due to the scale of today's storage facilities, a wide range of drones need to function concurrently and together to achieve maximum performance. Therefore, a central system of administration is necessary to allocate jobs, create pathways, and satisfy the demand for delivery. In the proposed model, UAVs shall be responsible for the picking operations in a warehouse. In turn, the shelf layout must be suitably modified to allow for drones to perform

picking without the need for human assistance. The following subsections discuss the changes to racks and actions followed during picking by the drone fleet.

Shelf Layout

The proposed model utilizes UAVs for picking operations in warehouses. However, the current warehouse system cannot put items onto a tote once the picker has reached the allotted area. Thus, for this model, a modified storage shelf will be used. The shelf consists of three parts: the replenishment zone, the stock keeping zone, and the storage area (refer to Figure 1). The three zones mentioned occupy a space of 3400mm x 2400mm x 8200mm. This pattern is to be repeated so as to accommodate the storage area of the adjacent shelf next to the stock keeping zone of the current shelf.

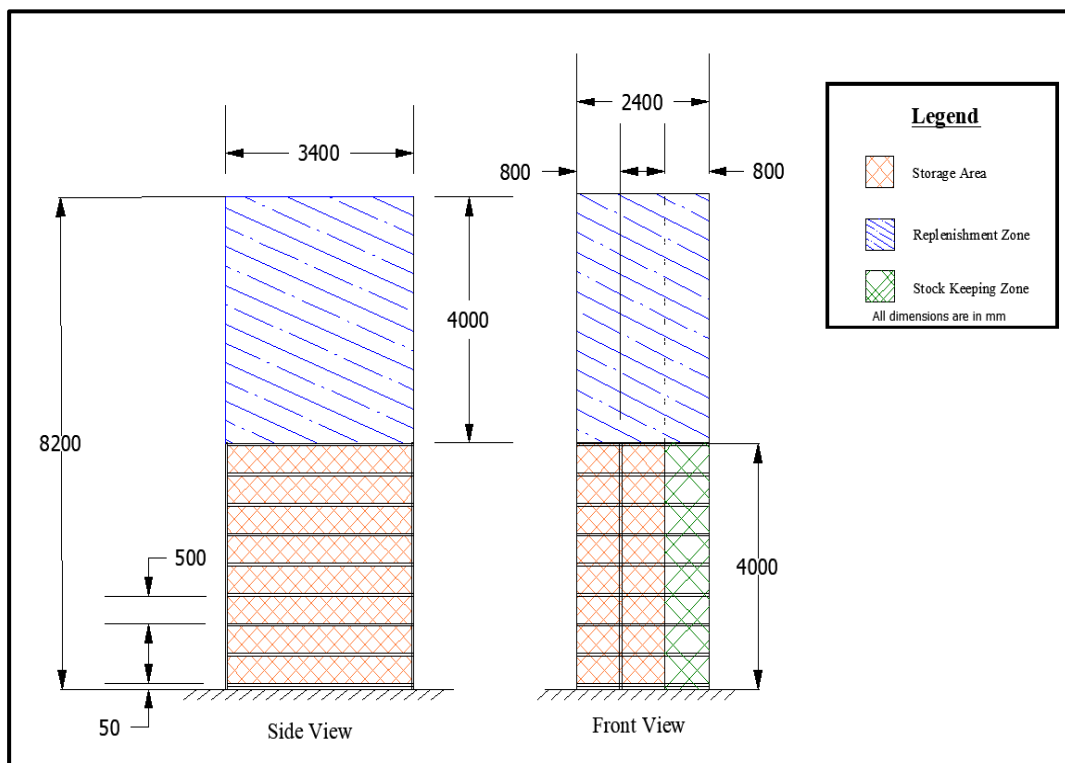


Figure 1. Layout of Shelves

The storage zone (orange boxes in Figure 2) consists of vending machines that will dispense items once the drone has landed in front of them. Each box of 800mm by 500mm shall contain one vending machine stocked with a single type of item. They shall be labeled with an RFID tag that drones will scan to activate the vending machine should the item code match. Next to the storage area is the stock keeping zone (green boxes in Figure 2). This zone contains pallets of items that will be used to restock the vending machines in the storage area. The stock keeping zone is purely for storage purposes, and the items contained will not be picked from. The stock keeping zone and storage areas are open from the front view but are sealed from the back.

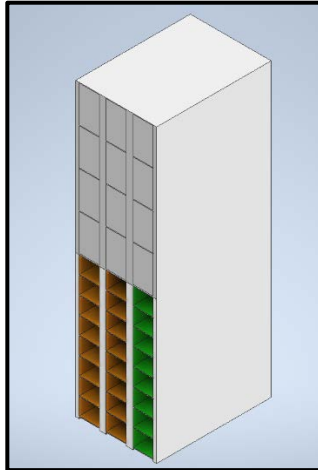


Figure 2. Storage Area and Stock Keeping Zone

Finally, above both the storage area and stock keeping zone is the replenishment zone (blue boxes in Figure 3). The replenishment zone is open from the backside and sealed in the front. This zone is the same size as that of the storage and stock keeping zones combined. It acts as a type of “deep storage” for item replenishment once the stock keeping zone runs out. In conclusion, the replenishment cycle of the shelf goes from the replenishment zone to the stock keeping zone and finally to the vending machines in the storage area.

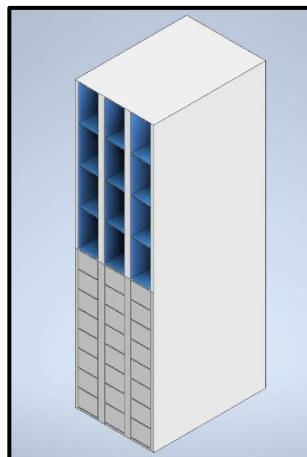


Figure 3. Replenishment Zone (viewed from the back)

Drone Management System

This section will explore the various steps taken during picking operations by drones. Here, each drone can be represented as a cuboid (box) of length 600mm, width 800mm, and height 500mm. These drones are assumed to move in a grid-like pattern above all storage shelves and the flight zones (refer Figure 5 and 6).

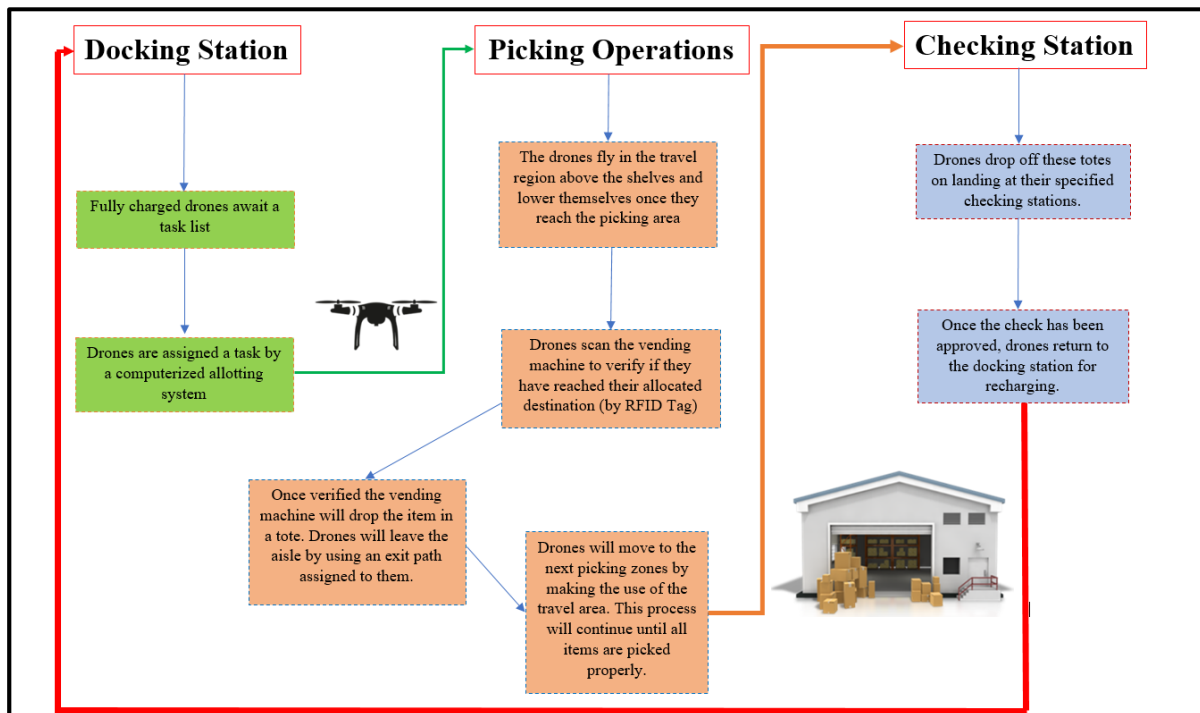


Figure 4. Flowchart of Picking Operations

The completion of a task list will consist of the following steps:

- 1) **Preparation:** A drone is considered to be in a 'Ready' state when it is fully charged and sitting idle at the docking station. At the start of the operation, all drones are presumed to be ready. In addition, those drones will stay in ready condition until the first mission is started. If a drone is not ready at the docking station, it will not proceed until the batteries are charged completely.
- 2) **Obtaining a task list:** All drones that are in the ready state shall receive a task list from a computerized allocation system. The tasks shall be allotted according to the drone's serial number, in the case of initial starting, or by the length of idle time, in case operations are already underway. The provided task list shall contain the aisle, column, and row number of each item along with an RFID for the drone to match. The assignment system must also calculate a route for the drone to finish selecting in the shortest possible time by using the locations for each item in the task list.
- 3) **Reaching the item:** Drones will leave the docking station with a tote by moving towards the flying region above all shelves. They shall then travel across the warehouse to reach the aisle of the first item on their list. Upon reaching the allotted aisle, they will find the closest entrance to the flying zone (indicated by red dotted lines in Figure 5) and lower themselves until they reach the allotted row for their item. It is observed that four boxes are present in the flying zone for each slot on the shelf. The drones shall travel downwards using any box that is not directly touching the shelf, as those are reserved for exiting drones. The entrance of a drone into the flying zones will be determined based on a prioritization system. This system shall allocate tickets based on the time at which the drone reached the aisle, the number of items already carried by the drone, and how many more items the drone must reach.

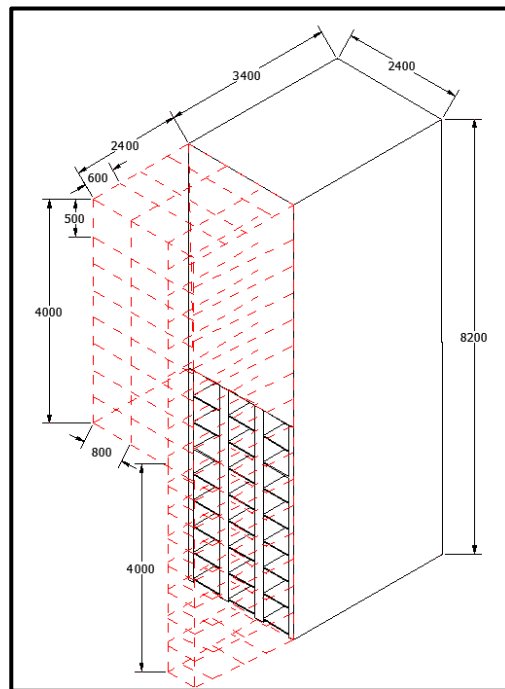


Figure 5. Flying Zones in front of Shelves

- 4) **Picking an item:** Once the path is clear, the drones shall horizontally move until they arrive at the box in front of the item they wish to pick (indicated by blue dashed lines in Figure 6). They shall scan the RFID tag on the vending machine to verify their item. If the tag is recognized, the vending machine shall drop the item in the correct quantity into the tote carried by the drone. It can be noted that in front of each vending slot, there are four boxes for drones in the picking area. Only the box in contact with the vending machine shall be given an item; the remaining three boxes are for drones in waiting. After collecting their item, the drones shall exit using the closest flying zone and climb until it is once again in the flying region. Steps 3 and 4 shall be repeated until all the items on the task list are picked.

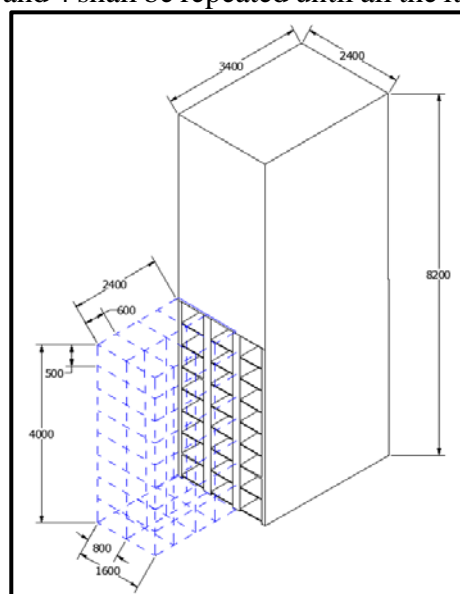


Figure 6. Picking Zone in front of Shelves

- 5) **Delivery of items:** Once all the items on a task list have been picked, the drone shall travel to the checking station, drop their tote, and land. A human shall check these totes for any error. Should all items be present and in their correct quantity, the drones will be sent back to their respective docking station for charging.

Conclusion

This manuscript proposes the model for a drone-based picking system for warehouses. The proposal expands on the use of UAVs inside of a warehouse. While earlier research and trials focused on the use of drones to manage a warehouse, we propose to utilize drones to transport warehouse stock. The usage of drones can be noted as it exceeds the limits of people, hand-lorries, and conveyors by permitting 3D mobility. Thus, it can be inferred that increased productivity and efficiency will occur with the usage of UAVs in warehouse picking. In order to advance this topic, first and foremost, a detailed mathematical model is needed of the prioritization system for allowing drones into the flight zone. Although the model provided offers a clearly defined architecture of the mobility and selecting spaces for drones, work is needed to integrate the individual drones into a swarm to operate together. Another future research topic is the vehicle routing problem faced by drones after receiving their task list. These UAVs must travel along the optimum pathway from the docking station to the vending machines, and finally to the checking station. Similar problems have been solved previously using path planning algorithms such as A* and D*.

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Ownership and Performance of Microfinance Institutions: Empirical Evidences from India

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Abstract

The study examines the efficiency differences across the ownership structure of Indian microfinance institutions (MFIs) operating during the year 2005/06 to 2017/18 in response to regulatory reforms initiated by the Reserve Bank of India (RBI) in the year 2011. We remove the outliers from the dataset by using the Banker and Chang (2006) guidelines. Thereafter, we employ the bootstrap data envelopment analysis (DEA) as suggested by Simar and Wilson (2007) to assess the bias-corrected efficiency scores. To identify the performance determinants, we use bootstrap truncated regression. The empirical results suggest that the performance difference between NBFCs and Non-NBFC MFIs are not statistically significant in the sample period. Further, the study finds that the size and ownership structure of MFI has a positive and statistically significant impact on the efficiency level. Although the coefficient of PAR30 (Portfolio at risk, 30 days) is statistically insignificant, however, the results conclude that the deteriorating credit quality has hindered the efficiency level. The Indian MFI industry needs to focus on the adoption of more innovative technology and partnership with FinTech (financial technology) firms to reduce the transaction costs and service time. The RBI essentially endorses the regulatory-sandbox practices to offer micro-financial services to the poor.

Keywords: Microfinance institutions; Efficiency; Indian MFIs; Ownership structure; Bootstrap DEA; Bootstrap truncated regression; regulatory framework

Introduction

During the recent decades, Indian microfinance has gained international recognition with the claims that it is one of the significant devices for poverty reduction, women empowerment, household security and microenterprise development (Kaur, 2016; Kumar and Sensarma, 2017; Ambarkhane et al., 2018). Till the year 2005, the rapid growth of the MFI Industry in India was dependent on borrowed funds and government aids etc. In addition, the ownership structure as adopted by most of MFIs were NGOs, Cooperatives, Societies and Trust which were not legally permitted to collect deposits from the clients (MFIN, 2017). Therefore, they were depending on outside funds, e.g., commercial banks, domestic financial institutions and foreign donors. Additionally, during the year 2005 to 2010, the MFIs transformed from NGOs to shareholderowned MFIs and pursue growth driven by the increasing assets size and loan portfolio size (SaDhan, 2012). In October 2010, the microfinance crisis erupted in Andhra Pradesh, which is known as the biggest crisis in microfinance history (Mader, 2013). This was mainly due to the inadequate regulation, pressure on MFIs to earn profits, over-indebtedness of borrowers and the coercive collection methods of leads to a high number of registered suicides by MFIs clients (Quidt et al., 2012; Mader 2013; Yadav and Wongsurawat, 2018). This unfortunate event triggered the need to incorporate the regulatory framework immediately, to govern the Indian microfinance sector. Therefore, based on the recommendation of Malegam committee report 2011, the Reserve Bank of India (RBI) came with the new regulatory norms in the industry. The industry shifted to a new horizon and introduced a separate category for NBFC-MFIs which fully transformed the ownership structure of the Indian MFI industry (PwC, 2019). In the bank efficiency literature, plenty of studies have established the relationship between regulation, ownership structure and efficiency of Banks (See, for instance, Barth et al., 1997; Ahmad and Hassan, 2007; Shen and Chang, 2008; Pariouras et al., 2009; Lin and Zhang, 2009; Kumar and Gulati; 2014; Boateng et al., 2015; Psillaki and Mamatzakis, 2017;). However, MFIs literature reports mixed results about the link between regulation, ownership

structure and performance of MFIs (Hartaraska and Nadolnyak, 2007; Pati, 2012; Servin et al., 2012; Ghose et al., 2018). Moreover, no study exists which established the association between ownership structure and efficiency of Indian MFIs in the light of regulatory reform initiated by the RBI in the Indian MFI industry after the year 2011. In addition, The MFIs need to be financially sustainable to serve the poor clients in the long run (Kumar and Sensarma, 2017). Therefore, assessing the efficiency of Indian MFIs across the distinct ownership structure will be useful to the practitioner of microfinance. The developed and efficient MFI industry will serve a large number of the poor section of society and empower the women by providing microcredit which ultimately assists the government financial inclusion and social development.

The existing study focuses on testing the following hypotheses:

1. Whether Indian MFIs shows a rising trend in the efficiency level.
2. Whether ownership structure/Legal status affects the MFIs performance
3. Whether the regulatory framework designed by the RBI influence the MFIs performance

Against this backdrop, primarily, the present study aims to examine the trend in the efficiency of the Indian MFIs industry for the period 2005/06 to 2017/18. In particular, we employ the bootstrap DEA model to assess the bias-corrected efficiency estimates of individual MFIs. Besides, we investigate the performance difference of different ownership types of MFIs during the entire period and sub-periods as well. After the regulatory changes, the microfinance sector is dominated by NBFC-MFIs. The MFIs earlier registered in other legal form have also transformed into NBFC-MFIs to access the capital market and to gain the confidence of other stakeholders. Therefore, we divide all sample MFIs into two categories NBFC and Non-MBFC-MFIs to perform the analysis. Further, the study is extended to explore the efficiency determinants; we employ the bootstrap truncated regression to identify the factors which determine the performance of Indian MFIs.

The present study contributes to enriching the literature on MFI efficiency. Our study is dissimilar from the existing empirical literature of MFI efficiency in several parts. First, to the best of the author's knowledge, almost all the studies have examined the efficiency by employing the traditional DEA model (except Wijesiri, 215; Bibi et al., 2017; Khan and Gulati, 2019; Khan and Shireen, 2020) which do not account the biasness in the efficiency estimates (Simar and Wilson, 2000). We assess the bias-corrected efficiency scores of individual MFIs for all the years by deploying the bootstrap DEA model which offers authentic estimates. Second, we explore the performance differences of the MFIs during the regulatory changes. Third, we explore the performance difference of MFIs with different ownership types and their separate strategy response to the regulatory change in the sub-periods. Fourth, to identify the factors determining the efficiency, we employ the bootstrap truncated regression.

The rest of this paper unfolds as follows. Section 2 briefly discusses relevant literature review. Section 3 describes the methodological framework and briefs about data and inputs/outputs used. Empirical results are discussed in section 4. Section 5 concludes the study with policy implications and direction for future research.

Relevant literature review

The objective of this section is to explore the empirical studies which seek to establish the linkages between, ownership structure, size, legal status and efficiency of the Indian MFI industry. The majority of studies in the literature have assessed the efficiency and productivity of MFIs using frontier methods (see, Fall et al., 2018, Li et al., 2019; Gutiérrez-Nieto and

SerranoCinca, 2019). Hermes and Hudon (2018) review 170 study which identifies the determinants of financial and social efficiency of MFIs and found the MFI characteristics such as size, age and type of organization, source of funding, governance, macro-economic, institutional and political conditions may affect the MFIs financial and social performance.

We find the majority of researchers analyse the regulatory development in the microfinance sector in the different countries (see, for instance, McGuire, 1999; Jackson and Islam, 2005; Hartarska and Nadolnyak, 2007; Haq, 2008; Hoxhaj, 2010; Cull et al., 2011; Ndambu, 2011; Pati, 2012; Ranjani, 2012; Trujillo et al. 2014; Purkayastha et al., 2014; Trujillo et al., 2015; Yadav and Wongsurawat, 2018). Liñares-Zegarrea and Wilson (2018) examine the association between size and growth of the MFIs across the different ownership structure and confirm that growth rate varies across the different ownership form of MFIs. Adelnader and Mansouri, (2019) observe that the efficiency level of MFIs varies across the different regulatory environment in the Middle East and North Africa (MENA) region. Recently, Khan and Shireen (2020) examine the drivers of financial and operational efficiency of MFIs operating in the Eastern Europe and Central Asia (ECA) region by using a bootstrap DEA approach.

In the Indian context, most of the existing studies have only theoretically examined the role of the MFIs and their challenges, operating models, and regulatory issues of the microfinance industry (See, for instance, Nair, 2001; Basu and Srivastva, 2005; Dasgupta, 2005; Khandelwal, 2007; Field et al., 2013; Ray and Mahapatra, 2016; Yadav and Wongsurawat, 2018). A few of the researchers have tried to investigate the root causes of the crisis in Indian microfinance and government actions (Ghate, 2007; Dowling, 2011; Constantinou and Ashta, 2011; Priyadarshee and Ghalib 2011; Quidt et al., 2012; Nadiya et al., 2012; Wichterich, 2012; Palmer, 2013; Mader, 2013; Hudon and Sandberg, 2013; Bayer et al., 2013).

A very few authors (See, for instance, Masood and Ahmad, 2012; Muneer and Kulshreshtha, 2014; Muneer, 2016; Kaur, 2016 Kumar and Sensarma, 2017; Khan and Gulati, 2019; Ambarkahe et al., 2019; Singh and Pandey, 2019) assess the empirical performance of MFIs operating in India. However, all of them have employed the conventional frontier methods to examine efficiency and Productivity (except a few, i.e., Khan and Gulati, 2019; Singh and Pandey, 2019).

Only a few studies have examined the association between regulation, competition and performance of Indian MFIs. In particular, Pati (2012) scrutinize the impact of regulation on the performances of MFIs operating in India. The author has taken operational self-sustainability (OSS) and return on assets (ROA) as a proxy to measure the sustainability and profitability of MFIs. The author found that regulation is not statistically significant to affect the sustainability and profitability of MFIs. However, regulated MFIs have access to capital and have well-established system and process. They further conclude that regulation in Indian MFIs is getting stronger day-by-day. Ranjani (2012) has analysed the regulatory framework for Indian MFIs with reference to international experiences. The author claims that the absence of regulation is one of the factors responsible for the recent microfinance crisis of Andhra Pradesh in the year 2010. Recently, Purkayastha et al. (2018) examine the impact of competition and regulation on the performance of Indian MFIs operating during the year 2008/09 to 2012/13 and conclude that the level of competition positively associated with the MFIs outreach and operating efficiency however deteriorates the credit quality and profitability.

Methodological framework

3.1 Output-oriented CCR-based DEA model

The study deploys an output-oriented constant-returns-to-scale DEA model as suggested by Charnes et al. (1978) to calculate the original efficiency scores of individual MFI. In the next step, the study uses the bootstrap procedure in the DEA framework to obtain the bias-rectified efficiency scores. Let say, we have n MFIs (i.e., $j = 1, 2, \dots, n$) and each MFIs yield s outputs (y_{rj}) by deploying m inputs (x_{ij}). By solving the following linear programming problem, we can measure the efficiency estimate of particular MFI 'o':

$$\begin{aligned} & \max \theta_o^{CCR} \\ & \text{s.t.} \\ & \sum \lambda_j x_{ij} \leq x_{io} \quad | \\ & \sum \lambda_j y_{rj} \leq \theta_o^{CCR} y_{ro} \\ & \lambda_j \geq 0; \quad j = 1, 2, \dots, n; \quad i = 1, 2, \dots, m; \quad r = 1, 2, \dots, s. \end{aligned} \quad (1)$$

Here θ_o^{CCR} stands for original efficiency scores of the MFI 'o' and θ represents the proportion by which MFI 'o' can augment its outputs at the provided level of input resources, in order to become efficient. λ_j represents the share of MFI j in defining an efficient target for the MFI 'o'. If $\theta_o^{CCR} = \text{unity}$, the MFI is said to be fully efficient, if $\theta_o^{CCR} < 1$, the MFI is relatively inefficient.

The classical DEA models do not account for the bias; therefore, one may obtain efficiency scores propelled by the bias and mislead the researcher (Wijesiri et al., 2015; Khan and Shireen 2020; Khan and Gulati 2021). Therefore, in order to obtain a reliable and true efficiency frontier, the study integrates the bootstrap technique in the DEA structure with $N=2000$ bootstrap replication as instructed by Simar and Wilson (2007). This is how we yield the bias-adjusted efficiency scores of individual MFIs by separating the bias from original efficiency estimates Interested researchers may visit Simar and Wilson (2007) Bogetoft and Otto (211) for a detailed explanation about bootstrap procedure and algorithms.

3.3 Bootstrap truncated regression (Simar and Wilson, 2007)

The efficiency estimates which ranges from zero to unity are serially correlated, subsequently, may mislead the researchers in the post-DEA analysis while identifying the factors responsible to determine them. Besides, the widely preferred Tobit, ordinary least-square (OLS) regression models were also condemned by Simar and Wilson (2007). The authors argue that efficiency scores obtained from the conventional DEA model may offer an inconsistent and biased estimate in the second-stage of analysis. In order to overcome such limitations, Simar and Wilson (2007) recommend the bootstrapped truncated regression which provides valid and reliable results so that a true inference may be drawn for policy formulation and articulating the optimum business strategies. Therefore, by following the Wijesiri et al. (2015), the study deploys the bootstrap truncated regression model as suggested by Simar and Wilson (2007) to detect the factors influencing the efficiency level of Indian MFIs. Following is the regression model used in the study with the selected set of environmental variables;

$$Eff_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 PAR30_{i,t} + \beta_3 EQTA_{i,t} + \beta_4 REFORMS_{i,t} + \beta_5 OWNERSHIP_{i,t} + \beta_6 AGE_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where $Eff_{i,t}$ stands for efficiency of i^{th} MFI at time t , β_0 is the intercept and $\beta_1, \beta_2, \dots, \beta_6$ are the parameters to be estimated and ε is the error term. The log of total assets i.e., SIZE is taken as a proxy to measure the impact of scale of operation on the MFIs efficiency level.

Additionally, the most favoured proxy portfolio at risk greater than 30 days (PAR30), has been incorporated in the model as a proxy to assess the impact of credit quality on MFIs' efficiency level. Besides, the equity to total assets (EQTA) is deployed as a proxy to evaluate the degree of capitalization of MFIs. The EQTA specifies the stability of the MFIs, if the EQTA is higher, the MFI is said to be stable or vice-versa. Moreover, the study uses three dummy variables: REFORMS, OWNERSHIP, and AGE, in order to capture the effect of new regulatory reforms, ownership and experience of MFI, respectively. Table 6 describes the definition and expected signs of discussed environmental variables used in the study. It is worth mentioning here that the study uses 2000 bootstrap iterations to estimate the optimum parameters in line with Simar and Wilson (2000). The authors who are keen to know more details about bootstrap truncated regression procedure are referred to visit Simar and Wilson (2007).

| Table 1. Description of environmental variables | | | | |
|--|-----------|---|----------------|--|
| Predictor | Symbol | Definition | Expected Sign | Literature |
| Scale of operation | SIZE | Log of total assets | + ₋ | Bassem (2008), Bibi et al. (2018), Khan and Gulati (2019) |
| Credit quality | PAR30 | The fraction of gross loan portfolio remain due for more than 30 days | - | Bibi et al. (2018), Khan and Gulati (2019) |
| Degree of capitalization | EQTA | Total equity capital to Total assets ratio | + ₋ | Wejesiri et al. (2015), Khan and Gulati (2019) |
| Reforms | REFORMS | Dummy: Pre-reforms = 0, Post-reforms = 1 | + ₋ | Quidt et al. 2012 |
| Ownership structure | OWNERSHIP | Dummy: Non-NBFC = 0, NBFC = 1 | + ₋ | Haq et al. (2010), Wijesiri et al. (2015) |
| experience of MFIs | AGE[6] | Dummy: Mature = 1, Non-mature = 0 | + | Gutierrez-Nieto et al. (2009), Kumar and Semsarma (2017), Bibi et al. (2018) |
| Source: Author's compilation | | | | |

Input-output specifications and database

Broadly, the efficiency literature uses two approaches; first, the production approach (Benston 1965) and second, the intermediation approach (Sealey and Lindley, 1977) to select an input/output combination to incorporate in the DEA framework. Moreover, MFIs have multi-objectives and usually, MFIs do not accept deposits, particularly in India. Therefore, none of the two approaches is suitable in the case of MFIs (Kumar and Semsarma, 2017). It is worth mentioning here that the study keeps in view the dual objectives of MFIs (i.e., financial and social) while selecting the output combination in line with Wijesiri and Meoli (2015). Since the MFIs have dual goals to achieve, therefore, performance of them must be assessed on basis of dual perspectives; financial and social (Piot-Lepetit and Nzongang, 2014; Wejesiri et al., 2015; Jaiyeoba et al., 2018). Therefore, the study combines financial and social proxies to account for financial sustainability (i.e., financial revenue, gross loan portfolio) and social outreach (i.e., number of borrowers). The description of inputs – outputs used in the analysis and represented in the Table 3.

| Table 3 description of input-output used in DEA framework | | | |
|---|---|--------|---|
| Inputs | Definition | Unit | Usage in literatures |
| Total assets | Total of all net assets | INR | Gutiérrez-Nieto et al. (2009), Wijesiri et al. (2015) Widiarto et al. (2017) |
| Operating expenses | Personnel+ depreciation & amortisation+ administration expenses | INR | Athanassopoulos (1997), Gutiérrez-Nieto et al., (2009), Widiarto et al., (2017) |
| Number of employees | Total number of staff | Number | Bassem (2008), Gutierrez-Nieto et al. (2009), Widiarto and Emrouznejad (2015), Kumar and Sensarma (2017), |
| Outputs | Definition | Unit | Literatures |
| Financial revenue | Revenue from loan portfolio+ interest & fee+ other revenue | INR | Gutiérrez-Nieto et al., 2009; Widiarto and Emrouznejad, 2015; Wijesiri et al., 2017; Van Abdelkader and Mansouri, 2019; Khan and Gulati, 2019 |
| Gross loan portfolio | Total value of loans | INR | Gutierrez-Nieto et al. (2009), Lebovics et al. (2016), Kumar and Sensarma (2017) |
| Number of borrowers | Number of active borrowers | Number | Piot-Lepetit and Nzongang (2014), Wejesiri et al. (2015), Khan and Gulati, (2019) |
| Note: Variable definitions have been taken from Mix Market, accessed in October, 2017 (https://www.themix.org/sites/default/files/publications/global_benchmark_report_fy2015_0.pdf) | | | |
| Source: Authors' elaboration | | | |

The data of selected inputs and outputs variables for and environmental variables are extracted from the Mix Market dataset of the World Bank (<https://databank.worldbank.org/source/mixmarket>) for the Indian MFIs operating during the period 2005/06 to 2017/08. Additionally, the data extracted for the financial variable are taken in local currency (INR), and data for employees and borrowers are taken in actual numbers. To estimate the true production frontier, we first detected the outliers by using the procedure suggested by Banker and Gifford (1988). We define an arbitrary decision rule and set the screen level at 1.6 by following the Banker and Chang (2006) [5]. If the $\theta^{\text{super}} \geq 1.6$ for any MFI, we declare that MFI as an outlier and removed from the sample. After cleaning the dataset, we left with 1102 observations. To avoid any possible inflation effect, we deflate the financial variables by gross domestic product (GDP) deflator, and after that, the data are mean normalised following the Sarkis (2007) [3]. The descriptive statistics of input-outputs used in the DEA model are reported in Table 4.

| Table 4 Descriptive statistics of the inputs and outputs accommodated in DEA model | | | | | |
|--|----------------------|----------|-----------|------|-----------|
| | Variables | Mean | Std. Dev. | Min. | Max. |
| Inputs | Total assets | 5.33e+07 | 1.63e+08 | 4482 | 2.28e+09 |
| | Operating Expenses | 3788163 | 1.18e+07 | 814 | 1.95e+08 |
| | Number of Employees | 845.5998 | 2008.938 | 10 | 22733 |
| Outputs | Gross loan portfolio | 5.08e+07 | 1.54e+08 | 3586 | 1.97e+09 |
| | Financial revenue | 9755957 | 3.03e+07 | 609 | 54.44e+08 |
| | Number of borrowers | 264571.5 | 714530.9 | 46 | 6242266 |
| Source: Mix Market database | | | | | |

Empirical results and discussion

Estimation of efficiency estimates

We rely on the overall efficiency which represents the dual goals performance of financial and social aspects of microfinance. The study has combined three outputs namely; gross loans portfolio, financial revenue (i.e., to measure financial aspect) and number of borrowers (i.e., to measure the social aspects) and estimate the overall efficiency scores of individual MFI. We construct the separate efficiency frontier for each year despite a single multi-year frontier. The

descriptive statistics of conventional DEA scores (θ_k) and bias-corrected efficiency scores (θ^{k*}) are reported in Table 5 and visualized in Figure 1 and 2. The comparison of original and bias corrected estimates is also shown in the frequency distribution and boxplot (see Figure 2). From the empirical results, we note that the original efficiency estimates are overestimated and may mislead the author. We observe that the average bias-corrected efficiency estimates vary from a minimum of 0.619 in the year 2009/10 to a maximum of 0.833 in the year 2017/18 (Table 5). Further, we note that the grand mean of original efficiency and bias-corrected efficiency are 0.806 and 0.735, respectively. The results obtained from the bootstrap DEA model are more reliable and useful for drawing the inferences or to use in the second stage of analysis (Wejesiri et al., 2015; Khan and Gulati, 2019). Therefore, our entire study is based on the bias-corrected efficiency estimates which are more reliable and reflect the real picture.

| Table 5 Descriptive statistics of efficiency scores ownership wise | | | | | | |
|--|------------|---------------|------------|---------------|------------|---------------|
| Ownership | NBFC | | Non-NBFC | | Industry | |
| Efficiency type | θ_k | θ^{k*} | θ_k | θ^{k*} | θ_k | θ^{k*} |
| N | 600 | 600 | 502 | 502 | 1102 | 1102 |
| Mean | 0.783 | 0.695 | 0.793 | 0.700 | 0.787 | 0.697 |
| Std. Dev. | 0.159 | 0.145 | 0.164 | 0.148 | 0.161 | 0.145 |
| Min | 0.097 | 0.087 | 0.214 | 0.174 | 0.097 | 0.087 |
| Max | 1.000 | 0.958 | 1.000 | 0.973 | 1.000 | 0.973 |

Source: Author's compilation

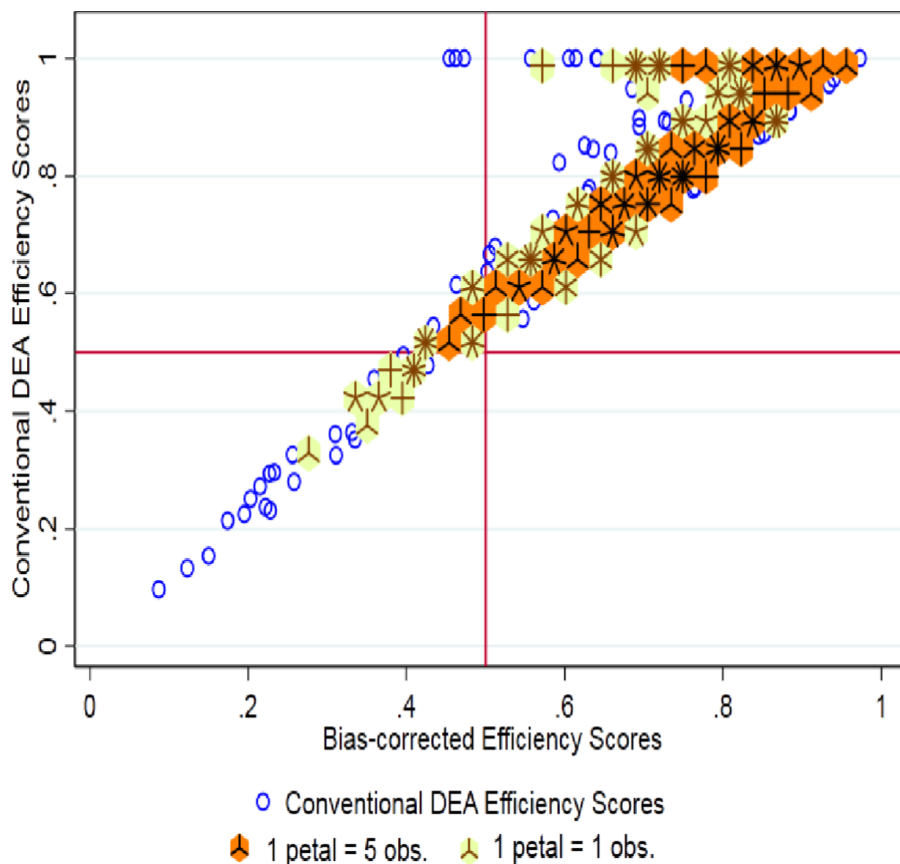


Figure 1 Density Distribution Sunflower Plot

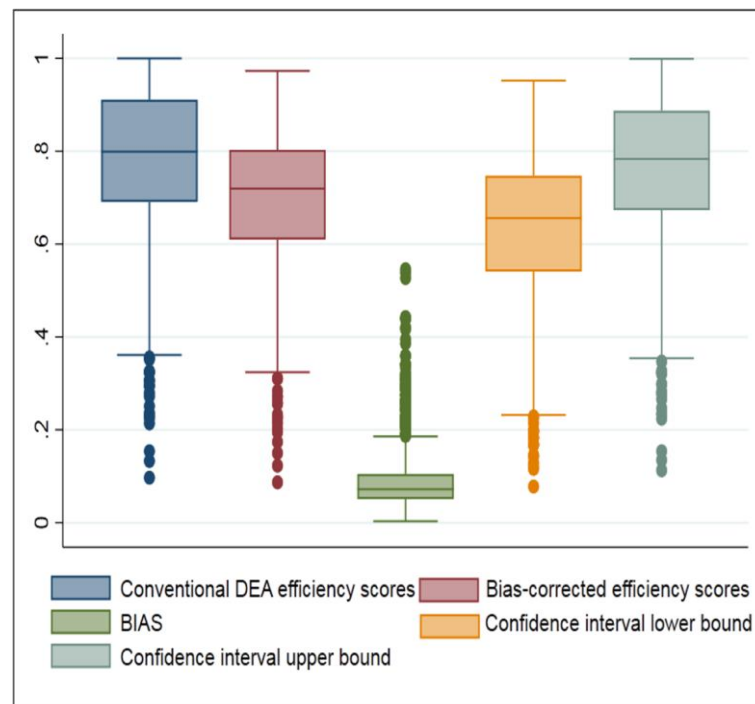


Figure 2 Boxplot Conventional and Bias-corrected DEA scores

Trends in the efficiency of the Indian microfinance industry

We observe from the empirical results that the average bias-corrected efficiency estimates vary from a minimum of 0.619 in the year 2009/10 to a maximum of 0.833 in the year 2017/18. Further, during the entire study period, the average bias-corrected efficiency score is 0.735. This is evident that the MFIs industry can further increase the output by 26.5 percent without additional use of any input resources. Furthermore, the empirics of the study found that on average the efficiency of the Indian MFI industry declines sharply during the year 2009/10 (see Table 5). It is worth noting here that this was an adverse impact of the Andhra Pradesh event on the performance of the entire MFI industry. However, the industry had recovered soon with the help of the revised regulatory framework, immediately initiated by the Government and the Reserve Bank of India (RBI) which redefined the operating model of the Indian MFI industry. Though the MFI industry has not grown significantly in terms of financial performance, the operating practices have completely transformed since the beginning. Further, the empirical results suggest that efficiency has declined in the year 2014/15 and 2016/2017. The strict regulatory actions and modifications in the existing policy hinder the performance of MFIs. In addition, the RBI has called application to issue a licence for Small Finance Banks (SFBs) and Payment Banks, this diverts the MFIs efforts from lending to acquiring the license. Further, in 2016/17 the demonetization announcement of the Prime Minister of India has crushed the liquidity of MFIs and decreased the quality of credit portfolio due to lower collection rate (MFIN, 2017). However, the MFI industry has recovered soon and the repayment rate has increased in the next financial year 2017/18 which ultimately enhances the efficiency level of MFIs. Furthermore, we found from the results the industry has accelerated in terms of performance, but the rate of acceleration is not satisfactory to get operated on the best-practice frontier. During the first sub-periods the averages of efficiency estimates were relatively lower, but, after the revised regulatory norms, the performance sharply improves during the second sub-period. This is evident with the higher averages of both original and bias-corrected efficiency estimates during the second sub-period.

| Table 6. Annual averages of original and bias-corrected efficiency score for the Indian MFI | | | | |
|--|--------------------------------|---------------------|--------------------------|---------------|
| Panel A: Annual average of efficiency scores | | | | |
| Year | N | θ_k | BIAS | θ^{k*} |
| 2005/06 | 71 | 0.827 | 0.100 | 0.727 |
| 2006/07 | 80 | 0.830 | 0.077 | 0.753 |
| 2007/08 | 68 | 0.825 | 0.060 | 0.765 |
| 2008/09 | 80 | 0.800 | 0.074 | 0.726 |
| 2009/10 | 90 | 0.708 | 0.089 | 0.619 |
| 2010/11 | 102 | 0.801 | 0.063 | 0.738 |
| 2011/12 | 103 | 0.846 | 0.062 | 0.784 |
| 2012/13 | 90 | 0.791 | 0.067 | 0.724 |
| 2013/14 | 85 | 0.841 | 0.055 | 0.787 |
| 2014/15 | 88 | 0.753 | 0.084 | 0.670 |
| 2015/16 | 77 | 0.846 | 0.050 | 0.796 |
| 2016/17 | 85 | 0.766 | 0.012 | 0.754 |
| 2017/18 | 83 | 0.864 | 0.031 | 0.833 |
| Panel B: Averages | | | | |
| First sub-period (2005/06 to 2009/ 10) | | 0.798 | - | 0.718 |
| Second sub-period (2010/11 to 201 7/18) | | 0.813 | - | 0.750 |
| Entire period (2005/06 to 2017/18) | | 0.806 | - | 0.735 |
| Panel C: Hypothesis testing - differences in efficiency estimates between sub-periods | | | | |
| Hypothesis: H_0 | Simar-Zelenyuk-adapted Li test | Kruskal-Wallis test | Jonckheere-Terpstra test | |
| FSPdistribution \square SSP distribution | 1.254 (0.024)** | 2.324 (0.010)*** | 254 (.0012)*** | |
| Notes: (1). N = number of MFIs, (2). θ_k = original efficiency score and θ^{k*} stands for bias-corrected efficiency score. (3). FSP stands for first sub-period, SSP stands for second sub-period. (4). ***, ** and * indicate coefficients are significant at 1, 5 and 10% levels, respectively. | | | | |
| Source: Author's calculations | | | | |

During the year 2009/10, immediately before the regulatory changes, the industry was not making equal revenue, few of them were growing at a faster pace and charging higher interest rates, earning big profits out of the poor. This is evident from our empirical results that in the financial year 2006/07 and 2007/08, we observed more variations in the distribution of efficiency estimates. In addition, we note from Table 6 that efficiency estimates were relatively higher in these years (i.e., before regulatory changes, i.e., first sub-period). We observe the notable efficiency improvement after the inception of new regulatory norms. It is worth noting here that the recommendation of the Malegam committee report has boosted the growth of NBFC-MFIs in the industry; therefore, the MFI industry becomes more professional, organized, regulated and efficient. This is evident from the empirical result of the study, we find a significant change in performances in the second sub-period (see Table 5, Panel C).

Efficiency across distinct ownership structure

To examine the difference across the distinct ownership structure, we divide the entire sample MFIs into two groups namely; NBFC-MFIs (i.e., a new category of MFIs created by the RBI based on the Malegam committee report), and Non-NBFC-MFIs (i.e., includes NGOs, Trust, Societies, and Cooperatives and Section 8 Companies). This section describes the performance differences between NBFC-MFIs and Non-NBFC-MFIs. The annual averages of bias-corrected efficiency estimates are reported in Table 6. The empirical results reveal that during the first subperiod the performance of Non-NBFC-MFIs is higher than their NBFC counterparts. In contrast, during the second sub-period, the performance of NBFC MFIs is higher. This is evident from the results, during the first sub-period the annual averages of efficiency are 0.713 and 0.721, for NBFC and Non-NBFC MFIs, respectively. Besides, during the second sub-period, the average efficiency estimates are 0.759 and 0.738 for NBFC and Non-NBFC MFIs,

respectively. This indicates that new regulatory reforms are favourable to the NBFC MFIs. However, the NonNBFC-MFIs are equally efficient in the MFI industry during the entire period of study in comparison with their counterparts, i.e. NBFC-MFIs. This is evident from the empirical results; Li test indicates the differences in efficiency are not statistically significant during the entire study period and first sub-period. However, during the second sub-period, the differences in performance between NBFC and Non-NBFC were statistically significant.

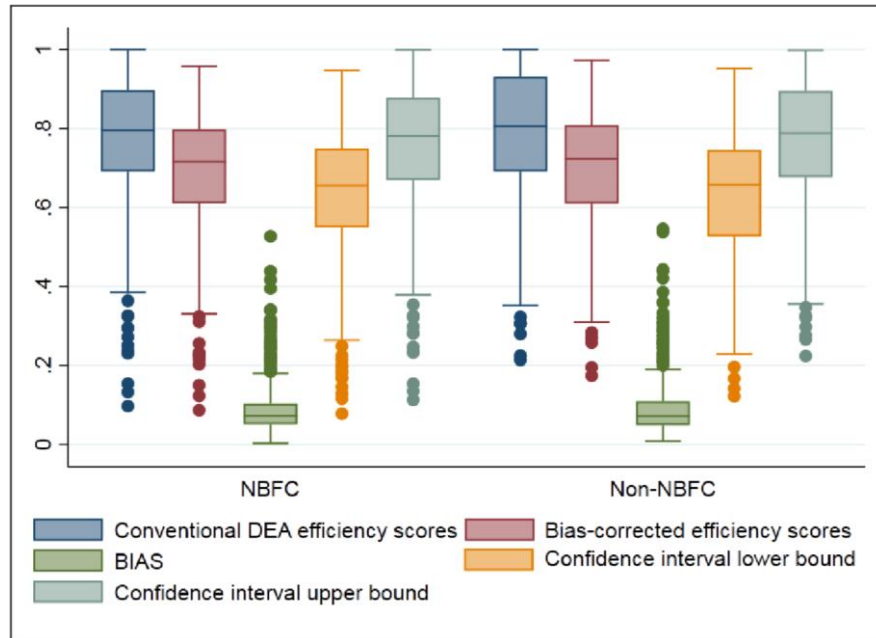


Figure 4 Boxplot of efficiency estimates across the ownership types of MFIs

| Table 7. Averages bias-corrected efficiency score of MFIs across ownership group | | | | |
|---|-----------|--------------|---------------|--------------|
| Panel A: averages of annual efficiency scores | | | | |
| Year | NBFC-MFIs | | Non-NBFC-MFIs | |
| | N | θ^k * | N | θ^k * |
| 2005/06 | 25 | 0.695 | 46 | 0.744 |
| 2006/07 | 29 | 0.751 | 51 | 0.754 |
| 2007/08 | 33 | 0.797 | 35 | 0.735 |
| 2008/09 | 43 | 0.732 | 37 | 0.720 |
| 2009/10 | 49 | 0.592 | 41 | 0.650 |
| 2010/11 | 55 | 0.765 | 47 | 0.707 |
| 2011/12 | 54 | 0.797 | 49 | 0.769 |
| 2012/13 | 52 | 0.715 | 38 | 0.735 |
| 2013/14 | 54 | 0.781 | 31 | 0.795 |
| 2014/15 | 50 | 0.688 | 38 | 0.646 |
| 2015/16 | 53 | 0.806 | 24 | 0.774 |
| 2016/17 | 64 | 0.766 | 21 | 0.756 |
| 2017/18 | 63 | 0.783 | 20 | 0.762 |
| Panel B: Averages | | | | |
| First sub-period | | 0.713 | - | 0.721 |
| Second sub-period | | 0.759 | - | 0.738 |
| Entire period | | 0.738 | - | 0.730 |
| Panel C: Hypothesis testing – efficiency differences between NBFC and Non-NBFC MFIs | | | | |

| H ₀ : Null Hypotheses | Simar-Zelenyukadapted Li test | Kruskal-Wallis test | Jonckheere-Terpstra test |
|--|-------------------------------|----------------------------|-----------------------------|
| H ₁ : NBFC _{FSP} □ Non- NBFC _{FSP} | 1.204 (0.324) | 2.321(0.272) | 325 (0.425) |
| H ₂ : NBFC _{SSP} □ Non- NBFC _{SSP} | 1.761(0.015) ^{***} | 2.345(0.052) ^{**} | 124 (0.0010) ^{***} |
| H ₃ : NBFC _{EP} □ Non-NBFC _{EP} | 2.115(0.325) | 2.638(0.291) | 345(0.064) [*] |
| Notes: (1). N = number of MFIs, (2). θ^{k*} stands for bias-corrected efficiency score. (2). ***, ** and * indicate coefficients are significant at 1, 5 and 10% levels, respectively. | | | |
| Source: Author's calculations | | | |

We perform three non-parametric tests namely, (i) Adapted Li test (Li, 1996) following the guidelines of Simar and Zelenyuk (2006), (ii) Kruskal-Wallis test, and (iii) Jonckheere-Terpstra test. In particular, all the above-mentioned test are robust and having excellent statistical power to draw the valid inference. The Li test (Li 1996) is adapted to the DEA context by following the guidelines of Simar and Zelenyuk (2006). This test is more powerful and suitable to examine the density of two functions of DEA based efficiency estimates since it accounts for boundedness and continuity condition. One of the advantages of this test is it does not require the number of observation to be equal in each group. The empirical results of the tests are reported in Panel C of Table 6. We observe that the performance of Non-NBFC MFIs remained more or less equal with their NBFC counterparts during the entire study periods. Our observations are corroborated by the empirical results; the coefficient of the Li test is not statistically significant. Our findings are consistent with Abdelkader and Mansouri (2019) who finds no statistically significant difference in performance across the legal status. Therefore, we accept the null hypotheses which claim that NBFC and Non-NBFC MFIs is equally efficient (see Table 6, Panel C).

Results of bootstrap truncated regression

We perform bootstrap truncated regression analysis as suggested by Simar and Wilson (2007) to examine the factors explaining the efficiency of Indian MFIs. We regress the bias-corrected efficiency scores on selected environmental variables (using equation 2). The results of the second-stage bootstrap truncated regression are reported in Table 7.

The predictor legal status seems to have a positive association with the financial performance of MFIs. Thus, the results reveal that the NBFC-MFIs are more financially efficient compare to their counterpart Non-NBFC MFIs. These MFIs are professionally managed and equipped with state-of-art technology, therefore, the cost of per rupee lend is low in the case of NBFCs (Servin et al., 2012). However, the results are contradictory to the findings of Gebremichael and Gessesse (2016). The MFIs industry always remains in debate for the degree of regulation. The absence of regulation may lead to the industry in crisis, which is evident from the Indian microfinance sector (Quidt et al., 2012). Besides, Bassem (2009) found that regulation and financial performance of MFIs have a positive association. The empirical results of our study show that new reforms have improved the financial efficiency performance of the Indian MFIs industry. The positive and statistically significant coefficient of reforms confirms our findings. The results are in contrast with Hartarska and Denis Nadolnyak (2007) who confirmed that regulation does not guarantee financial sustainability.

Further, the maturity (age) level of MFIs is expected to have a bidirectional association with the efficiency level (Hermes and Hudon, 2018). The older MFIs are likely to be financially efficient by reaping the advantage of accumulated experience. However, the new MFIs may

achieve a higher efficiency level by using start-of-art technology and grow faster than their young and mature counterparts (Liñares-Zegarrea and Wilson, 2018). Our results suggest that maturity has a positive impact on the financial performance of MFIs. However, the coefficient is not statistically significant. The empirical estimates of the study are in line with Wijesiri et al. (2015).

Furthermore, like Daher and Saout (2015), and Ghose et al. (2018) our study found the MFIs enjoy economies of scale, as the size of scale grows the efficiency improves. This is evident from the results that when the assets base increases the MFI tends to become more financially efficient. The coefficient of size is statistically significant at one per cent level of significance. Consistent with Daher and Saout (2015), we draw the inference from the empirical results that as the credit quality decreases, the efficiency is likely to declines. However, the coefficient is not statistically significant in our data sample. The results reveal that Equity has a negative and statistically significant impact on efficiency. Our findings are consistent with the conclusion given by Wijesiri et al. (2015). However, Daher and Saout (2015) assume that wellcapitalised firms are better protected against unexpected operational expenses, and these MFI have a lower cost of funding.

| Table 8. Results of bootstrap truncated regression | | |
|---|-------------------------------|-------------------|
| Explanatory variables | Bias-corrected efficiency | 95 percent CI |
| Constant | 1.03 (0.103) ^{***} | [0.830 - 1.232] |
| REFORMS | 0.017 (0.012) ^{***} | [0.010 - 0.059] |
| OWNERSHIP | 0.017 (0.014) | [0.010 - 0.045] |
| AGE | 0.011 (0.012) | [-0.012 - 0.036] |
| PAR30 | -0.005 (0.000) | [-0.001- 0.001] |
| EQTA | -0.202 (0.029) ^{***} | [-0.257 - -0.143] |
| SIZE | 0.016 (0.008) [*] | [-0.000 - 0.032] |
| Number of observation | 1102 | |
| Wald chi2 (p-value) | 81.20 (0.000) | |
| Number of replications | 2000 | |
| Sigma | 0.148 (0.005) ^{***} | 0.138- 0.158 |
| Note: (1) Figures in parentheses are bootstrapped standard error, (2) ^{***} , ^{**} and [*] indicate coefficients are significant at 1, 5 and 10 percent levels, respectively, and (3) CI = bootstrap confidence interval | | |
| Source: Authors' calculations | | |

Conclusions, policy implications direction for future research

The study examines the trend of efficiency of the Indian MFIs industry operating during the year 2005/06 to 2017/18 in response to the regulatory changes in the Indian microfinance industry. In addition, we investigate the performance difference across the ownership types of MFIs. Therefore, we divide all sample MFIs into two categories NBFC and Non-MBFC-MFIs to perform the analysis. We extend the analysis to explore the efficiency determinants by employing the bootstrap truncated regression.

The empirical results show that the performance of the MFI industry has significantly improved during the second sub-period after the new regulatory reforms. However, still there scope for further improvements, on average the MFI industry can further increase the output by 26.5 percent without any additional input resources. In particular, we note from the empirical results

that the average efficiency estimates vary from a minimum of 0.619 in the year 2009/10 to a maximum of 0.833 in the year 2017/18. Further, we observe the efficiency levels are 0.735, 0.718 and 0.750 during the entire study period, first and second sub-period, respectively. Although, during the first sub-periods the average efficiency estimates were relatively lower, however, after the revised regulatory reform the performance sharply improve during the second sub-period. To ensure sustainability, the Indian microfinance industry has seen significant regulatory and structural changes during the second sub-period. In response to the Andhra Pradesh crisis, the Reserve Bank of India (RBI) came with the new regulatory norms in the MFI industry with the purpose to inculcate confidence in the stakeholders. Moreover, we find that the performance of NBFC-MFIs has significantly improved after the regulatory reforms. However, we did not find any performance differences between the first and second sub-periods in the case of Non-NBFC-MFIs. In addition, we observe more growth in the efficiency level of NBFC-MFIs compares to their counterparts, i.e., Non-NBFC MFIs during the study period.

Additionally, the results of bootstrap truncated regression reveal the performance NBFCMFIs is relatively better than their counterparts. Further, we note that the excess of regulation might hinder the performance of MFIs. Therefore, policymakers and regulators need to tighten the knot when it is needed only; otherwise, this could hamper the performance of Indian MFIs. We note from the results that the deteriorating credit quality of the loan portfolio may hamper the financial performance of MFIs. Therefore, the practitioners of microfinance need to design the optimum framework to assess the risk involved in credit while taking the lending decision. We observe that the use of equity capital may have been much better. The results confirmed that overcapitalized MFIs are efficient, this may be due to arise of agency problem in the case of the NBFC category of MFIs. The direction of equity capital flow is not towards the small MFIs rather the large ones. We may conclude that small MFIs must be funded with equity capital by the investors having patience so that the small ones can grow and compete with the large MFIs which have easy access to the capital market.

The study suggests future policy initiatives need to focus on the adoption of more innovative technology in India by outsourcing services to FinTech (financial technology) firms. The financial technology will assist in reducing transaction costs and service time. Moreover, the policymakers and regulators of the Indian MFI industry must understand the basic characteristics of MFIs and formulate the most suitable policy. The regulators must try regulatory-sandbox practices and allow various new start-ups in the controlled environment to offer micro-financial services to the poor. The development of the MFI industry by setting up the proper regulatory framework and convenient operating space for every ownership type of MFIs will benefit in poverty alleviation and enhance the economic prosperity of poor's and women in India. The interested researchers may incorporate the other proxies such number of women borrowers or rural borrowers to measure the social aspects of MFIs. In addition, one may also enquire about the impact of the COVID-19 Pandemic on the performance level of MFIs

Appendices

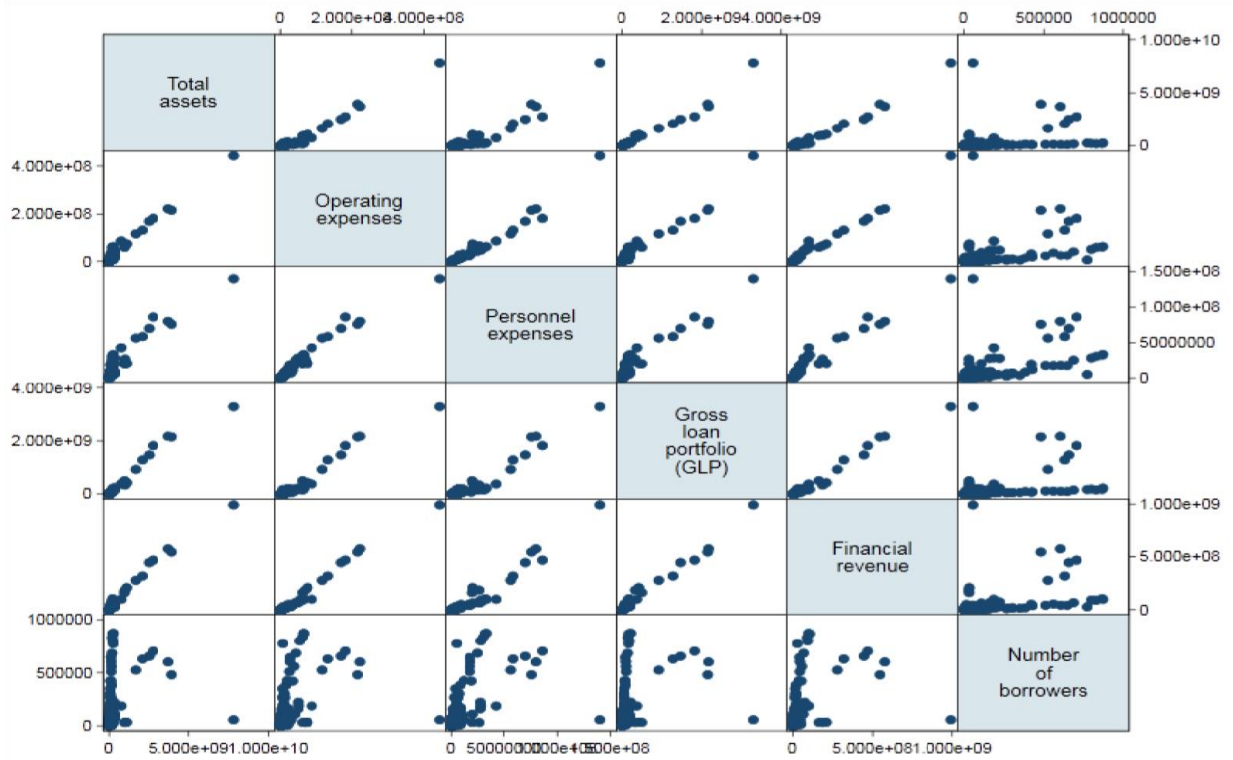


Figure 1. Scatter plot: input-output with outliers

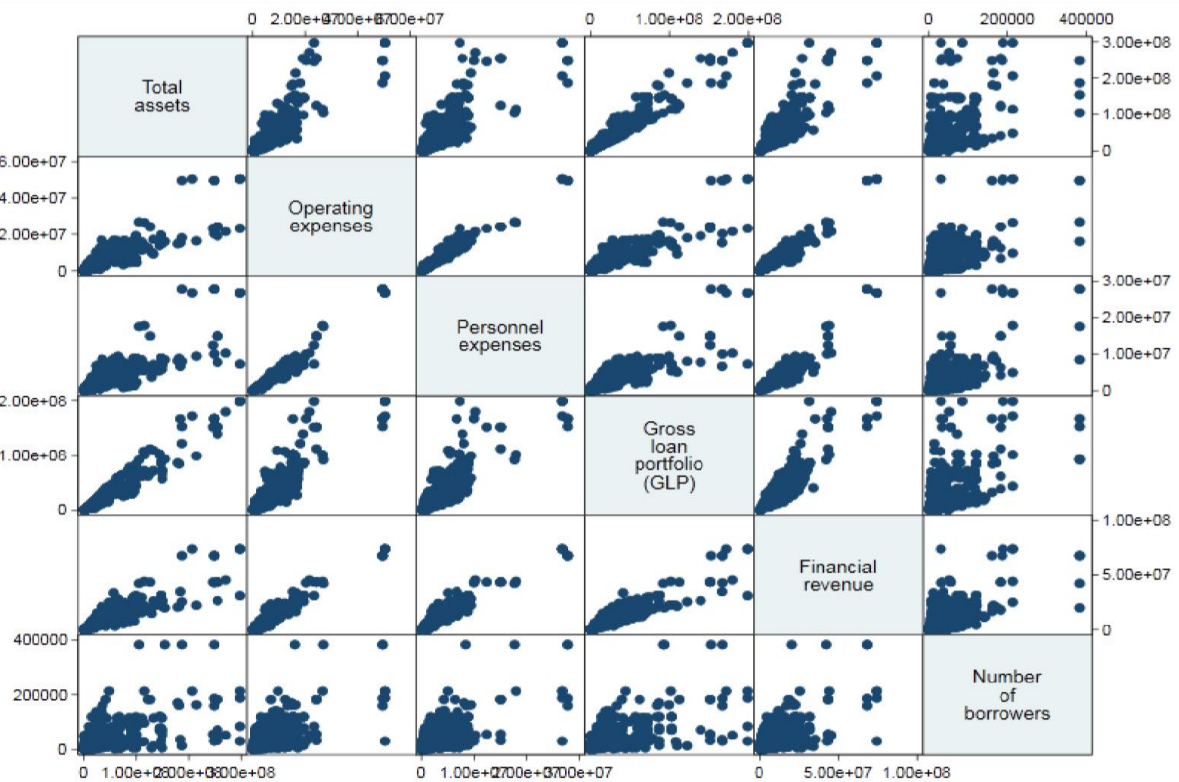


Figure 2. Scatter plot: input-output after outlier's removal

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User's Continuous Intention towards Digital Banking in the Post Pandemic Era

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Abstract

The purpose of this study was to investigate the factors determining the consumer's behavioural intention of using digital banking services during COVID-19 pandemic in Kerala. The study was necessitated by the increased use of digital banking services during the pandemic as digital transactions were made compulsory to prevent the spread of the virus and aims at probing Technology Acceptance Model (TAM), in assessing acceptance of digital banking technology in the post covid era. The results indicate that Satisfaction and Perceived Usefulness positively predict customers' Continuous Usage Intention of digital Banking. However, Perceived Ease of Use and Personal Innovativeness did not have significant effect on digital banking Continuous Usage Intention.

Keywords: Behavioural intention, COVID-19, Digital Banking, Post Pandemic, Personal Innovativeness, TAM

Introduction

Banks play an important role in the economy as they operate the payment system, are the major source of credit for large envelop of the economy, and act as a safe haven for depositors' funds (Omarini, 2017). Internet banking is a part of the broader context for the shift to digital banking, where banking services are delivered online. The shift from traditional to digital banking has been gradual and remains ongoing, and is constituted by differing degrees of banking service digitization. Thus, it entails the leveraging of technology to deliver banking products (Sharma, 2017). This shift towards digital banking means that banks' marketing and financial management models are changing (Mbama & Ezepue, 2018). Today's consumers are used to consuming products and services online and they would only be so happy if more of their banking work could be digitized and automated (Sharma, 2017). Indian banks are successfully adopted digital technologies to automate processes will see growth in revenues and profits, those banks will create new products more regularly and will improve regulatory compliance from RBI and transform the experiences of their customers, and disrupt key components of the value chain (Pandidhar,2020).

Literature Review and Research Model

Digital Banking is taking financial assets and moving them from traditional activities to online platforms (Pobre, 2020). Telephone, internet and mobile have become major DB service channels, making them important for banks' survival, through the advantages of convenience, and anytime, anywhere service access (Sundarraaj and Wu, 2005). The electronic banking plays a critical role in improving customer satisfaction as it provides faster, easier and more efficient services to the customers (Bauer and Hein 2006). Numerous studies were conducted across the globe to find the major factors affecting the adoption of various forms of digital banking. Most of those studies adopted an extended technology acceptance model (TAM) to examine the factors influencing the adoption of multiple forms of digital banking. Therefore, this study is an extended TAM in the context of digital banking. Davis (1989) first introduced the TAM as a theoretical extension of the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975) and found that it could better explain user's acceptance. TAM proposes that two particular beliefs, perceived usefulness and perceived ease of use, are the primary drivers for technology acceptance. Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his/her job performance", and perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free

of physical and mental effort” (Davis, 1989). All these leads to developing the following hypothesis:

H1. Perceived usefulness is positively related to continuous intention of usage towards digital banking services (PU→CI)

H2. Perceived ease of use is positively related to continuous intention of usage towards digital banking services (PE→CI)

H3. Perceived ease of use is positively related to perceived usefulness of digital banking services (PE→PU)

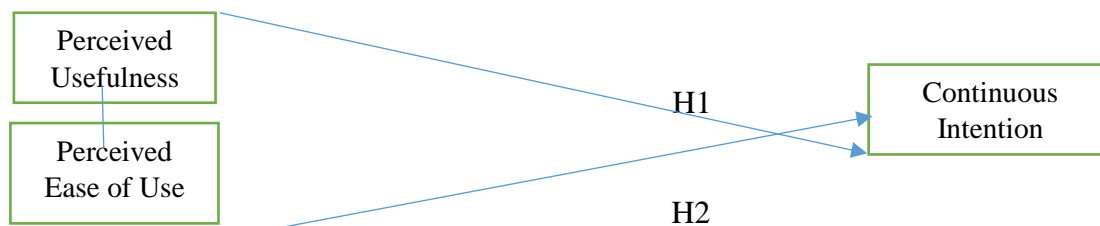


Figure 1- TAM Model

Research Methodology

Questionnaire development

A google survey with two parts was used to test the theoretical model. The first part consists of a set of questions measuring the constructs in the research model, and the second part focused on obtaining demographic information of the sample. Most items for constructs were drawn from pre-validated studies and re-worded to fit the digital banking environment. The scale items for perceived usefulness and perceived ease of use were drawn from Bhattacharjee (2001) and Choi (2020) respectively, while the scale items continuance intention were adapted from Shao et. al. (2018). The final items of the scale with sources are listed in the Appendix A. All items corresponding to the constructs were measured by using a 5-point Likert-type scales ranging from 1 (strongly disagree) to 5 (strongly agree).

Data Collection and Sample

The study employed a survey of digital banking users to collect data for hypothesis testing. Before starting the survey, the first preference was given to sample size selection. According to Stevens (2002), the sample size for social science research should be greater than 15 times the number of predictors. There are 3 predictors in our model. Therefore, the sample size should be larger than 45. In addition, Structural Equation Modelling (SEM) was adopted to test the hypothesis, which require a minimum sample size of 200 (Hoetler, 1983). Thus, we set the minimum sample size at 200, collected from digital banking customers from Kochi city of Kerala as there are plenty of respondents at these places. The users who had digital banking experience were asked to fill out the google form based on their usage experience. After two-week's survey, we obtained 260 valid responses, which fulfilled the requirements of the sample size mentioned above.

Table 1 depicts that, the sample has a high percentage of male participants (54.23%), and the participants belonged to mainly the age group 22–30 (41.55%). Whereas 32.69% of the participants are completed graduate level studies, and 38.85% completed a master's degree. The respondents were distributed in digital banking usage as follows: 09.23% of the participants use it practically every day, 15 % of the participants use it once a week, 26.16% of the participants use it once in two weeks, 41.15% of participants use it once a month and rest of the 8.46% depends digital banking rarely. As a result, the selected sample is widely distributed and thereby represents a larger population

Table 1 - Demographic Distribution of Participates.

| Respondents | | Frequency | Percent |
|---------------------------|-----------------------|-----------|---------|
| Gender | Male | 141 | 54.23 |
| | Female | 119 | 45.76 |
| Age | <21 | 27 | 10.38 |
| | 22-30 | 108 | 41.55 |
| | 31-40 | 76 | 29.23 |
| | 41-50 | 33 | 12.69 |
| | >51 | 16 | 06.15 |
| Educational Qualification | SSLC and below | 17 | 6.54 |
| | Plus Two | 57 | 21.92 |
| | Graduate | 85 | 32.69 |
| | Post Graduate & above | 101 | 38.85 |
| Frequency of Use | Everyday | 24 | 09.23 |
| | Once in a week | 39 | 15.00 |
| | Once in two weeks | 68 | 26.16 |
| | Once in a month | 107 | 41.15 |
| | Rarely | 22 | 8.46 |

Source: Primary Data

Results

The research model was tested using AMOS 26.0. Following the two-step approach recommended by Anderson and Gerbing (1988): we conducted Confirmatory Factor Analysis (CFA) to test the measurement model and an assessment of the structural model. The maximum likelihood approach was selected as the model estimation method.

Measurement model

The validity of the model was measured by investigating convergent validity and discriminant validity. Convergent validity measures the extent to which the items of a scale that are theoretically related should correlate highly (Yuan et al., 2016). Discriminant validity represents the extent to which the measure is not a reflection of other variables (Lee et al., 2007).

Convergent Validity

Composite Reliability (CR) and Average Variance Extracted (AVE) are the two most common indices for convergent validity of measures (Lee et al., 2007), and a CR of 0.70 or above is deemed acceptable value (Fornell and Larcker, 1987). AVE indicates the overall amount of variance in the indicators accounted for by the latent construct, and an AVE of 0.50 or above is deemed acceptable (Fornell and Larcker, 1987). As shown in Table 2, the factor loading value of each item is higher than 0.7 (0.799-0.915) and significant at the 0.001 level, the CR values of constructs range from 0.927 to 0.947 and the AVE values range from 0.723 to 0.809, indicating a satisfactory convergent validity.

Table 2 - The MEAN, Standard Deviation (SD), Factor Loadings, Cronbach’s Alphas (CA), Composite Reliability (CR) and Average Variance Extracted (AVE).

| Variables | Items | MEAN | SD | Loading | CA | CR | AVE |
|-----------------------|-------|------|-------|---------|-------|-------|-------|
| Perceived Usefulness | PU1 | 4.14 | 0.764 | 0.799 | 0.951 | 0.929 | 0.723 |
| | PU2 | 4.01 | 0.738 | 0.854 | | | |
| | PU3 | 4.08 | 0.752 | 0.874 | | | |
| | PU4 | 4.00 | 0.719 | 0.887 | | | |
| | PU5 | 4.04 | 0.745 | 0.835 | | | |
| Perceived Ease of Use | PE1 | 4.16 | 0.635 | 0.871 | 0.971 | 0.947 | 0.783 |
| | PE2 | 4.18 | 0.647 | 0.903 | | | |
| | PE3 | 4.16 | 0.635 | 0.915 | | | |
| | PE4 | 4.14 | 0.633 | 0.893 | | | |
| | PE5 | 4.13 | 0.618 | 0.840 | | | |
| Continuous Intention | CI1 | 4.06 | 0.720 | 0.895 | 0.991 | 0.927 | 0.809 |
| | CI2 | 4.06 | 0.714 | 0.905 | | | |
| | CI3 | 4.04 | 0.704 | 0.899 | | | |

Source: Primary Data

Discriminant Validity

We compared the shared variances between factors with the AVE of the individual factors to assess the. Table 3 shows the inter-construct correlations and the square roots of the AVE values. The square roots of the AVE values are higher than their shared variances, representing good discriminant validity.

Table 3 - Descriptive Statistics and Correlation among Constructs.

| Correlations | | | | | | | | | | | | | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|
| | PU1 | PU2 | PU3 | PU4 | PU5 | PE1 | PE2 | PE3 | PE4 | PE5 | CI1 | CI2 | CI3 |
| PU1 | 1 | | | | | | | | | | | | |
| PU2 | .772** | 1 | | | | | | | | | | | |
| PU3 | .842** | .841** | 1 | | | | | | | | | | |
| PU4 | .724** | .822** | .828** | 1 | | | | | | | | | |
| PU5 | .751** | .800** | .788** | .800** | 1 | | | | | | | | |
| PE1 | .552** | .507** | .500** | .448** | .509** | 1 | | | | | | | |
| PE2 | .543** | .497** | .487** | .440** | .490** | .907** | 1 | | | | | | |
| PE3 | .496** | .466** | .443** | .414** | .420** | .847** | .907** | 1 | | | | | |
| PE4 | .518** | .484** | .464** | .390** | .423** | .866** | .889** | .904** | 1 | | | | |
| PE5 | .527** | .522** | .486** | .478** | .476** | .844** | .860** | .834** | .833** | 1 | | | |
| CI1 | .533** | .544** | .548** | .470** | .558** | .546** | .541** | .478** | .550** | .565** | 1 | | |
| CI2 | .545** | .556** | .567** | .466** | .555** | .533** | .529** | .473** | .546** | .552** | .970** | 1 | |
| CI3 | .549** | .564** | .570** | .472** | .556** | .537** | .534** | .477** | .549** | .556** | .962** | .985** | 1 |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Primary Data

Structural Model

To evaluate whether or not the measurement model can explain the actual observed data, our study assessed the measurement model in terms of nine different indices: the ratio between Chi-square and degrees of freedom (χ^2/df): standard root means square residual (SRMR): root mean square error of approximation (RMSEA): goodness of fit index (GFI): adjusted goodness of fit index (AGFI): normed fit index (NFI): comparative fit index (CFI): and Tucker-Lewis’s index

(TLI) and Relative Fit Index (RFI). As Table 4 shows, the goodness-of-fit of the structural model is comparable to the previous CFA measurement model: $\chi^2/df=2.618$; SRMR-0.016; RMSEA-0.079; GFI-0.913; AGFI-0.873; NFI-0.968; CFI-0.980; TLI-0.975 and RFI-0.960. These fit indices show an adequate fit between the hypothesized model and the observed data.

Table 5- Models fit indices of the measurement model and structural model.

| Model-fit measure | Measurement Model Result | Recommended value |
|-------------------|--------------------------|--|
| X2 | 162.289 (p=0.00) | $p \leq 0.05$ (Wheaton, 1987) |
| RMSEA | 0.079 | ≥ 0.60 (Browne & Cudeck, 1993) |
| SRMR | 0.016 | ≤ 0.05 (Miles & Shevlin, 2007) |
| AGFI | 0.873 | ≥ 0.80 (Tanaka & Huba, 1985) |
| GFI | 0.913 | ≥ 0.90 (Joreskog & Sorbom, 1984) |
| NFI | 0.968 | ≥ 0.95 (Bollen, 1985) |
| RFI | 0.960 | ≥ 0.90 (Bollen, 1985) |
| CFI | 0.980 | ≥ 0.95 (Bentler, 1990) |
| TLI | 0.975 | ≥ 0.95 (Bentler & Bonett, 1980) |
| X2/df | 2.618 | ≤ 5 (Marsh & Hocevar, 1985) |

Source: Primary Data

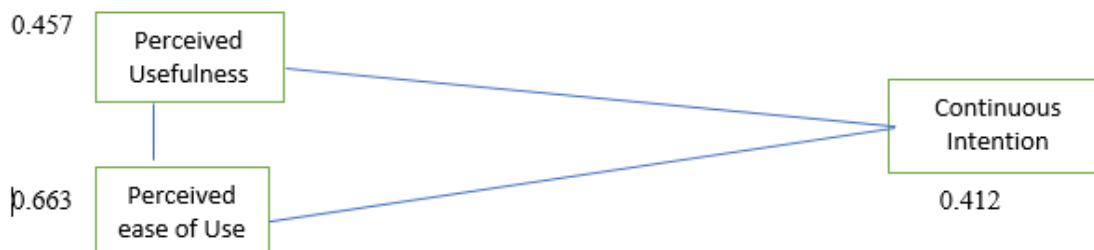
Hypotheses Testing

As shown in Table 6 and Figure 2, the continuance intention to use digital banking is jointly predicted by perceived usefulness (0.457, $p < 0.01$), perceived ease of use (0.412, $p < 0.001$) directly, supporting H1, H2 respectively. In addition, perceived ease of use (0.663, $p < 0.001$), have significant effects on perceived usefulness, supporting H3.

Table 6 - Summary of hypotheses testing.

| Hypotheses | Relations | Estimate | S.E. | T Value | P | Decisions |
|------------|-----------|----------|-------|---------|-----|-----------|
| H1 | PU→CI | 0.457 | 0.066 | 6.884 | *** | Supported |
| H2 | PE→CI | 0.412 | 0.076 | 5.432 | *** | Supported |
| H3 | PE→PU | 0.663 | 0.07 | 9.493 | *** | Supported |

Source: Primary Data



Discussions

The results depict that, both perceived usefulness and perceived ease of Use are the important predictors of users' continuance intention. Perceived usefulness is validated to be the determinant of continuance intention. Users are willing to continue with the use of digital banking if they find it useful for banking activities at any time. Perceived ease of use, an important belief factor determining perceived usefulness and continuous intention, hence it is found to have significant direct effect on continuance intention. This result reflects that user will be satisfied with digital banking not only it is useful but also it is easy to handle. Since the users become increasingly familiar with the features of digital banking after the initial adoption, users pay more attention to its easiness to use such as reliability, security, functions, cost etc.

Conclusion, Limitations and Future Scope

To measure user's continuous intention to use digital banking services, our study builds upon the, TAM, and perceived usefulness and perceived ease of use as key beliefs. Perceived usefulness in turn, is explained by perceived ease of use. The results of this study shows that the measurement model is confirmed with adequate convergent and discriminant validity, the structural model provides a good fit, and most path coefficients in the model are found statistically significant. Our study suffers some limitations as follows: first, we conducted this research in the Kochi city of Kerala. It is conceivable that users from other regions may have different attitudes, perceptions, and reactions to digital banking services from those of the users included in this study. We must be cautious when generalizing the findings to users beyond the selected area. Future research across different regions or cities will be encouraged. Secondly, future research may explore the possible effects of other factors (e.g., familiarity, intimacy) to users' continuance intention of digital banking services. Thirdly, the research was conducted using a short-term glimpse of users' behaviour. Actually, users' behaviour is dynamic. Future research can adopt a longitudinal study to examine users' behaviours in different time periods and make comparisons, thus giving a clearer picture of users' continued usage.

Annexure 1

| Construct | Item | References |
|------------------------------|--|-----------------------------|
| <i>Perceived usefulness</i> | <p>PU1- Digital Banking are useful for searching and ordering food delivery.</p> <p>PU2- Digital Banking improves my performance in ordering food delivery.</p> <p>PU3- Digital Banking enable me to search for and order food delivery.</p> <p>PU4- Digital Banking enhance my effectiveness in searching for and ordering food delivery.</p> <p>PU5- Digital Banking increase my productivity in searching for and ordering food delivery</p> | Bhattacharjee (2001) |
| <i>Perceived ease of use</i> | <p>PE1- Digital Banking make it easier to search for and order food delivery.</p> <p>PE2- It is easy to become skilled at using this service.</p> <p>PE3- Learning to operate this service is easy.</p> <p>PE4- This service is flexible to interact with.</p> <p>PE5- My interaction with this service is clear and understandable.</p> | Choi,2020 |
| Continuance Intention | <p>CI1- I am very likely to continue to use this service</p> <p>CI2- I intend to use this service as much as possible.</p> <p>CI3- I will use this service whenever I need</p> | Shao et.al.,2018 |

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Wealth accumulation among Indian households : What matters?

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Abstract

The role of cognitive traits such as numeracy, memory and mental ability and its influence on financial decision making such as wealth accumulation at a household level is still untapped. By utilizing the information on the most knowledgeable person (FR) among the spouses from LASI dataset, we explore whether cognitive and non-cognitive traits of the financial respondent (FR) vis-a-vis non-financial respondent (NFR) matters more in wealth accumulation among Indian households. To this, end we employ various econometric models including quantile regression. Several public policy implications are derived from the results of the analysis. Our study makes the following contributions. Firstly, literature on the cognitive ability of households and its influence on wealth accumulation in developing countries like India are never attempted. Therefore, our first contribution is to address the above gap in the literature by examining which components of cognitive ability matters for wealth accumulation among adult Indians. Secondly, we bring a novelty in our empirical analysis exploiting two key advantages of LASI dataset. By utilizing the information on most knowledgeable in relation to family finances, including matters of wealth (which we refer as Financial respondent (FR)), in the spousal data we can distinguish whether the cognitive traits of the financial respondent or non-financial respondent (NFR) matter more for wealth accumulation. Accordingly, we employ a quantile regression technique which could provide us evidence whether programs relating to improvement in cognitive ability should be more focused on FR, or both FR and NFR; on what target groups etc. Thirdly, the paper attempts to establish the link between non-cognitive trait such as trust on wealth accumulation among selected Indian household and reveals that trust is an important variable. Fourthly, we explore the role of early life events such as education achieved or age of first marriage which might influence the wealth accumulation indirectly through enhancement of cognitive traits.

Monetary Transmission to Financial Variables, Output Gap and Inflation: Preliminary Evidence

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Abstract

Timely evaluation of the monetary transmission mechanism is a necessary prerequisite for the effective conduct of monetary policy. After the global financial crisis, there has been an increasing emphasis on including financial sector variables to gauge various transmission channels. In this perspective, the present paper envisages incorporating financial sector interactions into macroeconomic analysis towards improving the central bank's design and implementation of monetary policy. We use Structural Vector Autoregression (SVAR) analysis for the period 2001:m04 to 2020:m03. Our preliminary results agree with the existing literature suggestive of the positive monetary policy shock to financial variables. The first round of transmission is asymmetric, with an instantaneous impulse to the short end of the financial market, while the second round of linkages to the output gap and inflation are both insignificant and counterintuitive.

Keywords: Monetary Transmission, Emerging Market, Financial Market

Monetary Policy, Liquidity Shock and Bank lending: The Case of Currency Demonetization in India

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Abstract

In this paper, we examine the effect of a change in bank deposits on banks' lending and investment behaviour. To identify the change in deposits, we study a positive liquidity shock i.e., currency demonetization of India in November 2016. We exploit the demonetization effect on different types of banks' deposits (savings bank deposits and demand deposits) to find that the increase in deposits had a negative effect on bank lending. However, banks' balances with the central bank went up with an increase in deposits induced by demonetization. When we analyse the one year lagged effect of deposits on bank lending, we find a positive impact suggesting a long run increase in lending due to demonetization. Finally, we investigate the implications for monetary policy transmission and find that the increase in deposits due to a liquidity shock weakened the monetary policy transmission to bank lending in the long-run.

Key words

Demonetization, Monetary policy transmission, Deposits, Liquidity, Bank Lending.

Disparity in FDI Inflows: The Role of Sub-national Institutional Determinants

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Abstract

Earlier the investment decisions were motivated by traditional factors but these days investment decisions are more motivated by institutional factors. Present paper makes an attempt to investigate the traditional as well as institutional determinants that affect FDI inflows distribution among Indian states. The study uses panel data for a period of twenty years (2000-2019) for 17 groups of Indian states. The findings support the helping hand theory of corruption which states that corruption helps foreign investors to enter countries with excessive regulation and inefficient legal systems. We used component analysis to arrive at the single component for the institutional factor. Our analysis infers that the Institutional environment plays an important role in attracting FDI inflows in Indian states.

‘Cyber’ Related? : How Skilled Gig Workers Generate Relatedness Online

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Abstract

The gig economy is replacing traditional organizations worldwide. In the absence of an organization framework, gig workers are driven to social media to build professional relationships. However, scholars remain equivocal about how relatedness manifests through social media. Using textual analysis, we show that mutual reinforcement is one mechanism to satiate relatedness online. We end by arguing that the time is ripe for a paradigm shift in organization scholarship from statistical analysis on structured data to web-based analysis of big data.

Keywords: gig economy, textual analysis, relatedness, motivation, Twitter

Introduction

Whyte’s (1956) organization man is dead. In this paper, I examine what motivates skilled gig workers (henceforth ‘giggers’), individuals engaging in short-term contracts (“gigs”) with clients via a platform-enabled marketplace (Spreitzer, Cameron, & Garrett, 2017). Gigs are the future of work: the US had 57.3 million gig workers in 2017 (Freelancers Union, 2017) and it is valued at \$1 billion in India (ASSOCHAM, 2020). As millennials seek ‘boundaryless careers’ (Alton, 2017), everyone appears to benefit: workers control their destiny while organizations profit from cheap staffing (Fisher & Cassady, 2019). Yet, choosing a boundaryless career is a Ulysses pact and workers must pay the price: absence of an organizational framework creates precarity, equivocates identity and weakens workplace friendships (Ashford, Caza, & Reid, 2018). We study how gig workers satiate relatedness needs in the absence of organizational frameworks.

Literature Review

Emergence of the Gig Economy

The gig economy emerges from three theoretical narratives. The sociologist narrative is that precarity underlies modernity. Organizational hegemony over work and wages decreases collective resistance (Bourdieu, 1998). The economist narrative cites (a) de-unionization (Western & Rosenfeld, 2011), (b) financialization of corporations (Tomaskovic-Devey & Lin, 2011), (c) globalization (Collins, 2003) and (d) digital revolution (Kalleberg & Vallas, 2018) as forces eroding organizations. The social psychology narrative argues that autonomy is the urphänomen of gig work but may be enjoyed in exchange for job security and benefits (Petriglieri, Ashford, & Wrzesniewski, 2018).

Are boundaryless careers truly ‘boundaryless’? If so, they must facilitate transition across employers and organization-agnostic networks (Eby, Butts, & Lockwood, 2003). Inkson, Gunz, Ganesh, & Roper (2012) argue that most giggers lack the agency to thrive in this environment. The engine of career development rests on a supportive organizational environment, hence overreliance on agency may impede mobility (Ruggieri, Mosconi, Poponi, & Silvestri, 2016).

Using Self Determination Theory (SDT) to Explore Giggers’ Relatedness

In the 1970s, scholars believed that work performance was influenced by reward and punishment (Pine, 1990). The autonomy of selecting tasks appeals to workers’ self-determination (Spreitzer, 1995), hence we choose SDT as our theoretical framework. Survival is the *raison d’être* of connection, say Freud (1930) and Maslow (1968). Relatedness is a fundamental need satisfied through mutual caring and the perception of non-contingent value for and from others (Wright & Silard, 2020). Workplace relatedness hinges on long-term

relationships but increasing adoption of technology makes them infeasible (Connelly, Fieseler, Černe, Giessner, & Wong, 2020). Income motivates giggers (Deng, Joshi, & Galliers, 2016) and work is structured to facilitate time-constrained relationships (Aytes, 2013). Some platforms have initiated ‘cultures’ for worker interaction (Sundararajan, 2016), but they promote casual socializing over long-term relationships (Fisher & Cassady, 2019).

Social Media as A Relational Alternative

Of the three foundational needs, relatedness is most generalizable to giggers (Brawley, 2017). Giggers lack peer support, but technology may substitute through online communities (Wood, Graham, Lehdonvirta, & Hjorth, 2019) that create meaningful framing for work (Ihl, Strunk, & Fiedler, 2020). SDT’s tenets remain unquestioned when studies use structured data, however, online conversations to build relatedness are unstructured. Analysis and theorizing from unstructured data demand reconceptualization of theory and methods. Rather than develop precise axiomatic representations using extant theory, we argue for a shift of paradigm to tools like textual analysis for big data.

Unstructured data begets semantic chaos (Manning, Schütze, & Raghavan, 2008) and undiscovered knowledge (Swanson, 1986). Yet, big data analytics has received sparse scholarly attention (Tonidandel, King, & Cortina, 2018), some criticize it as ‘dust bowl empiricism’ (Ulrich, 2015). The social presence theory (Short, Williams, & Christie, 1976) posits that relatedness is impossible in computer-mediated conversations. Contrarian theories exist, like the social information processing theory (Walther, 1992) and the hyperpersonal communication perspective (Walther, 1996). Text analytics is gaining popularity given its efficiency (Duriau, Reger, & Pfarrer, 2007) and techniques like sentiment analysis (Pang & Lee, 2008). It uses natural language processing (NLP) to translate human language into computer-readable data by parsing sentences into tokens and stem words into domainagnostic root forms (Miner, et al., 2012).

Twitter is a microblogging service where users post short messages called tweets publicly available to anyone who ‘follow’ them and subscribe to their ‘feed’. Authors may use linguistic markers such as ‘@’ or ‘RT’ (abbreviation for retweet) to facilitate conversational heteroglossia (Bakhtin, 1981). The informality of tweets creates relational affinity and conjures up the illusion of connectedness (Marshall, Ferenczi, Lefringhausen, Hill, & Deng, 2020).

Research Question

Extant scholarship remains equivocal on how giggers prioritize relatedness. Jabagi, Croteau, Audebrand, & Marsan (2019) argue that extrinsically motivated giggers seek transactional relationships while Rockmann & Ballinger (2017) demonstrate that they value opportunities for affective connection. We observe that giggers communicate extensively on social media. At this juncture, we ask: what are the relatedness dynamics among skilled giggers in social media use?

Method

Data Collection: We analyze online conversations about giggers’ experiences on Upwork. We choose Upwork as it has the largest user base of giggers worldwide (Sutherland, Jarrahi, Dunn, & Nelson, 2020) and gigs posted here are categorized as ‘knowledge work’ (Popiel, 2017).

Scope: Paulus & Wise (2019) argue that scoping decisions for online conversations depend on individuals, topic, temporality of information and platform. Accordingly, analysis will be limited to tweets dated between 01-01-2015 until 01-10-2020 (date of this analysis) and use Twitter’s Representational State Transfer (REST) API for data extraction.

Ethics: Our data is endogenous to Twitter and requires no IRB approval. Data will be collected securely using Twitter API keys. User identity will be protected by using tweet fragments in thematic analysis.

Data Analysis

Our search yielded a corpus of 43,200 tweets. This was downloaded into a CSV file and analyzed using Python 3.6 in an Anaconda Navigator 3 environment. We piloted our analysis on a dataset of ~14000 tweets dated between 01-01-2019 and 01-10-2020.

Pre-processing: We removed stopwords (words like ‘the’ that add little to the meaning), @mentions, hashtags, hyperlinks, the term RT, and punctuations. All tweets were case normalized. Output is in Figure 1. Next, we used the Porter (2001) stemmer as shown in Figure 2. Stemming disrupted spelling, so we lemmatized tweets; this groups words based on root concept (Miner, et al., 2012), its output is single root words called tokens (Figure 3). This output was more precise, so we chose it for further analysis. Root words were used to generate a word cloud, shown in Figure 4. The analysis was repeated for the corpus of data.

```

0 thanks recommendation hi _thighs thanks intere...
1 _shobj thats great feedback mdshakhawat
2 welcome
3 thanks recommendation hi submit application jo...
4 hi muhammad upwork allow discrimination color ...

13873 _browne congrats alexander whats favorite proj...
13874 congratulations shiran favorite thing freelancer
13875 congratulations deshisoft favorite thing freel...
13876 team members team members heres everything nee...
13877 wishing friends across globe happy safe prospe...

```

Figure 1: Preprocessed tweets in pilot dataset

```

0 thank recommend hi _thigh thank interest submi...
1 _shobj that great feedback mdshakhawat
2 welcom
3 thank recommend hi submit applic join upwork g...
4 hi muhammad upwork allow discrimin color race ...

```

Figure 2: Stemmed tweets

```

0 thanks recommendation hi _thighs thanks intere...
1 _shobj thats great feedback mdshakhawat
2 welcome
3 thanks recommendation hi submit application jo...
4 hi muhammad upwork allow discrimination color ...

13873 _browne congrats alexander whats favorite proj...
13874 congratulation shiran favorite thing freelancer
13875 congratulation deshisoft favorite thing freela...
13876 team member team member here everything need k...
13877 wishing friend across globe happy safe prosper...

```

Figure 3: Lemmatized tweets



Figure 4: Word cloud generated from pilot dataset.

Results

The word cloud from pilot data indicated that relatedness may emerge from positive reinforcement. Analysis of the data corpus, indicated in Figures 5 through 7, delivered similar results. Figure 6 indicates frequently cooccurring terms and Figure 7 indicates singular terms with the highest occurrence. In both cases, positive intonation of words was evident.

```

0
1 happy hear youve great experience using platfo...
2 proud part community joseline
3 youre welcome
4 let work speak successquote courtesy bestselli...

42322 happy new year jkb
42323 welcome odesk edi tips getting started amp fin...
42324 happy working mosarof specialty
42325 thanks sharing great odesk experience edem kin...
42326 think dont need help running business 4 reason...

```

Figure 5: Preprocessed tweets in the corpus



Figure 6: Word cloud of cooccurring terms

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How do Job Resources Contribute to Police Officers' Work Engagement? An Explanation with Dominance Analysis

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Abstract

Research has identified job resources as key predictors of work engagement; but little is known from policing context, and about relative importance of different job resources. I examined the contribution of seven job resources to police officers' work engagement. Specifically, I hypothesized that job resources contribute positively to work engagement, and task-level resources (vs. other) are relatively more important for work engagement. I performed dominance analysis to a cross-sectional data from officers of Haryana Police (n = 1,223). Two task-level resources (viz., influence at work, possibilities for development) emerged as top contributors to work engagement, followed by (in order) trust and justice, colleague support, and reward and recognition. Surprisingly, two resources (viz., senior support, information access) contributed negatively to work engagement. Findings have practical utility.

Keywords: Job resources, work engagement, dominance analysis, police, senior support

The Not so Obvious Participation by Junior Employees

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Abstract

In high power distance culture, participation from the top level till middle level is practiced but going further down in hierarchy is less seen and heard of. This results in incomplete information acquisition. As a result, managers acquire only formal information which may further lead to suboptimal decision-making. This study is an attempt to investigate the importance of informal information acquisition from junior employees in high power distance culture in India. The Q methodology was employed to comprehend the subjective aspects of the phenomena. Informal information acquisition is vital in getting unexploited workplace facts. Juniors perceive it as more authentic than formal participative management. Informal information is more authentic than formal information in high power distance culture.

Keywords: Participative management, informal information, junior employees, Q methodology

Workplace Surveillance, Trust and Employee Engagement: Exploring the link

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Abstract

There are reasons for and against electronic monitoring in the workplace. Employees and employers alike put a premium on workplace privacy. Employees expect to have control over the personal information and access they give to their employers. Employers, on the other hand, anticipate comprehensive information about their employees as well as their presence. This paper/work examines the issues related to workplace surveillance, trust and employee engagement, as well as employees' attitudes and intentions about corporate monitoring techniques. A purpose sampling method, which involves snowball selection of sample inclusion is adopted. A combination of all the levels of employees in IT Company, with 50 respondents yielded the methodology and ways in which workplace surveillance is adopted in the organizations. The model and framework for further testing empirically is proposed.

Keywords: Workplace Monitoring and Surveillance, Workplace Privacy, Trust Behaviour, Employee Engagement, Information Technology

1. Introduction

Employees and employers alike are concerned about their right to privacy in the workplace. When it comes to the workplace, a broad variety of strategies and procedures are employed for different goals in light of today's rapidly evolving information technology and communication explosion. The use of computers and related technologies has drastically altered the nature of work and the working environment. Such advancement enables companies to monitor their employees at their workplace with the objective of enhancing and improving performance, productivity, employee safety, engagement and mutual trust. Many companies believe that the use of technology aids in the area of surveillance will alter the behaviour of their employees for the better. It is expected that employees will be able to control the information and access they give to their employer. The reality is that employers expect a great deal of information about their employees, as well as easy access to their physical whereabouts. Employees are not surprised that their privacy is under threat, and they have taken this issue to court. Biometric information, cancer diagnosis information, and social media "likes"¹ have all been the subject of numerous lawsuits involving a wide range of infringements, from the use of biometric information to the protection of information related to personal matters (Kelly & Hays, 2018)², to employers' concerns with employees "liking" unsavoury content on social media even if it is after work hours and on their personal devices (Hyman, 2017)³, and to a now-common one of computer use at work for personal purposes (Bowcott & Rawlinson, 2017)⁴. The most commonly used methods of employee monitoring are the use of CCTV cameras, internet monitoring, email monitoring, keystroke monitoring, biometric devices, mobile tracking devices, active badges, GPS enabled location sensors, etc. Advocates of the electronic monitoring approach argue that monitoring benefits organizations, customers, and society (Truss et al., 2013; Ugwu et al., 2014). The assumption drawn at this point is that workplace surveillance hampers employee productivity and trust factors, which, on a microlevel, reflects

¹ Weber, John. "Should Companies Monitor Their Employees' Social Media?" Wall Street Journal, October 23, 2014, <http://www.wsj.com/articles/should-companies-monitor-their-employees-social-media-1399648685>.

² Kelly, K. D., Hays, B. I. 2018. Biometric time-clocks may be a ticking time bomb for employers. *Employee Relations Law Journal*, 43: 39-42.

³ Hyman, J. 2017. A legal firing for fire chief's fiery posts. *Workforce*. Retrieved from <https://www.workforce.com/2017/05/02/legal-firing-fire-chiefs-fiery-posts/>.

⁴ Bowcott, O., Rawlinson, K. 2017. Romanian whose messages were read by employer "had privacy breached." *Guardian*, September 5. Retrieved from <https://www.theguardian.com/law/2017/sep/05/romanian-chat-messages-read-by-employer-had-privacy-breached-court-rules>.

employee engagement issues at the workplace. Further, it is argued that privacy is a moral right, and while such surveillance and monitoring can be justified in some circumstances, there is a presumption against the infringement of privacy. To provide and develop an outline for such surveillance and monitoring for better workplace outcomes, the study looked at 3 angles related to monitoring:

1. Workplace Monitoring and Employee Behaviour
3. Workplace Monitoring and Trust Factor
4. Workplace Monitoring and Employee Engagement.

1. Workplace Monitoring

Monitoring is the systematic and routine observation of personal information for the purpose of management, control, safety, and security. In the context of the workplace, electronic monitoring means the observation and collection of employees' information using visible or invisible electronic devices or techniques, such as cameras, microphones, wire-tapes, tape recorders, and monitoring of computers and other web activities (Bennett and Robinson, 2000). Monitoring is a management tool used for ensuring the quality and productivity of goods and services in an organization and protecting against theft, fraud, legal liabilities, and inappropriate behaviour (Case and Young, 2002). The results of the survey conducted by HR Metrics and Analytics Summit also disclose that 80% of organizations are using electronic monitoring for recording and measuring employee data (HR Metrics & Analytics Summit, 2018). Over the past three decades, the use of electronic monitoring in the workplace has been enhanced. A survey of workers in Australia reveals that 80% of employees at work are under monitoring, 90% indicate certain sites are blocked, and 50% are informed that their email content is being observed (Holland, Cooper, & Hecker, 2015). These statistics show tremendous growth in the area of workplace monitoring. On the other hand, monitoring acts as an efficient management tool to identify good and bad performers and motivate the employees through feedback based on the information gathered (Miller & Weckert, 2000). Advocates of monitoring argue that use of the internet for personal purposes wastes time and reduces productivity. One of the main purposes of internet monitoring is to improve productivity by preventing or restricting the use of non-work-related websites, which cause wastage of time and company resources. However, the opponents claim productivity is negatively impacted because of the psychological and physical health issues caused by employee monitoring (Martin & Freeman, 2003). It is strongly believed that CCTV monitoring helps to prevent theft, fraud, and inappropriate behaviour in the workplace. Another significant argument in the form of CCTV monitoring is the purpose of safety and security of the employer, employee, and the entire organization (Chalykoff and Kochan, 1989). Based on the observation and review of various works, the following assumption has been made:

H1: There is a relationship between invasion of employee privacy and organizational citizenship behaviour.

H2: Electronic surveillance has an impact on the invasion of employees' privacy.

2. Workplace Monitoring and Trust (Privacy issues)

A person's privacy is the extent to which others have limited access to his or her personal information, intimacies in life, and thoughts, and can not only be referred to a person's body and thoughts, but also to his or her possessions too. According to Altman, privacy is defined as "selective control of access to oneself or to one's group" ("Privacy a Conceptual Analysis," 1976). Privacy in the workplace is the most important debatable issue of workplace monitoring. Many workers feel that monitoring invades their privacy and leads to serious issues, including a lack of trust. The opponents of monitoring claim that monitoring decreases the amount of control employees have over their own personal information through unrestricted access. In a

physical sense, privacy is a person's enjoyment of spaces from which others may be excluded and within which the person's activities are not readily monitored without his or her knowledge and consent. Unfortunately, many employees have a natural aversion to managers as a consequence of their negative experiences with managers in previous positions at other businesses. Earning employee trust, on the other hand, is a critical component of being a great leader in a successful company. It is the result of everyday practise and the many choices that leaders and managers make on a daily basis. This requires leaders to be aware of the everyday behaviours that either build or erode employee trust, especially during these times of uncertainty. The pandemic has brought in several changes in the way we work: WFH, which requires total trust in employees, but at the same time, a watch on their day at work, per se. Based on the observation and review of various works, the following assumption has been made:

H3: Workplace Monitoring and Surveillance had a direct relationship with the trust factor of employees and employers.

H4: Workplace surveillance leads to negative perceptions from employees and paradoxically weakens trust behaviour.

3. Workplace Monitoring and Employee Engagement

At no other point in history have companies had as many opportunities to assess and improve their workforce's effectiveness and efficiency during such times of uncertainty. While not all businesses have embraced accessible tools and technology, top businesses have benefited from new technologies that monitor productivity, sales, customer happiness, work flows, quality, and workplace interactions on a regular, if not real-time, basis. Yet, when it comes to measuring and monitoring employee engagement, the majority of businesses continue to use conventional survey methods for an annual or longer period. While these techniques have given a lot of information about the dimensions and effects of engagement, it is time to reconsider how we measure engagement and, more significantly, how the same digital technologies may be used to increase worker productivity, retention, and happiness. The development of modern human resource management theories has long been preoccupied with the question of how to improve performance outcomes through people management. It is only recently that interest in the parallel stream of research on the relationship between employee engagement and performance has grown, bringing the two together to suggest that engagement may be the mechanism by which human resource management practices influence individual and organizational performance. However, engagement has evolved as a contentious concept whose meaning is subject to 'fixing, shrinking, stretching, and bending'. As observed, definitions of engagement vary considerably, but quantitative evidence suggests that high levels of engagement are associated with high levels of performance, citizenship behaviour, and individual well-being. (Christian, Garza and Slaughter 2011; Soane 2013). Based on the work observed, the following assumption is made:

H5: Workplace Monitoring has a negative influence on employee engagement at workplace.

H6: Autonomy in the workplace is an essential ingredient of employee engagement.

2. Problem Statement

Surveillance is neither good nor bad, but context and specific settings make it so. From the existing literature, it is known that the advancement of technology has led to the use of more sophisticated workplace monitoring systems, which in turn causes issues with privacy perceptions of employees, affects the trust behaviour and engagement of employees at the workplace. The present research study fine tunes the balance between the quantitative and qualitative variables of surveillance practices, the relationship between workplace surveillance,

trust, and employee engagement during these times of uncertainty, and develops a model of privacy surveillance for increasing trust behaviour and an employee engagement framework.

3. Review: Overview of Studies

| Sl. No. | Area of work | Authors / Researchers | Year of Work / Published |
|---------|---|---|--------------------------|
| 1 | Defining privacy in employee health screening cases: Ethical ramifications concerning the Employee/Employer Relationship | Michele Simms | 1994 |
| 2 | Employee monitoring: Privacy in the workplace? | Jitendra M. Mishra and Suzanne M. Crampton | 1998 |
| 3 | Study calling for research on a greater variety of monitoring techniques | Stanton | 2000 |
| 4 | Non-work-related Internet usage, known more generally as Internet abuse | Siau et al., | 2002 |
| 5 | Electronic surveillance in the workplace | Samantha Lee and Brian H. Kliener | 2003 |
| 6 | Although organizational control decreases cyberloafing, perceived fear of formal punishment actually increases it. | Manrique de Lara et al. | 2006 |
| 7 | Employee engagement: The key to improving performance | Kompaso, S. M., & Sridevi, M. S. | 2010 |
| 8 | The roots of employee engagement: A strategic approach | Berens, R. | 2013 |
| 9 | Daily transactional and transformational leadership and employee engagement | Breevaart, K., et al | 2013 |
| 10 | Driving employee engagement: The expanded role of internal communications | Mishra, K., Boynton, L., & Mishra, A. | 2014 |
| 11 | Linking organizational trust with employee engagement: The role of psychological empowerment | Ugwu, F. O., Onyishi, I. E., & Rodriguez-Sanchez, A. M. | 2014 |
| 12 | Predictors of creative achievement: Assessing the impact of entrepreneurial potential, perfectionism, and employee engagement | Ahmetoglu, G., et al | 2015 |
| 13 | Effective employee engagement in the eorkplace | Schrita Osborne & Mohamad S. Hammoud | 2017 |
| 14 | Perceptions of Internet-of-Things Surveillance by Human Resource Managers | Gundars Kaupins and Malcolm Coco | 2017 |

Table 1. Contribution to the Existing Literature

4. Research Questions

1. Instead of serving as a tool for law enforcement, how might electronic monitoring benefit employers by enhancing employee engagement and profitability?
2. How may electronic surveillance methodology and workplace adoption philosophy contribute to an increase in employee trust?
3. How can the electronic surveillance system and practise be embraced gracefully, and how can the system be used to create a more effective and purposeful workplace?

5. Objectives of the Study

1. To critically examine, review and analyze the current methodology, practices, and framework of Workplace Surveillance, Building Trust framework, and Employee Engagement practices.
2. To analyze and evaluate impact, influence, and outcome of different variables (independent, dependent, moderating) on employee surveillance practices, leading to trust behaviour and employee engagement.
3. To develop an outline and suggest a conceptual framework for best practices in employee surveillance, building trust behaviour and employee engagement in times of uncertainty.

6. Research Design: Methodology

Design: The snowball technique was adopted. The purpose was to include those companies that have adopted the workplace surveillance practice.

Samples: The sample inclusion was from chosen companies, and employees who faced workplace issues due to surveillance were part of the study. Since, the study focused on qualitative data, the inclusion was restricted to 50 employees, with representatives from all the departments and levels.

Organization:⁵ Information and technology organizations were part of the study.

Tool: The questionnaire includes 15 questions on a 6-point scale. The six-point response scale was adopted to capture the severity and extreme points of the responses of the samples. The 24-item OCB scale was also used.

7. Results

1. The majority of employees feel it is not appropriate for employer to routinely monitor their behaviour.
2. The majority of employees feel it is not appropriate for employers to routinely monitor their behaviour at work using technology. While looking at appropriate and inappropriate, most tend towards inappropriate.
3. While employees were at the shoes of their managers, the majority felt it was not appropriate to monitor employees' behaviour.
4. Employees on average believe that monitoring leads to employee and company security.
5. The majority believe that monitoring reduces employee engagement & disconnects them from their jobs.
6. Among total responses, an average person tends to trust employer for gathering information about them.
7. Average employees' responses lean towards trusting their employer to monitor them at work.
8. Results are average on both ends, that employer monitoring may or may not lead to a positive outcome.
9. Results are average on both ends, that monitoring may or may not lead to employee satisfaction.
10. Results are average on both ends, specifying employer monitoring may or may not lead to greater employee performance and output.
11. The majority feel that due to employer monitoring, they may not change their behaviour.
12. A majority expressed that their employer routinely monitors them using technology.
13. The majority expressed that employer monitoring leads to feelings of stress and burnout.
14. The majority expressed that employers' monitoring of their behaviour is a breach of contract.

⁵ Due to organisation policy and non disclosure agreement, the names of the company are not mentioned. However, for larger discussion, a written communication for knowing about the organisation inclusion, author can be contacted.

15. A majority expressed that employer monitoring leads to the blocking of personal sites. Overall, the results of the study indicate that monitoring and surveillance are best practices, but the methodology and objective with which employers undertake them are not appreciated.

7.1. OCB Scale

The OCB scale was used with 5 point responses. When it comes to altruism, most employees are interested and tend to support their coworkers during times of uncertainty. While on the conscientiousness factor, employees are capable of exercising self-control and self-discipline in order to seek and finally accomplish their goals. Furthermore, they have a desire to perform their work or responsibility properly and thoroughly. In terms of the qualities and behaviour of sportsmanship attitude, employees expressed that they are fair and display generous behaviour or treatment to other fellow employees, especially in times of uncertainty. While approach and showing politeness in one's attitude and behaviour towards others is what is required, the majority of employees had such an outcome in times of uncertainty. While scoring on the civic virtues, the majority of responses tend toward agreeing that they expressed their duty and responsibility towards the organization and fellow employees. The assumptions in study go along with results of the study.

Conclusion

While the surveillance literature provides several descriptions of workplace monitoring, there is a lack of concrete measures for tracking its development over the years. Even if there is still a visceral sensation that surveillance is intrusive or sinister, the debate over it takes place in the context of descriptions rather than in the context of time. Some of this can be attributed to new technology that makes monitoring more efficient and cheaper. Surveillance in the workplace can theoretically serve a protective function for both employers and employees, protecting them from time theft, for example, but employees are more vulnerable to exploitation than employers because they lack the social and financial capital to sue large employers who abuse time sheets. However, there is a price to pay for this level of privacy (Singer, 2014).⁶ It's at this price that we begin to consider the broader costs or values of surveillance and the ramifications for worker protections and lack of surveillance. A worker's competence or lack of care for their safety and protection may be an indication of how confident you are in their abilities. How can we measure the level of safety that a monitoring system provides to its stakeholders? Coercive surveillance and performance-enhancing/protection-enhancing surveillance are constantly blurred in labour relations, especially when work expands into multiple spaces and sites that are neither entirely private nor explicitly employer-controlled.⁷

9. Implications of Study Results

Because of employees' high expectations of privacy at work, employers are enforcing strict computer use regulations. It is important to weigh the potential for diminished productivity, the temptation to divert resources from official work, and the legal repercussions for the company in making this decision. As a result, these restrictive regulations may actually backfire. In order to develop a long-term competitive advantage, organizations must be aware of the privacy concerns of their employees when employing performance assessment. Companies may lose talented workers if they lack faith in their bosses. Employers must be able to tell the difference between workplace surveillance and actual monitoring. It is possible for employers who use monitoring technology to cultivate a sense of distrust in the workplace. An employee who loses

⁶ Singer, Natasha. (2014). "In the Sharing Economy, Workers Find Both Freedom and Uncertainty." *The New York Times*, August 16, 2014. <http://www.nytimes.com/2014/08/17/technology/inthe-sharing-economy-workers-find-both-freedom-and-uncertainty.html>

⁷ Metcalf, Jacob. "When Verification Is Also Surveillance," *Data & Society: Points*, February 27, 2018, <https://points.datasociety.net/when-verification-is-also-surveillance-21edb6c12cc9>.

faith in his or her boss is less likely to be productive, while organization need to ask the question- What is the right line to draw for an organization? Legally, companies have a wide range of options when it comes to workplace surveillance. Even arguing that privacy should take precedence over management rights seems useless. In the past, court cases have favoured the interests of corporations over those of individuals. In spite of this, organizations recognize that some activities have a limited amount of time to invest in them.

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Annexure - The Questionnaire

1. How appropriate do you think it is for an employer to routinely monitor its employees' behaviour?
2. How appropriate it is for an employer to routinely monitor employees at work using technology?
3. If you were a Manager / Section Head / supervisor and you had the ability to do so, how appropriate would you think to monitor your employees using technology?

4. How appropriate do you think that monitoring leads to security of employees and company
5. How appropriate do you think that monitoring leads to lack of engagement at workplace?
6. How much do you trust your employer with information gathered about you at work ?
7. How much do you trust your employer to monitor you appropriately at work?
8. How much do you trust your employer monitoring leads to positive outcome?
9. How much do you trust employer monitoring leads to greater employee satisfaction?
10. How much do you trust employer monitoring leads to greater employee performance and output ?
11. How likely would you be to change your behaviour if you knew your employer was monitoring you?
12. How likely do you think it is that your employer routinely monitors you using technology?
13. How likely do you think employer monitoring you leads to stress and burnout?
14. How likely do you think employer monitoring is not the breach of contract?
15. How likely do you think that employer monitoring leads to blocking of personal sites visit?

Results - Scale

1. Questions from 1-5, the response scale was: net appropriate, very appropriate, somewhat appropriate, net not appropriate, not so appropriate, and not appropriate at all.
2. Questions from 6-10, had scale of net trust, very much, somewhat, net don't trust, not much, and not at all.
3. Questions from 11-15, has the scale of net likely, very likely, somewhat likely, net not likely, not so likely, and not likely at all.

| Question 1 | 0 | 9 | 24 | 3 | 12 | 2 |
|------------|----|----|----|----|----|----|
| 2 | 0 | 2 | 14 | 16 | 17 | 1 |
| 3 | 0 | 1 | 18 | 12 | 19 | 0 |
| 4 | 0 | 2 | 19 | 16 | 13 | 0 |
| 5 | 11 | 19 | 10 | 3 | 6 | 1 |
| 6 | 8 | 21 | 18 | 1 | 1 | 1 |
| 7 | 0 | 6 | 15 | 18 | 10 | 1 |
| 8 | 0 | 0 | 18 | 11 | 19 | 2 |
| 9 | 0 | 1 | 12 | 4 | 25 | 8 |
| 10 | 0 | 2 | 10 | 4 | 19 | 15 |
| 11 | 6 | 5 | 14 | 15 | 9 | 1 |
| 12 | 9 | 30 | 11 | 0 | 0 | 0 |
| 13 | 12 | 22 | 16 | 0 | 0 | 0 |
| 14 | 0 | 5 | 15 | 7 | 18 | 5 |
| 15 | 2 | 16 | 32 | 0 | 0 | 0 |

Table 2. Results of Responses on Scale

| Age Group | Sex wise | Education | Level/ Position |
|------------|-------------|---------------|---------------------|
| 20-29 - 6 | Male - 25 | UG - 1 | Manager - 27 |
| 30-39 - 39 | Female - 25 | Graduate - 38 | Junior Manager - 4 |
| 40-49 - 5 | | PG - 11 | Deputy Manager - 8 |
| | | | Senior Manager - 11 |

Table 3. Demography of Respondents Inclusion

| Device Used | n: 50 |
|--|-------|
| Misuse or Private use of Office Phones | 20 |
| Voice Mail Messages | 16 |
| Video Surveillance | 33 |
| GPS | 27 |
| Emerging Surveillance Technology | 47 |
| Track Company Vehicles | 3 |
| Monitor Employee ID/Smart cards | 3 |
| Fingerprint Scans | 1 |
| Facial Recognition | 8 |

Table 4. How companies monitor through surveillance

Q1 - 5 Altruism; Q 6 - 10 Conscientiousness; Q 11 - 15 Sportsmanship; Q 16 - 20 Courtesy; Q 21- 24 Civic Virtue
1 - Strongly agree; 2 - Agree; 3 - Neither Agree nor Disagree; 4 - Disagree; 5 - Strongly Disagree

| Question 1 | 1 | 2 | 3 | 4 | 5 |
|--|----|----|----|----|----|
| 1 I help others who have heavy workloads | 5 | 9 | 20 | 8 | 8 |
| 2 I am always ready to lend a helping hand to those around him/her | 8 | 20 | 10 | 6 | 6 |
| 3 I help others who have been absent. | 12 | 14 | 10 | 8 | 6 |
| 4 I am willing to help others who have work related problems | 15 | 15 | 10 | 7 | 3 |
| 5 I help orient new people even though it is not required | 20 | 10 | 5 | 10 | 5 |
| 6 I believe in giving an honest day's work for an honest day's pay | 7 | 8 | 10 | 15 | 10 |
| 7 My attendance at work is above the norm. | 6 | 18 | 10 | 8 | 8 |
| 8 I don't take extra breaks | 23 | 11 | 7 | 7 | 2 |
| 9 I Obey organization rules and regulations even when no one watching | 12 | 18 | 8 | 6 | 6 |
| 10 I am one of most conscientious employees | 10 | 12 | 16 | 8 | 4 |
| 11 I am the classic "squeaky wheel" who always needs greasing | 8 | 8 | 23 | 5 | 6 |
| 12 I consume a lot of time complaining about trivial matters | 6 | 11 | 18 | 10 | 5 |
| 13 I tend to make "mountains out of molehills | 9 | 10 | 16 | 8 | 7 |
| 14 I always focus on what's wrong, rather than the positive side | 13 | 14 | 10 | 9 | 4 |
| 15 I always find fault with what the organization is doing | 12 | 13 | 5 | 14 | 6 |
| 16 I try to avoid creating problems for coworkers | 5 | 4 | 14 | 15 | 12 |
| 17 I consider the impact of my actions on coworkers | 14 | 12 | 10 | 6 | 8 |
| 18 I don't abuse the rights of others | 8 | 6 | 15 | 10 | 11 |
| 19 I take steps to try to prevent problems with other workers | 7 | 10 | 14 | 13 | 6 |
| 20 I am mindful of how my behavior affects other people's jobs | 12 | 13 | 16 | 6 | 3 |
| 21 I keep abreast of changes in the organization | 11 | 7 | 8 | 13 | 11 |
| 22 I attend meetings that are not mandatory, but are considered important | 20 | 9 | 5 | 3 | 3 |
| 23 I attend functions that are not required, but help the organization image | 13 | 14 | 10 | 6 | 7 |
| 24 I read and keep up with organization announcements, memos, and so on | 12 | 17 | 10 | 8 | 3 |

Table 5. Results on OCB Scale

Emotional Labour on Rational Platforms: Evidence from India

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Abstract

The new world of work characterized by increased autonomy and flexibility has led to a rise in the gig economy. This article studies the work undertaken by delivery partners engaged with food ordering and delivery platforms namely Zomato and Swiggy with the help of Labour Process Theory to understand the emotional labour that delivery partners engage in concerning the feedback mechanism and rating standard they are exposed to while rendering their services. Delivery partners indulge in confirming emotional labour with the help of surface acting by which they showcase behaviour and values expected from them, to stay employable on the platforms with the increased power in the hands of the customer.

Keywords: Gig economy, Platform economy, Emotional Labour, Labour Process Theory

Enterprise Social Networking Platform Usage for Communicating Within Organization and its Influencing Factors

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Abstract

The research paper aims to outline the key dimensions of Enterprise Social Networking platform usage for communication and empirically validate the various organizational and individual factors that influence such usage. Data from 387 full time employees working in five IT companies in India were collected through an online survey. SPSS 21 software was used to test the validity of hypothesized model. The findings indicate that organizational encouragement and employee demographics influence the intensity of usage of ESN platforms in organizations. Difference was found in the usage patterns of the platform for its information sharing dimension based on gender. The paper augments the literature by establishing the influencing role of gender, age, experience and top management support in employees' usage of ESN platform.

Keywords- Enterprise Social Networking Sites, Enterprise 2.0, Information management, Enterprise Social Media, organizational communication, communication dynamics, social communication technology, human dynamics at workplace, Social media at workplace.

Introduction

Enterprise Social Networking brings substantial benefits to the organizations in the form of knowledge sharing (Connelly & Kelloway, 2003), increased two way communication (Lin, 2006), more inter departmental collaboration (Lin & Lu, 2011), innovation (Mäntymäki & Riemer, 2016), problem solving (Razmerita, Kirchner & Nabeth, 2014) increased employee's social capital (Makkonen & Virtanen, 2015) and even improved job performance (Kwahk & Park, 2016). Effective use of ESN platforms may improve the productivity of knowledge workers by 20-25% (Cardon & Marshall, 2015). Such collaborative environment support HR initiatives to promote employee management, interaction and engagement of employees. These technologies have consequences for HR in the form of "delivering different employee initiatives, seeking real-time feedback, track progress by tagging content, and provide status updates to colleagues" (Bell, 2012).

Research Gap and Research Problem

Although relatively a new phenomenon, owing to the broad scope of ESN, studies focused on this topic are regularly being published and the literature available on ESN is growing steadily. Researchers have attempted to explain individual behaviour towards adoption of new technology through theoretical perspectives such as, Technology Acceptance model (TAM) (Davis, 1989), Network Externalities (Katz & Shapiro, 1986), Innovation Diffusion Theory (Rogers E.M., 2003) and Users Gratification Theory (Rubin, 1985).

Utilizing these theories, empirical studies focusing on determining the antecedents of Social media have been conducted. These studies range from investigating the contributing factors of heavy social media use (Armstrong et al., 2000), influence of personality on social media use (Correa et al., 2010), (Ross et al., 2009), (Kuss & Griffiths, 2011) to role of intrinsic and extrinsic motivations in the adoption of Social Media platforms (K. Y. Lin & Lu, 2011). However, only a few have looked into the influencing factors with focus on Social Media at the enterprise level (Tobias H. Engler & Paul Alpar, 2016), (Chai, Sangmi, Sanjukta Das, 2011), (Liu & Bakici, 2019), (Rode, 2016). The few that do are either qualitative studies based on a small sample, are based on public social media platforms or are case studies (A. and K. R.

Richter, 2009) (A. Richter & Riemer, 2013), (Holtzblatt, L., Damianos, L., 2010), (Joan DiMicco, David R. Millen & Casey Dugan, Beth Brownholtz, 2008). Owing to this gap in literature and to the importance of a large active user base for the optimum utilization of ESN platforms, organizations must look into what influences the usage and the usage intensity.

Objectives of the study

In the present study, we address the following research questions: 1) does organizational encouragement influence employee's use of ESN platforms? and 2) How do the individual demographic factors including age, experience and gender influence the use of ESN platforms? Based on these objectives 3 major hypothesis were framed:

H1o: There exists no significant association between the organizational encouragement and usage of ESN platforms among employees.

H2o: Employees with less than 1 year of work experience in the current organization use ESN platforms with the same intensity as the more experienced ones.

H3o: Employees whose age is less than 30 years use ESN platforms with the same intensity as the older employees.

H4ao: There exists no significant difference between the male and female employees in terms of their usage intensity of ESN platforms for information sharing in the organization.

H4bo: There exists no significant difference between the male and female employees' usage of ESN platforms for connectedness in the organization.

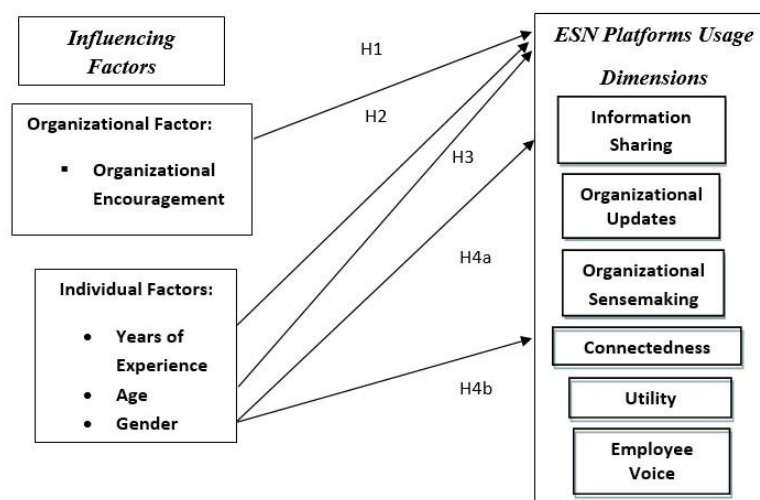


Figure 1: Hypothetical Model

Methodology

Questionnaire Development

Questionnaire was developed for the purpose of the study as a data collection tool. The questionnaire was developed in different phases. It started with identifying dimensions of ESN Usage and the list of statements from the literature review. This has been followed by discussion with the senior employees in IT sector companies to further explore the dimensions of ESN usage. The content validity of the questionnaire thus developed was performed by showing it to academic experts and industry practitioners. The questionnaire has been further tested during the pilot survey. After the pilot survey the questionnaire was modified in terms of language by adapting the questions to the IT sector employees. Also, few statements have been removed on the basis of pilot study. The final questionnaire after these modifications was used for data collection in order to test hypotheses and to fulfil the objectives framed in the research.

Research Methods and Data Collection

To test the hypotheses and to establish relationships among the variables, IT sector was selected for the present study. Organizations in the IT Sector are the pioneers not only in creating but also in deploying ESN platforms. A questionnaire was distributed to nearly 800 employees in the select companies. The responses were received from the 387 employees (196 identified as users and 191 as non- users later) working at the lower and middle level in the selected IT sector organisations. Of the 800 questionnaires that were distributed initially the researcher received 468 filled questionnaires, but only, 387 questionnaires were complete in all respects and were subjected to statistical analysis after removing the incomplete responses. Data was collected from the employees working with select companies in IT sector. Survey method was used for the collection of the primary responses.

For the purpose of this study, respondents were classified into high, moderate, low and no users of ESN Platforms based on the frequency of their usage level of the platform. Respondents identified as using the ESN platform more than once a day to more than once a week were grouped into “Users” (196 or 50.6%). Employees using the platform once a month or rarely were grouped into the “Non users” (191 or 49.4%) category. In terms of gender, 66.1% of the sample were male and remaining 33.9% were female. With respect to age group, sample was distributed in three groups i.e. less the 30 years (29.7%), 30 to 45 years (51.9%) and above 45 years (18.3%).

On the basis of the work experience of the respondents, they ranged from less than 1 year (26.4%), 1 to 2 years (19.6%), 2 to 5 years (24.8%) and more than 5 years (29.2%).

Measures

Data was collected for the following variables for the present study:

Information sharing- The dependent variable, IS was measured using four item scale. Typical items in the scale include, “People use ESN to post useful information related to skills and knowledge that they possess”, “People here use ESN to provide the answer to someone’s question themselves or by directing them to the right source”. Cronbach’s alpha = 0.891 thus, proving reliability of the scale. CR value of 0.892 and estimated value of AVE found to be 0.674 together establish the convergent validity. AVE estimate 0.674 is greater than MSV estimate 0.578 indicating presence of Discriminant validity.

Organizational Updates- The dependent variable, OU was measured using three item scale. Typical items in the scale include, “Management regularly posts news, announcements and updates about various things on ESN platform”. Cronbach’s alpha = 0.873 thus, proving reliability. CR value of 0.874 and estimated value of AVE found to be 0.698 together establish the convergent validity. AVE estimate 0.698 is greater than MSV estimate 0.517 indicating presence of Discriminant validity.

Organizational Sensemaking- The dependent variable, OS was measured using three item scale. Typical items in the scale include, “I can interpret the meaning both explicit and implicit of the messages posted by management on ESN”. Cronbach’s alpha = 0.858 thus, proving reliability. CR value of 0.859 and AVE found to be 0.670 together establish the convergent validity. AVE estimate 0.670 is greater than MSV estimate 0.557 indicating presence of Discriminant validity.

Connectedness- The dependent variable, C was measured using five item scale. Typical items in the scale include, “ESN gives me an opportunity to discover people with similar interests”, “ESN gives me an opportunity to make friends”. Cronbach’s alpha = 0.918 thus, proving reliability. CR value of 0.919 and estimated value of AVE found to be 0.695 together establish the convergent validity. AVE estimate 0.695 is greater than MSV estimate 0.578 indicating presence of Discriminant validity.

Utility/ Problem Solving- The dependent variable, U was measured using five item scale. Typical items in the scale include, “ESN gives me an opportunity to connect with people who would be of help in solving an issue”, “ESN gives me an opportunity to find people who know something about a particular topic”. Cronbach’s alpha = 0.902 thus, proving reliability of the scale. CR value of 0.903 and estimated value of AVE found to be 0.651 together establish the convergent validity. AVE estimate 0.651 is greater than MSV estimate 0.464 indicating presence of Discriminant validity.

Employee Voice- The dependent variable, EV was measured using four item scale. Typical items in the scale include, “ESN gives me an opportunity to post ideas, feedback and suggestions to organizational announcements made on ESN”, “My responses and comments are responded to by the management”. Cronbach’s alpha = 0.885 thus, proving reliability. CR value of 0.886 and AVE found to be 0.661 together establish the convergent validity. AVE estimate 0.661 is greater than MSV estimate 0.461 indicating presence of Discriminant validity. All six scales were on five-point Likert scale with options ranging from 1 (strongly disagree) to 5 (strongly agree).

Organizational encouragement- Conceptualized as, perceptions about management’s support or the lack of, OC was treated as a dichotomous variable measured on nominal scale with “yes” or “no” response.

The results indicate that the square root of the AVE estimates for all the dimensions are found to be greater than their correlation with other dimensions as indicated in Table 1 establishing discriminant validity of the measurement scale.

Table 1: Fornell Larcker’s discriminant validity criteria- ESN platform usage dimensions

| | Organisational Sensemaking | Information Sharing | Organisational Updates | Connectedness | Utility | Employee Voice |
|----------------------------|----------------------------|---------------------|------------------------|---------------|--------------|----------------|
| Organisational Sensemaking | 0.819 | | | | | |
| Information Sharing | 0.739 | 0.821 | | | | |
| Organisational Updates | 0.684 | 0.719 | 0.836 | | | |
| Connectedness | 0.746 | 0.760 | 0.700 | 0.833 | | |
| Utility | 0.649 | 0.630 | 0.633 | 0.681 | 0.807 | |
| Employee Voice | 0.658 | 0.627 | 0.679 | 0.679 | 0.572 | 0.813 |

The statistical fitness of the measurement model is shown in Table 2 below:

Table 2: Statistical fitness of the measurement scale- ESN platform usage

| Goodness of fit indices | CMIN/Df | GFI | CFI | TLI | RMSEA |
|-------------------------|-------------|---------------|---------------|---------------|----------------|
| Estimated Value | 1.619 | .862 | .957 | .950 | .056 |
| Required Value | Less than 3 | More than 0.8 | More than 0.9 | More than 0.9 | Less than 0.08 |

The following table indicates the estimated value of Harman Single Factor Method to measure Common Method Bias:

Table 3: Harman single factor method for common method bias testing- ESN platform usage

| Component | Initial Eigen values | | | Extraction sums of squared loadings | | |
|-----------|----------------------|---------------|--------------|-------------------------------------|---------------|--------------|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 12.204 | 49.200 | 49.200 | 12.204 | 49.20 | 49.20 |
| 2 | 1.682 | 7.008 | 56.208 | | | |
| 3 | 1.433 | 5.969 | 62.277 | | | |
| 4 | 1.149 | 4.788 | 67.065 | | | |
| 5 | .985 | 4.106 | 71.271 | | | |

Extraction Method: Principal Component Analysis

Data Analysis and Results

For H1, it was found using chi square that organizational encouragement is associated with ESN usage (p is less than equal to 0.000) and the strength of association is moderate (Cramer's $V = 0.482$). This means there is significant association between the organizational encouragement and use of ESN platforms by employees.

For H2, using one Way ANOVA it was found that for four out of six dimensions of ESN usage i.e. information sharing ($p = 0.000$), organizational updates ($p = 0.026$), organizational sensemaking ($p = 0.015$), and employee voice ($p = 0.000$) for new employees' usage is higher than the more experienced ones. Therefore, H2 is supported and the null hypothesis can be rejected.

For H3, one Way ANOVA indicate that for all six dimensions of ESN usage namely information sharing ($p 0.000$), organizational updates ($p 0.003$), organizational sensemaking ($p 0.000$), connectedness ($p 0.000$), utility ($p 0.002$) and employee voice ($p 0.000$), the probability value of f test is found to be less than 5% level of significance. The results provide full support for H3 and the null hypothesis can be rejected.

Under H4a, the results of independent sample t test indicate that the probability value of t statistics for information sharing ($p 0.000$) as the independent variable is found to be less than 5% level of significance and the mean (SD) of male employees (p value .777) is higher than that of female employees (.903), hence it can be rejected. For H4b, the p value of t statistics for connectedness (p value 0.060) and the similar levels of mean score of male and female employee's mean score for connectedness using ESN platforms indicate that the male employees in the IT sector organizations are using ESN Platforms for connectedness purpose similar to their female counterparts. Hence we fail to reject H4b.

Implications of the Study

The findings of this study have several implications for better utilization of the ESN platform. First, management can harness the benefits of deployment of such a platform through active involvement of the top management on the ESN platform. Management can indicate encouragement in the form of regular posts from organizational leaders and timely response to contribution from employees so employees see value in investing their time on social media. Second, based on the findings of this study, organizations can consider making ESN a formal part of new hires socialization program as part of which, their email contact list should be synced with the profiles on the ESN platform. Employees should be encouraged to contribute

posts (work related / non work related), share information and experiences and network with people from across the organization. Third, observing the popular use of ESN among men and women alike, for connecting socially, social media manager can create more avenues for people to connect more. It can be accomplished for example, by having frequent events and talent shows and running a hashtag, organizing meet ups etc. Fourth, management should target the employees in the age group of below 30 years to send customized posts that may interest them and trigger response. In a nutshell, rather than focusing entirely on the technological features, user and usage should be the focus of such implementation. To leverage the aforesaid returns, social media managers should devise a strategy for social media after carefully taking into account the various factors that influence use.

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Appeal Type and Assertive Messaging: Role of Product Involvement in Sustainable Product Advertisement

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Abstract

Based on elaboration likelihood model (ELM), the current research investigates the effectiveness of the benefit appeal type (egoistic/altruistic) in persuasion messages for sustainable consumer products, depending on the product involvement. Further, it aims to test the moderating effects of message assertiveness in the relationship between benefit appeal type and product involvement. The study contributes to the field in several ways. First, while consumer's green involvement has been investigated frequently in literature, very few studies have looked at product involvement. Second, while emotional persuasion appeals as a nudge for sustainable consumption has been investigated in previous studies, the current paper also investigates the role of assertiveness of the persuasion message with respect to both altruistic and egoistic appeals. Third, the current study is one of the very few studies to test the effectiveness of the appeals across utilitarian and hedonic categories of sustainable consumer products. Fourth, it is also one of the very few to look into the role of product involvement both in terms of level of product importance and enduring involvement.

Four studies were conducted across utilitarian and hedonic product categories. Study 1 (n=210) and 2 (n=173) show that when a sustainable product is low on involvement, consumers are more likely to be persuaded by an egoistic appeal. For high involvement, the difference is muted. Study 3 (n=250) shows that an assertive appeal works better for products low on involvement while non-assertive appeal is more effective in case of high involvement products. Study 4 (n=410) shows that an assertive egoistic appeal is most effective when the product is low on involvement, while a non-assertive altruistic appeal is most effective when the product is high on involvement.

Our research corresponds to the growing interest among businesses, policy makers and environmentalists towards the steps to promote sustainable consumption behavior. With the constantly observed attitude-intention gap in green product consumption and the need of the hour to make a shift to more sustainable means, it is pertinent to understand effective ways of promoting sustainable consumer goods (utilitarian and hedonic).

Keywords: sustainable consumer products, appeal type, product involvement, message assertiveness, green advertisement.

Effect of Social Cause and Brand on Purchase Intention in Cause-Related Advertisement

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Abstract

In cause-related marketing, consumers are involved in supporting a social cause by buying the brands supporting that cause. Need is felt for identifying the effect of cause-related advertisement on consumer purchase intention. The purpose of this study is to examine the mediating role of brand and cause in the relationship of Cause-related advertisement and consumer purchase intention. The study is cross-sectional and the primary data is collected from 300 respondents using a structured questionnaire which is based on a five-point Likert scale. Two Cause-related advertisements (video) are shown to the respondents to make them understand the concept of Cause-related advertisement. Structural equation modeling through the Smart PLS-III tool is used to measure the relationship between various variables in the proposed model. The results of the study show that cause-related advertisement significantly affects the brand and the social cause attributes. The brand and the social cause positively affect the purchase intention. The direct effect of cause-related advertisement on purchase intention is low as compared to the indirect effect through brand and social cause. This signifies that brand and social cause acted as strong mediators in the study. The results of this study show that cause-related advertisements can act as a very powerful tool for marketers and advertisers in improving sales and building strong brand equity. It can help them to design advertisement and promotion strategies by incorporating the social cause advertisement in it. Marketers may also benefit from the outcomes of this study in enhancing brand awareness, and earning goodwill for the company. Thus, cause-related advertisement helps in differentiating and giving a competitive edge to the brand over its competitors.

Keywords - Corporate Social responsibility, cause-related marketing, cause-related advertisement, social cause.

Impact of Power on trust, affective commitment, and environmental munificence:**A study of marketing channels***Sushant Kumar¹ & Anjali Verma²**¹Indian Institute of Management, Raipur & ²Indian Institute of Technology (ISM), Dhanbad***Abstract**

The study aims to explore the impact of power namely coercive, expert, reward, referent, and legitimate on trust, affective commitment, and environmental munificence. A complex model is conceptualized and investigated by collecting data from 217 channel members. Findings indicate that expert, legitimate, and referent power are associated with affective commitment whereas expert, referent, and reward powers are associated with environmental munificence. Also, expert power and affective commitment are associated with trust. Further, affective commitment mediates the association between expert power, referent power, and trust. Environmental munificence mediates the association between expert power and trust. The study contributes to the literature of channel management and to the general understanding of industrial marketing practices.

Keywords: Social power; channel management, trust, affective commitment, environmental munificence

How Green is Your Life: Towards a Sustainable Consumption Label Index

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Abstract

In a scenario of increasing globalization, sustainable development has emerged as an attractive issue for organizations. Monitoring sustainability is essential for decision-making and management of organization activities. Evaluation can be performed using indices or a set of indicators. In addition to increasing organizational effectiveness and improving competitiveness, customer service and profitability, it is also a crucial influence on the development of business sustainability. This paper proposes a sustainability index that provides companies with information about their level of social and environmental sustainability. Based on a PPA (People-Planet and Animal) framework, 17 indicators are developed which are assessed on 5 cross elements with the help of 85 elements. A total of 425 data points each are collected for two of the largest fashion brands i.e., H&M and Zara. The results are presented and discussed in light of the objectives.

Keywords: Sustainability, Sustainability Index, Sustainability Development, Sustainable Consumption, Sustainable Label

Introduction

Sustainability and green initiatives are the current trend across industries and continents (Harik et al., 2014). However, its definition is still ambiguous. As per WCED (1987), it is defined as development that meets the needs of the present without compromising the ability of future generations. However, based on a review on the sustainability concept, there is no consensus regarding the operational content of sustainable (Fischer et al., 2007). Sustainability is a normative notion that indicates the way how humans should act towards nature, and how they are responsible towards one another and future generations (Baumgärtner and Quaas, 2010). The broad definition of sustainable development gives rise to multiple interpretations (Tanguay et al., 2010). Although interpretation of the concept of sustainability varies widely, there is an agreement on the need to use sustainability indicators for measuring its changes (Hayati et al., 2006; Bell & Morse, 2008; Pourzand & Bakhshoodeh, 2014; Bockstaller et al., 2015; de Olde et al., 2016; Merli et al., 2018; Janová et al., 2019).

Sustainability assessment has been carried out across sectors and multiple indicators have been created to assess performance of organisations. Such assessments through distinct indicators also highlight the companies that are committed to social and environmental responsibility. Furthermore, current concerns about global food security, climate change, animal welfare, biodiversity, and access to natural resources emphasize the need for sustainable assessment through indicators (Pretty et al., 2010; Karami et al., 2017; De Luca et al., 2018; Bijani et al., 2019; Valizadeh et al., 2019). A wide range of indicator-based tools have been developed to measure sustainability (Keulen et al., 2005; FAO 2013; Marchand et al., 2014; de Olde et al., 2016; Martín-Gamboa et al., 2017). However, the tools differ one another in terms of the purpose of measurement, spatial and temporal scopes, and the level of stakeholder engagement (Binder et al., 2010; Schader et al., 2014; de Olde et al., 2016). Despite the remarkable development of 'sustainability' as a concept over the past decades, this concept has still remained a challenge; besides, its application/implementation, it has not been developed yet (Lee & Park, 2020). However, there is a pressing need for a composite index, which also minimises possible biases of same-set indicator indices, despite serving only as a benchmarking tool and not as policy initiators (The Organisation for Economic Cooperation and Development – OECD 2008).

Existence of a sustainability measurement index is specially valued in several respects: (1) it practically develops the discourse of sustainability through sustainability measurement in terms of economical, social and financial standards. (Hayati et al., 2010); (2) it increases understanding about the nature of indicators and the need for them (de Ole et al., 2016); (3) it enforces researchers, program planners, decision-makers, farmers, and other stakeholders to deal more practically with the design and validation of indicators (Rigby et al., 2001; Hayati, 2017). In other words, despite the extensive interest in the development and the use of indicators and indicator-based tools for measuring sustainability, very little effort (Meul et al., 2008) has been made in the field of their validation (Rigby et al., 2001; Montoya et al., 2020). The main purpose of this study is to develop and validate a sustainability measurement index by developing a metrics for measuring sustainability; more specifically, an index to assess sustainability promises of organisations. Based on a three-step qualitative-quantitative method, a PPA (People-Planet and Animal) framework is proposed, which assesses the sustainability of organisations through a range of elements and cross elements.

The article is divided into six parts. Section 2 presents the theoretical framework with regards to sustainability index. Section 3 highlights scale development methodology and conceptual framework. Data analysis is carried out in Section 4. Furthermore, conclusion and limitations along with future scope are explained in Section 5 and 6.

Theoretical Framework

Today's sustainability paradigm typically is conceptualized around the triple bottom line or the three pillars perspective i.e. People, Planet and Profit (Zimmer and Ha, 2017). Furthermore, there are many proposed sustainability assessment frameworks with a great variety of indicators and units. However, there is no perfect method to measure sustainability (Sabiha et al., 2016). In addition, sustainability frameworks are too sparse and each offers a unique insight into what constitutes a comprehensive sustainability assessment framework, with no particular one achieving a consensus (Harik et al., 2015). As per Harik et al (2015) indices for a sustainability index may vary between sectors, industries, and economies at large. The key point is, the relative importance of proper selection, justification and weighing of factors, which are used to develop the index (Leachman and Pegels 2005). Table 1, indicates few proposed sustainability assessment frameworks developed over time, with a great variety of indicators and units.

| S.No | Framework Name | Developed By | Year | Dimensions/Indicators |
|------|-------------------------------|----------------|------|---|
| 1 | SDG Index Framework | United Nations | 2020 | SDG1: End Poverty SDG2: Zero Hunger SDG3: Good Health and Well-Being SDG4: Quality Education SDG5: Gender Equality SDG6: Clean Water and Sanitation SDG7: Affordable and Clean Energy SDG8: Decent Work and Economic Growth SDG9: Industry, Innovation and Infrastructure SDG10: Reduced Inequalities SDG11: Sustainable Cities and Communities SDG12: Responsible Consumption and Production SDG13: Climate Action SDG14: Life Below Water SDG15: Life on Land SDG16: Peace, Justice and Strong Institutions SDG17: Partnerships for the Goals |
| 2 | Sustainable Development Index | Hickel | 2020 | Ecological |

| | | | | |
|----|--------------------------------|-------------------------|------|---|
| 3 | Holistic sustainability index | Harik et al | 2014 | Social Economical Environmental Manufacturing |
| 4 | Sustainability index | Lee and Huang | 2007 | Economic, Social, Environmental and Institutional dimensions |
| 5 | Sustainable Brand Index | SB Insight | 2019 | Activity on the Market of the Country Turnover & Market Share General Brand Awareness |
| 6 | Corporate Sustainability Index | Orsato et al | 2014 | Financial and Economic performance |
| 7 | Sustainability Index | Salvado et al | 2015 | Economic performance Social and Environmental responsibility |
| 8 | BoF Sustainability Index | The Business of Fashion | 2021 | Transparency Emissions Water and Chemicals Materials Workers Rights Waste |
| 9 | Agricultural sustainability | Valizadeh, and Hayati | 2020 | Social equity and well-being Durability, Stability and compatibility and Productivity and efficiency |
| 10 | Composite sustainability index | Zhou et al | 2011 | Environmental Social Economical |

Table 1: Sustainability Assessment Frameworks

Scale Development Methodology

In order to develop a reliable and valid scale of sustainability, we followed rigorous stages of scale development. Table 2 outlines the process, which includes a three-step qualitative-quantitative study; item generation and expert review; for the development, purification, and finalization of the scale.

| Phase | Study : Scale development stage | Study design | Analysis | Sample size (Sample population) | Outcome |
|-------|--|-------------------|-----------------------------------|---|---|
| I | Study 1: Development of initial item pool | Literature search | Item Identification | N = 81 Research articles N = 11 Consulting Reports | 5 Dimensions 34 Elements 11 Cross elements 168 Items generated |
| II | Study 2: Expert Interviews | Exploratory | Face validity Content validity | 2 focus groups, 9 subjects expert | 4 dimensions 25 elements 7 Cross elements 103 Items |
| III | Study 3: Item Consolidation | Deductive | Closed Group | N = 4 Research Scholars | 3 Dimensions 17 Elements 5 Cross elements 85 Items |

Table 2: Summary of Studies

Initial framework and process of selecting indicators

An indicator is considered as an observable variable for estimating or measuring dimensions of a concept or macro structure such as sustainability, whereas, a scale or an index is a synthesis of several effect indicators (Bunge, 1975; Maleksaeidi et al., 2014). Accordingly, selecting sustainability indicators was the first step in the development of an index for measuring sustainability.

Development of Initial Item Pool

The objectives of the qualitative study were three: (1) to identify multiple dimensions associated with sustainability (2) to identify any dimensions not captured by the current literature; and (3) to generate an exhaustive list of items for the sustainability scale.

The foremost step in any scale development process is to conceptualize the key construct of interest. In this study, 'level of sustainability was at the focal point of discussion. Construct definition demands a careful examination of the literature (Netemeyer et al., 2003). In order to develop key items pertaining to the level of sustainability, an extensive literature search along with a qualitative study was carried out.

Subsequently, a set of two focus group discussions were carried out over a period of four months. The focus studies were carried out with professionals employed in the area of sustainability and development. The initial meetings took place with the senior leadership teams of the respective organizations, in order to explain them the intent of the study. Based on the discussions, each organization had allocated BU (Business Unit) heads', to carry forward the study. A total of Nine (9) individuals from industry were involved in the focus group discussions (53% female, mean age 33 years). Focus groups are particularly appropriate for our purposes, since they bring in more insight into the study. This technique affords us the opportunity to observe the collective-sense-making of individuals with regards to sustainability, and also to generate a wider range of views, which is important for theory- generation (Bryman, 2004). The research objectives are clearly subsumed within Fern's (2001) theory applications approach, by using focus groups to develop and (in part) confirm theory (Kleijnen et al, 2009). Two focus group discussions were conducted, a number broadly consistent with similar research across various fields (e.g., Morgan & Spanish, 1985; Pavia & Costa, 1993). The details of the participants involved in the focus group discussion are mentioned in Table 3. Each focus group discussion consisted of at least 5 and at the maximum 6 members for the discussion.

| Focus Group | Males | Females | Education | Current Position | Function |
|-------------|-------|---------|------------------------------------|--|---------------------------------|
| 1 | 3 | 2 | Graduates (2) Postgraduates (3) | Sr. Manager (2) Consultant (3) | Sustainability |
| 2 | 3 | 3 | Graduates (1) Postgraduates (5) | Manager (1) Sr. Manager (2) AVP* (3) | Sustainability and Diversity |

*AVP (Assistant Vice President)

Table 3: Profiles of focus group studies

The discussions were audio recorded, transcribed and coded. The moderator used a discussion guide, which was mainly to structure the thought process. In this way, the structure of the discussion was kept fluid, and the participants were able to direct the conversation along their own lines. Participants were first taken through a brainstorming exercise where they generated

examples of various ways of assessing sustainability. This exercise was used to help participants generate ideas through a process of ‘snowballing’ and comparison. All the two focus groups lasted between 1 and 1.5 hours. Data were collected through written notes and eventually were entered into the system. The findings revealed a new dimension ‘Animals’ with regards to sustainability. Animals as a dimension is essential to determine animal welfare which in-turn indicates the robustness of a sustainability framework. To achieve a high level of sustainability, ethical consideration towards animals is of paramount importance. Foreexample, to produce fashion products such as clothes, consumers want to make informed choices based on responsible animal husbandry. (Chief Sustainability Officer, Fashion Brand). In wider policy circles, it is increasingly recognized that animal welfare should be “at the heart of sustainability”. It is no longer ethically acceptable to use animals in ways that compromise their health and welfare (UN Environment, 2017). Studies on the European market have shown a need to directly provide consumers with guarantees on the ethics and sustainability of the product by developing systems of certification and labeling, defining standards with regards to treatment of animals (Galioto et al., 2017).

Content Validity

Following the initial item generation, content and face validity (Netemeyer et al., 2003) was established using an expert review. First, a pre-test was carried out in one of the participating organizations and the respondents were asked to rate the items on a scale of 1 to 5, with 1 being the lowest and 5 being the highest score. In the pre test, 23 employees were asked to rate the probability of each statement in the initial list for assessing sustainability. Of the 23 employees, 12 were males and 11 were females and their job grade ranged from junior management to mid management levels. The rating was obtained on a 5-point bipolar scale with end points improbable/probable. The items with a score of 3 or more were retained and the process resulted in the elimination of 2 items. Thus, a comprehensive list of 95 items was obtained. Second, three research scholars were selected to undertake the appraisal of those items in a 5-point evaluation scale in terms of representativeness, specificity and clarity (e.g. Haynes, Richard, & Kubany, 1995). The result was a set of 85 items for the following step of scale development process.

Conceptual framework

A conceptual framework (Figure 1) is proposed based on the literature review and qualitative study. The framework highlights the three dimensions based on which, a sustainable consumption label index is developed. Furthermore, table 4 describes the seven indicators and five cross elements, with their operational definitions.

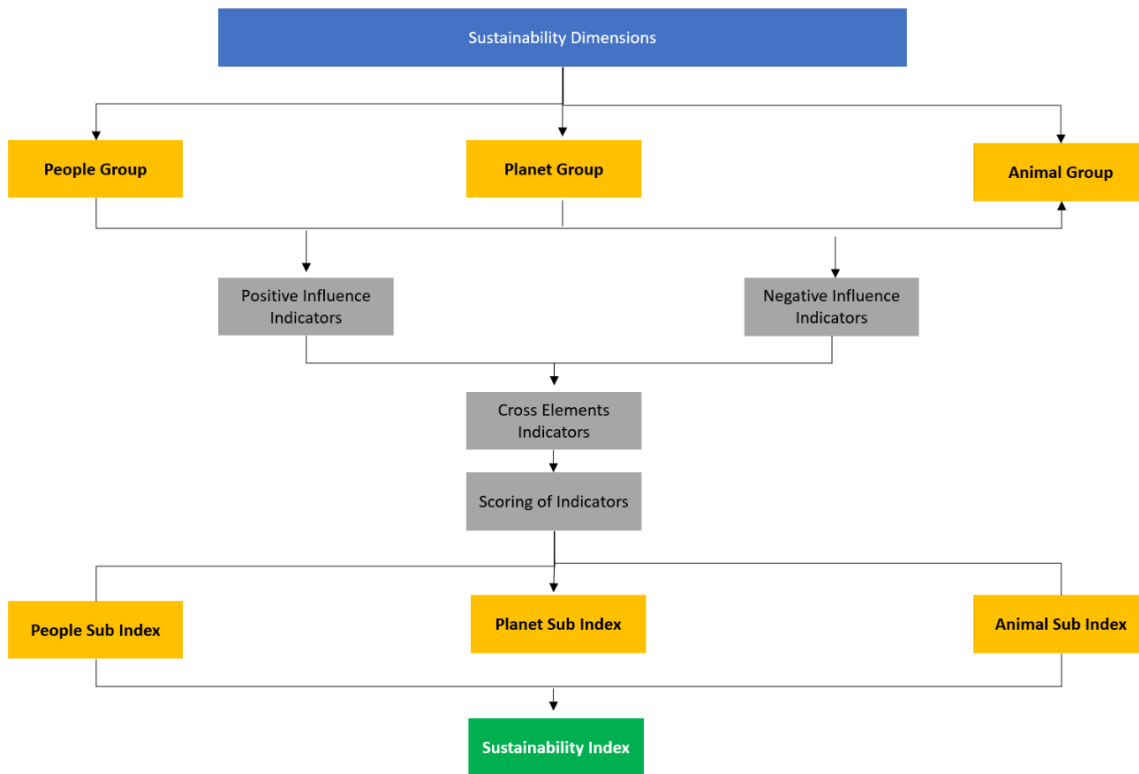


Figure 1: Conceptual Framework

| Elements | Definitions |
|------------------------|--|
| Policy and Commitments | Explores brands’ social and environmental policies for both their own employees and workers in the supply chain. How these policies are implemented, how the company prioritizes issues, what goals it has in place and if they’re reporting annual progress. |
| Governance | Who on the executive board has responsibility for social and environmental performance? How this is implemented, how social and environmental improvements are linked to employee, CEO and supplier performance, and whether the relevant department and person in charge can be easily contacted by the public. |
| Traceability | Assess how brands publish supplier lists at three levels: manufacturing, processing facilities and mills, and raw materials. We also look for extra details such as supplier address, number of workers, gender breakdown, number of migrant workers, union representation and when the list was last updated. |
| Disclosure | Do company publish reports with regards to their sustainability efforts on their website or any public forum. |
| Non-Compliant Issues | In case of non-compliance with regards to any indicator, do company’s take appropriate action and publish over the website or any social media platform. |

Table 4: Dimensions of Sustainability

Consequently, 85 indicators are classified into seventeen elements, which furthermore are spread across three dimensions namely People, Planet and Animals (Table 5). The scores across the three dimensions forms the Sustainability Scores and index. The framework in this study, as many others, recognizes the importance of assessing the whole rather the pieces when

discussing sustainability, the latter concisely defined as the ability to sustain competitive advantage. The three dimensions were considered as the primary framework for the development of sustainability measurement index in this study.

| Dimension | Cross Elements | Sub-Indices |
|-----------|------------------------------|--------------------------------|
| People | Policy | Inclusion and Diversity |
| | Governance Mechanism | Working Rights |
| | Traceability | Human Rights |
| | Disclosure | Fair and Equal |
| | Non-Compliant Issues | |
| Planet | Policy | Consumption |
| | Governance Mechanism | Composition |
| | Traceability | Emission (Direct) |
| | Disclosure | Emission (In-Direct) |
| | Non-Compliant Issues | Water and Chemicals |
| | | Waste |
| | | Design (Material Choice) |
| | | Design (Packaging) |
| | | Design (Buildings) |
| | | Design (Minimize Waste) |
| | | Design (Maximize Product Life) |
| | Design (Supplier Assessment) | |
| Animals | Policy | Animal Welfare |
| | Governance Mechanism | |
| | Traceability | |
| | Disclosure | |
| | Non-Compliant Issues | |

Table 5: Dimension, Cross Elements and Sub-Indices

Data Analysis and Findings

Two companies from fashion sector namely Zara and H&M were identified for the study. Annual reports, sustainability reports, public disclosures were identified with the help of four research scholars in India. The methodology uses a ratings methodology to benchmark the public disclosure made by brands and across three key dimensions (a) People (b) Planet and (c) Animals. Further each of the dimension is broken into a total 17 sub-indices. Every sub-indices is measured with the help of 5 statements, which are evaluated using five cross elements. To calculate the sustainability index, average scores across elements are used as shown below.

Sustainability Index (SI) = Average (People Index, Planet Index, Animal Index)

People

Index =

$$\sum_i^j ID_{PC} + ID_{GM} + ID_T + ID_D + ID_{NC} + WR_{PC} + WR_{GM} + WR_T + WR_D + WR_{NC} + HR_{PC} + HR_{GM} + HR_T + HR_D + HR_{NC} + FE_{PC} + FE_{GM} + FE_T + FE_D + FE_D + FE_{NC}$$

Planet Index =

$$\sum_i^j CN_{PC} + CN_{GM} + CN_T + CN_D + CN_{NC} + CP_{PC} + CP_{GM} + CP_T + CP_D + CP_{NC} + ED_{PC} + ED_{GM} + ED_T + ED_D + ED_{NC} + EID_{PC} + EID_{GM} + EID_T + EID_D + EID_{NC} + WC_{PC} + WC_{GM} + WC_T + WC_D + WC_{NC} + W_{PC} + W_{GM} + W_T + W_D + W_{NC} + DE_{PC} + DE_{GM} + DE_T + DE_D + DE_{NC}$$

Animal Index =

$$\sum_i^j WE_{PC} + WE_{GM} + WE_T + WE_D + WE_{NC}$$

Both the comp any’s are evaluated on 425 data points each (17 indices x 5 indicators x 5 cross elements). Brands receive points for information that has been publicly disclosed on the brand or parent company website, through self-published annual reports and via third parties where there is a link between the company’s website and the third party disclosure. The methodology is also based upon alignment with existing international standards and benchmarks such as the UN Guiding Principles and SDGs, OECD Due Diligence Guidelines, ILO conventions. Each parameter gets a score of either 0, 0.5 or 1. For example, if there exists a policy with regards to inclusion and diversity and the results are disclosed, a score of 1 is allocated. On the other hand, if a policy exists but the results are not disclosed, a score of 0.5 is allocated. However, if there exists no policy, a zero score is awarded to a particular parameter. Scores across parameters are averaged to get a final score for a particular element. Furthermore, the average score across elements for a particular dimension, yields the average rating/score for the specified dimension. Figure 2 highlights the framework, based on which the two brands are assessed with regards to their sustainable consumption index.

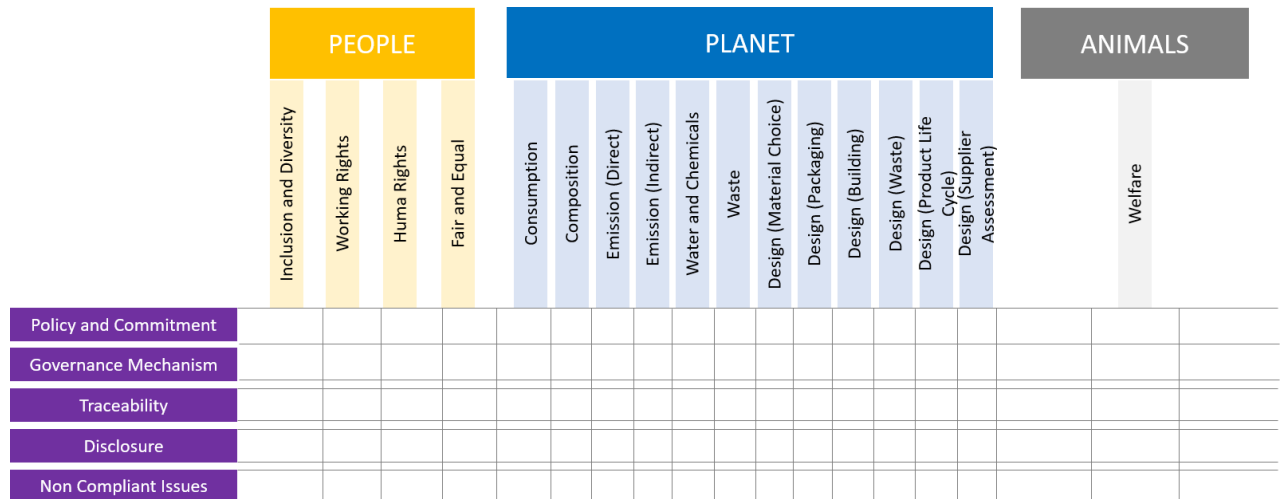


Figure 2: PPM Framework

| PEOPLE | Governance Mechanism | Traceability | Disclosure | Non Compliant Issues | Average | PLANET | Consumption | Composition | Emission (Direct) | Emission (Indirect) | Water and Chemicals | Waste | Design (Material Choice) | Design (Packaging) | Design (Buildings) | Design (Minimize Waste) | Design (Maximize Product Life) | Design (Supplier Assessment) | Average | ANIMALS | Animal Welfare | Average |
|-----------------------------|----------------------|--------------|------------|----------------------|---------|-------------------------|-------------|-------------|-------------------|---------------------|---------------------|-------|--------------------------|--------------------|--------------------|-------------------------|--------------------------------|------------------------------|-------------|-------------------------|----------------|------------|
| | | | | | | | | | | | | | | | | | | | | | | |
| Policy and Commitment | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | Policy | 0.5 | 0.5 | 0.5 | 1.0 | 0.0 | 0.5 | 0.5 | 1.0 | 0.5 | 0.0 | 0.5 | 0.0 | 0.5 | Policy and Commitment | 0.0 | 0.0 |
| Governance Mechanism | 0.5 | 1.0 | 0.5 | 0.5 | 0.6 | Inclusion and Diversity | 0.5 | 0.0 | 0.5 | 0.5 | 0.0 | 0.0 | 0.5 | 0.5 | 1.0 | 0.5 | 0.0 | | 0.4 | Governance Mechanism | 0.0 | 0.0 |
| Traceability | 0.5 | 0.5 | 1.0 | 0.0 | 0.5 | Working Rights | 0.5 | 0.0 | 0.0 | 0.5 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 1.0 | 1.0 | 0.0 | 0.3 | Traceability | 0.0 | 0.0 |
| Disclosure | 0.5 | 0.5 | 0.5 | 0.0 | 0.4 | Human Rights | 0.5 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.5 | 0.5 | 1.0 | 0.0 | 0.0 | 0.3 | Disclosure | 0.5 | 0.5 |
| Non Compliant Issues | 0.5 | 1.0 | 0.5 | 0.5 | 0.6 | Fair and Equal | 0.5 | 0.5 | 1.0 | 0.0 | 0.5 | 0.5 | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.4 | Non Compliant Issues | 0.5 | 0.5 |
| PEOPLE AVERAGE | 0.5 | 1 | 0.5 | 0 | 0.525 | PLANET AVERAGE | | | | | | | | | | | | | 0.37 | ANIMAL'S AVERAGE | | 0.2 |
| SUSTAINABILITY INDEX | 0.37 | | | | | | | | | | | | | | | | | | | | | |

Table 6: Sustainable Label Index for Zara

| PEOPLE | Governance Mechanism | Traceability | Disclosure | Non Compliant Issues | Average | PLANET | Consumption | Composition | Emission (Direct) | Emission (Indirect) | Water and Chemicals | Waste | Design (Material Choice) | Design (Packaging) | Design (Buildings) | Design (Minimize Waste) | Design (Maximize Product Life) | Design (Supplier Assessment) | Average | PLANET | Animal Welfare | Average | |
|-----------------------------|-----------------------|--------------|------------|----------------------|--------------|-----------------------|-------------------------|-------------|-------------------|---------------------|---------------------|-------|--------------------------|--------------------|--------------------|-------------------------|--------------------------------|------------------------------|-------------|-------------------------|----------------------|------------|-----------------------|
| | Policy and Commitment | 1 | 0.5 | 0.5 | 0.5 | | 0.625 | Policy | 0.5 | 0.5 | 1 | 1 | 0 | 0.5 | 0.5 | 1 | 1 | 1 | 0.5 | | 1 | 0.71 | Policy and Commitment |
| | Governance Mechanism | 1 | 0.5 | 0.5 | 0.5 | 0.625 | Inclusion and Diversity | 0.5 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | 0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.50 | Governance Mechanism | 0 | 0 |
| | Traceability | 1 | 0.5 | 1 | 0 | 0.625 | Working Rights | 1 | 1 | 1 | 0.5 | 0 | 0 | 0 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.50 | Traceability | 0.5 | 0.5 |
| | Disclosure | 1 | 0.5 | 0 | 0.5 | 0.5 | Human Rights | 1 | 0.5 | 0.5 | 0.5 | 1 | 1 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | 0 | 0.63 | Disclosure | 0.5 | 0.5 |
| | Non Compliant Issues | 1 | 0.5 | 0.5 | 0 | 0.5 | Fair and Equal | 0.5 | 0 | 0.5 | 0 | 1 | 0.5 | 0.5 | 1 | 0.5 | 0.5 | 0 | 0 | 0.42 | Non Compliant Issues | 0 | 0 |
| PEOPLE AVERAGE | 1 | 0.5 | 0.5 | 0 | 0.575 | PLANET AVERAGE | | | | | | | | | | | | | 0.55 | ANIMAL'S AVERAGE | | 0.3 | |
| SUSTAINABILITY INDEX | 0.47 | | | | | | | | | | | | | | | | | | | | | | |

Table 7: Sustainable Label Index for H&M

Conclusion and Implication

The fashion sector is keen to investigate, build, apply and reap the seeds of a good sustainability framework. However, only through a collaboration approach and holistic framework, such a complex concept such as sustainability be reached. This study presented a list of indicators and an PPA based approach for building a holistic sustainability index applied to fashion manufacturing industries. It provides a base for company classification according to their progress towards environmental, social, and animal welfare.

The framework developed, in this study, recognises the importance of assessing the whole rather than the pieces when discussing sustainability. Therefore, this study has the goal of assessing and improving current efforts of an entire fashion sector rather than just one particular company. This is done by collecting expert judgments within the context of comparing several companies rather than simply the one in question.

Despite many studies on sustainability, few efforts have been made to design and validate sustainability measurement indices. On the other hand, the existence of valid and reliable indices is one of the most significant needs of across sector throughout the world. In this regard, the main purpose of this paper is to develop and validate an index for measuring sustainability label index, especially for fashion industry. This paper presented a multi-stage and applied process for designing and validating sustainability indices in future research. By selecting 17 sustainability measurement indicators based on three pillars of sustainability (people, planet and animals), the initial version of the sustainability measurement index was developed with 85 sub-items/items. Then, a questionnaire was designed based on developed indicators and sub-indicators. It examines public disclosures to rigorously benchmark performance and enable like-for-like comparisons at 2 of fashion's largest companies. Data were collected from second sources for two organisations namely H&M and Zara India. According to the results, H&M's sustainability label index was higher as compared to Zara across the three dimensions. The sustainable consumption index can perhaps be a good indicator for both organisations as well as consumers. By looking at the sustainability index label, consumers can identify organisations, who are truly dedicated to the cause of sustainability. On the other hand, to score high on the sustainability label index, organisations as well would design and develop policies, which can help them achieve a higher score.

Limitations and Future Scope

There were several important limitations in the implementation process of the research. First, the selected indicators in this study were extracted using literature review and experts' opinions. We tried to use the most used indicators; however, it should be noted that sustainability indicators were very dynamic like the concept of sustainability. Thus, future researchers, depending on the scope of their research, might use other indicators to design and validate agricultural sustainability measurement indices. Second, only fashion industry has been considered for the study. It would be interesting to see, whether the set identified indicator also holds true for other sectors such as banking and e-commerce. Third was the lack of reference values for indicators of Sustainability label measurement. The current study measures a particular organisation on a scale of 0 to 1. However, it may be required to have a wider range for the indicated parameters, to bring in more objectivity. It is suggested that future researchers use the sustainability measurement index for assessing sustainability in different industries to further demonstrate sustainability measurement index ability in identify differences and orienting policies.

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Barriers to Adoption of Sustainable Menstrual Products

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Abstract

This study revolves around sustainable menstrual products in the market and why they are important for females to be aware of these products. Sustainable menstrual products are a step towards cruelty-free periods both for the environment and for the women around us. Sustainable menstrual products can be over a long period thus reducing pollution which will lead to reduced carbon footprints. The study involves an empirical approach to understand the views from females' perspectives regarding sustainable menstrual products. In-depth interviews will be conducted to understand their views, dilemma, doubts, pre-conceived notions concerning the use of these products.

Keywords: Sustainable Menstrual Products, Menstrual Cups, Menstruation, Menstrual hygiene

Introduction

In today's scenario, environmental concerns are the most prominent issues people are apprehensive about. Several steps are taken in respect of reducing the emission of greenhouse gases which are caused by landfill of waste. A large part of waste consists of sanitary waste from a household. According to a report by DTE Staff, (2021) nearly 12.3 billion sanitary pads, summing up to 113,000 tonnes of waste, is dumped in India's landfills every year. Inappropriate disposal and improper segregation from household waste cause unhygienic conditions for cleanliness workers.

Discussing sanitary waste, an average girl starts her menstruation at 12 years of age, which means a female would menstruate 40-45 years in total, bleeding for about five days a month, or about 2,400 days throughout a lifetime—about six and a half years. All these years she spends a massive amount on menstrual products like pads, tampons, panty liners, and whatnot. With it comes the problem of disposing of them off. In 2018, people in the U.S. purchased 5.8 billion tampons, likewise in a lifetime, a single menstruator will use somewhere between 5 and 15 thousand pads and tampons, the vast majority of which will wind up in landfills as plastic waste (ALEJANDRA BORUNDA, 2019). The most commonly used menstrual products like sanitary napkins constitute a veritable cornucopia of plastic. Tampons come wrapped in plastic, encased in plastic applicators, with plastic strings dangling from one end, and many even include a thin layer of plastic in the absorbent part. Pads generally incorporate even more plastic, from the leak-proof base to the synthetics that soak up fluid to the packaging.

Apart from creating awareness about the impact of single-use menstrual products, menstrual experiences have not received much attention in terms of public health and equity issue. The authors found that menstrual cups awareness was low, and only 30% of websites with educational materials on menarche include various information about menstrual cups (van Eijk et al., 2019). When discussing any menstrual product, the first things that come to mind are the disposable pads; however, the other products which are used as alternatives are reusable pads, tampons, menstrual cups, and reusable menstrual underwear. Menstrual cups are a great alternative to sanitary pads and tampons for menstrual coverage. Consumers are concerned about the protection and consequences of using feminine hygiene products continue today due to the lack of careful analysis of risk factors (Bae et al., 2018).

The environmental effects of feminine hygiene products also occur unquantified. Many general

pieces of literature on the choices and use connected with feminine products mentioned that did not quantify the solid waste impacts (Bobel, 2006; Davidson, 2012). Moreover, a substantial amount of material deployed for the manufacturing of these products constitutes plastic and is also assembled from non-renewable oil and natural gas. Hence the environmental effects of these disposal menstrual products are disastrous in the long term, and there is an urgent need to bring a change in the perspective and choices of the consumers for selecting the sustainable option in their lifestyle.

This study revolves around sustainable menstrual product options for women and why they should become a part of their lifestyle. Sustainable menstrual products will help to protect the environment and build a better place to live in. The objective of this study is to explore the female outlook of sustainable menstrual products as the sole users of the products and how their opinion and thoughts play an important role in determining the sustainability issues revolving around menstrual hygiene.

Literature

In many societies, menstruation is taxed with secrecy and societal taboos, which eventually hinders the potential to handle menstruation with comfort and confidence. The term ‘menstrual health and hygiene (MHH)’ describes the necessity experienced by females who menstruate, inclusive of those having easy access to supplies, information, and infrastructure required to manage their menstruation with comfort and dignity (menstrual hygiene management (Sommer & Sahin, 2013)).

As a society we have to take care of the sanitation facility for females, we cannot forget the fact that we have to adopt sustainable options in our daily life. When the consumer will have become responsible for what they consume, the producers will become responsible for what they produce. According to a survey by National Family Health in 2015-2016 it was estimated that out of the 336 million menstruating females in India about 121 million (around 36 percent) women were using sanitary napkins, either locally or commercially produced (Aishwarya Upadhyay, 2019). These tampons and Sanitary pads are preferably disposed of in trash cans and finally deposited in a landfill. Also, mostly these products are commonly flushed through toilets, causing plumbing issues and other problems in the sewer systems and at water treatment plants (Ashley et al., 2005).

A campaign named “bag-it and bin-it” was started in the UK and one named “think before you flush” in Scotland, both illustrating the absence of consumer knowledge concerning proper waste management practices and aid in a substantial decrease in the disposing of these products by flushing (Ashley et al., 2005). Disposable diapers are also compared to feminine hygiene products in the generation of solid waste because diapers being heavier feminine hygiene products, the solid waste contributed by them is also more than feminine hygiene products (Hait & Powers, 2019). Considering the amount of waste generated by many sanitary items, the pollution it will lead to, it will be a better option to make consumers move to the better and sustainable option which will eventually build a better environment.

Substitute products comprise menstrual cups and discs, period underwear, cloth pads, and sometimes organic pad and tampons (Koskenniemi, 2021). Among the substitute goods, the ones that gained popularity are the reusable menstrual pads and the menstrual cup (Gaybor, 2019). This technology has been outlined and upgraded as a mechanism to survive menstrual bleeding and also as a safe option for women’s physical health and wholeness, which is a sustainable, and reasonable option in the long term (Felitti, 2016; Gaybor, 2020). Apart from

menstrual cups, other items like reusable pads and period panties are also a good option if opting for sustainable use. Here are some sustainable menstrual products in detail.

Menstrual Cups: Menstrual cups are part of feminine products for quite a time but have gained popularity in the past 4-5 years with the help of social media like Facebook and Instagram where new companies introduce their product with the help of influencers. The menstrual cup is a little bell-shaped cup formed with Thermoplastic Elastomer or commonly known as medical-grade silicone. The cup is used by sliding it into the vagina to collect menstrual blood, and when filled, required to be withdrawn and cleaned before re-inserting (Gaybor, 2019).

If taken proper care of, it is reusable for up to a decade. They are environment friendly and a lot more comfortable option for women. Investing in one menstrual cup means 9-10 years of saving as they are pocket-friendly compared to the disposable products which are bought every month.

Reusable pads: Apart from menstrual cups reusable pads are a great option for those who are afraid to try cups. These pads are made up of several layers of cotton and hemp, and no plastic. Gaybor, (2019) said that the reusable pads are washable cloth pads designed using Gore-Tex that could be attached to the underwear using Velcro or clips making it usable for up to 3 years. These can use several times after washing and protect the female from any kind of rashes caused by plastic pads.

Period Panties: Period Panties are designed to be used in place of disposable items like pads and tampons and soak your menstrual blood, keeping you dry for a longer duration. It's like a diaper for women but, without any bulk. They have been around since world war I but were made up of waterproof rubber which wasn't breathable nor sanitary. Now, these panties are made up of several layers of fabrics that lock the moisture (Carina Hsieh, 2020). These are constructed to feel and look like regular underwear, period panties are formed with special fabrics in the crotch area to absorb menstrual blood. It could be washed, re-worn, and re-washed—these are a reusable option all cycle long (Grove Collaborative, 2021).

The use of these sustainable products is promoted among females as it would directly affect the environment. Sanitary waste dumping has become a deprecatory environmental concern in India as the material used in sanitary napkins is indestructible and results in environmental menace. The footprints are better noticeable due to the disorderly ways of solid waste gathering, management, transportation, and disposal complex in the villages and cities in India (Malaviya, 2019). Besides environmental distress, it argued that the marketing of tampons and disposable pads has framed menstruation as troubles to be suppressed or hidden in private with commercial (Kissling, 2013; Przybylo & Fahs, 2020).

There are multiple pieces of evidence that items like—chiefly rags, tampons, and disposable pads—are discovering their means to water-borne sanitation networks worldwide, resulting in blockages and system failures (Scorgie et al., 2016). To replacing conventional period items, activists have motivated the use of substitute menstrual products which are healthier for the environment.

Methodology

Qualitative research method

As this study is exploratory, a qualitative method will be used to explore the opinions related to sustainable menstrual products in females. The contribution of the study is to extend the boundaries, break the taboos associated with using sustainable menstrual products and explore new insights in this study.

Data collection technique

For the study, data will be collected from female participants of or above the age of 18 years. For this qualitative study, data will be gathered using in-depth interviews of selected participants for the target category. The participants will be conveyed with a request for the interview using a short note revealing the research objectives, researcher's details, and a statement of anonymity and confidentiality. A semi-structured interview is used with the concord which is structured to involve every aspect of the study questions and unstructured with open-ended questions allowing capturing flexible and real responses and feeling with life experiences. Each interview will be adequately structured to make sure that the topic under study will be covered, also at the same time, it will grant the flexibility to the respondents to answer what they felt to be relevant experience related to the area.

A Pre-test was conducted to know our respondent's demographic and their choices regarding the study, this Pre-test gives us the idea of who our target respondents will be, after getting to know what their choice of menstrual products are. This Pre-test was sent to 45 females out of which only 39 responded.

Figure 1 shows the menstrual products used by females, out of 39 females, 34 use Sanitary Pads and only 3 uses menstrual cups. Figure 2 presents the awareness of females about sustainable menstrual products, only 30 females are aware of sustainable menstrual products. With this, figure 3 shows the usage of any type of menstrual product to which only 12 of them responded "Yes". If Figures 2 and 3 are to be connected the females who responded positively about being aware of sustainable menstrual products are 30 and only 12 of them are using any such product. This difference of 60% i.e. 18 females are not using or have not used any sustainable menstrual products.

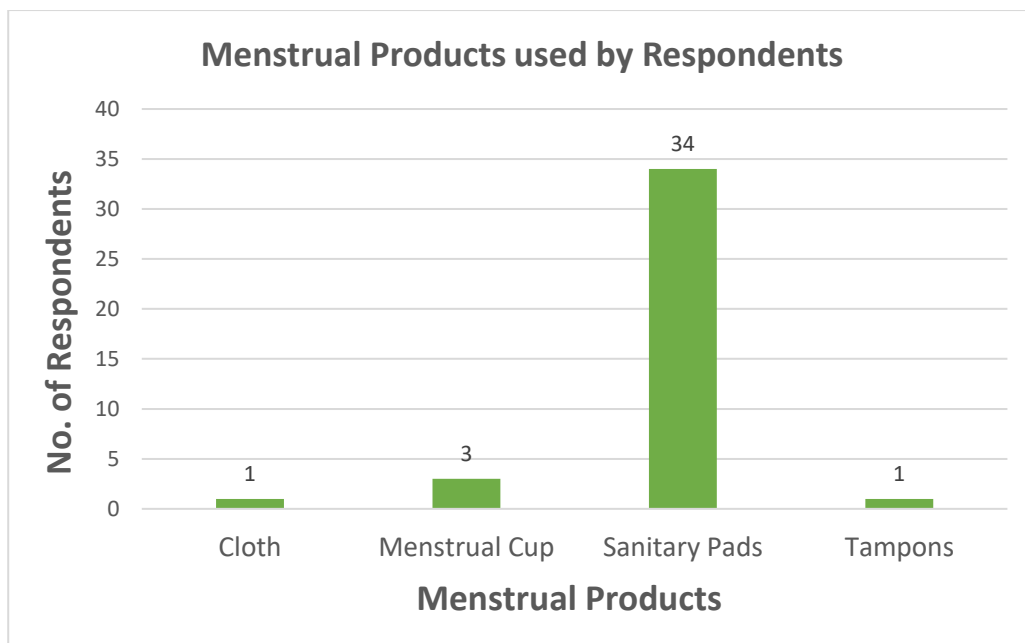


Figure 1. Menstrual Products used by respondents

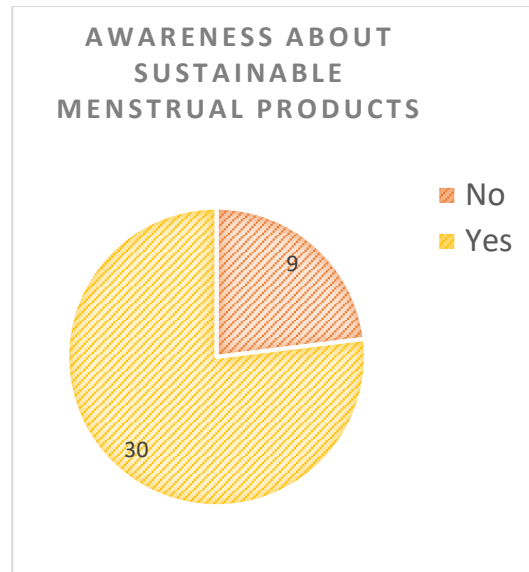


Figure 2: Awareness about Sustainable Menstrual Products

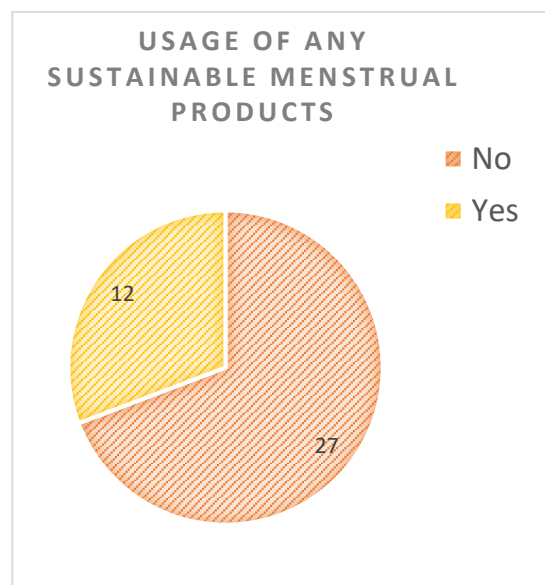


Figure 3: Usage of Any Sustainable Menstrual Product

To know more about the reasons behind this difference and the thoughts of females and their reasons for not using sustainable menstrual products will be found out using In-depth interviews, where respondents will be asked open-ended questions, where they will be free to share their thoughts and opinions regarding the study. NVivo software will be used for analyzing and mapping the data collected by gathering all the recordings done of the interview.

Conclusion

The study showed that only 30% of the female questioned were aware about the sustainable menstrual products and only 44% females use the sustainable menstrual products. The results from the pre-test itself shows that till now also females are unaware about the sustainable menstrual products. There is still a long way to go for the females to know and use these

products. This study would help in ascertaining the female perspective regarding sustainable menstrual products which would help companies or researchers related to such products to consider the thoughts of the audiences. They can understand their customer from a different standpoint and advertise their product or reach out to the customer with a new approach while promoting sustainability and responsibility as a business.

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Nudging Towards Sustainable Fashion Consumption: A Quasi-Experiment Study in India

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Abstract

Consumers often are aware about sustainability. However, their fashion purchases are not linked to sustainability, revealing an unbalanced psychological state. Based on balance theory, we explain how green logos and sustainable label cues can increase consumer preferences for fashion products with green logos. Using an in-house eye tracking tool, we identify that consumers are more inclined towards products having green logos and sustainable label cues while purchasing sustainable fashion products. In addition, label cues are more preferred by consumers as compared to green logos, while making purchases. We discuss managerial implications related to the effectiveness of “nudge” communication techniques in setting up the tone for sustainable fashion marketing.

Keywords: Sustainability, Nudge Theory, Fashion Consumption, Green Logo, Label Cues

Introduction

Sustainability has become an important issue in marketing theory and practice, and significant efforts are made to promote consumers’ sustainable consumption (Di Benedetto, 2017; Park, Lee, & Koo, 2017). Sustainability refers to the ability of biological systems to remain diverse and productive (Lee et al., 2020). Sustainable or responsible consumption implies the satisfaction of personal needs without an adverse impact on the lives and consumption potentials of present and future generations and complies therefore with the principles of sustainability (Belz et al., 2007; Belz and Peattie, 2009).

The fashion industry often uses the term sustainability interchangeably with eco-friendly, green, ethical, and sustainable fashion (Min Kong & Ko, 2017; Newholm & Shaw, 2007). Clothing is a way for people all over the world – rich and poor – to distinguish themselves and express a part of their identity. Since the Second World War, as consumerism grew globally, the pace at which clothing trends come and go has quickened. The phenomenon ‘fast fashion’ developed from this faster pace. Fast fashion consumers tend to neglect the social and environmental consequences of their consumption, even though consequences like global water scarcity likely would hurt them, too. When it comes to the actual purchase of sustainable products, a clear inconsistency between attitudes towards sustainable consumption and actual behaviour is observed. This phenomenon is called the attitude-behaviour gap.

Previous sustainability fashion research has been prolific in uncovering its theoretical foundations and managerial consequences (Lee et al., 2020). Despite the increasing research efforts found in the sustainability marketing literature, consumers’ actual purchase behaviours do not appear to reflect sustainability as a consumption principle. The gap between consumers’ attitudes and their behaviour is a significant challenge in sustainability fashion marketing.

Using a novel methodology of eye tracking mechanism, this study proposed a “nudge” communication technique that marketers can use to design and promote the consumption of sustainable fashion products. The purpose of this research is to use eye tracking to determine consumers’ preferences for information, which they look for with regards to sustainable consumption. Based on balance theory, we explain how “green logo” and “content priming” can increase preference for fashion products. Using an open-source eye tracking tool, we identify the neural representation of green logos and content priming’s effect on willingness to purchase a particular product.

Literature Review

Sustainability and consumption: A balance Theory Perspective

Sustainable fashion marketing communication promotes the consumption and choice towards environmentally friendly products, even at higher costs, by increasing consumers' awareness of environmental issues (Oliver, Benjamin, & Leonard, 2019). However, most fashion consumers do not sacrifice their desires for the sake of being green. One of the reasons consumers are hesitant to convert to sustainable fashion products is that they perceive eco fashion as expensive and the design quality as less than satisfactory (Lee et al., 2020). Han, Seo, and Ko (2017) noted that, while many consumers acknowledge the importance of environmentalism and agree with the philosophy of sustainability, their actual choices of fashion purchases are not linked to ethical consciousness. Such inconsistency between attitude and behavior can represent what Heider (1958, as cited in Woodside, 2004) called imbalance. When individuals recognize tension, they try to reduce imbalance by changing their beliefs and attitudes (Woodside & Chebat, 2001). Heider's imbalance theory is helpful in explaining the complex phenomenon of sustainable fashion consumption. Three general attitudes toward fashion consumption are sustainability (entity 1); product attributes, such as the visual aesthetics and design of sustainable fashion products (entity 2); and individuals' actual purchase behavior in regard to sustainable fashion (entity 3). How can marketers help consumers reduce this imbalance? One way is to use message-priming techniques like one that emphasizes the importance of environmental consciousness (Lee et al., 2020). For example, once an individual is subject to an environmental priming message, the relationship between entity 1 (sustainability) and entity 3 (behavior) will strengthen, giving the individual a more balanced state, and his or her general attitude toward sustainability issues will become more positive.

Han et al. (2017) noted that marketers can help consumers reduce psychological imbalance related to the consumption of sustainable fashion.

This study contributes to the literature on sustainable fashion consumption. We apply Heider's (1958) balance theory to explain the gap between consumers' environmental awareness and their actual purchase behaviours. Then we show how exposure to environmental priming can reduce psychological imbalance and increase consumers' preferences for sustainable fashion products that are represented by green logos and sustainability specific product description. Next, using an eye tracking tool, we identify the neural correlates of green logo and short sustainable product labels as they interpret the logos' and label relevance. Taken together, these underlying neural processes reveal consumer preferences and actual purchase behaviour oriented toward consuming sustainable fashion products.

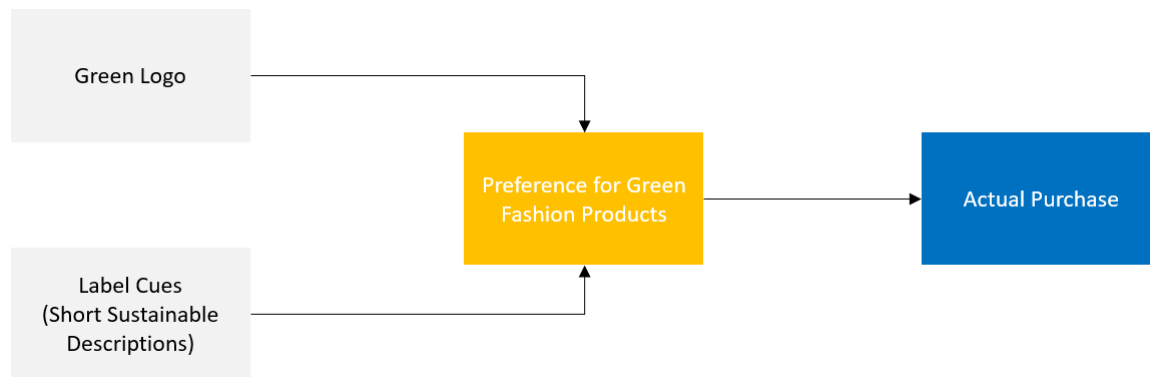
Neuromarketing research with eye tracking

Through the development of eye tracking techniques, we can now observe consumers' responses to marketing stimuli. The neuro data obtained from eye tracking tool is much more scientific and objective than the data obtained by consumers' self-reporting (Kuhn, Strelow, & Gallinat, 2016). This novel research approach allows access to unconscious processes that we have not been able to observe before (Ariely & Berns, 2010). Inferences about which psychological processes are linked to active brain regions in relation to specific stimuli are primarily based on previous studies. The effect of factors like product description, logo's etc on purchasing is explored as a pattern of signalling in the brain, which has the advantage of predicting purchasing (Knutson et al., 2007). With the potential to predict future purchases, eye tracking research can provide significant value to marketing practitioners (Lee et al., 2020).

Conceptual Model

The literature on sustainable fashion is not yet sufficiently developed to provide a sound conceptual foundation for investigating the effects of environmental priming and green logos on consumer preference for sustainable fashion products. We take an exploratory stance to develop research hypotheses that are based on previous marketing and neuroscience research. The conceptual model guiding the experiment, is shown in Figure 1.

Figure 1: Conceptual Model



The Green Logo Effect

The first hypothesis is related to the effect of green logos on consumer preference. The most common method green consumers use in making sustainable fashion choices is purchasing products that bear the signs of sustainable quality, such as a GOTS symbol. The use of organic cotton fibers during the production process is an example of a management practice that is inspired by the sustainability philosophy. A green initiative may lead consumers to increase their affinity for a company or a product by generating positive attitudes about that company or products (Minton & Rose, 1997). Therefore, hypothesis 1 is proposed:

Hypothesis 1: Presence of a green logo on product label increases consumers' preference for green fashion products.

The message priming effect

The problem with sustainability as a fashion marketing message is that consumers do not perceive green messages as relevant to their needs and desires (Lee et al., 2020). Communicating a fashion brand's green initiatives influence brand evaluations (Ginsberg and Bloom (2004, p. 84). Consumers buy products and services primarily to fulfill individual needs and wants, [so] companies should continue to highlight the direct benefits of their products. They should continue to highlight, what makes a product sustainable? Short label statements

Such as "developed using renewable energy", "organic cotton used", "0.5 Lit of water saved during production" etc, not only maintains the desire for fashion and beauty products but also increase their preference for such products. Earlier, we proposed that Heider's imbalance theory predicts that environmental priming messages and green logo will help consumer's link buying behaviour with sustainable consumption behaviour.

We suggest that recognizing a green logo and label cues requires both spatial and linguistic processing mechanisms. A logo has graphic features that activate spatial processing, and label cues activates linguistic processing. By applying Heider balance theory, we can predict that a

green logo presented with label will activate relational reasoning processes based on the pre-context of a priming message. The three-entity relationship of a green logo and label cues consists of an individual's receiving a pre-persuasive priming message about environmentalism (entity 1); the message's increasing the person's receptivity to a green logo (entity 2); and sustainable fashion purchase behavior's being enhanced by the label cues (entity 3). In the first stage of this process, the individual receives an environmental priming message and makes the link between entity 1 and entity 2. Once that happens, his or her sustainable fashion purchase behavior changes (entity 3) to preserve psychological balance in his or her cognitive system. Therefore, recognition of a green logo along with label cues is a multi-faceted logical process which influences consumer decision making and subsequently the buying behaviour. Based on balance theory and theory on relational reasoning, then, we propose that

Hypothesis 2. Priming messages (such as label cues) and Green logo dyad, increase consumers' preference for green fashion products more effectively than just green logo.

Methods

Participants

Twenty-seven subjects in their twenties and thirties participated in the experiment, which was performed at University of Delhi, India. Experiments were conducted with the help of Neurovision, a neuromarketing company based out of Denmark. The experiment was conducted using a repeated within-subject design, which is an experimental design method that assigns subjects to all levels of independent variables. In other words, statistical power is increased through repetition of experimental stimuli such that internal validity can be achieved from a small number of subjects (Lee et al., 2020). The participants' characteristics are provided in Table 1.

Table 1: Characteristics of Respondents (N=27)

| Characteristics | (%) |
|-----------------|-----|
| Gender | |
| <i>Male</i> | 47% |
| <i>Female</i> | 53% |
| | |
| Age (years) | |
| 20-29 | 55% |
| 30-39 | 45% |

Design and Stimuli

The experiment used a 2 (Message Content: Label Cues vs. No Label Cues) × 2 (Green Logo: Presence vs. Absence) mixed design. A single image consisting of three images were shown to the participants. The three images were three different labels. The first label had only the verbatim of "100 % organic", whereas in the second label, in addition to the verbatim, a green logo was also included. In the third label design, addition label cue was included (for e.g., made from renewable energy). In the repeated within-subject design, all the three images' stimuli were repeatedly shown six times to all the twenty seven participants. Thus, there were eighteen (3×6) trials in which subjects were asked to express their preferences while looking at various fashion products (1) with or without a green logo, (2) with or without a label cue. Figure 2 shows the three label, which were shown to the participants, during the experiment.

Figure 2: Label Stimulus Guiding the in-house experiment



Eye Tracking Data Analysis

Pre-processing of the image was performed with the help of the eye tracking software. Functional Slice timing, motion realignment, spatial normalizing, and smoothing were conducted during the pre-processing procedure. Then the regressors of a GLM were specified according to the experimental design at the first level. Second-level models for all participants were constructed as t-tests. A contrast image from the first-level model was used as an input-contrast image for the second-level model. This procedure allowed us to observe participants' response patterns that were associated with main effects. The study used a voxel-level threshold of uncorrected $p < 0.001$ and a cluster-level threshold of 0.05, which was determined to be $k > 15$.

Results

Manipulation Check

A short questionnaire was given to thirty six subjects in their twenties and thirties for a "manipulation check" on the type of message. After the three labels were presented to the subjects, the responses were measured on a 5-point scale. The first item, "The labels are easy to understand", was presented to ensure that the participants' differences in preference between the two three labels did not affect their preferences for sustainable fashion products.

The green logo effect

During the eye tracking experiment (Figure 3), the subjects were asked for their preferences with regards to the labels. Table 2 shows the preference ratings when the green logo was present, which are higher than the ratings for other products ($M_{\text{green}}=2.43$ vs. $M_{\text{no logo}}=1.64$; $t=5.12$, $df=998$, $p < 0.0001$). The results of the multivariate regression analysis that predicted consumer preference (Table 3) show that the main effect of the green logo on preference was significantly positive ($\text{Beta}=0.41$, $t=8.04$, $p < 0.0001$). These results support hypothesis H1, which predicted that seeing a green logo increases consumers' preference for green fashion products.

Figure 3: Consumer Preferences**Table 2: Behavioral Scores by Logo Presence.**

| Condition | Mean (SD) | t(p) |
|------------|--------------|---------|
| Green Logo | 2.43 (0.76) | 5.91 |
| No Logo | 1.64 (0.75) | <0.0001 |

The label cue effect

During the eye tracking experiment, the subjects were asked for their preferences with regards to the labels. Table 1 shows the preference ratings when the green logo was present, which are higher than the ratings for other products ($M_{\text{labelcues}}=3.44$ vs. $M_{\text{nocues}}=0.51$; $t=4.91$, $df=887$, $p < 0.0001$). The results of the multivariate regression analysis that predicted consumer preference (Table 2) show that the main effect of the label cues had a higher preference as compared to green logo, and the same was significantly positive ($\text{Beta}=0.48$, $t=9.12$, $p < 0.0001$). These results support hypothesis H2, which predicted that sustainable logo cues increases consumers' preference for green fashion products. In addition, consumers preferred sustainable label cues over green logos 'on fashion product labels.

Table 3: Regression Results of Main Effects on Preference.

| Independent Variables | Coefficients (s.e.) | t (p) |
|-----------------------|---------------------|-----------------|
| Intercept | 2.15 (0.10) | |
| Green Logo | 0.41 (0.05) | 8.04 (< 0.001) |
| Label Cue | 0.48 (0.05) | 9.12 (< 0.001) |
| Model (F) | | 28.19 (< 0.001) |

Figure 4 highlights that the likelihood of choosing a particular label over others. It was identified that around 5% of the respondents preferred the label with a green logo, over the label without any logo. On the other hand, around 13% of the respondents preferred the label with both, green logo as well as the label cue, over the label, which only had the green logo.

Figure 4: Likelihood of choosing a particular label

Discussion and Conclusion

Green marketing communications seek to promote sustainable consumption choices to increase consumers' awareness of environmental issues and environment-friendly products (Tey, Brindal, & Dibba, 2018). However, most fashion consumers do not sacrifice their fashion needs and desires for the sake of being green. The size of the gap between consumers' attitude toward sustainability and their green purchasing behaviour is considerable, creating a state of psychological imbalance (Lee et al., 2020). Companies need to take the most effective approach to communication if they are to break through fashion consumers' lack of interest by using subtle and symbolic persuasion tactics (Lee et al., 2020).

Using an eye tracking experiment, we investigated users response to (a) green logo that represents organically grown textiles and (2) sustainable label cues, which highlight the sustainability aspect, with regards to a particular product. It was identified that users were more inclined towards the sustainable label cues followed by green logos, when it comes to sustainable consumption. We noted earlier that fashion consumption is often characterized by a state of psychological imbalance (Heider, 1958) because consumers may think favorably about sustainability issues, but they are unwilling to make the sacrifice of accepting the inferior fashion performance that is associated with green fashion products (Newman et al., 2014). Since imbalance creates tension, consumers are motivated to resolve the tension by changing either their attitudes or their behaviors. Lee and Schumann (2004) noted that the tension related to imbalance can lead to more detailed and deliberate processing. The topic of how imbalance triggers a psychological process that can resolve this tension has been of interest to many researchers, so the current study provides a way to help resolve the sustainability paradox (i.e., the inconsistency between a consumer's green attitude and his or her actual purchase behavior) by making a subtle yet essential link between environmentalism and sustainable fashion products. A "nudge" communication that stresses the perils of environmental failure and how it can be a real threat to consumers' personal health and well-being can strengthen the link between sustainability beliefs and actual behavior. The results of the present research suggest that sustainable fashion campaigns send a simple message of "how" you/we can contribute

rather than “what” sustainability is. Sustainability campaigns must aim at awakening the public to the imminent environmental threats that face all species, including humans (Lee et al., 2020). Building this first entity of environmentalism will be a key to success. Conscious consumers will then activate the currently non-existent link from environmentalism to consumption of green products.

The mental imbalance caused by a salient and strong environmental orientation will not diminish unless consumers take real actions to address the source of the problem. This is how sustainability campaigns can bring about real behavioral changes by changing fashion’s role in environmental degradation for the better. Campaigns that focus on sustainability alone cannot create a forceful electric pulse in the brain, but making the right connection to the “why” and the purpose of sustainability will charge up the spark of voluntary behavioral changes as they relate to sustainability. Companies in the fashion industry, where the green consumer segment is relatively small, are advised to use sustainable label cues to nudge consumers, towards sustainable consumption. It was identified from the study, that when consumers are made aware about how company is contributing to sustainable fashion, by providing specific, it motivates the consumer to be part of that drive and contributing. Several limitations in the present study should be addressed. Although we used repeated within-subject design to achieve a sufficient level of statistical power, the small sample size is an unavoidable problem. Our data did not reveal moderating effects of brand type on green logo processing, although it is possible that consumers’ attitudes toward green logos differ for luxury fashion brands versus mass-market fashion brands. Research that investigates the moderating effects of marketing variables like brand, price, and design factors and how they are combined with green marketing communication is needed.

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Business Before and After COVID-19: A Case Study of One of the Successful Women Entrepreneur in Handloom and Handicraft Industry in Manipur

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Abstract

Women entrepreneurs play a major role in contributing for the state's economy, narrowing the gender gap, bringing societal change, creating more opportunities and increasing the standard of living. According to the IBEF (India Brand Equity Foundation), in March 2020, Manipur had the highest number of handicraft units and the highest number of craftspeople in the entire north eastern region and it ranked at top 5 in the country in terms of numbers of looms. In this regard, *Lanleima Handlooms and Handicrafts* is one such unit, owned by Leitanthem Jibanlata Devi, which has contributed a lot in the development of handlooms and handicrafts industry in the state.

With the Covid-19 pandemic having its effect throughout the world, the paper focuses on how the life of a woman entrepreneur in such a small state as Manipur was affected due to the pandemic and what steps were taken up to overcome the situation.

Key words: *Women Entrepreneur, pandemic, handloom and handicraft*

Introduction

The coronavirus which started in mid of December 2019 in China has affected a lot world-wide. The pandemic has created economic fallout, zero economic activity, decrease in global demand, rise in price of products and uncertainty about the growth of business in future. International Labour Organization (ILO) has estimated about 40 crores unemployment in the unorganised sector in the world. In India, foreign and trade policy has been widely affected, with sudden drop in the demand of products and loss of income of people. In Manipur, majority of the people have been rendered jobless and many have changed their way of thinking towards life. Different types of jobs - whether private or public – have been affected, especially the entrepreneurs who also provide jobs to others. Women entrepreneurs also faced their own set of challenges in a male dominated society.

Women entrepreneurs are mainly engaged in handlooms and handicrafts industry. The following table shows the numbers of handloom workers in the states according to order.

Table 1.1 showing the number of Handloom Worker Households in selected States in order of Ranking

| Sl.No | State | Number of Handloom Worker Households | Percentage share to total household (27,83,271) |
|-------|-------------|--------------------------------------|---|
| 1 | Assam | 12,40,817 | 44.58 |
| 2 | West Bengal | 4,06,761 | 14.61 |
| 3 | Tamil Nadu | 1,89,069 | 6.79 |
| 4 | Manipur | 1,78,975 | 6.43 |

Source: *Handloom Census of India, 2009-10, NCAER*

According to the IBEF (India Brand Equity Foundation), in March 2020, Manipur had the highest number of handicrafts units and highest number of craftspeople in the entire north eastern region of the country and it ranked top 5 in the country in terms of numbers of looms.

In a state like Manipur, women entrepreneurs in handlooms and handicrafts have contributed a lot in different aspects. One such upcoming successful women entrepreneur is

Leitanthem Jibanlata Devi, proprietor of *Lanleima Handlooms and Handicrafts*, a lady who believed in capturing the market by diversifying her products or services. The reason behind her successful business is the quality she gives at reasonable cost. She also helped in the start-up of around 11 entrepreneurs by providing capital to them. Her interest in weaving started since childhood as she has been witnessing her grandmother who was famous for creativity and innovativeness in her products relating with handloom and handicraft.

The following table 1.2 shows the numbers of age group who work as handloom workers in India.

Table 1.2 Number of Total Handloom Workers by Age Group

| Location | Total workforce (All ages) | <18 years | 18 years and above |
|----------|----------------------------|--------------|--------------------|
| Rural | 184,088 | 11,780 | 172,308 |
| Urban | 34,665 | 2,654 | 32,011 |
| Total | 218,753 | 14,434(6.59) | 204,319 (93.40) |

Source: Handloom Census of India, 2009-10, NCAER

From the table above, we can infer that most of the people working in the handloom are from the rural areas as compared to urban as the rate of unemployment is higher in rural.

Table 1.3 Number of Working Looms by Purpose of Usage

| Location | Commercial | Domestic | Both domestic and commercial | Total |
|------------|------------|----------|------------------------------|---------|
| Rural | 19,708 | 980 | 138,095 | 158,783 |
| Urban | 3,132 | 35 | 24,753 | 27,920 |
| Total | 22,840 | 1,015 | 162,848 | 186,703 |
| Percentage | 12.23 | 0.54 | 87.22 | 100 |

Source: Handloom Census of India, 2009-10, NCAER

From table 1.3, we can see that people working in looms are mainly for commercial purpose and the rate is high in rural area. Above that, there are also people who are dealing with both domestic and commercial purposes.



In the year 2018, Leitanthem Jibanlata Devi started *Lanleima*, a showroom of handloom and handicrafts, with the investment details given in table 1.4, which is now having a return of 20% more than the investment amount. In the following year, she started Yarn Bank (with the financial support from SBI) for supporting and facilitating the weavers in the state. Another innovative idea of maintaining good rapport with the weavers, she is on the process of starting a Specialized Weavers' Card System which will enable the weavers to obtain the yarn at concessional rates so that they sell their products in her showroom.

Table 1.4 Establishment cost details of the *Lanleima Handloom and Handicraft*

| Sl.No | Particulars | Amount |
|-------|--|--------------|
| 1 | Fund borrow from LEIMA GROUP sister concerned of “The Leima Staff Mutual Benefit Trust” | ₹ 1,00,000 |
| 2 | Grant from NEDFi for Organizing Skill Development and Value addition Training Programme in four phases | ₹ 6,74,991 |
| 3 | Grant from NEDFi as Cost of Construction | ₹ 1,50,000 |
| 4 | SBI Paona Bazar sanctioned loan as Cash Credit in October 2019 | ₹ 51,00,000 |
| 5 | SBI Paona Bazar sanctioned loan as Term Loan on September 2020 | ₹ 9,00,000/- |

Source: Field work

Sales of the business are usually high during the wedding season from October to April and at the same time they even participated in Exhibitions and Fairs organized every year by the Government and other non-governmental organizations. In the aim of competing with its rivals, they are engaged in producing exotic goods at fair price in their own worksite which also include providing fooding and lodging to its employees.

Covid-19 and Business

As the Covid-19 pandemic has dealt a negative impact to the world economy and have led to difficulty in normal operation of businesses, *Lanleima Handlooms and Handicrafts* also faced similar situation when it became difficult to repay loan from bank and the worksite was totally closed down till today. *Lanleima Handlooms and Handicrafts* has been compelled to reconfigure the business in the changed environment. Looking into the matter on how the pandemic has affected the mental and physical health of the employees, she started cutting down the waste cost of the business and focused on frequent financial modelling exercise to improve the current situation.

Conceptual framework:

| | | |
|---------------------------------|------------|--------------------------------|
| Corona Virus (Lock down period) | Business | Policies and measures taken up |
| | Employees | |
| | Personally | |

The objective is to analyse how the lockdown due to the pandemic has affected the business and as a women entrepreneur what steps were undertaken to compete with the rivals in the market and still continue to grow in the market.

Methodology is direct interview where it was convenient for the entrepreneur to share all the experience and to analyse in depth the situation.

Analysis:

As a women entrepreneur, she has faced many challenges and felt it was difficult to predict the future of Handloom sector in the present circumstances. Some of the qualities which she thinks are important for the growth of women entrepreneurs are shown in the table 1.5 below.

Table 1.5 showing the qualities ranked from 1-10 required for women entrepreneur

| Qualities | | | | | | | | | |
|------------------|-----------------|----------------------|-----------------|----------------------|-------------------|---------|------------|---------------------------|--------------------|
| Leadership Skill | Self motivation | Communication skills | Self Discipline | Knowledge and skills | Strong Work ethic | Passion | Confidence | Creativity and Innovative | Technical Know how |
| 2 | 5 | 6 | 7 | 4 | 9 | 8 | 3 | 1 | 10 |

Source: Field work

She, as an upcoming successful entrepreneur, found that creativity and innovative were the main reasons for the survival of the organization and at the same time there should be a good leadership quality which will help in bringing togetherness in the organization. The following table shows the ranking of different types of challenges faced by the business before and after Covid-19.

Table: 1.6 Showing the different types of challenges

| | Types of Challenges | | | | | | | | | | | | | |
|--------------|------------------------|----------------------|-------------------------|-------------------------|-----------|-----------|-----------------------------------|-------------------------|-------------------|-------------------------------|--|----------------|---|-------------------|
| | Source of raising fund | Developing new ideas | Increase in competition | Entrepreneurial culture | Employees | Customers | Disturbing state of law and order | Bad debt from customers | Government Policy | Inadequate stock or inventory | Logistic and transportation bottleneck | Family problem | Problems with obsolescence of indigenous technology | Employee turnover |
| Before Covid | 6 | 8 | 5 | 7 | 9 | 1 | 2 | 13 | 3 | 4 | 14 | 10 | 11 | 12 |
| After Covid | 2 | 6 | 9 | 10 | 5 | 8 | 11 | 4 | 12 | 13 | 1 | 14 | 7 | 3 |

Source: Field work

The table shows that the priority of changes of challenges to business before and after Covid-19. Before the pandemic, the main motive of the business was how to retain and increase customers and after covid it was found that logistic and transportation became the most important challenge as it was found very difficult to reach to the customers and the employees.

The business was also trying to take up some other methods in dealing with the problem of the Covid-19 effect. As logistics became a challenge, they have taken loan for purchasing vehicles and reaching to the farthest. Retaining employees also became difficult as the salaries needed to be deducted for deducting the various costs of the organization. Technology emerged as the only means of bringing growth in the organization and reaching towards larger section of the society.

Findings how corona affected the business:

- a. Vehicle loan was taken from TATA Motors in order to expand the accessibility of business.
- b. To capture the market and to reach the places where transportation is poor, Mobile Yarn Sales was introduced.
- c. In order to support the artisans financially, Credit Policy to Clients/Artisans was introduced which help in increasing the sale. The artisans were also provided a room for exchange their finished product with yarns.
- d. In order to have better margin of cost efficiency and faster cash generation Weaver's Card Scheme was introduced offering a discount at the rate of 10-20% to holders.
- e. Top Up loan from SBI was utilized which helped varied segment of artisans in fulfilling their demand and buying out their existing inventory of finished product.
- f. Extensive publicity was conducted for bringing more connections through online channel.
- g. For supporting the physical and mental health of the employee, Covid Insurance was taken from Primarica Life Insurance (PLI)
- h. Expanding the market and opening a new branch at Moirang.
- i. Organizing health awareness programme and taking up all the necessary steps relating with Covid safety.
- j. Cost of raw materials and total operating costs increased by more than 10%.

Suggestions

- a. There shall be reduction in rent of small and medium sized enterprises and lower cost for electricity, gas, logistics etc.
- b. Reduction in financing costs for SMEs, extension of loan terms or partial debt relief.
- c. Widow's vocational training and admissible insurance in the form of pension should be provided to the weavers and artisans.
- d. Exploring different options for sources of fund may be from the government.
- e. Organising programme for improving the mental health of employees and also spreading the awareness of Covid-19 safety.
- f.

Conclusion

Covid-19 has affected the growth of business in *Lanleima Handlooms and Handicrafts* to a large extent. Logistics and transportation of raw materials or semi-finished or finished

goods became more difficult after the pandemic. The fate of the employees in the organization would have been in greater risk if the proprietor L. Jibanlata had not taken up right steps at the right time. Diversifying the market like providing mobile yarn, top-up loan from SBI have helped the proper / weavers to thrive and grow.

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Does Quality of Work Life instigate Intention to Stay amidst COVID-19? The Mediating Role of Job Satisfaction

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Abstract

This research is the first to test and validate the original Quality of Work Life Scale (QWLS) psychometric properties in India. Qualitative data is collated from six prominent Indian commercial banks chosen from four prominent metropolitan cities of India. The reliability and validity assessment of the measurement models are meticulously verified. Co-variance-based (CB) SEM techniques are incorporated to verify the structural relationships proposed. In light of spillover theories, a structural mediation model is endeavored to comprehend the spillover effect of job satisfaction in the relationship of QWL with the intention of the bankers to stay during the COVID-19 era. Results indicate that QWL positively spilled over job satisfaction but negatively predicted the bankers' intention to stay. Moreover, job satisfaction negatively mediated the effect of QWL on the intent to stay. Furthermore, economic and family needs also negatively predicted the intent of the bankers to stay. Results add a new dimension to the extant literature. The mediation model is recommended for replication in other professional boulevards. Theoretical and managerial practices are delved into in detail for such uncanny findings in the COVID-19 pandemic.

Key Words: *COVID-19, Work and COVID-19, COVID-19 Impact on Mental Health, Quality of Work Life, Spillover Theories, Job Satisfaction, Structural Mediation Model*

Introduction:

The novel Coronavirus (COVID-19) has affected 211.73 MM of the masses globally (World Health Organization, August 24, 2021), wreaking havoc in all spheres of life and industry. Since its genesis in December 2019 from China (Torales et al., 2020), nations have been grappling with strategizing measures to abate the virulence of this lethal respiratory illness (Lu, 2020; Raihan, 2020). Given the coping errors or variations in its genome (WHO, 2021), its viral virulence has increased the death toll (4.43 MM) (WHO, August 24, 2021). COVID-19 is considered the 'black swan event of the century,' given its significant macroeconomic impact over all industries globally (WHO, 2021; Deloitte, 2020). The COVID-19 pandemic has slowed growth and possibly led to sharp shocks worldwide to nations and industries (MacIntyre, 2020; Shigemura et al., 2020). To abate the spread of the novel acute respiratory illness (Lu, 2020), nations have adopted travel restrictions, lockdown, self-isolation/ quarantine, vaccination drives, hygiene awareness, etc. The financial and economic costs have been colossally plummeting the gross domestic product (GDP) of nations across the globe. India has reported low demand and production as one of the worst-hit nations, negative growth rates forecast, significant-scale unemployment, lack of economic activities, and significant stress on banking infrastructure due to solid industry downturn and business closures. Research has shown that COVID-19 has prominently affected individuals' physical, psychological, and overall well-being (Huang and Zhao, 2020). The common symptoms include cough, fatigue, fever, myalgia, dyspnea (Lei et al., 2020; Wang et al., 2020). Simultaneously, many psychological fallouts persist on perceptual well-being through stress, insomnia, death anxiety, depression, and intimidation (Khanna, 2020). Contemporary researchers have endeavored to elucidate COVID-19 stressors through the prism of insecurity, risk of contagion, infobesity, quarantine, confinement, stigmatized social exclusion, financial and job losses (Hamouche, 2020).

The significant stressors fueled by COVID-19, namely physiological safety, risk of contagion, infobesity, isolation, quarantine, the social stigma of exclusion, economic losses, depression,

and job insecurity (Brooks et al., 2020; Xiang et al., 2020; Gao et al., 2020; Garfin et al., 2020; Qiu et al., 2020; Wang et al., 2020; Zhou et al., 2020) have been addressed, but these psychological distresses have had a prominent spillover effect on the facets of work life and overall well-being. The need of the hour is to address the COVID-19 stressors in the workplace and weigh the influence on the dimensions of overall quality of work life (QWL). The construct of QWL has been evolving with time, with a plethora of researches focusing on different facets of work life, but unfortunately, a few articles have endeavored to empirically focus on the Asian settings (Levine et al., 1984; Sirgy et al., 2001; Chan and Wyatt, 2007; Lee et al., 2008; Gurses et al., 2009). The novel need-based QWL theory (Sirgy et al., 2001) has received marginal academic attention in the Indian literature, as there are few articles (Rastogi et al., 2018; Saha and Kumar, 2016) virtually published in the central databases (Scopus, Web of Science, PubMed, Google Scholar, and Embase). Both types of research failed to validate the seven needs model of QWL and have suggested alternative approaches to the original need-based QWL theory. The novelty of this research lies in the fact that it is virtually the first to test and validate the psychometric properties of the original seven needs approach to QWL proposed by Sirgy et al. (2001) in the Indian setting. Given the impact of the pandemic on mental health and quality of work life, the study is more contemporary. Secondly, address the possible impact of the psychological stressors (Brooks et al., 2020; Xiang et al., 2020; Gao et al., 2020) fueled by COVID-19 on the perception of the cluster of needs fulfilled through work (QWL), job satisfaction, and intention to stay in the organization. There is a paucity of research on the impact of COVID-19 on facets of work life and the psychological well-being of employees (Hamouche, 2020). This article endeavors to fill the extant lacuna in contemporary literature and provide an impetus for managerial strategies in COVID-19 times. Thirdly, a structural mediation model is endeavored in light of spillover theories (Rice et al., 1980; Kabanoff, 1980). The satisfaction of needs through work (QWL) would horizontally spill over to the satisfaction from work, consequently instigating a desire to remain committed as a member of the organization. Theoretical and managerial implications for practice in times of the COVID-19 pandemic are delved in the later segments of the paper.

Overview of Literature:

Early QWL activities have been traced back from 1969 to 1974 when Louis Davis coined the term Quality of Work Life. The first International Convention on QWL was held in the year 1972 in Toronto. The varied aspects of an employee's organizational life and its impact on productivity is the primary concern of QWL. Sirgy et al. (2001) proposed a novel need-satisfaction approach to portraying the degree of QWL through the satisfaction of a cluster of seven basic needs. The study was conducted in Southwestern Urban, Mid-Atlantic Rural Universities and accounting firms located in the US. It was further highlighted that QWL in its entirety differs from job satisfaction; instead, the former is the antecedent to many outcomes such as general well-being, family life, social life, job satisfaction, etc. (Sirgy et al., 2001; 2008; Rai, 2015; 2018). It was perceptible that QWL positively spilled over life satisfaction through job satisfaction and satisfaction from non-work life aspects (family, financial, health, education, and friendships). Chan and Wyatt (2007) extended the need-based approach of QWL in Chinese literature. The research provided evidence of a positive association with job satisfaction, life satisfaction, and affective commitment. In contrast, QWL had a negative association with turnover intention. Rai (2018) endeavored to identify prominent facets of QWL and its spillover on college teachers' job satisfaction in West Bengal, India. The sample comprised 108 respondents, and ten different aspects were chosen to exhibit the degree of QWL perceived. All the chosen facets were directly correlated except 'constitutionalism' or the right to expression and equitable treatment. Moreover, the QWL was positively predicted by salary norms, working conditions, career growth, social integration and was negatively impacted by stress at work.

Likewise, job satisfaction was significantly predicted different facets of QWL viz. 1) salary norms 2) Immediate competencies to develop human capacities 3) Recognition of efforts 4) job stress negatively affected job satisfaction. Sinval et al. (2019) endeavored to validate the psychometric properties of the Quality of Work Life Scale (QWLS) (Sirgy et al., 2001) in Brazil and Portugal's settings. It was proven that gender had substantial invariance concerning nationality. Results supported that QWL positively predicted work engagement and adversely predicted burnout. The path coefficients of higher-order needs were more significant than those of basic needs, indicating that social, esteem, actualization, knowledge, and aesthetic needs significantly impacted health-safety and economic-family needs.

Theoretical framework and hypotheses formulation:

It has been evident from an intensive review of the burgeoning literature on the need-based QWL approach proposed by Sirgy et al. (2001), incorporated in American, Chinese, Thai, Iranian, Malaysian, and Bangladeshi literature. Unfortunately, there is a paucity of research on the subject in the Indian literature as it bears virtually only two articles (Saha and Kumar, 2016; Rastogi et al., 2018). This fact is further substantiated with the literature assessment on QWLS (Quality of Work Life Scale) as Sinval et al. (2019) report. This article is virtually the foremost to address the extant lacuna in the literature and provide the impetus for effective personnel management amidst the COVID-19 situation. The extant literature also harbors ample evidence on the spillover effect of QWL on job satisfaction (Sirgy et al., 2001; Lee et al., 2008; Yu et al., 2018; Rai, 2018; Sinval et al., 2019), but the indirect effect of QWL on their intention to stay, mediated through job satisfaction has not ever been attempted. The basic tenet of the structural mediation proposition is drawn from past researches (Sirgy et al., 2001; 2008; Lee et al., 2008; 2015; Marta et al. 2013; Singhapakdi et al. 2014; Yu et al., 2018; Rai, 2015; 2018; Sinval et al., 2019). Previous researches suggest job satisfaction leads to intent to stay (Bangwal and Tiwari, 2018; Aydogdu and Asikgil, 2011; Lee et al., 2000; Mueller et al., 1994) and job satisfaction is one of the outcomes of QWL (Sirgy et al., 2001; 2008; Lee et al., 2008; 2015; Koonmee et al., 2019; Rai, 2018). By the law of transitivity, QWL can be characterized as an antecedent to intent to stay, with the effect transmitted through job satisfaction. Hence, with the incorporation of spillover theories (Kabanoff, 1980; Crohan et al., 1989; Staines, 1980; Sirgy et al., 2001) where the satisfaction/dissatisfaction in one domain of life affects the satisfaction in other neighboring domains of a person's life, we draw our theoretical foundation for our structural mediation model.

There are a plethora of articles suggesting the need-based QWL causes positive attitudes towards work, leading to job satisfaction (Chan and Wyatt, 2007; Lee et al., 2007; Sirgy et al., 2001; 2008; Lee et al., 2008; 2015; Rai, 2018; Sinval et al., 2019). Consequently, job satisfaction is reported to positively induce intent to stay (Bangwal and Tiwari, 2018; Aydogdu and Asikgil, 2011; Lee et al., 2000; Mueller et al., 1994). These researches in the literature instigate a perception of a mediating transmission of the effect of QWL on intent to stay through the satisfaction from work. This is the basic tenet of the present paper and accordingly, we develop our proposition of a conceivable transmission of the effect of QWL into job satisfaction which consequently instigates a desire to remain loyal and committed to the institution. This research will be the first to explore the spillover of QWL on intention to stay, mediated through job satisfaction during the COVID-19 pandemic. Furthering this notion of spillover theories and need-satisfaction approach to QWL (Danna and Griffin, 1999; Chan and Wyatt, 2007; Lee et al., 2007; Sirgy et al., 2001; 2008; Lee et al., 2008; 2015; Rai, 2018; Koonmee et al., 2019; Sinval et al., 2019) this paper proposes that QWL significantly impacts intent to stay, through job satisfaction of Indian bankers, given the COVID-19 pandemic. Thus, we propose our primary hypothesis as:

H_A: ‘Job satisfaction significantly mediates the effect of QWL on intent to stay of the bankers in COVID-19 times’.

QWL → Intent to stay:

Literature reveals that QWL has a predictive effect on job satisfaction (Sirgy et al., 2001; 2008; Lee et al., 2008; 2015; Yu et al., 2018; Rai, 2015; 2018; Koonmee et al., 2019), and job satisfaction instigates intent to stay (Bangwal and Tiwari, 2018; Aydogdu and Asikgil, 2011; Lee et al., 2000; Mueller et al., 1994). Hence, we propose that the satisfaction of needs brought by the employees at work (QWL) instills a sense of acceptance of work values and loyalty to the organization, even in the COVID-19 pandemic.

H₁: ‘Quality of Work Life significantly predicts intent of the bankers to stay in COVID-19 times’.

QWL → Job Satisfaction:

Literature construes that QWL results in job satisfaction (Sirgy et al., 2001; Lee et al., 2008; 2015; Rai, 2015; 2018; Koonmee et al., 2019; Sinval et al., 2019; Agus and Selvaraj, 2020). Furthermore, QWL spills over diverse domains of life besides job satisfaction (Sirgy et al., 2001; 2008; Agus and Selvaraj, 2020). Primarily, for testing the mediation effect of job satisfaction as per Baron and Kenny’s (1986), Preacher and Hayes (2004), and Hair et al. (2013) citations, we propose:

H₂: ‘Quality of Work Life significantly spills over job satisfaction of the bankers during COVID-19 pandemic’.

Job Satisfaction → Intention to Stay:

Past research has reported (Sirgy et al., 2001; Lee et al., 2008; Lee et al., 2015; Srivastava, 2013; Luz et al., 2018) that an employee experiencing positive feelings towards the organization prompts a desire to remain committed and stay. The validity of the job satisfaction instrument of Dubinsky et al. (1986) in the Indian banking scenario is also verified. Hence, we hypothesize based on prior researches:

H₃: ‘Job satisfaction has a significant predictive effect on the intention of the bankers to stay during COVID-19 pandemic’.

Proposed Structural Mediation Model:

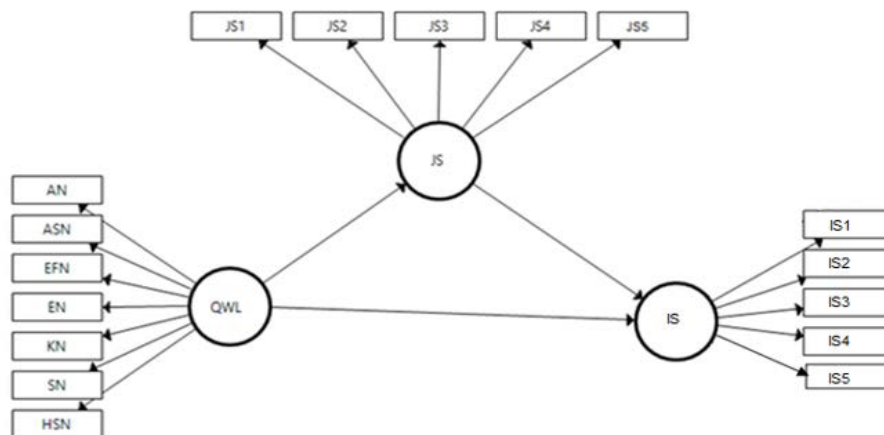


Figure 1: Proposed Structural Model

Note: HS^N- Health and safety needs, EF^N-Economic and family needs, S^N-Social needs, E^N-Esteem needs, A^N-Actualization needs, K^N-Knowledge needs, AS^N- Aesthetics needs, QWL - Quality of Work Life, JS - Job Satisfaction, IS – Intention to Stay

Research Method:

Sampling and Data Collation:

This study has been conducted on six prominent commercial banks (3 each from private and public sectors) based on their market capitalization share as of April 1, 2020, i.e., State Bank of India, Punjab & National Bank, Bank of Baroda, Housing Development Finance Corporation (HDFC) bank, Industrial Credit and Investment Corporation of India (ICICI) bank, and Axis bank. Prominently, cluster sampling was administered with four metropolitan cities chosen as primary clusters, i.e., Chennai, Delhi, Kolkata, and Mumbai. Initially, 1556 e-questionnaires were circulated via email, and the 202 responses were properly collated (*Response Rate: 12.98%*). The study time frame was April 2020- February 2021, when the COVID-19 virus crippled the nation. COVID-19 significantly impacted the primary information collation with the fear of unknown, death anxiety, risk of contagion, infobesity, isolation, quarantine, the social stigma of exclusion, economic losses, depression, job insecurity (Brooks et al., 2020; Qiu et al., 2020; Wang et al., 2020; Zhou et al., 2020), and lockdowns administered by the Indian government. Consequent to such unavoidable circumstances, snowballing techniques via WhatsApp, Facebook, Instagram, was also administered with 1,218 e-questionnaires circulated with 30 correctly filled responses from the selected clusters. The overall response rate boiled down to 232 valid responses (8.36%). Data was collated through a structured questionnaire based on a five-point Likert scale, vividly eliciting the elements of QWL, job satisfaction, and their intent to stay.

Sample Size:

The minimum sample size was calculated via G*Power (v3.1.9.4) with the level of significance at 0.05; medium effect size (f^2 : 0.15); power: 0.95 (see Figure 2). The nature of power analysis was 'a priori', and the minimum sample size for the study was 107. This study incorporates a sample of 232 bankers, adequate to provide a medium effect and actual power of 95.18%.

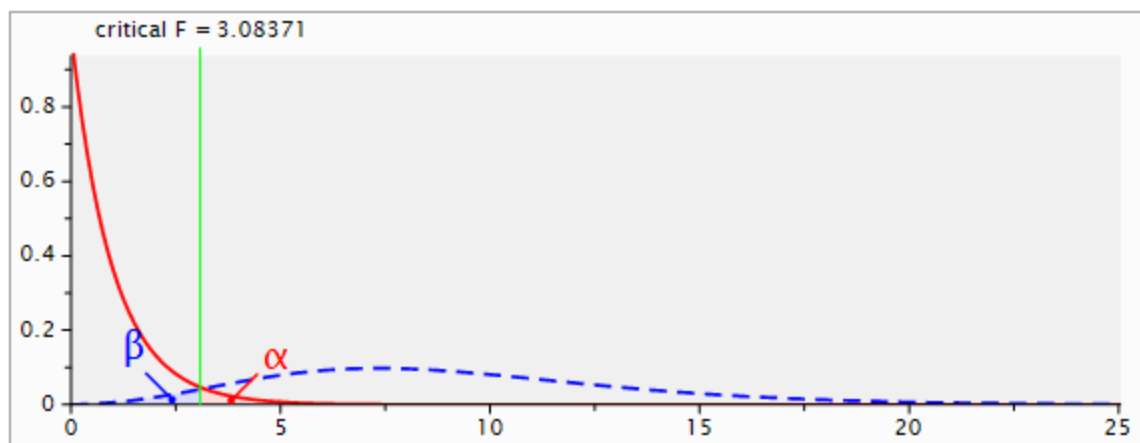


Figure 2: G*Power Graph

Procedures and Statistical Techniques:

The first step of the data analysis was a Confirmatory Factor Analysis (CFA) to verify the measurement model of the need-based model of QWL proposed by Sirgy et al. (2001). CFA is deployed to verify the factor structure of observed indicators on the latent construct (Hair et al., 2013; Hayes, 2019). This was possible via co-variance-based structural equation modeling (CB-SEM) performed through Analysis of Moment Structures (AMOS v.24) software incorporating the standard model fit indices (Henseler et al., 2009; Hair et al., 2009; Ringle et al., 2018). The latent constructs' common method bias (CMB) was also verified as Harman's one-factor test,

and favorable results were perceived. The internal consistency of the research instrument and the structural model was tested using Cronbach's Alpha, Roh values, and Composite Reliability. Convergent Validity of the constructs was tested through the Average Variance Extracted (AVE) scores, and discriminant validity figures of the research instruments were also verified as per the Fornell-Larcker criterion (1981) and Henseler et al. (2009). The collinearity diagnostics as per the variance inflation factor (VIF) were also investigated.

Consequently, the co-variance-based (CB) SEM technique was also administered to develop a causal structural model to examine the interrelated relationships amongst the observed indicators, latent constructs, and other latent constructs. AMOS (v.24) and Statistical Package for Social Sciences (SPSS v.22) were adopted for verifying hypotheses, the predictive relevance, effect sizes, and model fit indices. The mediation model was substantiated through the Baron and Kenny (1986), Preacher and Hayes (2004), Hayes (2019), and Variance Accounted For (VAF) technique proposed by Hair et al. (2013). The prime model of mediation was confirmed via Process Macro 3.4 (Hayes, 2019). Specific requisites of collinearity evaluation among the observed indicators and latent constructs were analyzed through the variance inflation factor (VIF) proposed by Hair et al. (2013). The causal effects amongst the QWL and job outcomes/ experiences were validated through R^2 (coefficient of determination), predictive in-sample relevance (Q^2), and the size of effects (f^2) on the endogenous variables (Hair et al., 2006; 2009; 2013; Henseler et al., 2009; Ringle et al., 2018).

Research Measures:

Quality of Work Life:

The cluster of seven needs exhibiting QWL is measured by the 16-item scale propounded by Sirgy et al. (2001).

Job Satisfaction:

The bankers' satisfaction level is measured by Dubinsky et al.'s (1986) five-item job satisfaction scale.

Intention to Stay:

Mrayyan's (2008) five-item scale of intention to stay is administered to measure the degree to which the bankers wanted to be associated with their banks in the COVID-19 pandemic.

Data Analysis:

The demographic profile of the sample is exhibited in Table I:

Table I: Demographic Profile:

| Socio-Economic Indicators | Frequency | Relative Percentage |
|----------------------------------|------------------|----------------------------|
| Nature of Bank: | | |
| Public | 120 | 51.72 |
| Private | 112 | 48.28 |
| Gender: | | |
| Male | 133 | 57.32 |
| Female | 99 | 42.68 |
| Marital Status: | | |
| Unmarried | 118 | 50.86 |
| Married | 111 | 47.84 |
| No response | 3 | 1.30 |

| | | |
|-------------------------------|-----|-------|
| Education: | | |
| Bachelor's Degree | 132 | 56.90 |
| Master's Degree | 89 | 38.36 |
| Post-graduate diploma | 11 | 4.74 |
| Work Experience: | | |
| More than 25 years | 35 | 15.08 |
| More than 15 years - 25 years | 59 | 25.43 |
| More than 5 years - 15 years | 88 | 37.93 |
| Less than 5 years | 50 | 21.56 |

Table II exhibits the descriptive information of the seven constructs of QWL, overall QWL, job satisfaction, and intention to stay. We deduce that all the needs affirmatively correlate with the overall QWL and job satisfaction by inspecting the corresponding correlation figures, mean, and SD. Intriguingly, the seven constructs negatively correlated with intention to stay except for aesthetic needs; the negative correlation figures were significant at 99% confidence levels. A positive association of QWL with the satisfaction from the job ($r = 0.635$; $p < 0.01$) of the bankers, nonetheless negative association of QWL and job satisfaction ($r = -0.341$ & -0.327 ; $p < 0.01$) with intention to stay has been reported contrariwise to the findings present in the extant literature (Bangwal and Tiwari, 2018; Aydogdu and Asikgil, 2011; Lee et al., 2000; Mueller et al., 1994). The negative association is further explored via structural modeling and mediation models as we progress in the later section of the present paper.

Table II: Descriptive Statistics of Indicators and Constructs

| | Mean | SD | HS ^N | EF ^N | S ^N | E ^N | A ^N | K ^N | AS ^N | QWL | JS | IS |
|-----------------|------|------|-----------------|-----------------|----------------|----------------|----------------|----------------|-----------------|--------|--------|---------|
| HS ^N | 3.21 | .839 | 1 | .759** | .726** | .620** | .616** | .644** | .133* | .860** | .642** | -.347** |
| EF ^N | 3.05 | .825 | | 1 | .715** | .696** | .675** | .568** | 0.117 | .867** | .572** | -.305** |
| S ^N | 3.11 | .893 | | | 1 | .624** | .625** | .503** | 0.116 | .829** | .586** | -.311** |
| E ^N | 3.03 | .894 | | | | 1 | .610** | .471** | 0.074 | .788** | .470** | -.222** |
| A ^N | 3.13 | .850 | | | | | 1 | .447** | 0.126 | .786** | .467** | -.250** |
| K ^N | 3.20 | .819 | | | | | | 1 | .195** | .729** | .408** | -.263** |
| AS ^N | 2.73 | .907 | | | | | | | 1 | .348** | .166* | -0.081 |
| QWL | 3.07 | .637 | | | | | | | | 1 | .635** | -.341** |
| JS | 2.93 | .733 | | | | | | | | | 1 | -.327** |
| IS | 2.81 | .722 | | | | | | | | | | 1 |

Note: 1. HS^N- Health and safety needs, EF^N-Economic and family needs, S^N-Social needs, E^N-Esteem needs, A^N-Actualization needs. K^N-Knowledge needs, AS^N- Aesthetics needs; QWL- Overall Quality of Work Life; JS- Overall Job Satisfaction; IS – Intention to Stay 2. * $p < 0.05$, ** $p < 0.01$.

Measurement Model Validation:

The present study incorporates seven facets of QWL developed by Sirgy et al. (2001) and validated to understand the degree of QWL in the banking sector using Confirmatory Factor Analysis (CFA). Primarily, the construct validity of the QWL scale was assessed with the incorporation of CFA (Anderson & Gerbing, 1988), and the mediation is verified after that. CFA is applied to ascertain the construct validity of the survey items and the extent to which several observed indicators explain the construct. The model fit was investigated through the CB-SEM technique, and preliminary analysis exhibited a poor model fit. The critical ratio of the standardized regression weights, goodness of fit indices, and modification indices produced by the AMOS output were utilized to confirm the data's fit. Items with poor loadings were deleted and reevaluated to better the fit indices for the model. Certain items like HSN3 and EFN2

had poor factor loadings and predicted .011 and .003 of their respective latent constructs. Subsequently, the standardized factor loadings of all the indicator variables were within the range of 0.737 to 0.960, which is highly significant as values are greater than 0.7. All factor loadings and correlations with error terms are statistically significant at 99% confidence levels. Figure 3 vividly exhibits the CFA of the needs of the bankers concerning work life. The measurement model reveals excellent fit in terms of all selected goodness of fit statistics and all values are within the acceptable range ($\chi^2 = 97.536$, $df = 56$, $p\text{-value} = .000$, $\chi^2/df = 1.742$; $GFI = 0.946$, $AGFI = 0.899$, $CFI = .972$, $NFI = 0.938$, $RMSEA = .057$, $LO\ 90 = 0.073$).

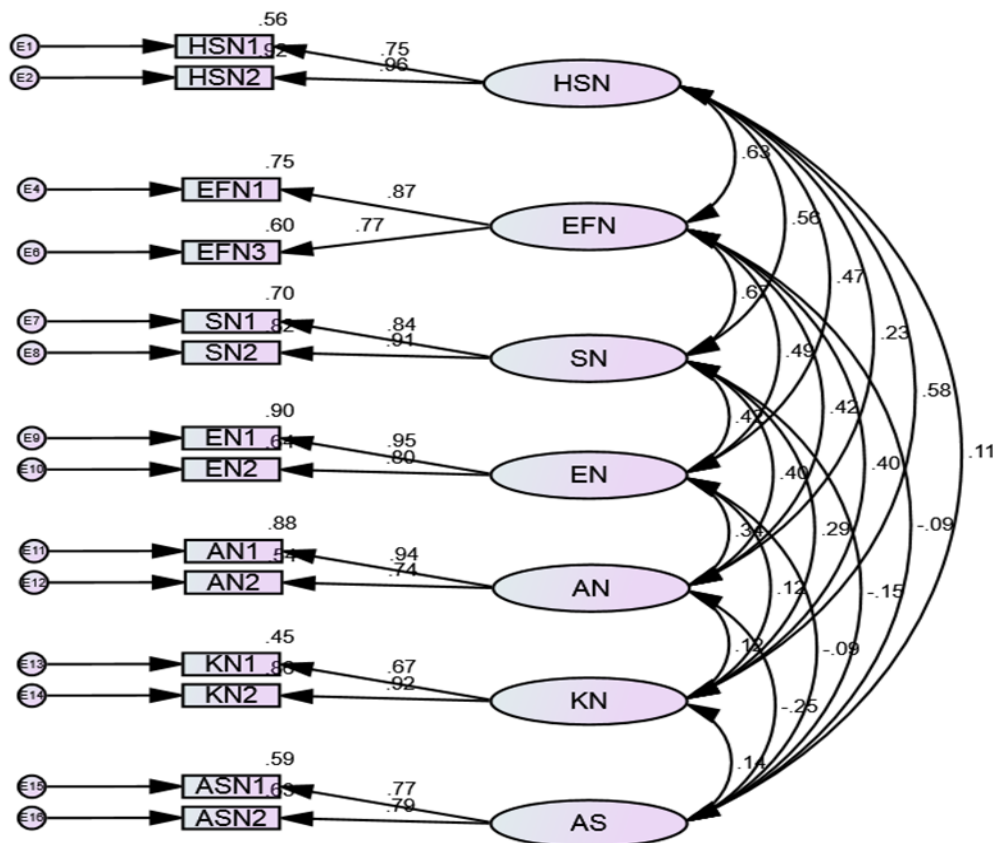


Figure3:Measurement model of varied facets of QWL

Note: HS^N- Health and safety needs, EF^N-Economic and family needs, S^N-Social needs, E^N- Esteem needs, A^N-Actualization needs. K^N-Knowledge needs, AS- Aesthetics needs.

Table III: Reliability and Validity Assessment

| Constructs | Cronbach's Alpha (α) | Composite Reliability (CR) | Average Variance Extracted (AVE) |
|--|-------------------------------|----------------------------|----------------------------------|
| Health & Safety Needs (HS ^N) | .837 | 0.850 | 0.742 |
| Economic & Family Needs (EF ^N) | .803 | 0.806 | 0.676 |
| Social Needs (S ^N) | .861 | 0.862 | 0.758 |
| Esteem Needs (E ^N) | .863 | 0.871 | 0.772 |
| Actualization Needs (A ^N) | .817 | 0.828 | 0.710 |
| Knowledge Needs (K ^N) | .766 | 0.786 | 0.653 |
| Aesthetic Needs (AS ^N) | .757 | 0.757 | 0.609 |

It can be perceived that the measurement model comprising seven facets shows that the standardized factor loadings and α of the constructs are more than 0.7, proving high internal consistency of the constructs (Henseler et al., 2009; Hair et al., 2009; Ringle et al., 2018). This provides enough evidence for the construct reliability of the model. The CR figures extending more than 0.7 prove sufficient confirmation of good composite reliability of the reflective constructs (Hair et al. 2009). Inspecting the validity aspect of the model, the AVE values of the given constructs surpass the norm of 0.5, indicating strong convergent validity. The discriminant validity is exhibited by the square root of AVE values exceeding their individual correlations for each latent construct (Fornell-Larcker, 1981; Henseler et al., 2009). Thus, we infer that the model fits well in terms of reliability and validity, following social research standards. Hereafter, we can conclude from the CFA and Table III and IV results that the need-based theory of QWL pertains to the Indian banking sector, and the needs of the bankers are vividly portrayed and statistically proven through the present model. Past researchers (Rastogi et al., 2018; Saha and Kumar, 2016) have endeavored to validate the original seven-needs model approach to QWL proposed by Sirgy et al. (2001) in the Indian sample. The results were not within standard model fit indices, and alternative models were proposed by the authors, as previously discussed in the review of the literature section. Hence, this research is foremost to validate Sirgy et al.'s (2001) original seven need-based model of QWL in Indian literature. The significant contribution of the present research is to fill the extant lacuna in the Indian literature of QWL through validation of the seven-needs approach and further substantiation of any presence of the mediating effect of job satisfaction in the predictive relationship of QWL on intention to stay levels. The latter mediation influence is confirmed in the subsequent section.

Table IV: Discriminant Validity ($\sqrt{\text{AVE}}$ shown diagonally):

| | K^N | HS^N | EF^N | S^N | E^N | A^N | AS^N |
|--------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| K^N | 0.808 | | | | | | |
| HS^N | 0.578 | 0.861 | | | | | |
| EF^N | 0.405 | 0.633 | 0.822 | | | | |
| S^N | 0.295 | 0.562 | 0.665 | 0.871 | | | |
| E^N | 0.121 | 0.466 | 0.490 | 0.420 | 0.879 | | |
| A^N | 0.125 | 0.235 | 0.425 | 0.399 | 0.341 | 0.842 | |
| AS^N | 0.138 | 0.113 | -0.093 | -0.147 | -0.089 | -0.247 | 0.781 |

Note: HS^N - Health and safety needs, EF^N -Economic and family needs, S^N -Social needs, E^N -Esteem needs, A^N -Actualization needs, K^N -Knowledge needs, AS^N - Aesthetics needs.

Structural Mediation Model: Common Method Bias, Reliability, Validity and Predictive Relevance

The potential common method bias (CMB) persisting in the analysis was tested via Harman's one-factor test proposed by Podsakoff et al. (2003). Results confirmed that 39.26% of the variance was produced, which was well within the threshold of 50% variance. Hence, we deduce that the research is independent of any CMB (Podsakoff et al., 2003). Structural Equation Modeling (CB-SEM) was incorporated with the help of AMOS (version 24) software for verifying the model fit and the hypothesized relationships among the constructs. The following figure 4 exhibits the modified structural model performed. The structural paths from QWL to intent to stay, mediated through job satisfaction, were significant at $p < 0.05$. It can be perceived from the above figure that a negative spillover of QWL and job satisfaction on their intent to stay. This intriguing finding is further investigated whilst testing the hypotheses. After incorporating certain alterations in the modified structural model, it has been tested via SEM, and the fit indices have proven excellent model fit. Results indicate prominent indicators are in

the acceptable range and confirm a good fit for the data. The Root Mean Square Error of Approximation (RMSEA) falls less than 0.08 and the Chi-square value divided by Degree of Freedom is also less than the norm of 3, which proves an acceptable model fit ($\chi^2 = 117.732$, $df = 74$, $p\text{-value} = .001$, $\chi^2/df = 1.591$; $GFI = 0.933$, $AGFI = 0.905$, $CFI = .979$, $NFI = 0.946$, $RMSEA = .051$, $LO\ 90 = 0.033$). Furthermore, the implementation of CB-SEM resulted in a standardized root mean residual (SRMR) = 0.05, under the threshold of 0.08, indicating excellent fit indices (Hair et al., 2009).

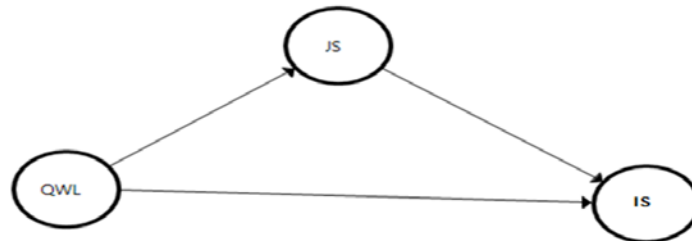


Figure 4: Modified Structural Model

Note: QWL - Quality of Work Life, JS - Job Satisfaction, IS – Intention to Stay

We inspect the evidence of reliability and validity of the other measurement models are portrayed in Tables V and VI. The standardized regression weights were above the threshold of 0.7 (Henseler et al., 2009), barring aesthetic needs (AS^N), knowledge needs (K^N), and IS2, but all the loadings with their respective t-values were significant at 95% confidence level. Besides, α and Roh values were above 0.7, which provides strong evidence of internal consistency and construct reliability of the model as a whole (Hair et al., 2006; 2009; 2013; Henseler et al., 2009; Ringle et al., 2018). Table V also exhibits apposite composite reliability values exceeding the acceptable standard of 0.7 (Hair et al. 2009). The Average Variance Extracted of the latent constructs exceeded 0.5, supporting convergent validity, as Henseler et al. (2009) reported. Table VI displays the square root of AVE of the reflective constructs, more prominent than their individual correlations supporting adequate discriminant validity figures as per the Fornell-Larcker criterion (1981) and Henseler et al. (2009). The Heterotrait-monotrait (HTMT) ratio of correlations proposed by Henseler et al. (2015) was also implemented for further discriminant validation, and it was perceived that the values were well within the threshold of 0.7; alternatively, 0.85 is also considered favorable (Henseler et al., 2015) ($QWL \rightarrow JS: 0.67$; $QWL \rightarrow IS: 0.39$; $JS \rightarrow IS: 0.35$). The collinearity diagnosis of the structural model was verified as per the variance inflation factor (VIF), which was favorable under the cut-off value of 5 (Hair et al., 2013). Hence, it provides enough evidence that the model is free from multicollinearity issues.

Table V: Modified Structural Model: Composite Reliability (CR); Cronbach’s Alpha (α); Average Variance Extracted (AVE); Variance Inflation Factor (VIF)

| Constructs | Indicators | Loadings/ Coefficients | t- value | VIF | CR | α | Roh | AVE |
|------------|------------|---------------------------|-------------|------|-------|----------|-------|-------|
| QWL | AS^N | 0.15 | 2.201 | 2.11 | | | | |
| | K^N | 0.655 | 11.388 | 1.04 | | | | |
| | A^N | 0.742 | 13.701 | 1.80 | | | | |
| | E^N | 0.749 | 13.898 | 2.19 | 0.881 | 0.866 | 0.926 | 0.541 |
| | S^N | 0.823 | 16.285 | 2.62 | | | | |
| | EF^N | 0.877 | 18.333 | 3.38 | | | | |
| | HS^N | 0.88 | 18.392 | 3.30 | | | | |

| | | | | | | | | |
|--------------------------|-----|-------|--------|------|-------|-------|-------|-------|
| Job Satisfaction | JS4 | 0.938 | 22.332 | 4.63 | | | | |
| | JS2 | 0.856 | 18.779 | 3.06 | 0.927 | 0.926 | 0.927 | 0.809 |
| | JS1 | 0.906 | 18.801 | 3.79 | | | | |
| Intention to Stay | IS1 | 0.896 | 15.413 | 3.06 | | | | |
| | IS2 | 0.616 | 10.277 | 1.61 | 0.875 | 0.870 | 0.914 | 0.641 |
| | IS4 | 0.814 | 15.413 | 2.43 | | | | |
| | IS5 | 0.847 | 16.336 | 2.79 | | | | |

Note: HS^N- Health and safety needs, EF^N-Economic and family needs, S^N-Social needs, E^N-Esteem needs, A^N-Actualization needs. K^N-Knowledge needs, AS^N- Aesthetics needs.

Table VI: Discriminant Validity (\sqrt{AVE} shown diagonally):

| Constructs | QWL | IS | JS |
|------------|--------------|--------------|--------------|
| QWL | 0.735 | | |
| IS | -0.399 | 0.800 | |
| JS | 0.680 | -0.351 | 0.900 |

Note: QWL - Quality of Work Life, IS – Intention to Stay, JS - Job Satisfaction.

The global goodness of fit (GoF) exhibits the reflective structural model's predictive power. GoF is computed as the product of the geometric mean of AVE and the mean of R Square of the reflective endogenous variables (job satisfaction and intention to stay). Table VII indicates the GoF value 0.45, above the threshold of 0.36, inferring considerable predictive power of the reflective constructs (Tenenhaus et al., 2005). The predictive relevance of the structural mediation model proposed by Stone and Geisser (1974) for cross-validation of the proposed relationships was substantiated through the Q square approach. The reflective endogenous variables job satisfaction and intent to stay demonstrated Q square levels of 0.33 and 0.12. Though the Q² values were above the standard of 0, the model possesses medium predictive relevance as the values are less than 35% of relevance (Hair et al., 2014; 2017).

Table VII: R Square, Q Square and Global goodness of fit (GoF)

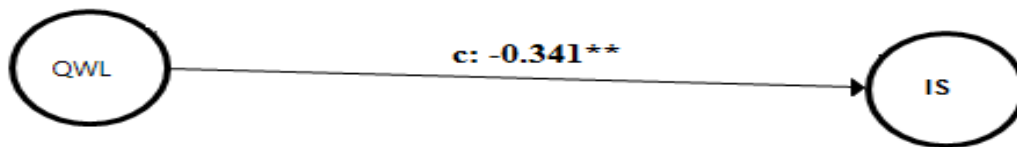
| Explanatory Constructs | R Square | Q Square |
|------------------------|-------------|----------|
| JS | 0.45 | 0.33 |
| IS | 0.17 | 0.12 |
| GoF | 0.45 | |

Note: JS - Job Satisfaction, IS – Intention to Stay.

Results

Prominent citations were administered to verify the mediating effect of job satisfaction in the relationship QWL with the bankers' intent to stay in the COVID-19 era (Baron and Kenny, 1986; Preacher and Hayes, 2004; Hair et al., 2013). For this purpose, a simple mediation model (model no. 4) was administered for this purpose (Hayes (2019)). The significance of the proposed mediating effect was tested via Process Macro 3.4 under the bootstrapping technique of 5,000 adequate subsamples (Preacher and Hayes, 2004; Hair et al., 2013). Primarily, analyzing the 'Total Effect' or 'c' (QWL → IS), i.e., the effect of antecedent (exogenous variable) on the outcome (endogenous variable) devoid of the effect of the mediator (Baron and Kenny, 1986; Preacher and Hayes, 2004; Hayes, 2013). It is perceived from Table VIII that a significant negative relationship between QWL and their intent to stay ($\beta = -0.341$, $t = 5.881$, LCL: -0.525, UCL: -0.248; $p < 0.01$). QWL explains almost 16% of the variance in the intent of the bankers to stay (R Square: 0.156), and a small effect size of the proposed relationship is ascertained through Cohen's f^2 (0.18) (Hair et al., 2017). Figure 5 further elucidates that QWL

has a significant negative spillover effect on intent to stay in the absence of the mediator (job satisfaction). The Durbin Watson test clarifies that the model is free from errors within the threshold of 1 to 3. Table VIII justifies that the significant relationship between QWL and intent to stay is independent of errors. Hence, the first criterion of mediation (Baron and Kenny, 1986; Preacher and Hayes, 2004; Hayes, 2013) is successfully fulfilled, which also substantiates evidence of accepting the first alternative hypothesis ‘There is a significant relationship between QWL and intent of the bankers to stay in COVID-19 times’. This uncanny negative spillover of QWL on their intent to stay is an intriguing contribution to the extant literature. Furthermore, the negative predictive effect of QWL on intent to stay is not in conformity with past researches (Bangwal and Tiwari, 2018; Aydogdu and Asikgil, 2011; Lee et al., 2000; Mueller et al., 1994).



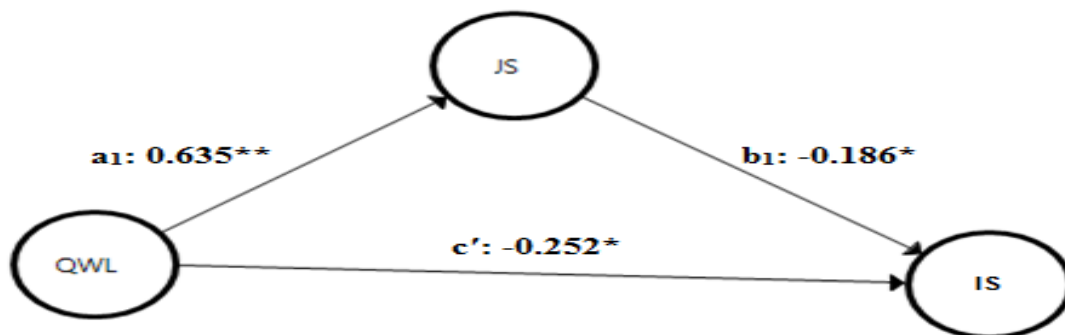
Note: QWL - Quality of Work Life, IS – Intention to Stay, ** p<0.01.

Figure 5: H₁: QWL → IS

Table VIII: Relationship between constructs: Path Coefficients, Durbin Watson, t, R² and f² values

| Hypotheses | Explanatory Constructs | β | t-value | R square | f square | Durbin-Watson |
|----------------|------------------------|--------|----------|----------|----------|---------------|
| H ₁ | QWL → IS | -0.341 | 5.881** | 0.156 | 0.18 | 1.576 |
| H ₂ | QWL → JS | 0.635 | 11.978** | 0.455 | 0.84 | 1.691 |
| H ₃ | JS → IS | -0.186 | 2.340* | 0.122 | 0.14 | 1.569 |
| H _A | QWL → JS → IS | -0.252 | 2.798* | 0.167 | 0.21 | 1.595 |

Note: QWL - Quality of Work Life, JS - Job Satisfaction, IS – Intention to Stay, * p<0.05, ** p<0.01.



Note: QWL - Quality of Work Life, JS - Job Satisfaction, IS – Intention to Stay, * p<0.05, ** p<0.01.

Figure 6: H₂: QWL → JS; H₃: JS → IS; H_A: QWL → JS → IS

Table IX: Multiple Regression Analysis

| Exogenous variables | Endogenous constructs | | | |
|---------------------|-----------------------|---------|-------------------|---------|
| | Job Satisfaction | | Intention to Stay | |
| | β | t-value | β | t-value |
| HS ^N | .414 | 4.623* | -.204 | -1.803 |
| EF ^N | .113 | 1.244 | -0.252 | -1.989* |
| S ^N | .203 | 2.542* | -.110 | -1.096 |
| E ^N | .022 | .295 | .056 | .613 |
| A ^N | .011 | .154 | -.020 | -.220 |
| K ^N | -.057 | -.857 | -.052 | -.624 |
| AS ^N | .083 | 1.637 | -.025 | -.393 |
| R Square | 0.46 | | 0.20 | |
| F-Statistic | 26.734** | | 4.909** | |

Note: HS^N- Health and safety needs, EF^N-Economic and family needs, S^N-Social needs, E^N-Esteem needs, A^N-Actualization needs. K^N-Knowledge needs, AS^N- Aesthetics needs; * $p < 0.05$; ** $p < 0.01$.

The employee satisfaction of various needs (QWL) (Sirgy et al., 2001) positively contributes to job satisfaction and other domains of life viz. family life, leisure, etc. The model further elucidates this theory that QWL is a major predictor of overall satisfaction from the job (Sirgy et al., 2001; Lee et al., 2008; 2015; Chan and Wyatt 2007; Marta et al. 2013; Rai, 2015; 2018; Koonmee et al., 2019; Sinval et al., 2019). The second step of the mediation process is verifying the significant relationship of the antecedent (QWL) with the mediator (job satisfaction). Figure 6 and Table VIII demonstrates a significant effect of QWL on job satisfaction (β : 0.635, $t = 11.978$, LCL: 0.616, UCL: 0.8469; $p < 0.01$). The variation in the mediator explained by QWL was 45.5% (R^2) with a robust effect size (f^2) of 84% (Hair et al., 2014; 2017; Ringle et al., 2018). The Durbin Watson test provided evidence of the independence of errors (1.691) of the relationship between the antecedent and the mediator. This provokes the fact that QWL has a significant positive effect on the job satisfaction of the bankers in the COVID-19 scenario. With all these statistical indications for the second hypothesis, we infer that *'there is a significant (negative) prediction effect of QWL on job satisfaction in the COVID-19 situation'*. The results of the study correlate with past researches in the burgeoning literature (Sirgy et al., 2001; Lee et al., 2008; 2015; Chan and Wyatt 2007; Marta et al., 2013; Rai, 2015; 2018; Singhapakdi et al., 2014; Arndt et al. 2015; Abdollahzade et al., 2016; Koonmee et al., 2019; Sinval et al., 2019; Agus and Selvaraj, 2020).

The third criterion for testing the mediation effect, a significant relationship between the mediator (job satisfaction) and the endogenous variable (intent to stay) (Baron and Kenny, 1986), leads to our third hypothesis. The results of the structural equation modeling demonstrated in table VIII and figure 6 expounds a significant adverse effect on intent to stay (β : -0.186, $t = 2.340$, LCL: -0.3374, UCL: -0.289) at 95% confidence levels. Intriguingly, an adverse effect was reported with almost a 12.2% (R^2) variance explained in the outcome, and a relatively small effect size through Cohen's f^2 (0.14) was also perceived (Hair et al., 2014; 2017; Ringle et al., 2018). Consequent to these analyses, we construe that *'there is a significant negative predictive effect of job satisfaction on the bankers' intent to stay in the COVID-19 times'*. This unique negative effect of job satisfaction on the intent of the bankers to stay juxtaposes with the extant literature (Bangwal and Tiwari, 2018; Aydogdu and Asikgil, 2011; Lee et al., 2000; Mueller et al., 1994).

The final condition for the mediation effect as per Baron and Kenny (1986), Preacher and Hayes (2004), and Hayes (2013), is the verification of the direct effect of the antecedent (QWL) on the outcome (intent to stay) transmitted via the mediator (job satisfaction). The direct effect connoted as 'c' (β : -0.252, $t = 2.798$, LCL: -0.4297, UCL: -0.0746) is significant at 0.05 level of significance. The predictive effect of QWL mediated through job satisfaction on the intent to stay of the bankers was 16.70% explained and a moderate effect size of f-square value (21%) (Hair et al., 2014; 2017; Ringle et al., 2018) of the negative relationship is reported in Table VIII (see Figure 6). Durbin Watson's test value (1.595) leads us to infer that the relationship is independent of errors. Moreover, the indirect effect of QWL on the stay intention of the bankers (β : -0.118, LCL: -0.2359, UCL: -0.0180; $p < 0.05$) was significant, which substantiates the fact that the mediation effect persists. Consequent to the above statistical inferences, we perceive a partial mediation effect of QWL on intent to stay, transmitted through the satisfaction of job as the direct effect (c') was significant at 95% confidence levels, in the presence of the mediator (job satisfaction) (Baron and Kenny, 1986; Preacher and Hayes, 2004; Hayes, 2013). The extent of the mediation effect can also further be elucidated by the Variance Accounted For (VAF) approach proposed by Hair et al. (2013). VAF is the proportion of indirect effect with the total effect of the exogenous variable via the mediator on the outcome variable. The VAF = 0.346 (-0.118 / -0.341) for the above structural mediation model. Hair et al. (2013) propose partial mediation for VAF within the threshold of 0.20 and 0.80. Hence, the VAF approach complements the above findings with much sturdier evidence of "*job satisfaction partially mediates the predictive effect of QWL on intent to stay in the banks in the COVID-19 era*".

Discussion

There persists a void in a universally accepted formal definition of QWL (Rai, 2018; Sirgy et al., 2001). This study endeavors to fill the extant lacuna by testing and validating the need-based approach of QWL (Sirgy et al., 2001). The seven need-based Quality of Work Life Scale (QWLS) is successfully validated with statistical evidence in the Indian banking sector. Given the lethal illness of COVID-19 grappling nations globally, the need of the hour is to understand the perception of the needs brought by employees at work (QWL) in the situation of fear, contagion, anxiety, uncertainty, and depression due to COVID-19 (Huang and Zhao, 2020; Hamouche, 2020). The need for instilling personal creativity (aesthetic need) has a modest influence (t -value: 2.201) in predicting perceived QWL levels of the Indian bankers, which was retained in the measurement and structural models. The aesthetics were not significant and were not retained for analysis in the original model (Sirgy et al., 2001). With the COVID-19 looming large, it was further reported that QWL had a significant pessimistic prediction on bankers' intent to stay. QWL positively spilled over the perceived job satisfaction levels, while the latter negatively impacted the overall intention of bankers to stay in the selected industry. At the outset, the results indicated a partial mediation effect of job satisfaction in the predictive relationship of bankers' QWL on intent to stay. These analyses were substantiated through structural equation modeling supported by further statistical evidence and contemporary techniques in management research. Results exhibit moderate in-sample prediction elucidated via Q^2 , and the structural model is recommended for possible replication in other avenues of professional life. The COVID-19 outbreak has seriously impacted mental health through fear, psychological distress, insomnia, psychophysiological and behavioral disorders (Lai et al., 2020; Perlis, 2020; Wu et al., 2005; Xiang et al., 2020). Hence, a multiple regression analysis was deployed to understand the possible predictive relationship of different needs of bankers to be satisfied through the job (QWL) with perceived levels of job satisfaction and intention to stay under the COVID-19 impact.

Table IX elucidates that the cluster of seven needs significantly predicted satisfaction and bankers' intention to stay holistically with significant f-statistics at 99% confidence levels. The facets of QWL predicted 46% and 20% variation in job satisfaction and intention to stay amidst the COVID-19 pandemic, respectively. Results also exhibit that health and safety needs (β : .414; t: 4.623) and social needs (β : .203; t: 2.542) positively predicted job satisfaction of the bankers. On the flipside, economic and family needs (β : -0.252; t: -1.989; $p < 0.05$) negatively predicted the bankers' intention to stay. This enthralling finding supplements the negative prediction of QWL on intention to stay transmitted through the satisfaction from the job. The contribution to the extant theory and managerial practices during the pandemic are deliberated in the following sections.

Theoretical Implications:

There is a plethora of articles based on numerous approaches exhibiting the perceived levels of QWL. Some that have gained prominence are, for instance: Quality of Work Life Questionnaire (Elizur and Shye 1990), Quality of Work Life Scale (QWLS) (Sirgy et al. 2001), Quality of Work Life Measure (Zin, 2004), Martel and Dupuis' (2006) Quality of Working Life Systemic Inventory, Nurses' Quality of Working Life Questionnaire (Hsu, 2016), Easton and Van Laar's (2018) Work-Related Quality of Life Scale. Intensive research on some of the elite databases comprising: Web of Science, Scopus, Google Scholar, Embase, and PubMed, it was established that there were virtually only two research articles on validation of QWLS of Sirgy et al. (2001) in the Indian context. Furthermore, the results of these two past pieces of research (Rastogi et al., 2018; Saha and Kumar, 2016) were unable to validate the original seven-needs model (Sirgy et al., 2001) and have rather proposed alternative approaches based on Sirgy et al.'s (2001) theory. Hence, this article's significant theoretical contribution validates Sirgy et al.'s (2001) original seven-needs theory amidst the global COVID-19 pandemic situation and furthers the original seven-needs approach in the Indian literature. Due to the paucity of adequate academic attention diverted to the need-satisfaction approach to QWL, the present research has been predominantly based on Sirgy et al.'s (2001) approach and the test and validation of the psychometric properties amid COVID-19 times. Secondary to the validation of the original seven needs model of QWL (Sirgy et al., 2001), the present research also furthered the horizontal spillover theories (Kabanoff, 1980; Andrisani and Shapiro, 1978; Sirgy et al., 2001; Chan and Wyatt 2007; Lee et al., 2008; Sinal et al., 2019) in the Indian literature. This is virtually the first endeavor to unearth the horizontal spillover of QWL on intention to stay, carried out through the job satisfaction in the COVID-19 pandemic. CB-SEM results confirmed a good model fit, and a partial mediation effect of job satisfaction was reported. It was lucidly expressed that QWL had a positive significant predictive effect on the job satisfaction of the bankers at a 99% confidence level. This result corroborates past research in the burgeoning literature (Sirgy et al., 2001; Lee et al., 2008; 2015; Rai, 2015; 2018; Koonmee et al., 2019; Sinal et al., 2019; Agus and Selvaraj, 2020).

It was also statistically proven that job satisfaction negatively spilled over the intention to stay in the COVID-19 pandemic. These uncanny results are contrary to published literature (Sirgy et al., 2001; Lee et al., 2008; Lee et al., 2015; Srivastava, 2013; Luz et al., 2018). Furthermore, results also elucidated that QWL had a negative prediction on the intention to stay of the bankers, which have added a new dimension to the present literature, not in conformity with past researches (Sirgy et al., 2001; 2008; Lee et al., 2008; Srivastava, 2013; Agus and Selvaraj, 2020). Thirdly, the present paper contributes to the extant literature as social, health, and safety needs positively predict the level of satisfaction in the COVID-19 situation. This provides an impetus for the authorities to capitalize on these needs to enhance their satisfaction. Simultaneously, other needs of QWL could be worked on to instill satisfaction from their

banking job, given the pandemic at hand. One of the paper's significant contributions is the pessimistic prediction of economic and family needs on staying. The bankers (94.82%) have reported tremendous stressors fueled by COVID-19 in the subjective section of the e-questionnaire viz. physiological safety, risk of contagion, infobesity, isolation, quarantine, social stigma of exclusion, economic losses, depression and job insecurity, role stress, work-family intervention, burnout, vaccine deprivation, and death anxiety.

Managerial Implications:

There are some prominent avenues for the management authorities to deliberate in the COVID-19 pandemic from the present research findings. The psychological stressors have affected the bankers from the very start. Since the foremost lockdown initiated by the Government of India from March 25, 2020, bankers have been at the forefront bearing the brunt of the lethal COVID-19 virus. Results have eloquently portrayed a significant negative spillover effect of QWL and job satisfaction on the bankers' intention to be associated with their banks to the pandemic. This has strong relevance to the management of physiological safety, risk of contagion, infobesity, isolation, quarantine, social stigma of exclusion, economic losses, depression, job insecurity, burnout, and work-family. Teleworking or 'work from home' (Rai, 2018) has been the new normal in several industries in the COVID-19 situation. Banks also have adopted this concept to abate unnecessary crowding in the branches. A centralized decision has been issued regarding teleworking, especially for pregnant women and differently-abled personnel. Flexibility has been introduced in the work schedule of the bankers due to the COVID-19 protocol. However, the onus of management of virtual teams, virtual coordination, and support lies on the branch managers. Hence, training top managers to efficaciously handle such unprecedented challenges is the need of the hour. Proper training and development programs for all levels of bankers to mitigate the impact of COVID-19 in the workplace are to be critically addressed. Furthermore, a devised plan for COVID-19 affected staff exhibiting common symptoms, COVID-19 cured staff resuming work, and post COVID-19 complications must be addressed to infuse trust in the management. These managerial strategies could provide some relief to the psychological trauma encountered and induce commitment to work.

Results have portrayed that social, health, and safety needs positively predicted job satisfaction in the selected banking industry. This research outcome can provide a stimulus for managers to devise policies and incentives to enrich the work experiences further to enhance job satisfaction. Managerial authorities have introduced instant disbursement for COVID-19 bankers to meet up their hospitalization charges, and insurance of ₹ 20 lakhs has been provided to the bankers in case of service death. Furthermore, medical allowances have to be increased to meet the proper sanitization and health of the bankers. These needs are to be taken into account so that the bankers experience better satisfaction from work. Economic and family needs negatively predicted the intention of the bankers to stay. This can be interpreted by the nature of the COVID-19 virus and its virulence. In addition, proper sanitization facilities, especially for women bankers, should be provided given their adherence to domestic affairs. The majority of the women employees have expressed induced work intervention in meeting domestic and family needs. The rigid work structure and poor work-life balance in addition to the COVID-19 stressors have prominently negated the degree of commitment levels. Trust must be built between the management authorities and the bankers. Consequently, the negative mediation effect of job satisfaction in the predictive relationship of QWL and intention to stay could be aided. The managerial strata of the banking sector need to earnestly address the modest levels of intention to stay, considering the massive economic, strategic, and human capital costs in the COVID-19 situation. The loyalty and intention of employees to stay can be instrumental in the overall performance of the banks in such difficult COVID-19 times.

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Work From Home Scenerio – Leveraging Employee Engagement Amidst Covid-19 Pandemic

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Abstract

COVID-19 Pandemic has created virtual working as a major concern to the employees. Purpose of this paper is to establish a relationship between factors related to Work from Home and Employee Engagement among Information Technology (IT) sector employees of Kerala during the time of COVID-19 Pandemic. The data were collected using structured questionnaire through electronic means. The findings reveal that Work from Home (WFH) has a significant positive impact on Employee Engagement (EE). Work from home options can help in leveraging employee engagement and can bring benefits to the organization. Organizations can implement WFH policies for employees, especially during the time of pandemic, so that organization as well as employees gets benefitted.

Keywords – Work from Home, Employee Engagement, Information Technology, COVID-19 Pandemic.

Workplace Spirituality and Contextual Performance in the hospitality sector: examining the influence of Fear of COVID-19 and Employee Wellbeing

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Abstract

In the context of the pandemic induced remote-work, drawing from the job demands-resources theory and the social exchange theory, this study attempts to examine how the experience of workplace spirituality impacts employee wellbeing and their contextual performance. Furthermore, the study explores the extent to which fear of COVID-19 exerts conditional indirect effects on the aforementioned relationship. Using self-administered questionnaires, data was collected from 566 employees working in the hospitality sector in India. Results revealed that experience of workplace spirituality had a significant effect on employee wellbeing and contextual performance. Fear of COVID-19 had interesting significant conditional indirect effects, such that higher the fear, higher the strength of the relationship between workplace spirituality and contextual performance, mediated through employee wellbeing. As the economy attempts to recover and employers asking their employees to return to the office, the results of this study offer meaningful insights for academicians and practitioners.

Keywords: Workplace Spirituality, Contextual Performance, Employee Wellbeing, Fear of COVID-19, Tourism and Hospitality Sector, Moderated-Mediation model

Introduction

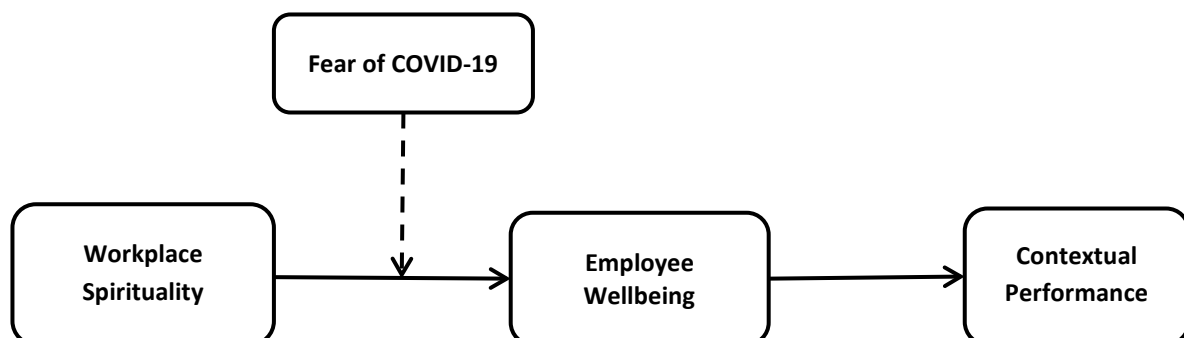
The impact of the current coronavirus outbreak to date has long exceeded over 214 million worldwide, and the reported deaths due to the infection have crossed 4 million (<https://www.worldometers.info/coronavirus/>). The abrupt onset of a global pandemic has forced a significant workforce segment to makeshift their employment arrangements and work remotely, impacting their wellbeing and performance at large. A recent EY survey titled 'HR resilience planning - COVID-19 impact and preparedness' (EY, 2020) revealed that around '70% of the organizations believe that the single biggest concern for continued remote working is fall in productivity'. Furthermore, another report from McKinsey and Company (Pfeffer and Williams, 2020) revealed that 62% of employees on a global scale deliberate their mental health issues to be of paramount challenge during this pandemic crisis. In this context, beyond the essential priorities of IT infrastructure and operations support, managers now seek strategies to sustain and improve their employees' wellbeing, engagement, and productivity, which are the pillars of organizational sustainability. The study gains relevance in the context of studies reporting that severe levels of fear of COVID-19 significantly results in higher levels of workplace panic anxiety and workplace avoidance behavior and a wide range of mental health problems including anxiety, traumatic stress, insomnia, distress and depression (Malik et al., 2021; Şimşir et al., 2021).

In their stride towards the sustainability goals for 2030, the United Nations envisions that 'ensuring healthy lives and promoting wellbeing at all ages is essential to sustainable development' (Goal 3: Good Health and Well-being). The wellbeing of individuals is essential to the sustainable development of nations. The goal gains more relevance, particularly in the context of the contemporary pandemic that has affected almost everyone across the globe. A significant segment of the workforce is forced to work remotely, which offer fewer opportunities for community collaboration and collegial support, which were a source of improved mental health (Boyd et al., 2018; Ramos-Vidal et al., 2020). With remote work and social distancing being the new normal, the preceding year has undoubtedly been a difficult

phase for many individuals, with a shortage of human interactions in relationship dynamics. The same has eventually led to many mental health issues, including stress, anxiety, and depression (Deniz, 2021). Addressing the aborning state of affairs calls for innovation and research in these areas of inquiry to advance public policy efforts towards wellbeing.

Sustainable development goal 8 calls for ‘promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all’. This goal can be coupled to the paradigm shift among the employees who seek to find more meaning and purpose in what they do in their everyday work lives, rather than just materialistic outcomes. The concept of workplace spirituality has gained tremendous significance over the last decade, and it relates to the connectedness that employees experience with their work, their co-workers, and the organization at large (Milliman et al., 2003; Petchsawang and McLean, 2017; Zhang, 2020). Experience of meaningful work, sense of community with co-workers, and alignment with organizational values have been empirically proved to be associated with positive employee outcomes (Houghton et al., 2016; Garg, 2017; Aboobaker et al., 2019; Haldorai et al., 2020). The concept of workplace spirituality gains more relevance these days, where a huge share of employees are forced to stay at home and work, and probably will remain the same for some unforeseen period in the post covid era too. Drawing from the Job Demands-Resources model and the Social Exchange Theory, to address the existing gap in the literature regarding the effects of workplace spirituality on employee well-being and contextual performance, under the influence of fear of COVID-19, the following model is proposed and tested empirically (Figure 1).

Figure 1: Proposed conceptual framework of the study



Methods and Measures

This study was conducted among a sample of frontline employees working in the hospitality industry in India as the sample gains relevance of being in the primary contact with customers. To ensure homogeneity of the human resource practices and its’ perceptions, only frontline employees working in top-tier (five-star) organizations operating in the customer service-based hospitality industry in India were selected for the study. According to the 2019 statistics of the Ministry of Tourism Government of India website, 1,313 classified star category hotels exist (Tourism ministry government of India, 2019) across the country. Among them, ‘Five Star Deluxe’, ‘Five Stars with Alcohol’, and ‘Five Star without Alcohol’ categories altogether constituted 27% of India’s total classified star category hotels (Tourism ministry government of India, 2019). After obtaining permission from respective HR and frontline managers and receiving free consent from employees, data was collected from 60 frontline employees, and the sub-scales in the questionnaire was found to have adequate reliability. Among the 1000 questionnaires distributed, a total of 611 questionnaires were returned. After eliminating responses with missing data, 566 data responses were selected for final data analysis, yielding

a total response rate of 56.6%. The sample comprised of 212 females (37.4%) and 354 males (62.5%), and the majority of them belonged to the age group of 22 years - 25 years (81.9%), and 18.1% of them were in the age group of 26 years-30 years (average age= 23.6 years).

To measure the focal constructs, the authors used validated instruments in existing literature, which measured participants' responses on a five-point Likert-type scale. The twenty-one items scale developed by Milliman et al., (2003) was used to evaluate employee's experience of workplace spirituality across three dimensions: meaningful work ($\alpha=0.852$), sense of community ($\alpha=0.940$), and alignment with organizational values ($\alpha=0.946$). Wellbeing at work was operationalized using the Job-Related Affective Wellbeing scale (initially developed by Katwyck et al., (2000) and a short version developed by Basinka et al. (2014)). It consisted of two dimensions (positive affect ($\alpha=.913$), and negative affect ($\alpha=.890$)), measured using 8 items on a five-point scale (1= never and 5= always). Contextual performance was measured using the 4-item scale ($\alpha=.892$) developed by Edgar et al., (2018). Fear of COVID-19 was measured using 7-item FCV-19S scale as developed by Ahorsu et al. (2020) ($\alpha= 0.84$).

Results

Descriptive statistics of the focal variables revealed that on the scale from 1 to 5, employees scored moderately from 2.79 (fear of COVID-19) to 3.68 (alignment with organizational values). Preliminary checks for normal distribution were done and all variables have acceptable values of Skewness and Kurtosis (± 1.5) (Hair et al., 2010). Variance Inflation Factor (VIF) statistics were also calculated to examine for multicollinearity and were found to be within the acceptable limit of $VIF < 3.0$ (Hair et al., 2010). Since all the constructs were self-reported, checks were conducted for examining common method bias. Confirmatory factor analysis using IBM AMOS 21.0 was done to validate the factor structure of variables under the focus of this study. The baseline four-factor model consisting of workplace spirituality, fear of COVID-19, employee wellbeing, and contextual performance, showed a good fit to the data. All measurement items had loadings greater than .7 and the hypothesized four-factor measurement model had satisfactory fit indices ($\chi^2 = 824.440$; $p < 0.001$; $\chi^2/df = 2.476$; SRMR= 0.039; TLI= .923; CFI= .934; RMSEA= 0.052). The average variance extracted for each construct was above 0.50, ensuring convergent validity (Fornell and Larcker, 1981) and the square roots of the average variance extracted values for each construct (Hair et al., 2010), confirmed discriminant validity. Overall, there is satisfactory support for the measurement model, permitting us to advance with hypotheses testing.

The proposed hypotheses were tested using a path analysis procedure via SPSS PROCESS macro (Hayes et al., 2017), using the bootstrapping procedure at a 95% confidence interval. Model number 7 to test the hypothesized moderated mediation relationship. Results from the mediation model indicated that experience of workplace spirituality was positively associated with employee wellbeing ($\beta = 0.092$; SE= 0.035; $t = 2.577$; $p = .0102$; LLCI= .0220; ULCI= .1630), and employee wellbeing was positively associated with contextual performance ($\beta = .268$; SE= 0.057; $t = 4.70$; $p = .000$; LLCI= .1562; ULCI= .3804). Results also revealed that the indirect effect of workplace spirituality on employee's contextual performance was significant ($\beta = .1571$; SE= .038; LLCI= .0826; ULCI= .2350).

To test the hypothesis concerning moderated mediation, the conditional indirect effects (Preacher et al., 2007) of workplace spirituality on contextual performance, mediated through employee wellbeing, at three levels of fear of COVID-19: the mean, one standard deviation above, and one standard deviation below the mean (fear of COVID-19) was examined. The results indicated that the conditional indirect effects of workplace spirituality on contextual

performance was significant at all levels of the moderator, and the conditional indirect effects increased at levels of the moderator. The index of moderated mediation was found to be significant ($b = 0.0133$; $\text{BootSE} = .0133$; $\text{BootLLCI} = 0.004$; $\text{BootULCI} = 0.024$).

Discussion and Implications

This study sought to advance the scholarly literature on the effects of workplace spirituality on employee outcomes, under the context of fear of COVID-19 pandemic. In this current study, employees' experience of workplace spirituality has a positive impact on their wellbeing at work and contextual performance and all constructs were negatively associated with fear of COVID-19. Prior studies have identified that fear of COVID-19 results in lowered life satisfaction and job satisfaction, increased psychological distress, turnover intention, career anxiety and depression (Labrague et al., 2021; Mahmud et al., 2021; Satici et al., 2020). However, contrary to our expectation, the fear of coronavirus strengthened the relationship between workplace spirituality and employee wellbeing. Few studies have identified that in scenarios of high stress, life satisfaction and sense of coherence is higher for people with higher fear of COVID-19, as an outcome of individuals reevaluating their lives and satisfaction with the same (Dymecka et al., 2021a; Dymecka et al., 2021b). Even though individuals experience fear of COVID-19, it can be presumed that they might be perceiving restrictions and inconveniences as meaningful towards a better tomorrow and for larger good of the society and are trying to put in more of intrinsic effort towards experience of connectedness with one's work, co-workers and the organization at large. When they experience higher fear, employees with higher workplace spirituality will find more meaning and purpose with what they do at their everyday work lives, establish higher sense of community with co-workers and above all, when they experience congruence with their values and the values of the organization, they will experience more positive emotions, wellbeing and extra-role contextual performance. Studies have identified that workplace spirituality improves self-compassion, which in turn reduces emotional distress, depression, lowers anxiety, and improve life satisfaction (Jnaneswar and Sulphrey, 2021).

Since the ripple effects of the pandemic seem to endure in a long term, the sustainability of an organization depends on the effectiveness of managers in facilitating strategies for building a resilient workforce. There has to be a drastic transformation in the way how organizations will operate and managers need to revisit strategies for effective people management. The insights gained from this study will help both the employees and the managers in devising approaches for individual wellbeing and consequently the performance of the organization at large. Managers should promote workplace spirituality by facilitating more meaningful work, in terms of job autonomy and task variety and also by promoting stronger interpersonal relationships among peers. Also, regular training to build congruence with employee and organizational values and ethics would be fruitful in the long run. New housekeeping practices, safe spaces, contactless interface and confidence-building, judicious use of technology to create safe spaces for social distancing and adoption of relevant technology shall act as the key to successful employee facilitation in tourism and hospitality sector. Consistent and real-time communication and interaction with employees regarding the pandemic can strengthen the organizational culture and thereby connectedness with employees. Psychological support for stress reduction, workplace fun activities, flawless communication concerning systematic and precise updates on the COVID-19 outbreak and instituting technology-enabled psychological counseling services will definitely support in fostering workplace spirituality, wellbeing at work and contextual performance (Ornell et al., 2020). Provisions for suitable personnel protective kits and free testing for COVID-19 exposure shall be another strategy that can be followed to mitigate feelings of fear. Strengthened

Conclusion

This study is pioneering in examining the effect of employee's spiritual experiences at work on their wellbeing and contextual performance, during times of an unforeseen pandemic and remote work. Also, the study adds to the emerging literature on the effects of fear of COVID-19. A deeper understanding of how the pandemic-induced abrupt shift to remote work in isolation has affected connectedness to one's work, co-workers, and the organization as a whole and its influence on wellbeing and performance assumes significance, especially in the purview of Goal 8 of sustainable development, which aims at higher productivity of employees and Goal 3, which calls for ensuring healthy lives and promote wellbeing. Insights gained from the study will support academicians and practitioners in devising more effective strategies towards sustainability of both the individual and the organization, and thus the society at large.

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Impact of Situational factors on the Outcomes during Covid -19 among ITES employees

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Abstract

The movement restrictions imposed by government to reduce the spread of COVID-19 has economic and social consequences among employees working in ITES (Information Technology Enabled Services) were examined. Even though ITES employees are habituated with digital tools and remote working, an unprecedented situation is created due to the unexpected and compulsory work from home context. The disruption in the situational factors like physiological, psychological, financial and social aspects on the outputs like productivity and well-being of the employees were assessed. Further, the study tries to find out whether there is any discrimination while considering the extroverts and introverts. The study unfolds the mental and financial factors that impacted the productivity and well-being of employees in ITES due to disruptions caused by COVID-19 pandemic.

Keywords: Employee Well-being, productivity, work environment in new normal, ITES Employees, situational factors

Determinants of Quality of Work Life in Pandemic Situation (COVID-19): Evidence from Indian Context

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Abstract

The current research work is an attempt to discuss the empirical study of surveying the factors affecting the quality of work-life of employees while working from home in this pandemic era. Data was collected from 300 teaching professionals from the educational sector in North India who were working from home during the lockdown. SPSS 22.0 version and AMOS 20 were used for all statistical analysis. A total of 4 factors had been defined as an output of the Exploratory Factor Analysis (EFA) illustrating the phenomenon of QWL in the Pandemic World. These factors had been identified as Work-Life Balance, Organizational support, Work productivity, and Job security. These four factors accounted for 62% of the total variance. The reliability score after the conduct of the EFA was calculated to be .855 for Work-Life Balance, .774 for Organizational Support, .801 for work productivity.752 for Job security.

Key Words: Quality of Work Life, Factors, Pandemic, Workforce

Introduction

The pandemic had affected the entire world in a way that none of us would have ever dreamt, changing our personal and professional lives, as everything was shifted to online mode. For employees, this Pandemic had brought plenty of uncertainties. There were new norms for everything, from working style to traveling, leading to a lot of disturbance in the work-life as well as personal life. Due to pandemic the economy had been hit very badly in the country; the Indian government imposed a complete lockdown in the first half of 2020, which led to further deterioration of the economic structure of the country. Businesses had to face huge losses due to which they had to follow the path of organization restructuring and de-layering, thus downsizing their workforce. Several companies started making pay cuts from the employee's remunerations to deal with their losses, which caused a lot of anxiety and job insecurity amongst employees of all levels. Overall, this pandemic had caused a huge disruption in the Quality of Work Life of the employees. In this context, the present research paper had been an effort to investigate various factors that had affected the QWL of the employees in the Pandemic Era. Limited research was available on the QWL of employees in the COVID era, as there was little evidence of the variables that may affect QWL and how these variables were interlinked. It was, therefore, necessary to carry out comprehensive research work on this subject to evaluate the QWL for employees in pandemic times, to find a linkage between the variables, and to develop appropriate strategies to ensure higher QWL levels. Although many studies had been conducted to evaluate QWL in different business sectors, there had been less research available to determine whether QWL components vary depending on various contingencies like natural disasters, pandemics, war, etc. As a result, there was a need to carry out comprehensive research work on this subject. Similarly, there was a lack of substantial research work that could provide evidence as to the factors or dimensions that would influence the QWL of the workforce in abnormal situations.

Research Methodology

The present study aimed at measuring the QWL of the workforce in a private university in the Punjab region only. The variables responsible for the quality of work-life were explored by interviewing respondents and also by reviewing the relevant literature. The judgmental-based convenience sampling technique was used in the study to collect the data.

Exploratory & Confirmatory Factor Analysis The respondents for this study are employees working in a private university in the Punjab region in North India. The majority of respondents are of age group 20-25 years (75.6%), followed by 26-35 years (16.8%), 36-45 years (5.9%), 46-50 years (1%), and above 50 years old as (0.7%) respectively. 54.8% of respondents are male and 45.2% of respondents are female. In terms of educational qualifications, 2.3% of respondents are diploma holders, 34% of respondents have bachelor's degree, 57.1% of respondents have master's degree and 4% of respondents are Ph.D. degree holders, while 2.6% of respondents preferred not to mention.

Measuring instrument and software used the structured questionnaire consists of two sections. The first section consists of the demographic profile and the second section of the questionnaire consisted of 31 items concerning factors leading to quality of work-life in the workforce. The items were selected from several daily newspapers, journals, and websites were scanned to find information regarding the QWL of employees in the Pandemic era. Respondents were asked to rate the statements in accordance to the following rating scale: 1 = Strongly Disagree; 2 = Disagree; 3 = Uncertain; 4 = Agree; 5 = Strongly Agree. SPSS 22.0 version was used for exploratory factor analysis and AMOS 20 version was used for conducting confirmatory factor analysis.

Methodology For the study, 350 questionnaires were administered to the respondents based on judgmental-based convenience sampling, 320 questionnaires were returned reflecting the 91% response rate, and 300 questionnaires were found to be complete in all aspects, reducing the response rate to 85%. According to Cattell (1978) and Arrindell & Van Der Ende (1985), the ideal ratio between respondents and items is 10:1 for the conduct of EFA. Thus, the sample size of 300 employees was considered adequate for conducting a factor analysis and further research.

Results Screening of data was done for outliers. The filled questionnaire was further checked for other issues like administrative errors, out-of-range values, etc.

Exploratory Factor Analysis In the first stage, the factorability of 31 items was examined. The correlation matrix was observed to identify any items showing very high correlation or very low correlation. The correlation matrix suggested the correlation is appropriate. In the second stage, KMO & Bartlett's test was conducted and was found to be appropriate with a KMO value of .879, Bartlett's test of Sphericity was found to be significant (Chi-square (136) = 2030.317, $p < .05$). The communalities of all the items were found to be greater than 0.4, indicating that data is appropriate for factor analysis.

The principal component analysis method was used for factor analysis. The varimax method was used for factor rotation, assuming factors are not related to each other. The initial structure has 8 factors explaining 61% of the variance. Items that are loading on two factors with very less difference in factor loadings were removed. Factors with two item loadings were also removed. Finally, the factor with single item loading was also removed. In the final stage, a total of 4 factors had been extracted as an output of the Exploratory Factor Analysis (EFA) illustrating the phenomenon of QWL in the Pandemic World. These factors had been identified as Work-Life Balance, Organizational support, Work productivity, and Job security. These four factors accounted for 62% of the total variance. The Cronbach alpha was found to be strong .855 for Work-Life Balance (6 items), .774 for Organizational Support (4 items), .801 for work productivity (4 items).752 for Job security (3 items). All the items in the final scale have loadings greater than .6. The factor loadings matrix for the final solution is presented in Table 1. The descriptive statistics are exhibited in Table 2.

Confirmatory Factor Analysis To find out, whether the proposed factor structure can be replicated in other studies, confirmatory factor analysis was conducted. The model fit indices were used to ascertain the goodness of the fit of the proposed model. The model fit indices with the factor structure are presented in Figure 1. The model fit indices for the QWL scale were as follows: GFI=0.960, AGFI=0.941, NFI=0.948, TLI=0.986, CFI=0.989, RMSEA=0.029 and CMIN/DF=1.262. The Convergent & Discriminant validity of the model was examined through a statistical package given by Gaskin, J. E. (2020). The convergent & discriminant validity is given in Table 3. For improving the discriminant validity, one item from the factor of organizational support was removed as follows: “Work from home is very helpful as it saves time and cost of commuting” based on the criteria of least factor loading (.665) among loadings of all the items in this factor.

Discussion

A four-factor structure is proposed for measuring the Quality of work-life during the time of pandemic in the Indian context. The four factors identified are work-life balance, work productivity, organizational support & job security. As has been found in the case of CFA, considering the criteria of various model fit indices, the measurement model was found to be fit. In the case of RMSEA, values less than 0.05 are found to be good, between 0.05 & 0.8, acceptable and beyond 0.1 as poor. In the present case, the value is 0.029, which implies that the model is good. Similarly, in the case of the goodness of fit measures like GFI, AGFI, the values should be greater than 0.9, which in the present case is true, hence by the goodness of fit indices, the measurement model represents a good fit. The NFI & TLI should also be more than 0.9, for a good model fit, which is also true in the present case. The CMIN/DF value should also be between 1 & 2 for a good model fit. In this case, the value is 1.262, which represents a good model fit.

For the validity of the measurement scale, the value of CR (Composite Reliability) should be greater than 0.7, which is true in the present case. Also, factor loadings of all items are greater than 0.6 except for one item in work productivity, which has factor loading greater than 0.5. To check discriminant validity, the AVE (Average Variance Extracted) should be greater than 0.5 and MSV (Maximum shared Variance) should be less than AVE. In the present case, for all factors, AVE is greater than 0.5 and MSV is less than AVE. Thus the measurement scale is valid.

Table 1: Factor loadings of extracted factors

| | Component | | | |
|--|-----------|------|------|------|
| | WLB | WP | OS | JS |
| WLB3: It is difficult to take care of kids and elderly members of the family while working from home. | .754 | | | |
| WLB4: It is difficult to segregate personal work and office work while working from home. | .747 | | | |
| WLB2: It is difficult to manage office work and household work at the same time. | .739 | | | |
| WLB5: My family members complain that I am working all the time and not paying attention to them since I have started working from home. | .707 | | | |
| WLB6: I have to work on holidays on some occasions, as it is work from home now. | .668 | | | |
| WLB1: My quality of work-life has been affected due to this increased workload. | .647 | | | |
| WP1: Work sincerity does get affected while working from home. | | .740 | | |
| WP3: It is difficult for me to coordinate with teammates/co-workers while working from home. | | .723 | | |
| WP2: I think, work-life productivity has decreased while working from home. | | .708 | | |
| WP4: I believe that there are more possibilities of miscommunication among teammates/co-workers while working from home. | | .705 | | |
| OS1: My organization has provided proper support while working during the pandemic. | | | .868 | |
| OS2: My employer has provided proper training for all the tools and technologies that are essential to work from home. | | | .812 | |
| OS3: I have sufficient equipment and facilities (computer/laptop/Internet/software) to work from home. | | | .721 | |
| OS4: Work from home is very helpful as it saves time and the cost of commuting. | | | .665 | |
| JS1: Fear of losing the job has caused a lot of mental stress during the pandemic. | | | | .737 |
| JS2: Pay cuts during the pandemic have disturbed the financial stability of my family. | | | | .735 |
| JS3: I feel that this pandemic has impacted my career growth. | | | | .661 |

WLB: Work-Life Balance, WP: Work Productivity, OS: Organizational Support, JS: Job Security

Table 2: Descriptive Statistics

| | Mean | Std. Deviation | Analysis N |
|--|------|----------------|------------|
| OS3: I have sufficient equipment and facilities (computer/laptop/Internet/software) to work from home. | 2.15 | .935 | 300 |
| OS1: My organization has provided proper support while working during the pandemic. | 2.27 | 1.023 | 300 |
| WLB1: My quality of work-life has been affected due to this increased workload. (RC)* | 3.55 | 1.044 | 300 |
| WLB2: It is difficult to manage office work and household work at the same time. (RC)* | 3.66 | 1.024 | 300 |
| WLB3: It is difficult to take care of kids and elderly members of the family while working from home. (RC)* | 3.66 | 1.007 | 300 |
| WLB4: It is difficult to segregate personal work and office work while working from home. (RC)* | 3.60 | 1.057 | 300 |
| WLB5: My family members complain that I am working all the time and not paying attention to them since I have started working from home. (RC)* | 3.53 | 1.074 | 300 |
| WLB6: I have to work on holidays on some occasions, as it is work from home now. (RC)* | 3.66 | 1.078 | 300 |
| JS1: Fear of losing the job has caused a lot of mental stress during the pandemic. (RC)* | 3.75 | 1.069 | 300 |
| JS2: Pay cuts during the pandemic have disturbed the financial stability of my family. (RC)* | 3.65 | 1.032 | 300 |
| JS3: I feel that this pandemic has impacted my career growth. (RC)* | 3.73 | 1.047 | 300 |
| WP1: Work sincerity does get affected while working from home. (RC)* | 3.60 | 1.008 | 300 |
| WP2: I think, work-life productivity has decreased while working from home. (RC)* | 3.58 | 1.090 | 300 |
| WP3: It is difficult for me to coordinate with teammates/co-workers while working from home. (RC)* | 3.52 | 1.080 | 300 |
| WP4: I believe that there are more possibilities of miscommunication among teammates/co-workers while working from home. (RC)* | 3.62 | 1.006 | 300 |

(RC)*: Reverse coded items, WLB: Work-Life Balance, WP: Work Productivity, OS: Organizational support, JS: Job security

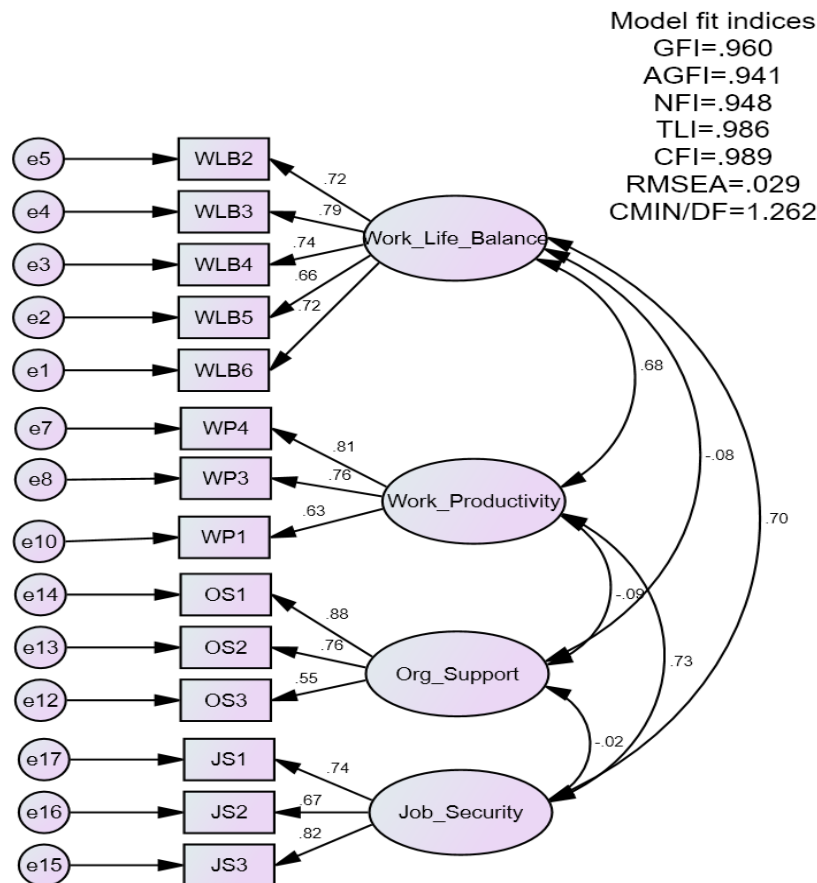


Figure 1: Result of confirmatory factor analysis for Quality of Work-life scale

Table 3: Convergent & Discriminant Validity of the QWL scale

| | CR | AVE | MSV | MaxR(H) | OS | WLB | JS | WP |
|-----|-------|-------|-------|---------|--------------|-------|-------|----|
| OS | 0.783 | 0.555 | 0.008 | 0.840 | 0.745 | | | |
| WLB | 0.796 | 0.566 | 0.458 | 0.800 | | | | |
| JS | 0.787 | 0.553 | 0.530 | 0.800 | -0.020 | | | |
| WP | 0.778 | 0.542 | 0.530 | 0.796 | -0.089 | 0.677 | 0.728 | |

OS: Organizational Support, WLB: Work-Life Balance, JS: Job Security, WP: Work Productivity

Recommendations

Based upon the analysis, it was suggested that there is a dire need for organizations to work upon Work-Life Balance strategies to further the QWL of the workforce. Job security is important, as permanency in job roles gives mental relaxation to the employees. The insecurity of losing jobs has a negative influence on the performance of the workers.

During work from home, work productivity does get affected as the workforce gets scattered, thus organizations need to innovate and invent some methods to do away with any lacunae concerned with productivity and accelerate the overall efficiency and effectiveness of the work organizations.

Professional opportunities for growth should be provided to employees. Competence mapping and career mapping should be done for all individuals working in the organization. Participatory leadership style, with a certain degree of autonomy, should be included in the way the work is done. Autonomous working groups within the organization should be encouraged to inspire and promote an environment of learning, democracy, self-management, and independence.

Organizations should improve the work-life balance between employees. Relaxation time and the inclusion of extra-curricular activities will promote health among workers and improve their work-life balance. The Organization should make efforts to promote better human relations at work. This will have a positive effect on industrial relations.

Limitations of the study

The constraints of the study can be listed as that the study attempted to explore only a few QWL variables. More variables may be taken into account for further research work. Only 300 employees were involved in the study. The respondents of the study were Assistant Professors. All levels of hierarchy could not be covered in the study. Only one sector i.e. academia had been taken into consideration.

Scope for further research

The present study focuses on the factors specifically impacting QWL during the pandemic time. Future studies may be carried out in the various sectors in the Indian context. Further research may be carried out to conduct benchmarks among various industries.

Conclusion

By the time, when the pandemic will end, we may probably see a new world. Everything may change according to the situation. Studies suggest that quality of work life is one of the major aspects of the organization. It has become more crucial in this time of pandemic(COVID19).Programs related to the quality of work-life have been demonstrated to have an impact on employees in terms of recruitment, retention/turnover, commitment and satisfaction, absenteeism, productivity, and accident rates. Companies that have introduced work-life balance programs recognize that employee welfare affects the “bottom line” of the business. The study identified various factors impacting quality of work life and it can be

concluded that organizations need to take care of Quality of Work life of their employees especially in the time of pandemic to fully realize the potential of its employees.

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The Mediating Role of Customer Satisfaction: Impact of Service Quality on Customer Loyalty in the Indian E-commerce Industry

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Abstract

India has the fastest-growing e-commerce market, which has resulted in widespread acceptance and use. This paper investigates the service quality of four major e-commerce websites in India's domestic market and explores the links between their service quality and customer satisfaction. The data was collected from 250 customers and the results were analyzed using PLS-SEM and SPSS 20 statistical measures. Satisfactory service was found to result in higher customer loyalty among online customers. In comparison to amazon, customers who bought from flipkart, myntra and paytm mall were more likely to switch to an alternate website, indicating lower levels of brand loyalty. Empathy had a positive and significant effect on customer's overall satisfaction and in turn strengthened customer loyalty. Customers today differentiate internet-based service companies based on tangibility, responsiveness, and reliability of the companies rather than perceived credibility and security of the services offered, according to the findings. Furthermore, the study suggests that to attain maximum customer loyalty, high-quality service should be provided. It was also suggested that existing regulatory agencies be revived to assure the proper implementation of good service quality delivery among India's e-commerce websites.

Keywords - E-commerce, service marketing, service quality, consumer preference.

Introduction

In India, e-commerce has changed the way people do business. The number of online shoppers as compared to 150 million previous year are expected to increase to 190 million in 2021. The increase in internet and smartphone usage has fueled the industry's expansion. The Indian E-commerce market is predicted to rise from US\$ 38.5 billion in 2017 to US\$ 200 billion by 2026, thanks to the launch of 4G networks and rising consumer wealth. While online retail sales in India are predicted to expand 31% to US\$ 32.70 billion in 2018, with Flipkart, Amazon India, and Paytm Mall leading the way (IBEF, 2019). These figures show the importance of service businesses in our society and the necessity to use scientific knowledge to help them succeed.

With the rapid growth of the internet and e-commerce, more people are shopping online these days. Due to its visible impact on a company's financial performance, e-service quality has recently become one of the most important research areas (Kim & Lennon, 2017). The service quality (SQL) model of an e-commerce. The retailing industry is seeing similar changes, particularly in consumer products, as e-retailing or e-tailing grows in popularity. Customer satisfaction is a combination of perceived service quality, perceived value, and consumer expectations in general. Customer happiness is likely to influence perceived service quality in a direct and positive way. The benchmark against which performance outcomes are measured is the concept of expectations. This research attempts to construct e-SQL dimensions by adapting the SERVQUAL model to account for the online shopping context and developing a research model to investigate how e-SQL dimensions affect overall service quality customer satisfaction and customer loyalty.

Review of literature

In order to identify a literature gap, a comprehensive review of related empirical literatures is required. This study was able to review and thematically analyse some previous studies, including:

(Slack & Singh, 2020) elaborated that supermarket service quality is viewed as unsatisfactory, but that service quality has a significant impact on customer satisfaction and loyalty, and that customer satisfaction partially mediates the relationship between service quality and customer loyalty, resulting in lower customer loyalty.

(Yasa & Wahyuni, 2020) paper shows that service quality has a little direct impact on customer loyalty. Customer satisfaction has a direct impact on service quality, and customer satisfaction has a direct impact on customer loyalty. Furthermore, the findings reveal an indirect relationship between service quality and client loyalty, mediated by customer satisfaction. (Jiang & Zhang, 2016) discovered that good service did not lead to increased customer loyalty among business travellers. (Dewi et al., 2021) demonstrated that service quality has a large positive effect on customer satisfaction, and that both service quality and customer satisfaction have significant and positive effects on customer loyalty in Indonesian laundry services. (Sleimi et al., 2020) found that the direct and indirect path coefficient between E-banking service quality and customer loyalty were statistically significant.

Electronic Service Quality

E-SERVQUAL model is applied in various studies (Rahi & Ghani, 2019); (Vyas & Sharma, 2017); and it is substantial in evaluating customer's experiences in ecommerce business but also in defining the success rate of a firm. E-service quality can also be described as the user's overall assessment of the quality of online facility (Santos, 2003). This research incorporates the revised E-SERVQUAL model, in which five dimensions are found to be critical in determining Internet SQL in the ecommerce sector: assurance (customer trust and confidence), empathy (individualised attention to customers), reliability (capacity to execute the assured service accurately), and responsiveness (prompt service and readiness to assist customers) (physical facilities).

Relevant studies on e-SQL have analyzed the scale and measured service in numerous settings, including online-based service, online retail (Barnes & Vidgen, 2001; Kaynama & Black, 2000), and electronic banking. Furthermore, many studies have proposed that SERVQUAL model items must be redeveloped before they can be significantly used in the online shopping context (Santos, 2003).

Additionally, past studies have recommended that perceived SQL influences customer satisfaction (Martensen et al., 2000; Rust & Zahorik, 1993).

Customer satisfaction

Customer satisfaction is described as the way a person feels with regards to delight or disapproval arising from differences made between what he or she expects from using a product and the product's outcome (Keller & Kotler, 2012). Also, satisfaction is defined as the feeling a user has after weighing what he or she expected from using a product or service vs what he or she experienced. Customer satisfaction can be used in marketing tactics to assess users' expectations of how organisations deliver goods and services.

Customer loyalty

Customer loyalty is a firm commitment to acquire a product or service in the future and to recommend it to others. Customer loyalty is defined as genuine recurring purchases of items or services from the same firm, as well as promoting the company to others, strong devotion to the company by refusing to switch to a competitor.

Role of Human Factor in delivering Service Quality

Human factors have been used in a variety of situations. Human factors in product design can make a product more user-friendly (Karwowski & Salvendy, 1998). The argument is based on

the premise that it varies in services fundamentally in terms of instructiveness. Because of four key differences: intangibility, heterogeneity (or variability), perishability of output (no inventory), and simultaneity of production and consumption. When we talk about the service, the one who is providing service i.e., Website representative is Human and the one who is receiving it is a human i.e., customers. Customers are more interested in the whole process than in the final product (Gronroos, 1988). While the degree of intangibility varies by task and industry, the consumer's view of quality is heavily influenced by their experience with the delivery process. As a result, human factors play a critical role in providing high quality service to clients.

Nevertheless, in online shopping context, few studies have examined the effectiveness of relative service quality dimensions in predicting total service quality, customer satisfaction and customer loyalty. This study intends to determine the influence of service quality dimensions on customer satisfaction in e-commerce websites. Secondly, to determine the influence of customer satisfaction on customer loyalty in e-commerce websites. Finally, to determine the mediating effect of customer satisfaction in the relationship between service quality and customer loyalty in e-commerce websites.

Conceptual framework and hypotheses development

This study empirically tests the research model that contain three variables in which service quality dimensions is the independent variable, and customer loyalty is the dependent variable and lastly customer satisfaction is the mediating variable.

Assurance. Online shopping context comprises the interaction customers and online stores. Various studies have highlighted the significance of online trust between customers and websites (GrabnerKräuter & Kaluscha, 2003; McKnight et al., 2002). Consequently, the following hypotheses is proposed.

H1. Assurance in an online website positively influences service quality.

Empathy. The absence of real-time interaction prevent prospective customers from buying through websites (Yang et al., 2014). Individual attention, personal messages, and answering client inquiries are all examples of empathy. Earlier research has looked at the impact of e-retailer customer care on consumer perceptions of service quality and satisfaction (Wolfenbarger & Gilly, 2003).

H2. Empathy in an online website positively influences service quality.

Responsiveness. The ability of online websites to respond to customers queries quickly. It explains how frequently a website provides services (like- information retrieval, navigation speed and customer's inquiries). Thus, following hypotheses is proposed.

H3. Responsiveness in an online website positively influences service quality.

Reliability. It represents the capability of the web site to deliver orders correctly and timely. To make clients feel safe, online retailers must keep their information secure and guarantee error-free service.

H4. Reliability in an online website positively influences service quality.

Web site design: Web site design quality is vital for online stores. It describes the attraction that user interface presents to customers (Kim & Lennon, 2017). Hence, the following hypotheses is proposed.

H5. Website design in an online website positively influences service quality.

Previous researches have suggested that customer perceptions of service quality positively influence customer satisfaction. For instance, (Rust & Zahorik, 1993) noted that overall service quality and customer satisfaction significantly influence customer retention, market share, and profitability. Thus, following hypotheses is proposed.

H6. E-service quality in an online website positively influences customer satisfaction.

(Khatoon et al., 2020; Özkan et al., 2020; Yaqub et al., 2019) revealed that customer satisfaction plays a mediating role between service quality and customer loyalty and showed a positive and substantial association between customer loyalty and customer satisfaction.

H7. Customer satisfaction positively influences customer loyalty.

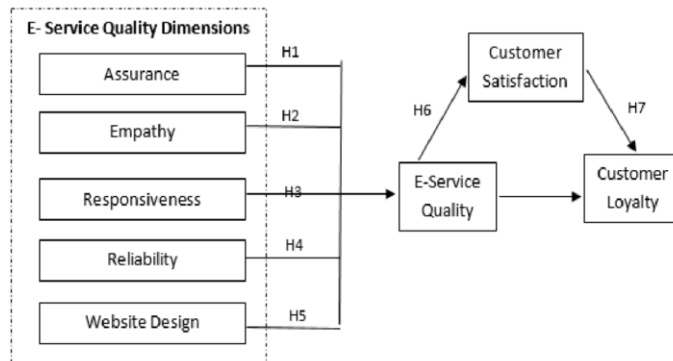


Figure 1 Conceptual Framework (Source: Researcher's Own Construction)

Research Methodology

This paper concentrates on the quality of ecommerce websites services and adds to customer satisfaction and customer loyalty. A research questionnaire was created to analyse consumer satisfaction with their online service providers and to quantify service quality. The survey was broken into three sections. It started with questions about respondent's internet usage and opinions of online services. Part two dealt with the respondent's evaluation of the service quality, satisfaction and loyalty constructs in an ecommerce setting which employed 30 Likert-scale items. Items were measured with a modified Likertscale, (1) strongly disagree and (5) strongly agree. Part three consisted of demographic characteristics such as gender, age, education, and usage related questions.

Experts assessed the questionnaire, and pilot testing was conducted to further validate it. This study's sample comprises of 250 students who have done online purchasing. They were contacted through email using a non-probability sampling method (convenience sampling). The data was reduced to 211 responders after missing and duplicate responses were removed. Confirmatory factor analysis was used to assess the reliability. The KMO was found to be .827 with a significance level of .000. Three items were found to have low factor loadings; thus they were deleted for further testing, resulting in a total of 27 items. The causal relationships between the constructs were established using structural equation modelling (SEM) and a general linear model of univariate analysis of variance analyses. The former was carried out with Smart PLS software, while the latter was carried out with SPSS 20.

Analytical results

The sample is made up of responses from students at a higher education institution. Table 1 summarises the demographics of the sample. According to the demographic table, 66.8% of respondents were between the ages of 16 and 20, while 33.2 percent were between the ages of 20 and 24.

Table 1 Profile of respondents (N=211)

| Demographics | Frequency | % |
|---|------------------|----------|
| Age | | |
| 16-20 | 141 | 66.8 |
| 20-24 | 70 | 33.2 |
| Gender | | |
| Female | 142 | 67.3 |
| Male | 69 | 32.7 |
| Educational level | | |
| Graduate | 40 | 18.9 |
| Undergraduate | 171 | 81.1 |
| For how long you are using web sites for online purchase | | |
| Weekly | 36 | 17 |
| Fortnightly | 42 | 19.9 |
| Monthly | 110 | 52.1 |
| Quarterly | 23 | 10.9 |
| Why do you prefer to shop online | | |
| Very convenience and time saving | 114 | 54 |
| Low price | 40 | 18.9 |
| Products variety | 54 | 25.5 |
| Rare products | 3 | 1.4 |
| Mention the website you use mostly | | |
| Flipkart | 65 | 30.8 |
| Amazon India | 113 | 53.6 |
| Myntra | 25 | 11.8 |
| Paytm mall | 4 | 1.9 |
| Others | 4 | 1.9 |

Statistical results

This study employs the Smart PLS 3.2 version of SEM and bootstrap resampling methods with a sample size of 5,000. This method is utilised to evaluate the estimation as well as the structural model. Discriminant validity and convergent validity are two methods used to assess the model's effectiveness. (Tabachnick et al., 2007) proposed that things are dependable if the standardised loadings value is more than 0.55, and all of the items are reliable. Convergent validity is also established through the use of procedures given by (Fornell & Larcker, 1981).

Table 2 Variables

| S. No. | Short form | Variables |
|--------|------------|-----------------------|
| 1 | ASS | Assurance |
| 2 | EMP | Empathy |
| 3 | RESP | Responsiveness |
| 4 | REL | Reliability |
| 5 | WEB | Website design |
| 6 | ESQL | E-service quality |
| 7 | SAT | Customer satisfaction |
| 8 | CLT | Customer loyalty |

Table 3 Fornell and larcker

| | ASS | EMP | REL | RESP | SAT | WEB | CLT |
|------------------|-------|-------|-------|-------|-------|-------|-------|
| Assurance | 0.616 | | | | | | |
| Empathy | 0.158 | 0.726 | | | | | |
| Reliability | 0.601 | 0.011 | 0.747 | | | | |
| Responsibility | 0.563 | 0.097 | 0.701 | 0.775 | | | |
| Satisfaction | 0.238 | 0.011 | 0.549 | 0.449 | 0.910 | | |
| Website design | 0.434 | 0.111 | 0.603 | 0.630 | 0.430 | 0.715 | |
| Customer loyalty | 0.604 | 0.402 | 0.641 | 0.753 | 0.566 | 0.016 | 0.843 |

Average variance extracted (AVE). To determine discriminant validity, the AVE and HTMT are calculated. Table 3 indicates that for each pair of constructs, the correlation between latent variables is less than the square root of the AVE of each construct. Cross loadings differences above the accepted standard limits of 0.1 were acceptable. All of the construct values are more than 0.85, according to the HTMT. As a result, because all requirements are met, discriminant validity is achieved. When evaluating a structural model, R² is crucial. Fig. 2 depicts the R² of e-customer satisfaction, which is 27%.

Path Analysis

Table 4 shows the path analysis, which shows the relationship between each link and the hypothesis. The values show how independent variables affect dependent variables, but the hypotheses are determined by the size, significance, and sign of these variables.

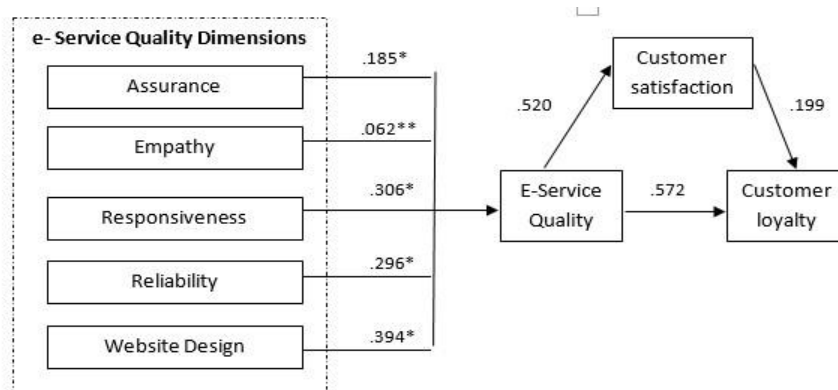


Figure 2 Pictorial results of Path Analysis

Furthermore, p-values are employed to determine the significance of hypotheses, which should be less than 0.1. As a result, Table 4 reveals that because all beta values are positive and significant p-values, all hypotheses should be regarded valid.

Table 4 Standardized regression weights (SRW) of the conceptual framework

| Hypothesis | Regression link | SRW | T-value | p-value | Remarks |
|------------|-----------------|--------|---------|---------|-----------|
| H1 | ASS-ESQL | .185* | 6.846 | .000 | Supported |
| H2 | EMP-ESQL | .062** | 1.618 | .106 | Supported |
| H3 | RESP-ESQL | .306* | 20.681 | .000 | Supported |
| H4 | REL-ESQL | .296* | 15.795 | .000 | Supported |
| H5 | WEB-ESQL | .394* | 19.044 | .000 | Supported |
| H6 | ESQL-SAT | .520* | 7.897 | .000 | Supported |
| H7 | SAT-CLT | .199* | 4.524 | .000 | Supported |

Note(s): * $p < 0.01$, ** $p < 0.10$

Discussion

All of the hypotheses were found to be significant; the findings imply that they are not rejected. H1 ($\beta = 0.185$, $p < 0.10$), is positive and significant, indicating that customers are content with the service when the ecommerce website can meet their demands and deliver services according to their needs.

H2 ($\beta = 0.062$, $p < 0.10$) the hypothesis is not rejected. These findings are in line with previous research (Amin & Isa, 2008; Gefen, 2000), which revealed that trust is an important aspect of e-service website performance. The findings suggest that websites that make it easy for customers to access them are user-friendly and convenient. It is therefore noticed that customers prefer user friendliness in all aspects.

H3 ($\beta = 0.306$) is substantial. Shopping websites frequently respond quickly to their customers and tailor their offerings to their preferences. By pleasantly and quickly replying to the user's request, responsiveness requirements are maintained. Customers anticipate prompt delivery, and enhanced security in financial transactions, which may explain these results.

The hypothesis is significant and accepted because H4 ($\beta = 0.296$). Shopping websites should increase their ability to deliver things as promised, provide real-time and accurate information, and improve the security of online transactions to boost customer happiness. These findings imply that by maintaining consistency, shopping websites can increase consumer satisfaction by providing the most accurate information and reliable is the information the greater are the clients satisfied with the service.

H5 ($\beta = 0.394$), is significant for shopping websites. Web design is important dimension of ESQ to attract the customers therefore, the more organized and attractive a website is, the more convenient it will be for the customers to use it and the more satisfied they will be. Shopping websites should pay cautious consideration to this facet. Mostly, site design should be clear, and the user interface should be tidy and visually appealing, allowing customers to use the web site easily.

The connection between Service quality and customer satisfaction denoted by H6 ($\beta = .520$, $p < 0.01$) is significant and hence the hypothesis is not rejected. This result is consistent with previous studies [36]. These studies found a positive relationship among overall service quality and customer satisfaction in ecommerce setting.

The last link between customer satisfaction and customer loyalty is significant, thus the hypothesis is not dismissed. We accept the alternative hypothesis since the results demonstrated a significant effect between customer satisfaction and customer loyalty denoted by H7 ($\beta = 0.199$, $p < 0.01$).

Despite the fact that the instrument comprised five dimensions: website design, assurance, reliability, responsiveness, and empathy, the study found similar but somewhat distinct aspects. As a result, the study concluded that in the Indian Ecommerce market, care, commitment, civility, and competence are criteria for service quality. According to consumer responses on a survey, people believe that if the staff treats them with kindness, they will be satisfied. They are willing to stay for an extended period of time. When it comes to underlining the importance of a better customer relationship, there are four primary elements to consider. They are the customer representative personnel's concern, devotion, civility, and competency. Since it is a subject of human factors, it is reasonable to assume that these factors can be characterised as human factors of service quality.

Conclusions

Service quality variables are significant factors influencing customer satisfaction levels. However, satisfactory service was found to result in higher customer loyalty among online customers. In comparison to amazon, customers who bought from flipkart, myntra and paytm mall were more likely to switch to an alternate website, indicating lower levels of brand loyalty. Empathy had a positive and significant effect on customer's overall satisfaction and in turn strengthened customer loyalty. Some demographic variables such as gender, income and education are statistically significant for one group of customers that is frequent buyers. It is suggested that different marketing strategies may be used to target different market segments to improve customer loyalty. We needed to improve service quality based on consumer perceptions and experiences. To reach the maximum level of online service quality and customer loyalty in a fiercely competitive climate among organisations with limited resources, firms should concentrate on three factors: empathy, reliability, and website content. The findings of this study can be used to undertake research in the domain of online commerce right now. For example, increasing the level of security, credibility, and responsiveness is essential for attracting and retaining online clients. Second, website design is a crucial tool that should not be overlooked. To make internet transaction processes as simple as possible to use and navigate. Another significant takeaway from this research is the need of assurance and empathy. Customer's demand for personalisation is growing, However, studies reveal that customers are concerned about threats to their personal privacy in online transactions. websites thus ensure that customers should receive appropriate information simultaneously protecting their privacy.

Limitations and Future work

The study has three major flaws that need to be addressed. For starters, the sample chosen was made up of customers of young age, who may or may not be representative of the general population of internet shoppers and might not represent the total population of customers. Second, because this research focused just on shopping websites, it's unclear whether the findings can be applied to other online marketplaces. Because online website's customers perception of service quality is context-dependent, and thus their detailed effects on satisfaction may be tied to specific items and services, future study might use the conceptual framework to investigate various sorts of online retailers. Because of cultural differences in customer satisfaction, generalizability to different nations may be limited. Finally, researcher can investigate the relationship between service quality and consumer satisfaction in online buying situations using various approaches such as focus groups, interviews, and various longitudinal studies. The growth of online purchasing will continue, allowing researchers to study real purchase behaviour rather than intentions.

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Manufacturing through Combined Planning of Shop Floor Functions for Operational Performance Improvement

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Abstract

Production, maintenance planning and quality management are important shop floor operations in manufacturing industries. The interdependency between these three functions has gained much attention from researchers in the last two decades and lead to development of integrated models. The researchers have shown a significant cost saving in operational costs and improved production efficiency based on the integrated modelling approaches between maintenance, quality, inventory and production scheduling. This paper presents the interrelationship between maintenance, quality and production, and the framework of integrated modelling. The results of experimental analysis are presented to demonstrate the cost benefit of integrated modelling. Also the possible future research directions are presented based on the research and insights from the literature.

Keywords: Maintenance, Quality, Production, Integrated model

1. Introduction

The manufacturing systems are going through a significant transformation since market has evolved to a more diversified and customized products demand during the last decades. In an increasingly competitive environment manufacturing companies are facing tremendous pressure to improve their customer satisfaction and minimize production costs. The markets have evolved to a more diversified and customized products demand and hence to meet the increasing demand for customized products, the manufacturing systems are going through a significant transformation during the last decades. In order to increase the productivity on the shop-floor, the operational performance of the shop floor level functions need to be improved. Maintenance, quality control, scheduling, production planning, are the fundamental elements for any shop floor production system. It is a common practice in industries to plan these elements independently and there exist a separate functional teams for its planning. This may result in an optimal plan for a specific function, but not for the whole production system. Thus, there is a need to optimize the production system by considering the dependency between its elements. This justifies the need to develop a model that integrates and jointly optimizes the three elements.

2. Interrelationship between Maintenance, Production and Quality

Maintenance, quality and production, these three shop floor functions have interrelationship in their operational context. The major elements of this interdependency are shown in Figure 1.

Due to continuous running during the operational periods, machines may fail resulting into breakdowns, which needs corrective maintenance(CM). Also, preventive maintenance(PM) of the machine is done to minimize the deterioration of the equipment. Both these events, PM and CM results into a stoppage of the machine i.e. downtime (loss of production window). The production planning is concerned with identifying the optimal production rate to satisfy the customer demand. The production planners assume a perfect environment in terms of machine availability as per their requirement and process quality, however the machine unavailability during production due to PM and CM affect production rate and inventory levels.

In order to meet customer demand, production schedulers will require machines to keep continuously running to their full capacity. In fact, many production schedulers assume that

machine are continuously available and accordingly production schedules are prepared. This may increase the productivity, but it will also decrease machine availability (due to machine failure). Hence on one side machines require maintenance (PM and CM) and on other side the production require machines to be available and utilized continuously for running schedules and maintaining inventory levels. This shows that there is an interrelationship between maintenance and production (scheduling; inventory).

Quality is a measure of how closely goods or services conform to a specified standard. The poor machine condition due to component(s) failure may lead to poor product quality if the degraded state of the component affect the particular quality characteristic of the product. For example, any broken oil seal in a pressure die casting machine will affect the pressure in the system which may result in the casting defects. The degraded machine condition will result into more defective products resulting into more rejections/rework, higher quality costs due to increase in wastages and rework. This situation is an indication of an interdependency between maintenance and quality.

The products rejected or sent for rework on account of not meeting the quality due to an unstable process environment, imperfect technology or human mistakes. Instead of being disposed of, defective items may be routed back into manufacturing process for rework. This kind of problem requires different sequencing rules for defective items to maintain product quality without increasing the completion time of the job schedules, and to ensure maximum machine utilization and minimize setup, rework and holding costs. Such problems related to scheduling of new and rework jobs on a single or multiple facilities have shown the link between production scheduling and quality. In order to diminish these wastages, and to better adapt to customer needs and remain competitive, companies need to calibrate their production, maintenance, and quality strategies mutually: the production rate, the stock level, the maintenance frequency, and the quality controls must be adjusted, jointly (Ait-El-Cadi et al., 2021).

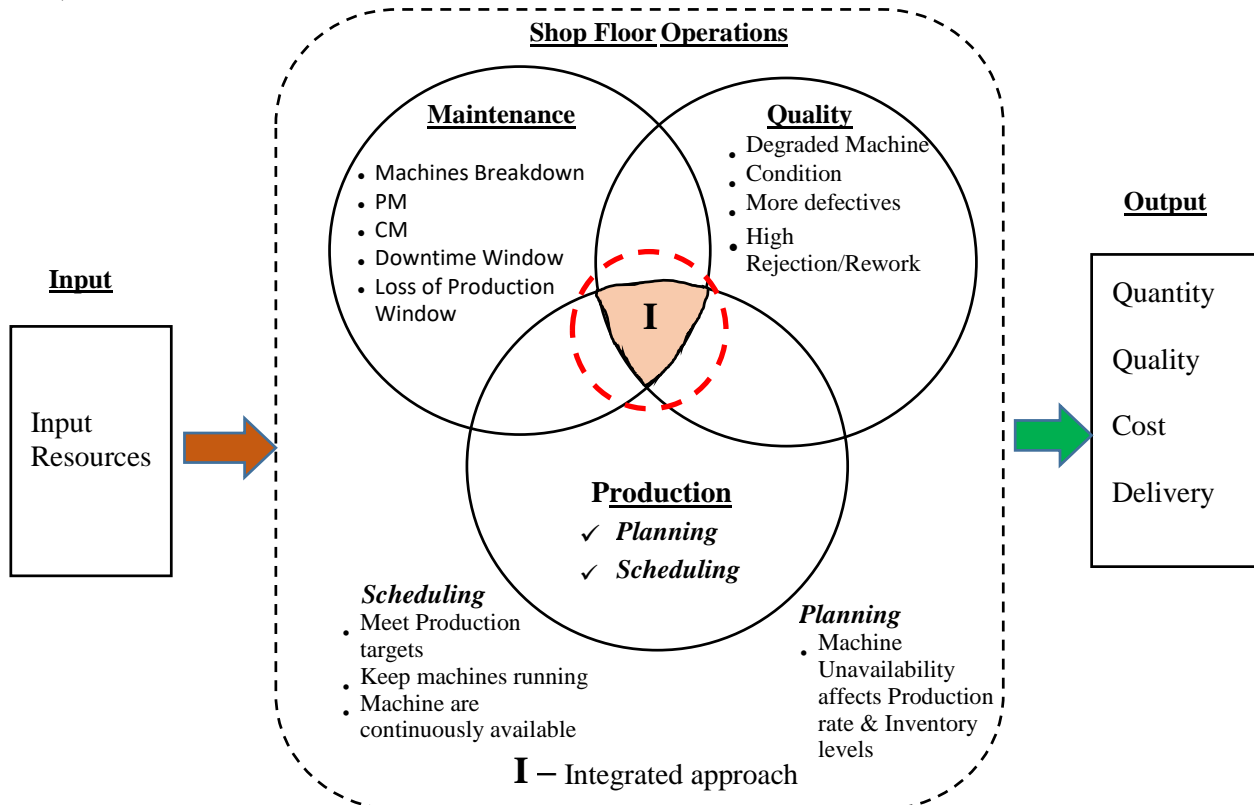


Figure 1: Maintenance, Quality and Production Interrelationship

3. Insights from literature

The interactions and interrelation among production, maintenance planning and quality were studied and analysed in deteriorating manufacturing systems. In the literature, models have been presented that address the effects of quality inspection, maintenance, and buffer stock on an imperfect production process. A mathematical model is developed in order to determine the optimal values of both decision variables which are: the threshold level of the rate of nonconforming units on the basis of which maintenance actions are to be performed, and the size of the buffer stock. The optimal values are those which minimize the average total cost per time unit including inventory cost, maintenance cost and quality cost (Hadidi et al., 2012; Bouslah et al., 2015; Tambe and Kulkarni, 2015; Wang et al. 2019; Fakher et al., 2018; Bouslah et al.,2018; Lopes et al.,2018; Khatab et al. 2019; Rivera-G´omez et al., 2021, Bahria et al.,2019; Ait-El-Cadi et al.,2021; Majdouline et al. 2021)

In an attempt to develop models on production scheduling integrating with maintenance and quality, researchers have jointly optimized job sequence, the PM (locations, interval or maintenance actions) and control chart variables (Pandey et al. (2011; Zheng et al.,2020; Duffuaa et al.,2020; Tambe and Kulkarni, 2015) and showed significant cost saving for integrated models.

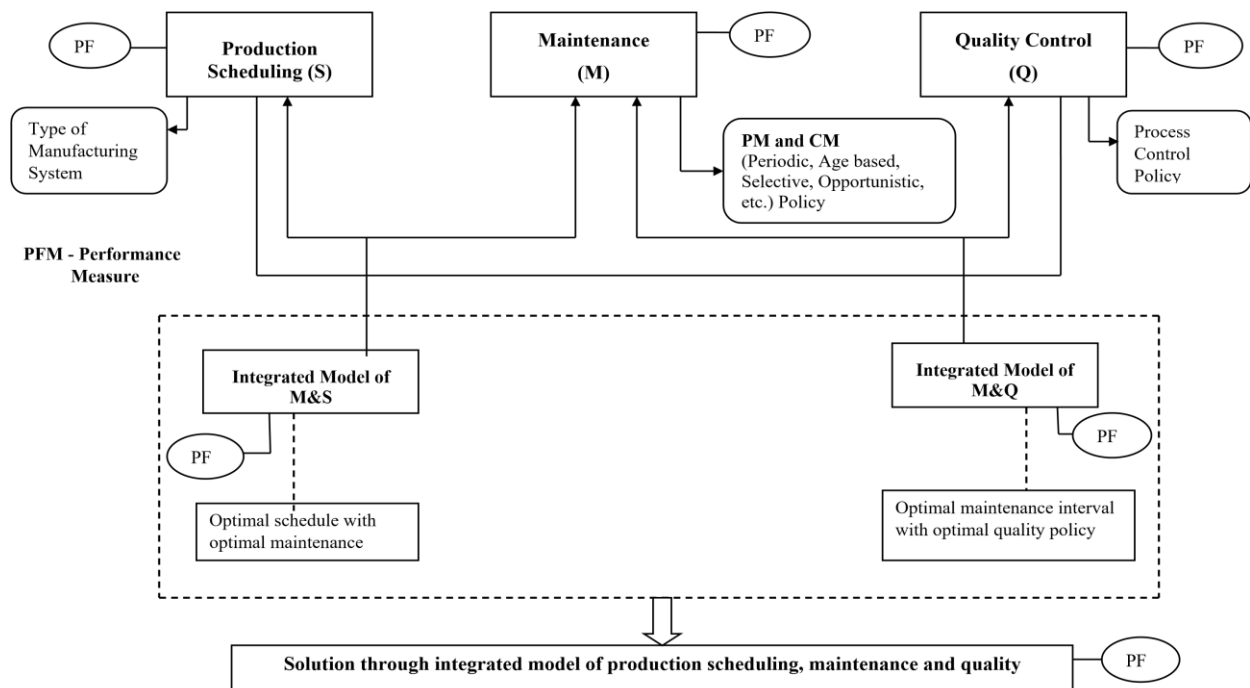


Figure 2: Conceptual Framework

4. Conceptual framework for integrated model

The conceptual framework for developing the integrated model of production scheduling, maintenance and quality is shown in Figure 2. The framework is divided into three phases:

Phase I : Consider production scheduling, maintenance and quality control independently with performance measure for each.

Phase II: Develop the integrated model considering the two approaches.

Phase III: Obtain the integrated model of production scheduling, maintenance and quality based on the solution obtained in phase II

5. Cost Benefit of Integration between Maintenance Quality and Production

The Expected total cost of the integrated model of maintenance, quality and production scheduling is formulated as in Eq. (1). It includes the cost of maintenance, cost of process quality and cost of schedule penalty.

$$\text{Minimize, } E[TC]_{\text{Integrated}} = E[TC_M] + E[TC_{PQC}] + E[TC_{PS}]$$

Subject to constraints:

- i) Total maintenance action time \leq Available time for maintenance
- ii) Availability due to maintenance decision \geq Target availability requirement
- iii) Detection time of process shift \leq limiting time value

In our research, an experimental analysis is performed to investigate the effect of some of the model parameters on the solution obtained for the integrated approach using a full factorial experiment. Four factors selected for the experiment are, scale parameter (η); component cost; number of component affecting quality; rejection cost. A two level full factorial experiment is used where, the four factors are tested at two levels, a low level (0) and a high level (1) as in Table 1. An example of 20 component system is considered for the experiment along with the data for batch processing and process quality control. The results of the experiment (16 cases) are given in Table 2. The comparison of the total cost of integrated model vs the non-integrated model is shown in Figure 3 and variation of % saving in total cost over non-integrated planning is shown in Figure 4. The results have shown significant cost saving for integrated model as compared to independent planning.

Table 1: Experimental Analysis Results

| Sr. No. | Parameter | Low level (0) | High level (1) |
|---------|---------------------------------------|---------------|----------------|
| 1 | Scale Factor (η) | 2-4 months | 10-12 months |
| 2 | Component cost | 2000-5000 | 25000-40000 |
| 3 | Number of component affecting quality | 5 | 15 |
| 4 | Rejection cost | 50 | 200 |

Table 2: Experimental Analysis Results

| Case No. | Model Parameters | | | | Conventional (Non-Integrated) Planning | Integrated Planning | % Saving in total cost for integrated model over conventional |
|----------|------------------|----------------------------------|----------------|----------------|--|---------------------|---|
| | Scale factor | No. of factors affecting quality | Component Cost | Rejection Cost | | | |
| 1 | 1 | 1 | 1 | 1 | 806263 | 757232 | 6.48 |
| 2 | 0 | 1 | 1 | 1 | 1144767 | 1126013 | 1.67 |
| 3 | 1 | 0 | 1 | 1 | 887839 | 599501 | 48.1 |
| 4 | 1 | 1 | 0 | 1 | 722734 | 541860 | 33.38 |
| 5 | 1 | 1 | 1 | 0 | 529641 | 530117 | -0.09 |
| 6 | 0 | 0 | 1 | 1 | 880766 | 871189 | 1.1 |
| 7 | 0 | 1 | 0 | 1 | 898083 | 597530 | 50.3 |
| 8 | 0 | 1 | 1 | 0 | 841126 | 835436 | 0.68 |
| 9 | 1 | 0 | 0 | 1 | 813876 | 494913 | 64.45 |
| 10 | 1 | 0 | 1 | 0 | 592471 | 467650 | 26.69 |
| 11 | 1 | 1 | 0 | 0 | 456168 | 430367 | 6 |
| 12 | 0 | 0 | 0 | 1 | 669960 | 546723 | 22.54 |
| 13 | 0 | 0 | 1 | 0 | 689525 | 689999 | -0.07 |
| 14 | 0 | 1 | 0 | 0 | 605363 | 494894 | 22.32 |
| 15 | 1 | 0 | 0 | 0 | 518861 | 393378 | 31.9 |
| 16 | 0 | 0 | 0 | 0 | 478738 | 448010 | 6.86 |

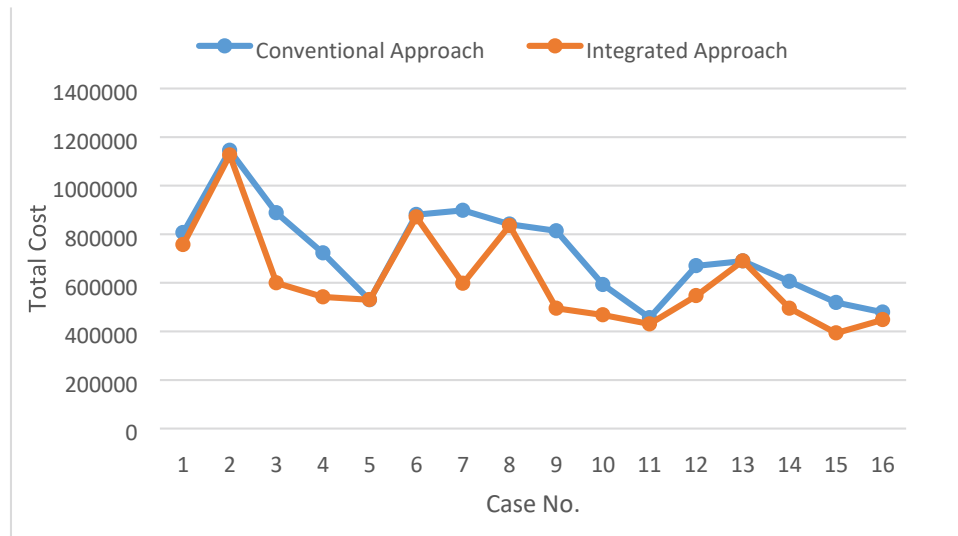


Figure 3: Total cost variation over experiment

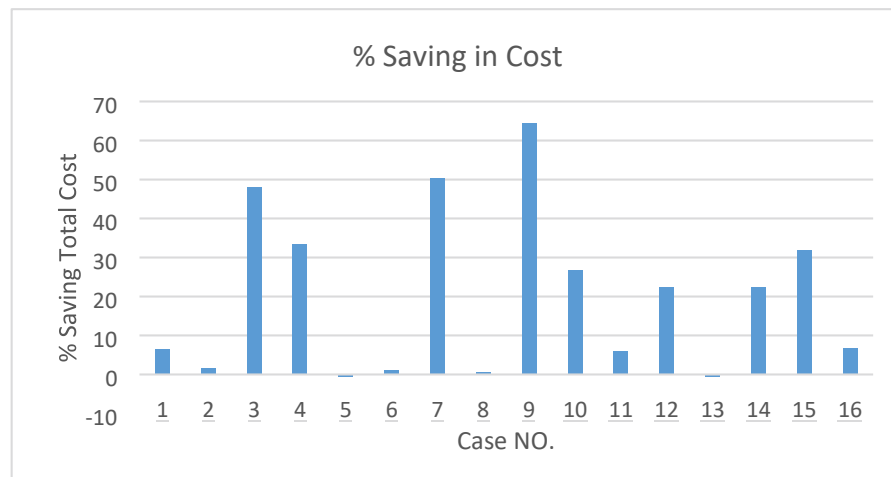


Figure 4: Saving (%) in total cost for integrated model

6. Conclusion and Future Research Directions

In view of the strong link between maintenance, production quantity, inventory and quality, and also the potential for operational cost saving, more research works needs to be attempted to catch their underlying relationship through a single integrated model. This paper has presented the interdependency and benefits of integrated model of maintenance, production and quality. Some of the challenges in the integrated modelling approach are summarized below. These challenges as a future directions are based on the research in integrated modeling and the future scope identified from the literature.

1. Considering multistage manufacturing systems producing more than one product and production systems involving job shop, flow shop, parallel machines and environments like JIT manufacturing.
2. Most of the models are developed considering single objective problem formulation and Multiobjective optimization offers an alternative approach for integrating maintenance, production and quality.

3. Most of the integrated models consider \bar{X} control chart policy for quality control. To make further improvement, the process can be monitored by other control charts such as adaptive control chart, CUSUM or EWMA control chart to accelerate detecting small and median shifts. Furthermore, the presented model can be extended to simultaneously monitor mean and variance of quality characteristic under consideration. Also multivariate quality control in the integrated model
4. The integrated approaches are modelled with single quality characteristic and complex products with numerous quality attributes that can deteriorate at different rates.
5. Taguchi quality loss function approach could be employed to quantify loss due to process shift.
6. The performance of algorithms like branch & bound and other metaheuristic approaches on the solution and computation time for integrated problem needs to be investigated.
7. The approaches can be further extended with distributed maintenance planning and agent based scheduling.
8. A variable and non-constant demand rate matching to the current trend in the competitive market.
9. Integrated models with elements of smart manufacturing system like cyber physical production systems, smart maintenance systems with predictive maintenance, etc.

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A Review of Process Quality Models and Customer Satisfaction in the Context of Healthcare Services

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Abstract

With the increase in the awareness of healthcare services and the proliferation of healthcare providers, especially in developing countries, quality and customer satisfaction has remained a grey area. This motivated researchers to develop a number of process quality and customer satisfaction models in the healthcare services context. This paper reviews the healthcare literature from a process perspective and how they impact the quality of medical outcome. We use the CIMO (Context, Intervention, Mechanism, and Outcome) method of analysis and categorize the articles under various themes, which provide insights into the aspects of healthcare quality models. Based on a thorough and critical evaluation of the models, we identified a few research gaps. We finally conclude with relevant discussions and future research directions.

Keywords: Healthcare, process quality, service quality, customer satisfaction

Introduction

In an analysis of the mortality rates in 137 countries, the Lancet noted that the prime reason for the high mortality rates in India was due to the low quality of health services rather than the access of healthcare across the country (Kruk et al., 2018). A few of the notable reasons for India's poor healthcare service quality are organization climate, service process design, opaqueness of the diagnosis process, lack of resources, unacceptable doctor-patient relationship, and limited use of health IT services (Somvanshi & ET Bureau, 2018). Krishnan (2015) also noted that there is a shortfall for doctors (49.1%) and nurses (177.5%), which is very alarming. A major aspect of India's poor healthcare is the inconsistency and variability in health outcomes. For overcoming such inconsistency and poor quality in healthcare outcomes, the healthcare service providers adopt management principles, practices, and standards that are adopted successfully in other industries (Kwon, 2008). But the complicated nature of healthcare requires it to account for the heterogeneity of its patients who demonstrate a varying degree of health complexities. Also, the rapid development of medical improvements and healthcare IT applications (Devaraj & Kohli, 2003), requires frequent changes in the practices for its practical implementation. In this paper, we carry out a comprehensive review of the service quality and customer satisfaction models in order to identify scopes and gaps in implementing such models in the context of healthcare services.

In a seminal paper on healthcare quality by Donabedian (1966), it was established that the quality of medical care could be evaluated using three components: structure, process, and outcome. (1) structure – the healthcare setting consisting of the facility infrastructure and other arrangements provided by the healthcare unit. This component mainly represents the physical or tangible aspects. (2) process – the way in which the care is provided to the patients. The interaction between the healthcare providers and the patients, the justification provided for the diagnostic procedures, the adherence to technical care, the level of communication and counseling provided during the treatment play an important role in shaping positive judgments about the quality of care. (3) outcome – measured in terms of the rate of recovery or restoration of health quality or simply survival after undergoing the treatment. The outcome quality can be assessed using performance-based criteria such as mortality rates, readmission rates, etc.

As healthcare systems are mostly identified with what it does (process) and not what the system is (structure) (WHO, 2000), we narrow down our study to focus on the process quality and its

associated effect on outcome quality. WHO (2006) suggests investigating the healthcare process and outcome measures to improve the performance of the healthcare system. Also, a majority of the barriers to the Millennium Development Goals (MDGs) adopted by the UN Declaration in 2000 are dependent on the process quality (Schneider, 2006). So, in this paper, *we extensively study the process service quality and aim to review the healthcare literature from the process perspective of the service quality and how it impacts the outcome quality.*

Research Methodology

Article Selection

As we focus on the process service quality of healthcare, we found a lot of articles addressing the same. A theoretical sampling method that helps in the convergence of the data was adopted by filtering the vast number of articles (Eisenhardt, 1989; Yin, 2017). A keyword search was applied, and the exclusive details of the search were presented in Table 1. The acceptance of only the FT 50 journals was to ensure the quality of articles.

| | Filters used | No. of articles |
|---------------|--|-----------------|
| Main search | (healthcare OR "health care") AND ("service outcome" OR "service process" OR "service quality" OR "satisfaction" OR "service design" OR "process design" OR "process optimization" OR "customer satisfaction" OR "patient satisfaction" OR "health outcome") | 111,968 |
| Subject area | Business, management, and accounting | 3,398 |
| Document type | Article and review | 2,857 |
| Source type | Journal | 2,815 |
| Language | English | 2,793 |
| Source title | FT 50 journals | 60 |

Table 1: Details of the filtering process

Exclusion criteria

The 60 articles that were first separated from the literature was further reduced to 48 based on the following exclusion criteria-

- Studies that explored community health services or intervention of government policies on hospitals were excluded as they were beyond the scope of this study.
- Articles were excluded if the study did not focus on healthcare.
- Few articles explored process quality but didn't study its impact on outcome quality. Such articles focused only on understanding the antecedents of process quality.

Article review process

An iterative review process was adopted, as shown in Figure 1. Following the initial inclusion and exclusion criteria, the articles were manually coded. At first, the abstracts were reviewed. Once the inclusion and exclusion criteria were fully determined, the papers were reviewed in-depth about their research methodology and extensive research questions, which they explored. A total of 55 full-length articles were read and coded based on the criteria. A number of 48 articles were finalized for the literature review.

CIMO method of analysis

A form of design proposition developed by Denyer et al. (2008) called CIMO - Context (C), Intervention (I), Mechanism (M), Outcome (O) logic is popular and can be used as a research

method to review the literature (Johnson et al., 2020). CIMO has its own advantage in reviewing the literature and synthesizing the findings. It helps in defining the key concepts using different perspectives, which ultimately leads to a greater understanding of the problem. Thus, assisting the reviewer in formulating meaningful research questions.

Context

The context or the research setting defines the boundary conditions in management research. To interpret the literature, we will consider the context to be (1) individual/patient level, (2) group/unit/department level, and (3) hospital level. Studies focusing on only patient-level information, physician- or nurse-level information to study the effect of changes in the management practices on output performance will be grouped under individual-level. Unit-level studies represent those that focus on a particular department within the hospital, such as emergency services, heart hospital, radiology, etc. Finally, the hospital level consists of data from the entire hospital and is not specific to any unit or individual.

Interventions

Interventions are the ways/methods to solve an identified problem. In the research context, the problems are identified by formulating design propositions and research objectives. These are the design elements

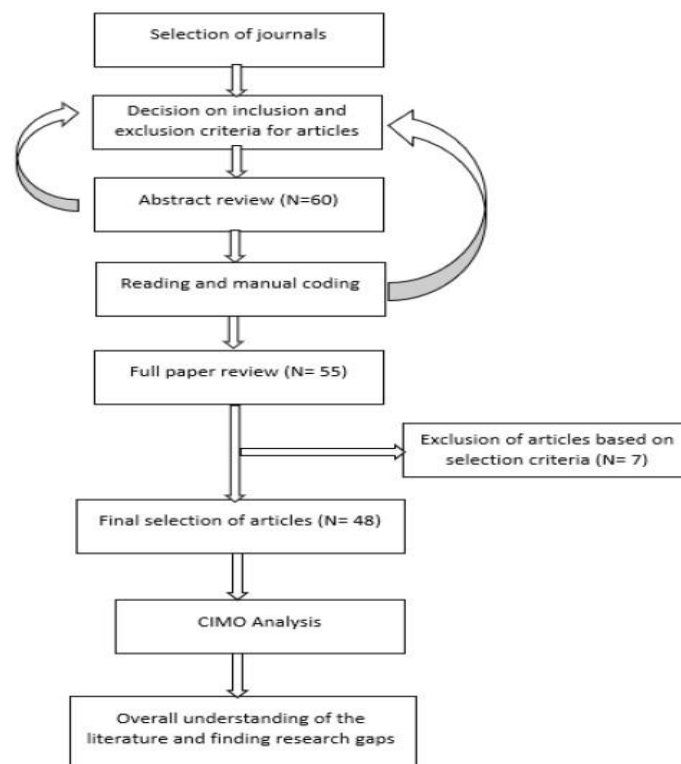


Figure 1: Process of literature review

that trigger the mechanism and align to achieve the desired results (Denyer et al.,2008). We categorize the interventions under different themes that were identified -

- Theme 1: Models for service quality and satisfaction measurement
- Theme 2: Healthcare process and experience design
- Theme 3: Organizational behavior changes which effect clinical outcome and satisfaction
- Theme 4: Improvements in process delay and process uncertainty and its effects on health outcomes

Mechanisms and outcomes

The interventions mentioned above are the system changes that will either have a positive or adverse effect on the outcomes. These interventions also trigger the mechanisms (theory or principle or logic). The mechanisms are based on the different management literature and in accordance with the theoretical underpinnings of the research questions addressed in the articles (Denyer et al., 2008).

Desired outputs are expected with every change or improvement in the system processes. An overall improvement can be evaluated by considering different outcome-specific objectives. To clearly review the papers, we provide a categorization of the healthcare outcomes. (1) Clinical/Operational performance- measures the performance of the process change with respect to the clinical outcomes such as arrival/discharge rates, throughput, service time, length of stay, readmission rates, mortality rates, and other standard measures. (2) Financial performance- measures the output performance by reporting the change in costs such as overall hospital costs, staffing costs, waiting costs, revenues. (3) Intangible measures of outcome- accounts for the patient experiences and the functional status of the patient after the patients undergo a treatment process.

Discussion

From the CIMO analysis, we found numerous studies coordinating the financial component of outcome quality with the clinical performance measure. For simplifying the evaluation of outcome quality, the authors' assumptions about using the operational data as a proxy to show cost-enhancing performance can be misleading. The articles that studied causal relationships were careful to include appropriate controls. The most used control variables at the hospital-level were hospital size (that was mostly calculated using the number of beds), ownership structure (public/private), corporate goals (profit/non-profit), hospital teaching status. It was noted that studies were emerging to explore the impact of certain controlling variables on the outcome quality. It was found in most studies that the structure of the healthcare unit (focus and volume of patients) was specified to be a controlled variable.

We also saw the distribution of articles based on research methodologies across the different intervention themes (Table 2). The articles were classified under the identified research methodologies. Empirical studies were clearly the preferred choice. These studies included data analysis of primary data such as experimental data, interviews, surveys, questionnaires, as well as analysis of secondary data such as data from online databases and historical or archival data from the hospital databases. The theoretical research methodology consisted of conceptual studies. These also included the modelling of different systems with numerical examples that were based on stimulation (not primary/secondary data). The logical explanation for the maximum number of articles following empirical methodologies to explore mostly theme 1 and theme 2 can be due to the prior focus in the literature. The seminal work of Parasuraman et al. (1985) to understand the dimensions of service quality and later to develop the SERVQUAL model (Parasuraman et al., 1988) has paved the way to explore these themes. Following the seminal work, numerous other service quality models like the extended model of service quality (Zeithaml et al., 1988), attribute service quality model (Haywood-Farmer, 1988), SERVPERF model (Cronin Jr and Taylor, 1992), etc. have been developed, and it is even prevalent today. We find that the least number of articles explored theme 3 using a theoretical research methodology (2.08%). Thus, our analysis provides a necessity to explore the less targeted areas.

| | Empirical | Theoretical |
|--|-----------|-------------|
| Models for service quality and satisfaction measurement | 27.08% | 4.17% |
| Healthcare process and experience design | 29.17% | 4.17% |
| Organizational behavior changes which effect clinical outcome and satisfaction | 12.50% | 2.08% |
| Improvements in process delay and process uncertainty and its effects on health outcomes | 10.42% | 10.42% |

Table 2: Research methodology analysis

To conclude the discussion section, we bring in the following research questions. Operations and marketing literature aims in improving the healthcare performance at the organizational level, by considering changes in the operational variables (Soteriou and Chase, 2000). We saw from the literature review that most of the studies focused on process design mapping within the organization. But service quality perceptions of customers are closely linked with the customers varying interactions within the organization as they undergo multiple touch points. *We can thus study the impact of waiting time perception in the service quality and/or satisfaction models on the healthcare outcome quality.* Quality is an ex-post measure of the performance of a process, whereas risk is an ex-ante measure of its performance (Menon and Kohli, 2013). *We can understand the impact of process uncertainties and risks associated with the patients in the process and its effects on the outcome.* As the sequence of pain or pleasure experiences can influence the overall impression of the service (Dixon and Verma, 2013). *We can study the effects of the changing perceptions of service quality when the patient is experiencing the service journey at each processing stage and patient workplace stress level on the outcome.* According to resource-advantage theory, organizations can utilize their intangible resources to build long-term strategies and to develop a sustainable competitive advantage leading to superior performance in the industry (Jambulingam et al., 2005). Hence, for building competitive advantage, *we can study the interventions in maximizing the intangible measures of outcome.*

Conclusion

In this study, we examined the literature aimed at providing a holistic perspective of the research on healthcare service, process, and outcome. We followed a lower level of analysis, such as process level. Following a structured research methodology in this study, we presented an in-depth analysis of the 48 papers. The CIMO framework was explored, which extended the analysis to provide an exhaustive presentation of the articles. The studies reflected research interests mainly in the critical role played by the performance measures. The studies depicted research extending from eliminating single department problems towards dealing with a holistic understanding of the healthcare industry.

Our research provides an argument for the necessity to develop alternate service quality and/or satisfaction models, use process and experience design, incorporate organizational behavior changes and improve process delays and process uncertainties. Further, in terms of future scope, we can conduct a more extensive literature review for:

- In-depth study of each paper and identifying the research gaps separately. Identifying the issues and sub-issues and finally collating the gaps in the form of a framework to pinpoint the existing research direction.
- Exploring the best practices of behavioral studies to manage patient-centeredness.

- Understanding the recent and emerging issues such as policy implementation, changing dynamics of global health focus from accessibility to improving quality standards, etc.

One of the limitations of this study is that the review was not conducted based on the perspective of the service quality dimensions from the seminal articles in the service quality literature (Gronroos, 1984; Parasuraman et al., 1988, 1985). A different outlook on service quality opened up numerous avenues. We hope this study promotes research of the topic discussed and its related field.

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Project Management Resources as Determinants of Competitive Advantage in the Information Technology Industry

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Abstract

This study examines the relationship between project management resources and competitive advantage in the information technology industry in Malaysia. The mediating role of the resource-based view will form the crux of the theoretical framework, linking the project management resources as the independent variables and competitive advantage as the dependent variable.

The survey results from a sample of about 300 companies from a population of 2500 companies was analyzed to determine which tangible or intangible project management resources had a positive influence on competitive advantage. Intangible resources were significant compared to tangible ones. Out of the twelve hypotheses developed, only six were supported. The valuable and rare intangible resources had a positive influence on competitive advantage, whereas, the other two constructs, namely, inimitable, and organizational support, were not supported. In essence, this study highlights the pre-eminence of intangible project management resources as determinants of competitive advantage in the information technology industry.

Keywords: project management resources, resource-based view, competitive advantage

Introduction

A company may have many resources, but only 'strategic resources contribute to a company's competitive advantage' (Amit & Schoemaker, 1993). In their seminal work linking resources to competitive advantage, Barney et al. (2011), developed the *VRIO* framework, which categorizes strategic resources, as *Valuable* (have monetary value), *Rare* (non-substitutable and unique in nature), *Inimitable* (not easy to replicate or duplicate), and that which involves *Organizational Support* (project management processes, monitoring and control systems). The use of the Resource-Based View (RBV) in examining the tangible and intangible resources, in terms of its *VRIO* characteristics is a novel approach, adopted in this study. It is novel because, it offers a new paradigm shift in the theoretical assessment to analyze project management resources in a more holistic and comprehensive manner, from a RBV/*VRIO* perspective, and to examine its impact on competitive advantage.

The Multimedia Super Corridor (MSC), was launched in 1996 to place Malaysia in the global Information and Communications Technology (ICT) arena. Since then, more than 2,500 MSC Status companies are in operation, generating annual revenue in excess of US \$10 billion and employing well over 128,000 people. However, the high failure rate of ICT projects, through ineffective management of project management resources had resulted in project losses, decline in customer goodwill, low employee morale, and lost business opportunities. These negative effects had an adverse impact on a firm's organizational business sustainability. Thus, the need to study and examine firm-specific project management resources and their effective deployment, in determining their leverage or influence on competitive advantage in an ICT firm.

The project management resources, that had been identified in the 'Project Management Body of Knowledge' (PMBOK, 2021), had been used in practice, by project management professionals across the globe. In this study, the project management resources, namely, project scope, project time, project cost, project quality, project human resources, project

communication, project risk, project procurement, project integration and stakeholder management have been examined, individually and as a group. These resources can be categorized as either tangible or intangible. The tangible resources are explicit, and physical or concrete in nature, whereas the intangible resources are implicit, tacit, and not codified, but can be understood, and knowledge based (Teece et al., 1997). The tangible project management resources, like time and scope can be measured in actual man days or in calendar months, depending on the size and nature of each ICT project. As for project cost, this can also be measured and expressed in actual monetary units. The other intangible project management resources, namely, human resources, quality, communication, risk, procurement, project integration and stakeholder management are a bundle of unique skills, best project management practices, and knowledge elements which are possessed by the firm, and deployed in the execution and implementation of projects.

Literature Review

In the selection of an appropriate theory to study project management resources as determinants of competitive advantage in the information technology industry - the following five theories / views were examined. It needs to be understood that in a modern ICT company there is a continuous transfer of knowledge, between the parent or holding company and the project unit operating in a matrix management structure. This inter-organizational transfer of knowledge in terms of cooperative alliances can be regarded as an important element in the pursuit of corporate strategy (Gulati, 1998). This phenomena of resources and strategic outcome can be examined under the following theories, namely, the Industrial-Organization Theory, Transaction Cost Economics, Resource-Based View, the Knowledge-based View (Qiang et al., 2009) and the Dynamic Capabilities Theory (Teece et al., 1997).

The Industrial-Organization (I/O) theory places its theoretical emphasis on the structure of the market rather than the product conversion process in an organization which involves costs and other ancillary expenses, which are firm specific. In addition, this theory does not include any identification or examination of firm specific resources and its impact on managerial outcome in an organization. This constitutes a serious limitation and drawback as the research emphasis in this study hinges on firm resources and its leverage on competitive advantage in the firm. Many management theorists have postulated that management lies at the intersection of a variety of disciplines, including, economics, sociology, and psychology. The study of strategic project management is thus, not an exception to the norm and is closely aligned to strategic management, though it can be argued that it has developed into a distinct discipline of its own over the last two decades (PMBOK, 2021).

Transaction Cost Economics (TCE) is primarily concerned with the reduction in transaction costs among various assets. This apparently is a limited view and negates all other value creating activities brought about by an integrated cooperative alliance in an inter-organizational context. Its cardinal concern on only cost, ignores all other project management elements like scope, time, quality, human resources, communication, risk, procurement, and integration. As such, TCE may not be a suitable theory in the study of project management resources, because of its limited emphasis on only cost.

The Resource Based View (RBV), on the other hand, is built on the premise that only strategic resources contribute to a firm's competitive advantage. This perspective has been widely accepted in the strategic management literature. The Resource Based View and Barney's *VRIO* framework have been used in empirical studies on strategic resources, as evidenced by research

done by various scholars, over the last few decades (Barney, 2011; Lopez, 2001, Montealgre, 2002; Ray et al., 2004; Wiegins & Ruefli, 2002; Zahra & Nielsen, 2002).

Project management resources can be split into tangible and intangible elements. However, much of the emphasis placed on resources within the project management domain, has mostly been focused on tangible resources, like project scope management, project time management, and project cost management. On the other hand, less importance, have been directed at intangible project management resources which may include, project quality management, project human resource management, project communication management, project risk management, project procurement management, and project integration management (PMBOK, 2021). It has been said that “explicit knowledge is more formal, codified, and transmitted systematically” (Polanyi, 1966), and that “tacit knowledge is shared informally through social exchanges” (Granovetter, 1985). In project management, it is common to see knowledge sharing in the form of brainstorming sessions, mentoring routines, learning activities through shadowing and storytelling. In many ICT organizations, “project teams often share knowledge through informal exchange of ideas” (Lesser, 2000). It is well recognized that “knowledge is viewed as inimitable when it is socially complex and causally ambiguous” (Barney, 1999; Mata et al., 1995). It is difficult to replicate tacit project management knowledge and as such it is an important source of sustainable competitive advantage. The literature survey indicates that there are inadequate studies done on the contribution of project management to competitive advantage (DeFillippi & Arthur, 1998).

It can be further gleaned from extant literature, that the cardinal contribution of the Resource Based View of the firm had been the theory of competitive advantage (John, 2000). It is also pertinent to ask if the competitive advantages are sustainable. The terms sustained advantage (Barney, 1991) and sustainable advantage (Grant, 1991), are both taken up in the literature and can be interpreted in the same way. However, sustainability does not refer to a particular time period in the calendar nor imply that it will accrue indefinitely (Gunther et al., 1995), but rather is dependent on the possibility and extent of competitive duplication. Bharadwaj et al. (1993) have postulated that sustainable competitive advantage can be expected to lead to superior performance, which can be measured by market share and profitability. In addition, Peteraf (1993) had indicated that when resources are limited in supply, superior returns will persist. Another eminent scholar, Jim Andersen (2010), opined that in the current business environment, models like product market analysis and Porter’s (1980) five forces model are outdated to some extent. Instead, he suggests strategic analysis should be based on capabilities and resources and advocates a resource-based view on how companies can achieve organizational success, by concentrating on firm specific internal factors, rather than external product or market factors.

The Knowledge-Based View (KBV) is built on the premise that knowledge is an important and primary resource in a firm. However, it needs to be emphasized that KBV is not a theory, but a view, and an off shoot of RBV. In a similar vein, the Dynamic Capabilities Theory (DCT), which will be discussed next, is but another spin-off from RBV. In short, the TCE, KBV, and DCT lack the robust theoretical qualities, test of time and the empirical treatment of RBV. At most, these other theories and perspectives are only complementary to RBV. On the other hand, RBV has evolved over the last twenty years as a powerful theory in describing, explaining, and predicting organizational behavior and is now poised to set a new direction in the future (Barney et al., 2011).

The Dynamic Capabilities Theory (DCT), is suitable for firms operating in a dynamic business environment, beset by volatile market conditions. Teece et al. (1997) had postulated that the dynamic capability of a firm can be defined as a firm's ability to restructure, construct and consolidate competence. This aptly falls within the theoretical definition of resources by Barney (1991). Firms that constantly manage attributes that give rise to resources or competence, will be able to reinforce their dynamic capability to manage competencies. However, DCT is at best complementary to RBV.

In the context of this research study, the definition of a resource in a firm, follows that depicted by Barney (1991), who postulated, that resources in a firm included all assets, capabilities, organizational processes, firm attributes, information, and knowledge, which are in the possession of the firm, and which initiates the organization to implement strategies in an effective and efficient manner to reap organizational success. In this context, the project management resources – scope, time, cost, quality, human resources, communication, risk, procurement, and integration are synonymous to J. Barney's definition as stated above, that is, a resource can be referred to as an asset, capability, organizational process, firm attribute, or knowledge.

Amit and Schoemaker (1993) made a distinction, in which, they posited that the construct, called resources, can in fact, be split up into resources and capabilities. They argue that resources can be bought and sold (tradeable) and are not specific to a firm. These resources are generic in nature. On the other hand, capabilities are specific in nature and employ the resources in the firm, such as implicit or tacit processes to share and collaborate knowledge resources within the firm (Makadok, 2001; Hoopes, Madsen & Walker, 2003). It is interesting to note that the knowledge, skills and capabilities possessed by the project team members are paramount in realizing organizational performance and success. In fact, this theoretical approach has been widely accepted throughout the Resource-Based View literature (Conner & Prahalad, 1996; Makadok, 2011; Barney).

Research Model

The research model hinges on the relationship between the project management resources (independent variables) with the mediating influence of the VRIO characteristics of the project management process and competitive advantage (dependent variable). The independent variables are split into tangible and intangible project management resources and are based on the research done on the Resource Based View of the firm by eminent scholars (Barney et al., 2011; Teece et al., 1997). This is conceptualized in the Figure 1.

The tangible project management resources (depicted in red line in Figure 1 above) are scope, time and cost, whereas the intangible resources (depicted in dotted lines in figure 1 above) are quality, human resources, communication, risk, procurement, stakeholder management and project integration. All these resources are encapsulated in the Project Management Body of Knowledge, as the domain's knowledge areas (PMBOK, 2021). In a study on project management resources, Kam, J. & Gita, M. (2012), had identified the knowledge areas as project management resources, which can contribute to competitive advantage, based on their degree of complexity and leverage or influence, they have on project success.

Research Model

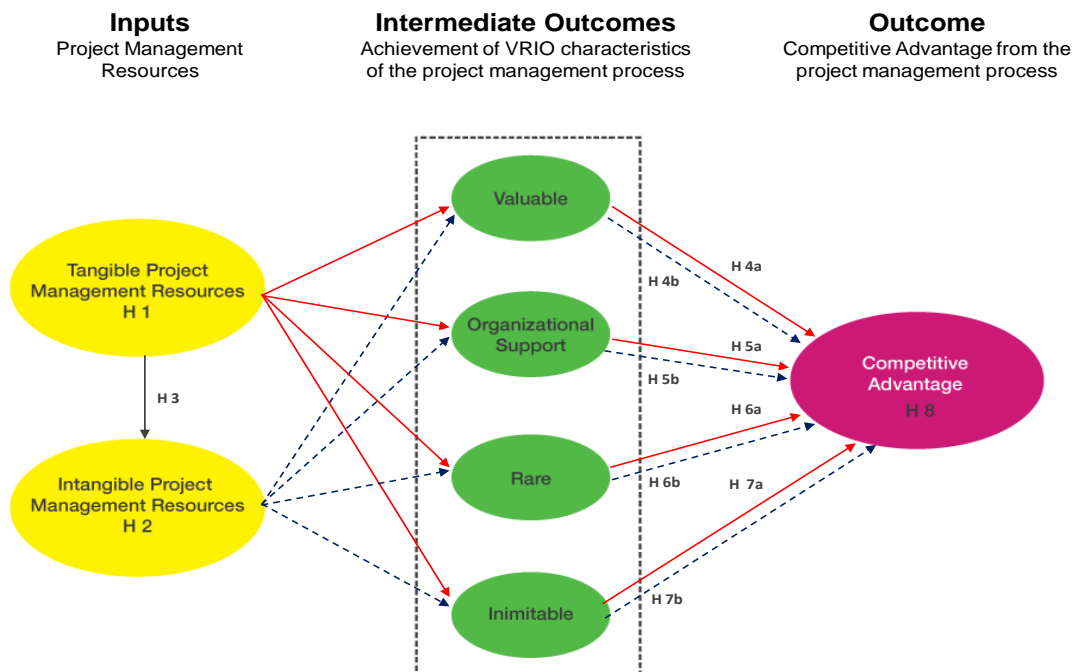


Figure 1 Research Model

(Adapted from Jugdev and Mathur, 2006)

Methodology

The research methodology employed, involved a pre-test and a pilot test to assess the reliability and the validity of the survey instruments. A total of 600 questionnaires were sent to the four MSC clusters, namely, Information Technology, Creative Multimedia, Global Outsourcing and Institutions of Higher Learning and Incubators. A total of 342 respondents replied in the final survey, out of which 305 were usable, the balance 37 were discarded as they were incomplete. A Structural Equation Modeling (SEM), which is strong in concept and theoretically robust, was used in data analysis. It is a popular advanced statistical technique, that has emerged in the social sciences in recent decades. It is a useful technique to test theory in a multivariate setting. In theory testing, the relationship between the constructs and its indicator variables and between the unobservable latent constructs can be conducted simultaneously to examine how well the theory relates to the sample data that is collected from the real-world environment (Hair et al. 2017).

SEM consists of two models, namely, the measurement model and the structural model. The measurement model depicts the relationship between the latent constructs and its indicator items. This model will determine the number of indicators for each construct and assess its validity. On the other hand, the structural model will specify the relationship between the latent independent constructs to the latent dependent construct based on the research model as depicted in Figure 1. In addition, the twelve hypotheses that was specified in the research model will depict the dependence relationships that exist between the constructs. In data analysis, SEM, unlike its first-generation models, take a confirmatory rather than an exploratory approach. This confirmatory approach is important for hypothesis testing. (Hair, et.al., 2014).

Results

It is of interest to note, that a comparative study done by Rodney T. et al., 2011, in the research methodologies adopted in the field of project management over the last two decades, had indicated a paradigm shift from a 'practitioner oriented' focus, which was more narrow in scope and lacked rigor to a more multivariate data analysis, which was broader in scope and rich in academic rigor, which had contributed to sound research methodologies. In this respect, this research undertook a field survey to collect the data from the four clusters of the MSC status companies, namely – information technology, multimedia, global outsourcing, and the institutions of higher learning and incubators. The data that was collected was analyzed using Structural Equation Modeling - a multivariate data analysis technique which is extensively used in social science research. This has led to an extension in research methodology which had contributed to the development of an enlarged knowledge base. This research initiative, with elements of a strong academic rigor supported by sound statistical reasoning can be replicated across many varied industries, where projects are implemented.

It can be concluded, that in this research, the research model (Fig 2) was able to incorporate all the elements of tangible and intangible project management resources to determine its impact on competitive advantage with the mediating influence of the *VRIO* process management characteristics. The adoption of this research instrument in the study of strategic project management is an important contribution in the domain of research methodology.

The summary results of the hypotheses testing indicate that out of the 12 hypotheses examined, only 6 were supported, whereas the remaining 6, namely hypothesis H4a, H5a, H5b, H6a, H7a, and H7b were not supported (see Table 1). These findings are interesting to note that overall, on a relative basis, intangible resources of project management had a significant impact on competitive advantage when compared with the tangible elements of project management.

Table 1: Summary Results of Hypotheses Testing

| | Hypothesis | Effect | Significance of the effect | Justification of the research hypothesis |
|-----|---|--------|----------------------------|--|
| H1 | Scope, Time and Cost →Tangible PM Resources | + | Significant | Supported |
| H2 | Quality, HRM, Communication, Risk, Procurement, Integration→Intangible PM Resources | + | Significant | Supported |
| H3 | Tangible PM Resources →Intangible PM Resources | + | Significant | Supported |
| H4a | Valuable →Tangible PM Resources → CA | + | Not Significant | Not Supported |
| H4b | Valuable →Intangible PM Resources → CA | + | Significant | Supported |
| H5a | Org. Support →Tangible PM Resources →CA | + | Not Significant | Not Supported |
| H5b | Org. Support→Intangible PM Resources→CA | + | Not Significant | Not Supported |
| H6a | Rare →Tangible PM Resources →CA | + | Not Significant | Not Supported |

| | Hypothesis | Effect | Significance of the effect | Justification of the research hypothesis |
|-----|--|--------|----------------------------|--|
| H6b | Rare → Intangible PM Resources → CA | + | Significant | Supported |
| H7a | Inimitable → Tangible PM Resources → CA | + | Not Significant | Not Supported |
| H7b | Inimitable → Intangible PM Resources → CA | + | Not Significant | Not Supported |
| H8 | Tangible and Intangible PM Resources, VRIO characteristics and CA has a significant effect in the Structural Model | + | Significant | Supported |

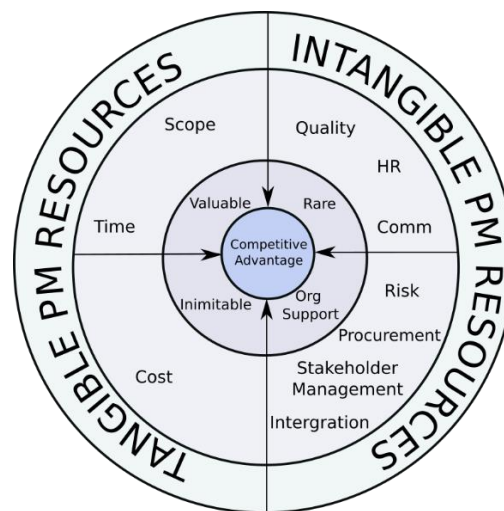


Figure 0 PM Resources – RBV - CA Model

Limitations of the study

The present study was carried out in the four clusters of the MSC status companies, which were predominantly operating in the ICT sector. Other similar studies could be conducted in the manufacturing, construction, oil and gas, heavy engineering, and other service industries, like, banking, insurance, hotel, education, professional services, and other Small and Medium Enterprises (SMEs’). The generalizability and replicability of the research findings have far reaching implications in other industries too, since projects are undertaken in all business entities.

The study was a quantitative (i.e., empirically tested) study. Perhaps a qualitative approach such as in-depth interviews or the use of Delphi technique could be used to further validate the research findings in a mixed-method study.

Future research scholars may want to examine other constructs, like the effectiveness of project management leadership in organizations, organizational culture, group dynamics, and social capital as determinants of competitive advantage.

Conclusion

It is clear from the findings that tangible project management resources, though important, may not be significant as a key determinant of competitive advantage in the ICT firm. The impact

of intangible project management resources, seem to have a much greater and positive influence on competitive advantage. The impact of the *Valuable* and *Rare* constructs in the mediating role between intangible project management resources and competitive advantage is a key empirical finding. The other mediating constructs, namely, the *Inimitable* and *Organizational Support* elements do not have a significant impact in their leverage between project management resources and competitive advantage (Figure 2). These findings provide key empirical basis to academia, project management practitioners and policy makers at both the private and public sectors, to take stock of the situation and to direct their managerial attention to nurture and develop these key project management resources to ensure successful ICT project implementation.

It cannot be denied that there is a growing need in the project management discipline to understand the impact of project management as a source of competitive advantage, because successful project completion contributes to improved business results. Resource management is a crucial management activity in business sustainability, and there is a need to understand the intricacies and relationships between the tangible and intangible resources of project management. A deeper understanding of RBV and the use of the *VRIO* process characteristics could help the ICT companies to better support project management resources as a source of competitive advantage and to ensure organizational success and business sustainability.

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Issues and Challenges of Micro, Small & Medium Enterprises (MSME's) Of North Karnataka - A Qualitative Study

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Abstract

The purpose of this paper is to understand specific challenges faced by manufacturing msme's of north Karnataka. This work employs a numerous case study technique and qualitative research methodology. In order to analyse seven instances of manufacturing entrepreneurs, data was gathered through in-depth interviews. The study highlights that Social Factor, Employee Factor, Financial Factor and Institutional Factor. Significant opportunities to engage in entrepreneurial activity and influence strategic choices exist in manufacturing. Because each component is interconnected, creating integration between them will significantly improve entrepreneurial performance. The limitation of the paper is restricted to north karnataka manufacturing units and it is not included service sector units. There are ramifications for future research into different sorts of money. Because the study is focused on a single industry, generalisation is limited. It adds to the literature's understanding of the necessity for multi-sector assessments. Understanding the functions of four elements and their interrelationships is essential for manufacturing entrepreneurship. The importance of four criteria changes depending on whether you have prior entrepreneurial experience or not. Using the perspective of the msme sector in North Karnataka, India, this study provides information on the role of four factors on manufacturing entrepreneurship and contributes to a better understanding of how each factor is accumulated and utilised in rural manufacturing entrepreneurship development. Hence, this is an attempt to bring out new knowledge to identify problems by conducting research on the topic of "Issues and Challenges of Micro, Small & Medium Enterprises (MSME's) Of North Karnataka- A Qualitative Study".

Keywords: Entrepreneurship, Social Factor, Employee Factor, Financial Factor, Institutional Factor, Government, MSME, DIC (Districts Industrial Center)

Introduction

Considering the term - Micro, Small, and Medium Enterprises – and its significance requires little effort. Keeping a country's growth and development in mind. Through 44 million firms in diverse industries, this sector employs more than 69 million people in India, accounting for almost 40% of the overall workforce. Not only are they a source of basic income and assistance in raising their level of living, but they have also benefited countless families throughout time. MSMEs generate around 8% of India's GDP, but they are also responsible for 45 percent of the country's entire industrial production and 40 percent of its overall exports. MSMEs in the manufacturing sector, which is somewhat bigger than the services sector, account for 90 percent of the total industrial units in India. In states like Karnataka, West Bengal, Uttar Pradesh, Punjab, Tamil Nadu, and Maharashtra, for example, 55 percent of MSME's are situated in urban regions, while the remaining 45 percent are found in rural areas. This has aided in the creation of local jobs, rural welfare empowerment, and inclusive economic growth. MSME's have clearly aided in fostering and empowering women, rural, and social entrepreneurship across the world.

As outlined in this article, all MSMEs confront a variety of challenges, including the Social Factor, Employee Factor, Financial Factor, and Institutional Factor. External and internal difficulties can be classified into two groups. External challenges, such as access to money, corruption, competition, a scarcity of skilled labour, and so on, develop as a result of macro-environmental economic and political factors outside the control of firms. Internal challenges

develop as a consequence of internal factors such as a lack of managerial expertise and modern technology, insufficient marketing and distribution strategies, and so on. The government has put in place a number of programmes to help MSMEs in a variety of ways, with the most significant areas being enterprise and skill development, technological progress, access to finance, cluster development, marketing support, and so on. Despite this, the problems continue, with certain areas suffering more than others. As a result, it's vital to recognise MSMEs' importance, identify the barriers to their growth, and then establish appropriate laws while also promoting awareness of their presence and accessibility.

**Table 1: Definition Of MSME According To Ministry Of MSME (Date 13th may 2020)
Composite Criteria: Investment and Annual Turnover (Manufacturing and Services)**

| Classification | Investment | Annual Turnover |
|----------------|------------|-----------------|
| Micro | 1 Crore | 5 Crore |
| Small | 10 Crore | 50 Crore |
| Medium | 5 Crore | 100 Crore |

(Source: www.msme.gov.in)

Review of Literature

(*Satheesha, 2021*) Understanding government and institutional financial supporting variables, as well as their interrelationships, is critical for rural women's entrepreneurship. Prior and non-prior entrepreneurial experience affect the role of government and other institutions. The purpose of this study is to learn more about the impact of government and institutional financial assistance on rural women's entrepreneurship. It helps to a better knowledge of how each variable is gathered and employed in the growth of rural women entrepreneurs in Bengaluru Rural, India, from the standpoint of SMEs.

(*Yáñez-Araque et al., 2021*) The importance of micro, small, and medium-sized firms (MSMEs) and family businesses in a country's economy cannot be overstated; nevertheless, there are few CSR studies on MSMEs, and even fewer on family MSMEs. To close this gap, this study examines if there is a link between CSR and economic performance.

(*Ghautham & Suresh, 2021*) The key driving elements in this model are determined to be safety culture, equipment maintenance, and emotional intelligence. MSMEs may utilise it to figure out what variables are causing the BBS level to rise. MSMEs must recognise the significance of safety and begin investing in safety measures. Based on BBS theory and characteristics of MSMEs' safety management, this study examines the most critical factors that influence MSMEs' safety and what motivates them to do so.

(*M. Singh et al., 2021*) before implementing environmental LSS enablers, industrial managers and practitioners must first understand their characteristics and motivations. In light of this, the current study looked into thirty environmental LSS enablers based on a thorough literature analysis and expert feedback. CIMTC and EFA were used to finalize and identify twenty-two environmental LSS enablers.

(*Utami et al., 2021*) MSMEs are vulnerable, and they require support in developing risk mitigation plans that would enable them to withstand calamities. Furthermore, no special research on MSMEs in the aftermath of natural catastrophes has been done. As a result, this study presents an MSME resilience measuring methodology and shows how it may be used to MSMEs on the Indonesian island of Madura.

(*Vedhathiri, 2020*) Micro, small, and medium-sized businesses (MSMEs) encourage individual ownership and entrepreneurship. They are unable to fix their challenges due to a lack of support from the State Industry Development Corporations (SIDCO). As a result, they require assistance in developing their personnel and managing their businesses in order to meet the

demands of rapidly changing technology and fierce competition from international firms under the World Trade Organization (WTO).

(Kumar, 2020) Empowering locally based businesses, providing a wide range of business education, financial and non-financial assistance from the government, access to innovation, self-improvement gatherings, and focusing on women and their families are all important techniques for the advancement and support of women who want to be successful businesswomen.

(Trinh et al., 2020) MSMEs, according to data, found neither the global financial crisis nor the economic downturn to be conducive to productive investments, such as greater mechanization or general business expansion, and instead turned to financial or speculative investments in more dynamically growing listed companies and real estates. This does not imply that all MSMEs acted in this manner. On the contrary, a number of creative Vietnamese MSMEs were able to profit from the slump. The overarching trends are included in our data analysis.

(Esubalew & Raghurama, 2020) The competence of entrepreneurs has little bearing on the performance of MSMEs. It also has no discernible mediating influence on the link between bank financing and MSMEs' performance. The link between bank funding and SMEs, on the other hand, is complicated. Behavioral finance was found to be a substantial mediator of performance, and this mediation had a detrimental effect. The researcher observed the direct effect, mediating effect, and no impact for variables employed in the model with five mediation patterns, refuting the hypothesis of Baron and Kenny (1986).

(Mohsin Hakeem, 2019) The micro, small, and medium-sized enterprise (MSME) sector is an important part of both developed and developing economies. Islamic banks seldom focus on this sector to offer much-needed finance due to the increased level of risk involved with financing agreements. By including the government through the credit guarantee scheme, we developed a collaborative SPE approach to cope with related risk. Islamic banks have the ability to finance huge portions of society while also contributing to economic progress.

(Lalhunthara, 2019) The most compelling motivation for them to start their own business was 'unemployment.' 'Success tales of entrepreneurs' was also determined to be the most important element in facilitating the rise of entrepreneurship. Unemployment was judged to be the most convincing cause for choosing to be an entrepreneur in the current study.

(Hermawati et al., 2019) In each of the five areas, Transglobal leadership has a major impact on the quality of work life and job participation. With the exception of Malang Regency, it has a major impact on employee performance in all four regions. In two locations, Malang City and Malang Regency, the quality of work life has a considerable impact on job engagement, but not in the other three. In all of the research sites, the quality of work life and job involvement had a major impact on employee performance.

(Dewi & Mahendrawathi, 2019) The expansion of a firm is frequently accompanied by the increase of its customers, and the majority of MSMEs, as small enterprises, build their operations around market opportunities, therefore MSMEs must adapt to changing market conditions. Actively participating in market development and continuing to seek new market prospects to extend their client base are the most critical changes to MSMEs' survival and success. MSMEs are eager to make changes, particularly in regard to the market, in order to extend their company life.

(S. Singh, 2018) The majority of MSME businesses are found to be unfamiliar of the notion of intellectual property (IP), its violation, and IP protection regulations. Even identifying and describing their IP assets is tough for some of them. The first stage in protecting and appraising intellectual property is to identify and comprehend its origin, nature, present and future applications, and economic potential. However, because of the hefty capital requirements, many Indian companies do not file for IP protection.

(M. P. Singh et al., 2018) Strong attitudes, increasing social pressure, green economic incentives, and environmental dedication all play a part in fostering circular economy preparedness among small businesses, but perceived behavioral control was highlighted as a hindrance to the adoption of the circular economy strategy. The inter-relationship between standard and extra components was also developed by the ETPB model.

(H. Singh et al., 2018) The variations in distance travelled, which increased from 44% to 81%, are the most significant element in the low productivity of these industries, and will be viewed as a key benefit of the current system. Owners do not come forward to embrace lean manufacturing for improved layout and transportation system owing to a lack of engagement of unskilled labor/knowledge of field and technology.

(Maiti, 2018) Along with typical bank SME loans, the study examines some of the significant issues and possibilities that exist with some of the alternative avenues/tools to improve financial access to MSMEs in the Indian MSME sector. In India, local banks outnumber cross-border banks when it comes to MSME funding. The report identifies many potential for banks and other alternative avenues/tools in MSME financing: The business climate is excellent for MSME financing due to favorable government policies and a strengthening legal system.

(Raut et al., 2017) MSMEs lack the financial resources to invest in IT solutions that would improve their competitiveness. CC plays an important role in assisting MSMEs by lowering their IT costs and saving time. For many businesses, the CCA is a major deal, and it has a lot of potential benefits that can help them improve their performance. Leimeister, Böhm, Riedl, & Krömer (2010) propose a complete strategy to providing CC amenities through high-speed internet access. CC offers numerous benefits, but its implementation can result in financial losses, a loss of brand image due to service interruptions, or data theft or loss.

Dr. Surat Singh & Dalbir Singh (2017) Exports have a key role in explaining fluctuations in Gross Output in India, according to their study article, 'Small scale industries and economic growth: Empirical evidence from India during the post-economic reform era.'

(Saxena & Jagota, 2016) In order to untangle the multiplicity of ways in which these communities of practise work as self-governing, self-directed, and self-organized sociocracies, research on MSME governance must employ more grounded, participatory research methodologies.

(Kungwansupaphan & Leihathabam, 2016) Basic entrepreneurship programmes for business establishment, such as business knowledge, production training, business matching to connect with the business world, and access to financial support with a simple process and low interest rates, are still strongly recommended for rural women with no inherited business. Entrepreneurship development programs should also target rural women who have inherited enterprises or whose operations are in the growth stage, and give information on how to secure the financing they need, as well as more advanced business skills and business matching possibilities.

(Srivastava, 2016) The MSME sector is also anticipating the use of finance platforms to address credit-related issues. The Indian regulator, industry actors, and investors, including bankers, are meeting to discuss regulations for implementing crowd-funding in India for MSMEs in the near future.

(Hamzani & Achmad, 2016) The goal of this research was to discover and evaluate how indigenous ethnic and non-indigenous ethnic MSMEs perform, as well as to test and analyze whether there are any variations in MSMEs performance between indigenous ethnic and non-indigenous ethnic.

(Vivel-Búa et al., 2016) Using probit and logit models, the paper examined the drivers of the chance of failure in hotel Spanish MSMEs from 2008 to 2011. It is the first empirical study focusing on the Spanish economic sector, which plays a significant role in the national economy and in international tourism.

Dr. Suhail Mohommad Ghouse (2014) In his research paper, 'Export Competitiveness of India: The Role of MSMEs to Play!', he suggested that a comparative study between Indian and Chinese (or any other successful emerging nation) MSMEs export performance in various performing areas and problems, as well as a comparison with Indian MSME exporters, could be very useful in improving the competitiveness of exporting MSMEs.

Ministry of Micro, Small and Medium enterprises, 2013 a study published by the Inter Ministerial Committee on Accelerating Manufacturing in MSMEs, MSMEs' general development has slowed in recent years, particularly after 2009. It emphasized the importance of MSMEs, discussed shifting trends in job development in this sector, and addressed concerns about starting and sustaining a business. It also suggested support structures for supporting start-ups, conducting and developing business, and facilitating closure and exit, as well as highlighting the need of doing so. It also makes suggestions for improvements to labor legislation and product recommendations.

Abdul Naser.V, 2013 the contributions of micro, small, and medium firms to the balanced expansion of the Indian economy were critically assessed. According to the survey, because rural regions account for 55 percent of all businesses, they encourage inclusive growth and regional equity. They play a critical role in job creation and provide a sizable share of the country's GDP, industrial production, and exports. The document also emphasizes the sector's problems and the need for structural assistance.

Srinivas K T, 2013 MSMEs' performance, contribution to India's economic growth, number of firms, and employment in MSMEs were investigated, with the conclusion that MSMEs play a vital part in the Indian economy's inclusive growth.

(Singla & Grover, 2012) The cluster strategy is a powerful tool for the MSME sector's overall growth, and it has produced impressive outcomes (SME Times News Bureau, 2012). As a result, cluster growth should be emphasised in order to decrease the unnecessary expenses suffered by MSMEs, increasing profitability and reducing MSMEs' financial reliance on external funding.

Grimsholm & Poblete, 2010 undertook a comprehensive qualitative analysis of the external and internal reasons impeding the growth of Thailand's SME sector. It generated fairly generic results that might be applied to the majority of south Asian nations that produce low-cost, low-value-added, and labor-intensive goods. According to the report, significant problems impeding growth include a lack of access to capital, competition, trade restrictions, management competency, a shortage of trained labour, and a lack of investment in R&D and new technologies.

(Gibb, 2006) It was mentioned in the brief review of MSME development policy at the start of this piece that there was always a dynamic to build upon. It may be claimed that a policy strategy centered on relationships will allow policy to move within this dynamic. By emphasizing the need of understanding how existing connections work before creating interventions, such an approach may be able to assist alleviate some of the challenges associated with cross-national practice transfer. It may also aid in the selection of NGOs and other delivery organizations by concentrating on their degree of integration into the MSME relationship system and their capacity to function entrepreneurially within it.

Research Methodology

The purpose of this exploratory study, which employed a qualitative technique, was to learn more about the participants' individual situations, perceptions of their own reality, and life experiences. We employed a multiple case study, which is a research method that focuses on the dynamics that exist inside a specific environment (Eisenhardt, 1989, p. 534).

A technique like this has a better chance of producing reliable results than a single case. We chose informative respondents and instances using the intentional sampling approach, which helped us to better understand issues that were fundamental to the inquiry's objective (Patton, 2002). We concentrated on the MSME sector in Hubli, Karnataka, because it is a key manufacturing location in the state and is dominated by entrepreneurs. Various government initiatives to promote the rate of skill employment, such as executing industrial cluster development programmes centred on entrepreneurship and building up industrial service centres to provide training programmes and technical guidance, have continued to expand and support this industry. Participants were chosen based on a specific criterion: they had to live in Hubli's rural districts, be involved in manufacturing entrepreneurship, and run micro, small, or medium businesses. Furthermore, they may give sufficient depth of data to allow for a thorough examination of the concerns. Although there is no set number of instances in a qualitative research, the ideal range is generally four to ten to acquire robust evidence for developing a complicated theory while avoiding excessive data that makes analysis difficult (Eisenhardt, 1989). Our sample size was limited to seven examples because we felt they would give enough detailed information to enable for significant research of industrial entrepreneurship. We gathered primary data at company locations utilising semi-structured interviews and local interpreters to guarantee comprehensive grasp of the local language. Based on a survey of relevant literature on employment considerations, institutional elements, social factors, and financial factors, an interview guide was created. The research was more reliable since the questionnaire items covered the areas of interest and were closely connected to the research issue. We gathered data from a variety of sources to improve the study's validity, including direct observation, Internet websites, documentation provided by relevant organisations, field notes, observation transcripts, and interview recordings. Questions like: Do you have any prior experience in this field? If yes, how long have you been in the industry? How many people work for you? How many are both skilled and unskilled workers? Have you had trouble finding new employees with specific skills? While on your travel, do you require institute (government) assistance? Is there anyone from the government who is aware of government schemes? Have you gone to an institution's office to learn about different schemes? What do you hope the government will do to raise awareness about the various schemes? How important is location in the manufacturing industry? Do you have access to all of the amenities in your immediate vicinity? How much money do you spend on your company's transportation? Have you approached the government about your issue? What was the source of your funds? Have you ever had a problem with a lack of operating capital? How do you cope when you're low on cash? Do you go to the local financier when you have a financial emergency? Within-case analysis and cross-case analysis were used to analyse the data. We looked at each instance separately to find parallels and differences. This helps researchers to develop a specific pattern from the within-case to the cross-case analysis for further examination by allowing the unique patterns from each case study to emerge (Eisenhardt, 1989). After that, we conducted a cross-case analysis, which takes each instance as a distinct research, and looked at all of them to see if there were any parallels or differences, as well as a comparison of the findings (Yin, 2003).

Table:2 Sample profile

| | | | | | | | |
|--------------------|-----------------|-------------------|--------------------|-------------------|-----------------------|---------------------------|-------------------------|
| Description | Praveen Hemadri | Mrityunjay moral | Venkatesh P J | Deepesh Chouhan | Narayan Soudagar | Sudhir Shetty | Balraj C |
| Company | Kwality Paints | Microtech India | Devi lube industry | JBM Industries | Dhanlaxmi Engineering | Metcut Automation | Kalpavriksha Industries |
| Size of Business | Small | Small | Small | Small | Micro | Micro | Micro |
| Nature of business | Manufacturing | Manufacturing | Manufacturing | Manufacturing | Manufacturing | Manufacturing | Manufacturing |
| Type of business | Family Business | Newly established | Newly established | Newly established | Family business | Newly established | Newly established |
| Type of product | Paints | Valve | Oil | Aluminum vessel | Poha machine | Tools, EV vehicle chassis | Plywood Doors |
| Age of company | 25 | 30 | 25 | 10 | 15 | 1 | 5 |
| Age | 50 | 55 | 48 | 33 | 70 | 55 | 34 |
| Gender | Male | Male | Male | Male | Male | Male | Male |
| Marital status | Married | Married | Married | Married | Married | Married | Married |
| Education | Graduate | Graduate | Graduate | Graduate | Graduate | Graduate | Professional course |
| Background | Business | Job | Job | Business | Business | Business | Job |
| Family Background | Business | Farmer | Business | Business | Business | Business | Government employee |

Research finding

Manufacturing entrepreneurs were the main participants and embedded units in this study. All of the participants were between the ages of 35 and 65, as shown. The bulk of those who took part were married and had children. The majority of them are from nuclear households. Four of them have been in company for 18 to 28 years and have been active from childhood, while the others have been in business for two to nine years. The participants in this study were all master procurement operators of small and medium manufacturing businesses in Karnataka's metropolitan districts. Participants are divided into two groups: industrial entrepreneurs with a family entrepreneurial background in a manufacturing firm or who inherited a manufacturing business from their father or a family member, and those who started a new manufacturing business with no prior expertise. The two groups of participants show both parallels and variations in terms of capital acquisition and utilisation.

Employment factor in manufacturing entrepreneurship

Employees were a significant component in the firm start-up period, according to the findings. The education, expertise, experience, and skills of employees were investigated. Industrial entrepreneurs who had past entrepreneurial experience in the manufacturing industry were more likely to recruit various types of employees through old relationships. Praveen Hemadri, Deepesh Chouhan, Sudhir Shetty and Narayan Soudagar, who come from a family of entrepreneurs in the manufacturing industry, said their family exposed them to a variety of commercial operations. they've been together since they were adolescents This cultivated their business sense, and they eventually gained knowledge, skill, and experience in areas such as raw material procurement, product design, manufacturing processes, and business management.

They acquired early exposure to techniques of running a firm as a result of receiving this human capital, ready them to engage in entrepreneurial activities and operate the endeavors after they inherited the business.

According to Praveen Hemadri, "When my father was in the industry, individuals used to come in and beg for jobs with no salary demands, and after seeing his performance for a week, he would set his wage." It is difficult to find qualified employees nowadays; we train unskilled labour for six months, after which he demands a higher wage and more perks. We compensate our employees well and give all benefits, including health care, school costs for children, and bus transportation. Mrityunjay Moral stated that formerly labour used to work to gain skills, but now they seek for an advance salary before starting work. He also stated that he provided two wheelers for skilled employees by providing bank guarantees from his company. Balraj C claims that there are just a few industrial training institutes where he may hire new staff with fresh skills. Due to the lack of workers, we have had to dine orders from clients on occasion.

Government / Institutional factor

As Praveen Hemadri pointed out, the government has a plethora of programmes and plans, but it is not generous in disbursing monies. We can't rely on government funding. The government announces a programme, but it is too late to execute it. No one from the government or officials came to my office to inform me about the schemes. We usually go to the DIC (district industrial center) to learn about various programmes, but the Karnataka government has an excellent plan that provides a 30% subsidy on investments of one crore (ten million) for new enterprises, with several conditions. This is a difficult task to do. We propose that a two- or three-month subsidy be put into the bank on the day we start our business in Spain, according to the government policy. It was planned to take three years.

Mrityunjay's moral we needed institutional backing to advertise and promote our products; we can build planes, ships, and trains, and we can study and work on new technologies; nevertheless, marketing is a difficulty for us. A marketing institution must be established by the government. The majority of activities take place in Bangalore; the government should organize similar events in other parts of the state. Buyers will be able to tour the industrial area. Many persons without technical knowledge are successful in industry; nonetheless, they require competent advertising and marketing advice. Industries require a marketing center where manufacturers can showcase their wares and customers can simply visit and engage with them. Although no government representatives came to my workplace to discuss various plans, we did get a circular from the association. NSIC once sent me to an international expo in Germany to market our products. This sort of occurrence occurs infrequently. I am grateful to NSIC and suggest that they do similar events on a regular basis. When it comes to taxation, the government must lower rates. Obtaining raw materials is a major difficulty; there are few warehouses with stock, and we only locate a few sorts of resources. Deepesh Chouhan: We attempted to obtain a loan but were unable to do it in the time frame necessary. We were given a tiny sum of money as a grant. We haven't heard of any schemes, and we aren't aware of any schemes; we went to the DIC office to acquire a license, but they didn't tell us about any schemes; manufacturing needs government support. Sudhir Shetty: We haven't gotten any help from the government; they simply give us certifications (msme). Although no government officials have paid us a visit, we are looking for programs that are relevant to our sector. Balraj C: I didn't get any help from the government when I first started, but we did get a 75 percent loan from a bank. We have not been approached by the government to inform us about any programs; we have searched the internet but have not been able to locate them in government

offices. All industries must be informed about the initiatives by the government. And hold a program once a month.

Social Factors

The sociocultural dimension of the environment is made up of the conventions, lifestyles, and values that define the society in which the companies operate. Religion, language, education, ethical views, and other complicated aspects all contribute to culture. Income, employment, lifestyle, and class conventions all help to define a social class. The ability of the corporation to access resources, sell its goods and services, and function within society is influenced by a socio-cultural component of the environment. This aids small businesses in identifying opportunities and dangers to their operations. They took part in several government-sponsored entrepreneurial development and other assistance programmes throughout the start-up period. They developed social capital and got access to markets, buyers, suppliers, designers, and others through such programmes. According to Mrityunjay's ethic, "location matters a lot in manufacturing businesses in terms of transportation, labouring for employees, and providing to distributors." If we locate our company on the outskirts, we must manufacture in large quantities in order to control costs. Starting a business is not a simple task, according to Venkatesh P J. To obtain government approval for fire and safety, ESI, PF, and pollution control, a single portal should be established. DIC will give a PMT letter, but we will require all clearances beforehand. It's a challenge.

In addition, all manufacturing entrepreneurs had comparable experiences gaining normative and cognitive institutional factors, according to the interviews.

Financial factor

Mrityunjay moral cited: "We took a loan from the Karnataka State Finance Corporation (KSFC) in 1994-1995 since our firm was doing well and the loan was simple to repay." Because the current economic climate is unfavorable, we are requesting that the government lower the loan rate for msme's. A new industry requires at least 5 years to establish itself in the industry's environment, and the owner will require at least 10 years to repay his debt during this period. It must be increased from six to ten years. Working capital has been a problem for us; we used to have double-digit margins, but now we only have single-digit margins; we used to have more customers than manufacturers, but now we have more manufacturers than buyers. Unhealthy competition. We go to banks for operating capital and use our collateral property as collateral, paying 13 to 14 percent interest at a nationalized bank. We're making it work somehow. We turn to private lenders during bad times since banks want additional documentation, but in business, we rely on our clients to produce things on time. Deepesh Chouhan stated, "Bank finance was a source of capital; we often suffer from a shortage of operating capital, and we beg banks." The government has a one-crore programme, but banks would give us up to 15 to 20 lakhs if we have all the necessary documentation. Balraj C stated, "We were short of working capital a year previous to the shutdown since the market was in decline." Payment was made at the market. We were given a credit limit system, but we did not receive much advantage from it. We were able to get monies from relatives and friends for short-term assistance. We resort to a private lender from time to time to get a fast loan.

Discussion of findings

This study supports the idea that the impact of the employment factor, institutional element, social factor, and financial component on entrepreneurship should be given more consideration in the context of industrial entrepreneurship. Human capital was acquired by entrepreneurs who inherited a family firm through a variety of activities. They are usually active in the family

company from an early age, doing things like selling, purchasing goods, and contacting clients and suppliers. As a result of these activities, they were able to gain information, abilities, and experience that were directly relevant to business setup and operation, laying the groundwork for making revenue in the later stages of their operations. The data also show that entrepreneurs without prior experience running a manufacturing company have comparable views on the value of human capital. As a result, help from government-based institutions is essential to allow them to achieve the key level of human capital required to begin entrepreneurial operations. Participants with no prior entrepreneurial experience raised their perceived feasibility and attractiveness to participate in entrepreneurship after engaging in a training programme, according to Peterman and Kennedy (2003).

Concluding remarks

From the perspective of a developing nation, this study looked at the importance of human/employment, social, institutional, and financial capital in manufacturing entrepreneurship, as well as the associated impacts amongst them. The purchase of each sort of capital during the start-up phase of a firm differs, and family entrepreneurial history have a big impact on the start-up period. . Entrepreneurs with a manufacturing background rely on internal resources to acquire and utilise human and social capital for their firms. During the start-up period of a firm, they usually obtain financial capital from internal circles and do not use government resources. However, when the enterprises seek financing for company development, they are exposed to financial and institutional capital from outside sources later in the business process. Manufacturing entrepreneurs with no prior business experience, on the other hand, seek government resources to help them harness human, social, and financial capital to start a firm and develop it. According to the findings, the availability and interaction of all four forms of capital is critical in entrepreneurship and company start-ups. Human capital is the initial capital that entrepreneurs with family entrepreneurial history in manufacturing enterprises acquire and use for a business start-up. In many aspects, it is linked to social capital. For example, business knowledge and expertise aid in the acquisition of business contacts and connections, while communication skills aid in the maintenance of client relationships. Social capital facilitates the acquisition of institutional capital and serves as a foundation for gaining social approval and getting other resources, notably financial capital.

In manufacturing enterprises, the interplay of capital components is also evident in entrepreneurs without a family entrepreneurial experience. They usually need human capital connected to managing a manufacturing firm in the early stages of launching a business.

Figure 2 depicts the interdependence of factors framework that we suggest. This theory shows that institutional factors are linked to all four types of variables and are the most effective source for quicker integration of all MSME entrepreneurship development needed to build and realise the necessary and important momentum during company start-up and expansion.

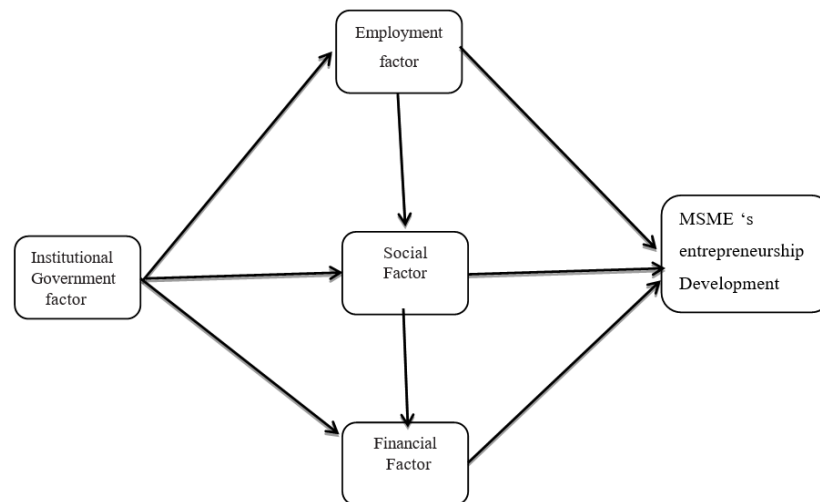


Figure: 2 proposed interrelations of all factors

This study adds to the corpus of knowledge on entrepreneurship by giving useful insights into the elements that influence entrepreneurship development, and the framework emphasizes the significance of the combined impacts of factors. All four types of elements are interconnected and work together to create synergy in the early stages of a company's growth. Institutional capital has a direct interaction with all three categories of capital, tightening their interdependence and facilitating the acquisition of such components. As a result, we emphasize the critical role of government institutional capital as the first capital that can help entrepreneurs in the manufacturing sector acquire other forms of capital. Despite the fact that the government makes a significant effort to promote entrepreneurship in the manufacturing sector, it prefers to focus on the broad sector level. To exploit a whole capital base and offer synergy, entrepreneurship development programmers must trickle down the factor to the individual entrepreneur at various phases of entrepreneurship and focus on the interplay between each form of capital. Basic entrepreneurship programs for business establishment, such as business knowledge, production training, business matching to connect with the business world, and access to financial support with a simple process and low interest rates, are still strongly recommended in the case of no inherited business. Entrepreneurship development programs should also target inherited firms and endeavors in the growth stage, providing information on how to obtain needed cash, advanced business expertise, and business matching possibilities. When providing financial financing to manufacturing businesses, we propose that financial institutions consider lowering collateral and financial obstacles and designing simple and customer-friendly processes.

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Does size matter in the ITES industry? A panel data analysis of Indian firms.*Surabhi Somya¹**¹IFMR GSB, Krea University, India***Abstract**

The study of firm growth and its determinants has been a topical research area. Information Technology (IT) and IT Enabled Services (ITES) industry in India are growing at an annual growth rate of 25% and are flagship workforce agencies in India. This study test whether the firm size matters to the growth of the firm in the ITES industry. This study covers 385 firms operating in the Indian ITES industry from 2000 to 2020. The study uses the system GMM estimation technique. The firm growth is measured in terms of assets dynamics. Finding suggests that firm size has a strong positive influence on firm growth, and square of firm size negatively impacts firm growth. Thus, firm size matters for firm growth, but it matters more for smaller firms than larger firms.

Keywords: ITES, Firm growth, Panel data, System GMM.

Factors influencing Artificial Intelligence adoption in Organizations

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Abstract

Artificial Intelligence (AI) is popular due to the impact it is creating in the society. While AI as a technology has made progress due to advances in various research areas, there is limited details on the adoption of AI in organizations. This paper intends to develop a model for identifying the factors for AI adoption in organizations. The model is being built using IS theories namely, Diffusion of Innovation (DOI) and Technology-Organization-Environment (TOE) theory. In this paper, we provide a detailed analysis of application of theories towards AI adoption and provide a model at organization level. The model will be validated using a survey-based research approach. The paper also intends to develop a survey for data collection from organizations.

Keywords: Artificial Intelligence, Factors of AI adoption, TOE, DOI.

Introduction

Artificial Intelligence (AI) is referred to as a subject of inter-disciplinary study from the areas of machine intelligence, chatbot, algorithms, deep learning and machine learning. Nilsson (2009) defines AI as "... that activity devoted to making machines intelligent, and intelligence is that quality that enables an entity to function appropriately and with foresight in its environment". An AI based system ingests data from the environment, understands the features of the data and use them to solve business problems (Kaplan & Haenlein, 2019). AI is expected to impact revenue growth in organizations (Brynjolfsson & McElheran, 2016), improve productivity (Acemoglu & Restrepo, 2019) and add value of USD 13 Trillion by the year 2030 (McCarthy et al, 2019).

Some of the recent technological advances in AI include natural language processing, chatbot and voicebots, image processing and deep learning (Purdy & Daugherty, 2016). Such capabilities have led to development of expert systems for improved decision making, enhanced customer experience and reduction in human efforts (Andrews, 2017). Manufacturing (Pham & Pham, 1999), healthcare (Ramesh et al, 2004), banking, law and order (Rauch-Hindin, 1985) and media (Bollier, 2017) are some of the fields where research for applying AI is being actively conducted. Impact of AI on America and China is supposed to be significant with improvement of GDP by 26% for China and 15% for US (PwC, 2017). AI is becoming widespread and is now part of most of the new product or services in software (Elliot & Andrews, 2017). One of the reasons the usage of AI is becoming widespread is due to the improvement of internet bandwidth, advances in hardware and cloud computing. Due to these developments, organizations are also exploring using AI to get business value.

IT adoption in organizations has been an area for IS research (AboelMaged, 2014) for quite some time. Studies that started as understanding IT business value have now spread into study of IT creating and sustaining competitive advantage (Melville et al, 2004). Due to this, there has been development of various theories on the application of IT adoption at organization level. Fit-Viability theory (Tjan, 2001) has been studied for cloud computing adoption (AlAjmi et al, 2021) and for adoption of IT in healthcare (Foskett, 2016). Similarly, Goal Contagion Theory and Social Comparison Theory have been used to understand why organizations adopt technology despite having limited knowledge about the technology being adopted (Lee et al, 2016). Diffusion of Innovation (DOI) theory (Rogers, 1995) and Technology-Organization-Environment (TOE) framework (Tornatzky et al, 1990) are popular in the IS area of technology

adoption in the organizational context (Oliveira & Martins, 2011), (Chong et al, 2009). DOI explains the parameters that popularize an innovative product or idea in a social system. TOE describes the key aspects of innovative technology adoption in an organization context.

Despite the advantages of AI, there is still lack of research in adoption of AI by organizations (Alsheibani et al, 2018). Organizations are yet to completely adopt AI to realize its full potential due to multiple barriers (Cubric, 2020). These barriers vary depending on the level of the AI adoption in the organization (Alsheibani et al, 2019). Identifying the factors influencing AI adoption will help overcome these barriers of AI adoption and lead to value generation for organizations using the power of AI. These factors that enable AI adoption are yet to be clearly articulated in research (Perc et al, 2019). This paper intends to fill that gap. The research question being addressed in this paper is:

RQ: What are the factors that impact the AI adoption in an organization?

The paper is organized in five sections. In next section we present the literature review for AI adoption in organizations. Following to that section we propose our research model and hypotheses towards AI adoption in organizations. Next to that section we outline the research methodology and future work. Finally, the last section presents the contribution to the IS body of knowledge.

Literature review

Technology adoption in organization has been studied using various IS theories (Oliveira & Martins, 2011). Since organizations are just beginning to see business value in AI (Ransbotham et al, 2018), from an organization context, AI is being considered as an innovation adoption. As a result, AI adoption is being studied by applying a combination of Innovation and Technology adoption theories.

AI Adoption

Despite AI becoming popular in organization due to the value generated, there is very less work done in adoption of AI technology using empirical data and case study development (Alsheibani et al, 2018). Also there has been more focus on technological challenges in AI adoption than the business and strategic factors in AI adoption (Pumplun et al, 2019). One of the factors is the role of trading partners like buyers and suppliers (Melville et al, 2004). As organizations adopt AI, their trading partners also get impacted. Suppliers work with organizations using genetic algorithms, expert systems, and agent-based systems for supply chain planning activities like inventory planning, network design and order fulfilment (Muniz et al, 2020). So, there is a need to consider trading partner into theoretical context.

AI adoption is novel compared to adoption of other IT technologies because of multiple reasons (Ransbotham et al, 2018). A key aspect is that AI is involved in decision making and can produce unexpected results, leading to impact on AI investments of the organizations (Ransbotham et al, 2019). In such a case, leadership vision helps keep the focus and continue. Similarly, to maximize benefits of AI, it needs to be deployed across the enterprise. But if there is no leadership vision to support enterprise deployment then AI adoption suffers. A survey indicated that while organizations are now moving from pilot to production stage for AI implementations, there still key gaps of skills and leadership vision (Magoulas & Swoyer, 2020). Thus, only having the right AI resources will not lead to an effective AI adoption (Tarafdar et al, 2019). There is a need for an adoption framework that will take a wholistic approach to various factors of AI technology and use the appropriate technology adoption frameworks. In order to maximize the gains from AI, organizations should consider not only

enterprise wide deployment but also the environment support and the underpinning technological resources (Yao et al, 2018). Similarly, organizations train AI models using specific dataset. As the model gets deployed in production, it will see new data and will need retraining. This makes it necessary for organizations to ensure that the variety of data is captured and used to retrain the model (Chui & Hall, 2020). So, considering these aspects this paper aims to develop a model for AI adoption in Organizations by extending the TOE theory using DOI.

Applicability of Diffusion of Innovation theory (DOI) along with Technology-Organization-Environment (TOE) framework

Given that AI is primarily technologically driven, the proposed model is developed using technology adoption theories. IS researchers analyse technology adoption at three levels considering adoption at individual level (Rad et al, 2018), group level (Rad et al, 2018) and organization level (Oliveira & Martins, 2011). Understanding how innovative technology like AI is diffused across the organization requires study of innovation dissemination in organizations theories (Zhu et al, 2006). As a result, DOI, in conjunction with TOE is considered for understanding the factors of AI adoption.

TOE is applied commonly in organizational adoption of technology across various scenarios (Zhu & Kraemer, 2005). As per the TOE framework, the three key aspects that decide the level of adoption of any technology are technology context (Kauffman & Walden, 2001), organizational reconfiguration and business conditions (Chatterjee et al, 2002), and environment in which the industry operates (Kowtha & Choon, 2001). The technology context refers to the technology available within the firm, the technology external to the organization and its impact on innovation adoption. Organizational reconfiguration refers to the resources available to facilitate adoption and the constraints to innovation adoption in the organization. The industry environment comprises of the external ecosystem in which the organization operates and factors that support and inhibit the operations of the organization. Due to these aspects in TOE, it is commonly applied in Technology Innovation Adoption in Organizational context (Yang et al, 2013). TOE framework for technology adoption (Tornatzky et al, 1990) is given in figure 1.

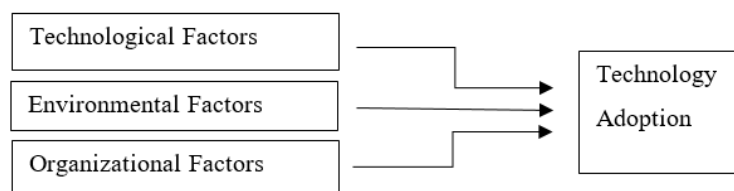


Figure 1: TOE framework for Technology adoption

DOI theory (Rogers, 1995) is considered as one of the earliest theories in the area of Social Science. It postulates the journey of an innovative concept from inception to popularity in a group of people or social system. The theory outlays the diffusion process, defining it as the spreading of innovation over a period of time amongst the social system participants. In this process, the five perceived attributes of innovation are observability, complexity, trialability, compatibility and relative advantage. Relative advantage and compatibility are significant from an AI Adoption perspective (Zhu & Kraemer, 2005; Picoto et al, 2014; Tornatzky & Klein, 1982). The DOI framework is presented in figure 2 as proposed by (Rogers, 1995).

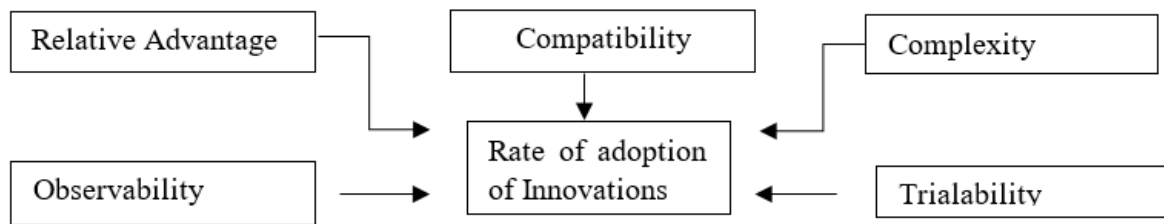


Figure 2: Diffusion of Innovation (DOI) framework

Research Model and Hypotheses

The proposed adoption model uses the TOE framework along with two of the five DOI parameters to identify the key factors and control variables for AI adoption. The proposed adoption model identifies the technological(T), organizational(O), and environmental(E) factors used in the seven hypotheses.

Technological context

The technological context defines the readiness of the firm to adopt new technology. It encompasses compatibility of the technology within the organization's existing business processes and need for business case to adopt the technology. It also includes the relative advantage of the technology intervention and the AI readiness of the organization to adopt AI.

Compatibility

AI should be compatible with the organization's technology architecture for successful adoption (Qi, 2007). Compatibility is critical for AI technology to integrate with the organization's IT systems and enable faster usage of the AI solution. In a scenario where an organization is using Cloud architecture, availability of AI cognitive services by the cloud service provider makes it easier for the organization to build and deploy the solution. Similarly, in a situation where the organization is using on premises IT systems, usage of on-premise open source AI libraries helps faster adoption.

Another aspect of compatibility is business case. The AI technology should be able to deliver tangible outcome to the organization in the form of a strong business case. The business case defines the problem the AI solution is required to solve and the approach that will generate efficiency in the process execution (AlSheibani et al, 2020). If the AI solution is compatible with the organization's resources, processes, and technology then the business case becomes strong.

H1: Compatibility of AI technology with Organization's IT systems positively impacts AI adoption.

Relative Advantage

Relative advantage is the perceived benefit the organization gains over its existing capabilities by implementing the innovation. The greater the number of innovative practices the organization implements, the higher is the relative advantage. It has a significant positive effect on the adoption of innovative technology in an organization (Aboelmaged, 2014). AI enables organization to save costs, supports organizations in venturing into new business, has a positive impact on revenue and improves the efficiency of users.

H2: The relative advantage of AI positively impacts AI adoption.

AI readiness

AI readiness is the AI related preparedness of the organization. It encompasses technological capabilities like having an AI layer as part of the enterprise architecture, support for the Machine Learning Operations (MLOps) lifecycle (Amershi et al, 2019), availability of trained resources in AI technology, having partnership with product vendors and availability of subject matter experts who understand the domain, the processes and have the capability to understand AI fitment in the business processes (AlSheibani et al, 2020). Organizations must have an ecosystem for successful implementation.

H3: AI readiness of an organization positively impacts AI adoption.

Organizational factors

As organizations start implementing AI technology, organizational factors are critical for adoption. These consist of factors like ability to implement business process change and vision of the leadership in having AI as part of strategy.

Leadership vision

Organizations adopting AI need leadership vision to ensure successful implementation (Alsheibani, 2018). Leadership vision gives guidance to employees in prioritizing AI when conflicts arise. Vision spreads the leadership priorities to employees of the organization and give direction across the ranks. For adoption of novel technology like AI, leadership vision gives support to managers and operational employees during challenging situations (Chen, 2019). In situations where AI related pilots or projects fail, leadership vision gives the support needed to learn the lessons and ensure success in future.

H4: Leadership vision positively impacts AI adoption.

Business process change capability

An organization has business processes defined to execute the operational activities. As organizations adopt AI, the business processes undergo change both from a technology perspective and process perspective. As change happens, how strongly does the organization implement the change is critical (Davenport et al, 2004). If the organization already has prior success in implementing change programs or digital transformation projects, then that experience enables AI adoption effectively.

H5: Organization's business process change capability positively impacts AI adoption.

External Environment

Any organization is part of a business environment. The external environment represents the stakeholders that directly or indirectly impact the organization. Government regulations, Suppliers and Buyers are some of the stakeholders of the external environment. Any technology adoption impact one or many of such stakeholders.

Competitive pressure

It is the risk of competitors performing better than the organization. So, to remain competitive and stay ahead of competitors, organization adopt innovative technology. AI adoption can enable organizations to be competitive by applying unique solutions (Yang et al, 2015).

H6: Competitive pressure positively impacts AI adoption.

Trading partners

External stakeholders like buyers, vendors and suppliers are the trading partners with whom an organization has trading relationship (Melville et al, 2004). Trading partners use technology for dealing with the organization. AI based systems like chatbots, voicebots and automated email

handling systems help the trading partners get the answer to queries faster, giving them a better experience. Similarly access to the IoT feed of suppliers will enable manufacturing organizations to get real time status of the supply level and plan for the supply chain and inventory. Access to trading partner's IT systems will enable AI based end to end automation, right from making the decision to raise an order to order fulfillment.

H7: IT usage of Trading partners positively impacts AI adoption.

Control variables

The model has industry characteristics, profitability and government involvement as control variables. Industry characteristics like the number of organizations that are part of the industry, need for supply chain and IT usage determine the AI adoption. Profitability of the organization determines the funds allocated for AI adoption in terms of conducting pilot programs, absorb the risk of failed AI projects and stay invested in AI. Government involvement is the government's role in defining and implementing policies related to AI in the country. These variables control the AI adoption in organizations. The control of these variables will reduce the effect of any variance caused by them.

In figure 3 we present the proposed model.

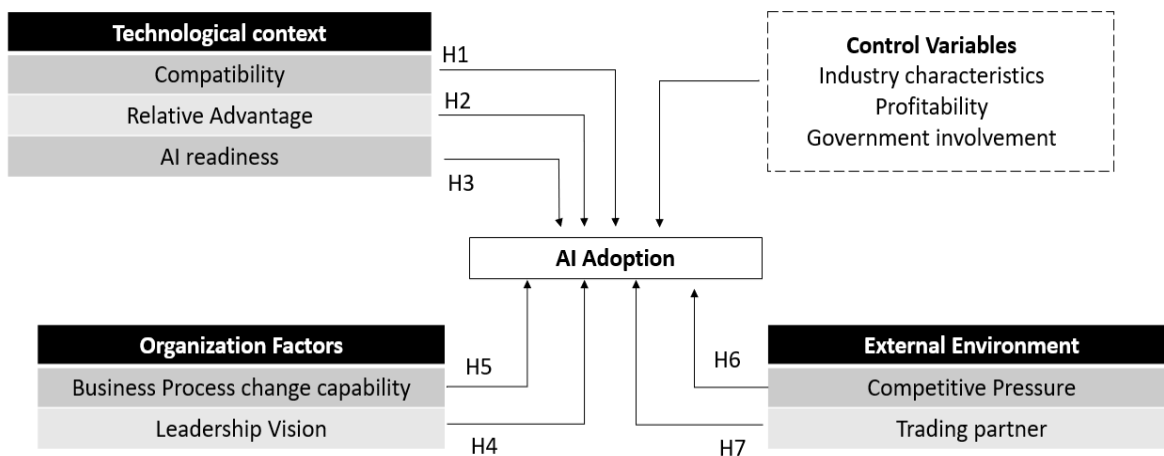


Figure 3: Proposed model for AI adoption at organization level

Proposed Methodology and future work

The main objective in the current paper is to propose a model identifying factors for AI adoption for organizations. To proceed further, the model will be tested using an online survey from employees across operational, managerial and leadership roles working in organizations across the globe. An online survey instrument will be used for data gathering and validating the theoretical framework. Using a questionnaire and quantitative techniques, the aim will be to check the proposed variables.

Expected Contribution

Due to the progress made in AI, organizations are looking to adopt AI as an innovative technology to provide competitive advantage. By studying AI adoption at organization level, this paper will enrich the IS body of knowledge with the study of innovation in technology adoption in organizations. Since the paper also identifies the factors needed for adoption of AI in organizations, research of the factors for AI adoption at organization level is the other expected contribution to theory. Due to the unique nature of AI technology, adoption of AI is expected to be different than other technologies. So, on the empirical side, the paper will help organizations focus on the right areas as they start their AI journey.

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A proposal for an Efficient Business Intelligence tool using Spatio-Temporal and Geo-tag data for strengthening the Decision Support System

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Abstract

Human activities in a limited geographical area are closely related to Point of Interest (POI), which can reflect the semantic meaning of human mobility. The Spatio-temporal trajectory data can be used for generating better insights by processing it with geo-tag data. In this paper, we propose a Business Intelligence tool named “Predict-Move”, which can be used to access the possibility of further movement of customers from a Point of Interest (POI) to other business firms within large business premises. This can be used for managing Decision Support System (DSS) to take strategic decisions in Business firms. This business intelligence tool will inform the business firms about the customers who are likely to visit next and also inform their purchase characteristics and taste. This information produced by this business intelligence tool can improve and provide more services to the customer which may lead to an increase in business volume and productivity.

Keywords: Point-of-Interest(POI), Spatio-temporal Trajectory, Geo-tag, Business Intelligence(BI), Decision Support System(DSS)

Introduction

Nowadays business strategies and promotions are connected with the usage of efficient tools and data management applications. Business intelligence (BI) detain software and services to convert raw data into feasible perceptions that inform an organization’s tactical business decisions. BI tools access and examines data sets and provide analytical findings in dashboards, reports, summaries, graphs, maps and charts to provide users with detailed insights about the state of the business. The literature by Barakat et. al (Barakat and AlZagheer, 2021) suggests that there is an imbalance in the distribution of vaccines among countries. This study carried out in the health care system shows that there are disparities in the distribution of vaccines among countries and suggest to use a Business Intelligence (BI) tools with advanced knowledge based supply chain module, which can produce an efficient and effective COVID-19 vaccine distribution model.

The study carried by (Dzino et al., 2021) select the best business intelligence tool that constitute the best solution for the given demands in public administration. Customer satisfaction is the prime concern of all types of business. In parallel with the actual trajectory a multi-attribute trajectory can be created with basic trajectory data and heterogenous attributes of the person or object. In an influential article by Freitas,(Silva et al.,2021) shows the representation of multi-attribute data that gives an outline appearances of real-world objects and has been newly involved in a number of new applications . All these heterogeneous data from various sources are the inputs to the Business Intelligence tool.

This study proposes a model of a business intelligence tool(predict-move) focused on the further movement of customers from the semantically clustered area along with their purchase interest and tastes. It will help the peer team of the business firm to take proper decisions for customer service in advance.

Literature review

The studies related to Spatio-temporal trajectory and geo-tag data processing for Business Intelligence are becoming an emerging area under the big data analysis. Some of the relevant works are reviewed as part of the study.

In the area of Spatio Temporal Data mining (STDM) (Hamdi et al.,2021) published an article which shows challenges and open problems in this area and they depicts problems with respect to spatiotemporal relationships, and data characteristics. It also discuss the limitations in the published works and open research problems connected to spatiotemporal data representations, modelling and visualization, and perfectness of approaches.

An article published by (Gandhimathi et al.,2020) narrates the backing of BI tool in spatial data which are associated technology that has a geospatial element – like address, coordinates, postal code or city. Product suggestions are widely used marketing strategy especially in social networking platforms which is achieved by combining prediction analysis and BI tools.

A study carried out by (Amekedzi and Townsend ,2021) sates that Machine Learning and business decision making are still new, are emerging, and there are many possibilities and opportunities for the future. Organizations need to know how to use Business Intelligence tools to make the right decisions and gain a competitive advantage over competitors.

An article published by (Yan et al., 2013) shows that with the propagation of GPS enabled context sensing devices, positional data generated by moving objects (e.g, animals, peoples, vehicles,) are being easily collected. These are generally formed as streams of spatio-temporal (x, y, t) points, called trajectories. The trajectory analysis focused on the geometric aspect of the raw mobility data. They also analyze a number of experiments they did with semantic trajectories in different domains.

An influential article published by (Nishad and Abraham, 2021) illustrates an algorithm for clustering and prioritizing semantic regions of spatio-temporal trajectories. This algorithm is known as **SemTraClus** for clustering and prioritizing semantic regions of spatio-temporal trajectories. It identifies prioritized geographic locations from a group of trajectories by considering spatio temporal and semantic features.

An article published by (Bisheh et al.,2021) proposed a model which simultaneously applied qualitative and quantitative techniques in prediction process of business intelligence tools. The proposed model suggests method for prediction via quantitative approaches and then, modifying the results according to expert ideas.

Spatio-Temporal multi aspects Trajectories

Basic Spatio-Temporal Trajectory

A trajectory is a segment of the spatio-temporal path travelled by a moving object. Figure 1 shows the time stamped locations of an object. Movement mining and its processing are becoming promising and relevant area of research moving object provides continuous stream of spatio-temporal information. Specially designed structures called Moving Object Databases (MOD) or spatio-temporal databases are used for storing data. Since continuous stream of data are generated from the context sensing terminals, it is considered as a Big data and hence its processing constitutes few overheads due to the size, quality, reliability and completeness of data. In an article (Jeble et al.,2016) shows an expansive review of literature on Big Data and Predictive Analytics. It provides an outline on basic concepts in this emerging field.

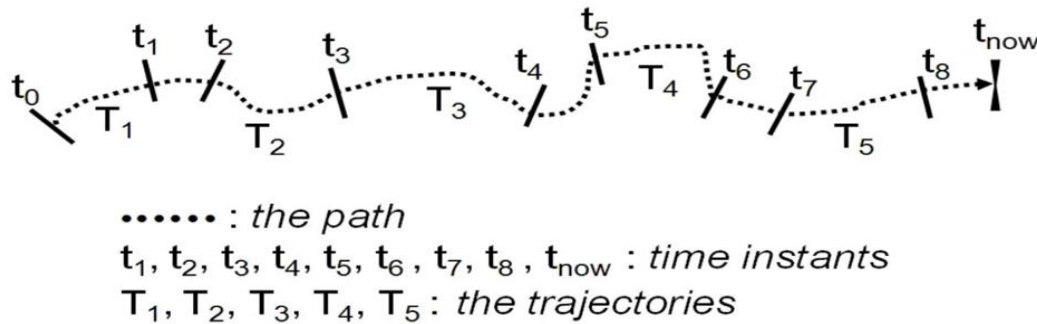


Figure 1 Basic Spatio-Temporal Trajectory

Multi- Aspect Spatio -Temporal Trajectories

Multiple aspect trajectories (MATs) finds more research attractions in the area of Geographical Information Systems, here the base view of semantic trajectories are enhanced with the impression of multiple heterogeneous aspects, characterizing different semantic dimensions related to the movement data. In an article (Varlamis et al,2021) proposed a novel MAT similarity measure as the base component in a hierarchical clustering algorithm. Mobility data can be used for various studies and predictive applications like users travel experiences, geomatic applications, and transportation system analysis, health care predictions etc. Multi-attribute trajectories gives various aspects of the objects like roles and categories, and merge the attributes with standard trajectories to represent an overall picture of moving objects. The example is shown in Figure 2.

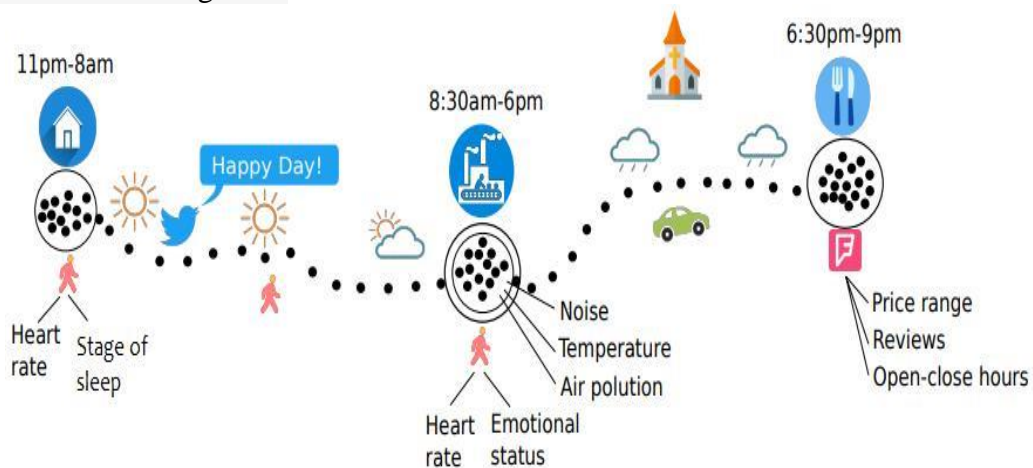


Figure 2: Multi- Aspect Spatio -Temporal Trajectories

Proposed model of the Business Intelligence tool (Predict-move)

Business intelligence (BI) transforms data into meaningful insights which shows an organization's strategic decisions. Here we are proposing a tool named Predict-move which accepts inputs as spatio-temporal trajectory data, geo-tag data and data of website access/visit of the business firms concerned and produces meaningful outputs for Decision Support system(DSS) . The model is shown in Figure 3.

Inputs to the Business Intelligence (BI) tool –(Predict-move)

The first type of inputs to the Business Intelligence Tools (Predit-move) is the outputs of the efficient algorithms produced by using unsupervised data like spatio-temporal, geo-tag and website access/visit data etc. Second type of inputs to the Business Intelligence Tools (Predit-move) is the supervised labelled data like customer type, name of the business enterprises, type of the business, place, time etc.

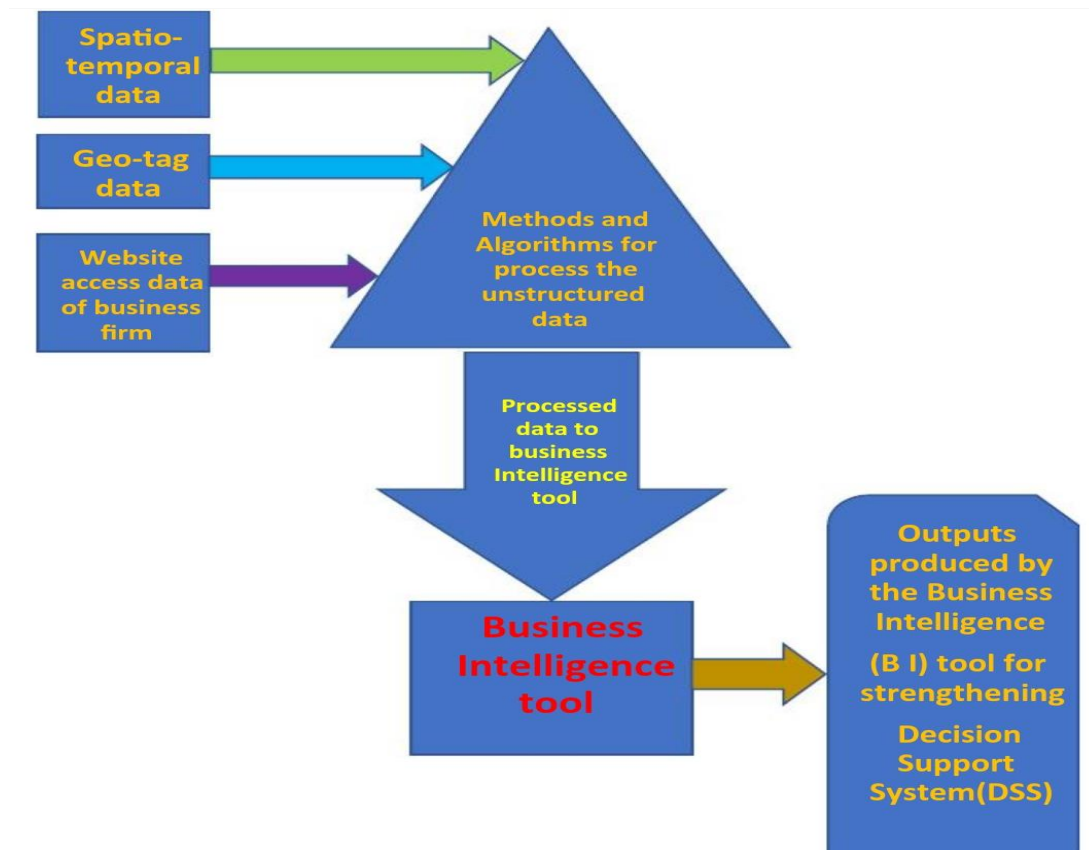


Figure 3: Model of the Business Intelligence tool (BI)-(Predict-move)

Expected Outputs

This Business Intelligence (BI) tool(predict-move) accept the processed data produced by the efficient algorithms and provide meaningful information to the business firms for taking suitable customer friendly decisions. Providing basic Information about the customer like present location, purchase taste, time spend in the previous stay point etc.

- Predicting next visit of the customer from the previous stay point in a large business premises.
- Producing precise information/data about the services to be given to the customer who is likely to come to the business firm concerned.

Conclusion

This study proposes an efficient Business Intelligence (BI) tool named “**Predict-move**” which uses spatio-temporal data, geo-tag data and website access data for its processing. This novel model will predict customer’s next visit to other business firms from an interesting area. The information produced by this tool can be used in various applications like Decision Support System, Activity prediction, future mobility detection etc. This business intelligence tool will inform the business firms about the customers who are likely to be visit next besides this it also informs customers purchase characteristics and taste. This business intelligence tool improves customer services, which may lead to increase in business volume and productivity.

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The Role of Artificial Intelligence in Financial Market

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Abstract

The development of AI technology is part of the ongoing solution to the problem of financial traders or agents. Trade prediction in the financial market initially started with the collection and analysis of information. To reduce the risks and understand market volatility, scholars and computer professionals developed a cutting-age tool that collects huge amounts of information from several datasets and combines different types of data collected from diverse sources. The methodology employed is a systematic literature review of the collection and synthesis of previous literature. Our SLR found that automation accelerates the systems and enables the algorithms to respond speedily to market oscillations through observing and data analysis. Even though the methodology suffers from limitations, future research should adopt comparative analysis.

Keywords: Artificial intelligence, Financial Market, Prediction, Machine learning, Trader, Stock market, Deep learning, Systematic literature review

Introduction

Trade prediction in the financial market initially started with the collection and analysis of information such as macroeconomics, previous trading history, political news, companies, and country level. However, there is overwhelming evidence that adopting A-I or M-L in the system contributes to fast or quick prediction of price movement, market-pattern, or direction. According to Waisi (2020), "artificial intelligence" (A-I) or "machine learning" (M-L) are used interchangeably. Scholars describe AI as the replication of human intelligence processes by machines, particularly "computer systems", "natural language processing", "speech recognition", and "machine vision" as some of the specific "A-I" applications.

Literature on financial markets (Brito, 2014), emphasises the nature, the volatility, and the risk factor as the major concerns for financial traders or agents. To reduce the risks and understand market volatility, scholars and computer professionals developed a cutting-age technique that collects huge amounts of information from several datasets and combines different types of data collected from diverse sources. These techniques utilise the computer's ability to execute trading tasks in a complex environment by learning from previous trading history.

When it comes to algorithm trading, unconventional mathematical tools and techniques are used to execute trades in the financial markets. A-I eliminates human error and the system makes decisions faster and more accurately.

In this paper, we aim to review the literature to identify the benefits of artificial intelligence in the financial markets. The paper was divided into three parts. The first section provides a definition and a literature review. The second section is devoted to methodology as it applies to the purpose of these studies, and the last section is devoted to findings from the literature, conclusion, and future research directions.

Literature review

The last section is devoted to a review of existing knowledge. The following statements are a brief description of scholarly work-related stock predictions using A-I and machine learning in the financial market.

In regarding trade prediction, (Hameed et al., 2021) proposed two powerful models of prediction strategy based on “Artificial intelligence” (A-I) and “Machine learning” (M-L) using long- & short-term memory to predicts the time period of occurrence and future anticipated event. The proposed models have the tendency to evaluate huge amounts of information and assume future market trends that are similar to previous trends. Based on Artificial Neural Network (ANN) and Convolutional Neural Network (CNN) models, using the models, the authors train the data and evaluate the strategy that test values. Both the models apply algorithms to predict the open value and close low. The ANN evaluates and predicts the market with a score accuracy of 0.987, while CNN evaluates the data with a prediction of market score accuracy of 0.990.

Another study of stock market predictions on EURO indexes (i.e., DAX, EUROSTOXX 50, CDAX, ASE etc) Ketsetsis et al., 2020 use deep learning and NN techniques to contribute to our knowledge. Based on a review of different literature, they figure SLR statistically analyses and predicts the European stock market. Ketsetsis described the LSTM method with a forecast frequency of 58% of stock market trends. The study confirms the improvement in the EURO index over using traditional machine learning methods with an accurate prediction of the patterns. However, Ketsetsis et al. found LSTM to be the most usable method for predicting patterns globally.

Data were extracted from social media in a similar study (Fataliyev et al., 2021), which used DL and ML to analyse textual content. However, Fataliyev et al. apply stochastic indicators such as (i.e., RSI, MACD, DMI, EMA), technical and fundamental analysts’ models. Fataliyev et al. presumed that fundamental analysts focused on analysing the market based on values. For example, fundamentals extract data from government policy, financial statements, company market data, or balance sheets. Using social media news improves the accuracy score of the prediction pattern. While the technical analysts extract both internal and external data by using historical data to predict future trends.

The paper study led by (Srivastava, et al., 2021) Deep neural organization and time series approach for finance frameworks which anticipating the relevant of development “The Indian financial exchange”. The DNN predicts the following day pattern in the file costs. Srivastava, et al., (2021) utilize AI calculations to help vector machine, irregular timberland, angle supporting, and profound neural organizations. Utilizing chronicled NSE shutting value information from first June, 2013 to 30th June, 2020. Notwithstanding, Srivastava, et al., (2021) found profound neural organizations forecast exact over other AI procedures.

Yin, et al., 2022 proposed chart based stock relationship and expectation for high-recurrence exchanging frameworks an original AI model named (“GALSTM”) to become familiar with connections amount’s of “stocks” & “anticipate” the future costs naturally. Yin et al., (2022) observed GALSTM model, items oversaw completely programmed quantitative exchanging framework accomplished a flat out yearly return pace of “44.71%” & the “SD” of every day returns just “0.42%” after 90 days of activity. There is a one “week” decrease for execution contrasted within the past 13 weeks.

In the review dependent on stock value development (Ronaghi, et al., 2022) proposed two equal ways, for example one depends on the convolutional-neural-organization. On the other hand CNN incorporated with “Bi-directional long short term memory” way. A focal combination community interfaces the layers by consolidating limited elements. Execution

assessments are performed dependent on a special COVID-19 related value Movement forecast. Be that as it may, the dataset showing prevalent execution of the proposed structure.

In comparable review, (Egz, et al., 2021) recommended one stock value expectation model for Turkish banks utilizing AI strategies like different straight relapse, edge relapse, rope relapse, support vector machines, choice tree models, irregular woods, XG-Boost technique dependent on a wide dataset which is extended utilizing sliding windows strategy. After the models prepared and tried, it has been seen that the XG-Boost calculation is better than different calculations as per the consequence of the test blunders at foreseeing the stock costs of Turkish banks.

One system is given (Sivri et al., 2022) to consolidate forecasts from news, opinion scores or monetary information utilizing Random Forests, Extreme Gradient Boosting and Light Gradient Boosting Machines of group learning techniques for expectations. Also, accomplished a preferable exhibition over the two forecasts made by utilizing feeling scores and monetary information as far as week after week return and precision.

In the another paper Stock Market Prediction: A Time Series Analysis (Majumder et al., 2022) applied five relapse models specifically straight relapse, irregular timberland, support vector relapse (SVR), vector autoregression (VAR), and long transient memory (LSTM) on recorded stock value information to comprehend future patterns and examples. (Majumder et al., 2022) test every one of the models, Although, LSTM model beat different models.

One more examinations on ML (Mahadik, et al., 2021) looked at LSTM and ARIMA models. Utilizing verifiable information of the company's stock costs which incorporate the open, close, high, low qualities. On which pre-handling is done which includes arranging the information, highlight scaling, auto-connection check, parting it into preparing, and testing informational indexes. These discoveries infer that if the accessibility data is pertinent to the models and top notch models with exact measurement structures are recognized, calculations can perform well. The exactness of the models for each trait is more than 90%. The LSTM model gives better outcomes when the informational collection is huge and has less qualities. Notwithstanding giving preferable exactness over LSTM, the ARIMA model requires additional time.

In summary, many scholars (Ronaghi, et al., 2022; Majumder et al., 2022; Sivri et al., 2022; Yin, et al., 2022; Hameed et al., 2021; Fataliyev et al., 2021; Egüz, et al., 2021; Srivastava, et al., 2021; Mahadik, et al., 2021; Ketsetsis et al., 2020) emphasis the prediction accuracy of AI, the risk in relation with financial market can be recognise. AI technology is a cutting-age tools linked in stock market for prediction, direction market movement and efficiency in fast respond. However, integrating AI in the system needs to go through many training and data test that will ensure proper functioning. It should be noted that financial market is influence by noise and big money entries and this can easily recognise using artificial intelligence.

Methodology

This section is dedicated to the research method which we deployed for the purpose of this study. The methodology adopted on this paper is a systematic literature review (SLR). Although, many academic scholars often used SLR to collect and synthesis huge research from many spheres (Jesson et al., 2011; Knopf, 2006; Petticrew & Roberts, 2006). The SLR can be categorise as quantitative in nature, where the main objective is to comprehend what "work"

previously and “what” have not, why the “certain” methods, and how procedure or interference work. On the other hand, the primary aim of qualitative SLR is to categorise “certain” studies conducted in the field.

Firstly, we develop a searching strategy from the scholar database (i.e. WoS, Google scholars, and Scopus etc), using keywords such as (“Artificial intelligence” AND “Financial Market” AND “Machine learning” AND “CNN” AND “Trade” AND “Deep learning” AND “ANN ”etc). Secondly, we read the abstract, if the paper is relevant with our objective we then saved and keep the reference in the excel sheet. On this paper we thoroughly reviewed 40 literatures, but only 10 fit into our paper. The table 1 is the lists of reviewed journals.

Table 1: Journals of review literature

| S/N | Journal Lists | No. |
|-----|--|-----|
| 1. | <i>Springer</i> | 2 |
| 2. | <i>IEEE Xplore</i> | 2 |
| 3. | <i>ArXiv</i> | 1 |
| 4. | <i>EAI Endorsed Transactions on Creative Technologies,</i> | 1 |
| 5. | <i>Journal of organizational and end user computing</i> | 1 |
| 6. | <i>Expert Systems with Applications</i> | 1 |
| 7. | <i>Pattern Recognition</i> | 1 |
| 8. | <i>Data Mining and Knowledge Discovery</i> | 1 |

Result

Nowadays, AI influences trade, and prediction processes in a variety of ways. For instance, trend detection using automation. However, automation accelerates the systems that can be automated to established trade entry, and artificial intelligence enabled algorithm to respond speedily to market oscillations through observing and data analysis. Recently, artificial intelligence has opened new opportunities, and it is now being reflected in many industries for instance in medical, manufacturing etc.

The artificial intelligence is trending in the financial area due to its capabilities and time saving. Professionals from finance are no longer devoting days on worksheets, analysing data, and reporting. Most routines are automated using AI and ML. Moreover, artificial intelligence has had a noticeable impact on the financial industry and has improve the prediction accuracy and market trend since its inception.

AI has shown promise in sifting through massive of data. Artificial intelligence demonstrates capabilities to accurately predict market direction, and trend patterns that is better than traditional methods. AI and ML used historical data to predicts and score with more than 90% accuracy, which no other approach has been able to achieve. Sustaining feelings and emotions has not been easy, particularly in stock market trading.

Conclusion

In conclusion, we study the benefit of AI in financial market, we employ systematic literature review for the collection and synthesis previous literature. In this paper we investigate artificial intelligence in financial market. The development of AI technology as a part of the ongoing solution to the financial traders or agents.

Our study suffers from the limitation, the methodology employs on this paper even we systematically review still there is biased and we suggest performing a comparative analysis

with the same topic (Under Progress). The findings may provide insight into how deep AI and ML work and more of it benefit for financial traders.

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Abbreviations

- 1) SLR – Systematic literature review
- 2) AI – Artificial intelligence
- 3) ANN – Artificial neural network

- 4) *CNN – Convolutional neural network*
- 5) *ML – Machine learning*
- 6) *DL – Deep learning*
- 7) *MA – Moving Average*
- 8) *MACD – Moving average convergent divergent*
- 9) *EMA – Exponential moving average*
- 10) *RSI – Relative strength index*
- 11) *LSTM – Long-short term memory*
- 12) *ARIMA – Autoregressive integrated moving average*
- 13) *GALSTM – Graph Attention Long Short-Term Memory*
- 14) *DNN – Deep neural network*
- 15) *DMI – Directional movement index*
- 16) *DAX – Deutscher aktienindex*
- 17) *NSE – National stock exchange*
- 18) *CDAX – Composite Deutscher aktienindex*
- 19) *ASE – Amman stock exchange*
- 20) *WOS – Web of Science*
- 21) *VAR – Vector autoregression relapse*
- 22) *SVR – Support vector relapse*
- 23) *SD-Standard deviation*

Impact of Organizational Knowledge Creation on Project Knowledge Management: a multi-group analysis of Multinational and Indian Software Companies

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Abstract

Software organizations are project based organizations where both organizational Knowledge Management (KM) and KM within project teams are requisites. The organizational KM is considered as a long term process and Project Knowledge Management (PKM) is regarded as a short-term practice. This approach has many flaws from an outcome perspective due to redundancy in practices. This empirical study explores the dimensions of organizational Knowledge Creation (OKC) in software industry and identify the impact of these dimensions on Project Knowledge Management which can streamline the process from corporate to project level. A structural equation modelling was conducted in the study on a total sample size of 608 responses from 125 software companies listed under NASSCOM (National Association of Software and Services Companies). The study also identifies the differences in the relations between KC dimensions and PKM in MNCs and Indian Companies; a Multi-group Analysis method is adopted. Both employee engagement and organizational resources for knowledge creation have a significant impact on PKM. The MNCs need to focus more on employee engagement for knowledge creation to improve the contribution of software professional's contribution in project management as a generic solution to overcome PKM challenges compared to Indian companies.

Keywords: Knowledge Creation, Project Knowledge Management, Software Companies, Employee Engagement, Organizational Resources

Introduction

Knowledge Management (KM) is adopted by organizations globally for past two decades as a strategic tool for competitive advantage and innovation. KM's success depends on how organizations carry out the KM processes such as creating, storing, transferring and applying knowledge. KM can enhance the strategic outcomes relating to organizational performance, new product development, innovation, market sustainability, intellectual property rights and human capital development (Davenport, 1994; Nonaka & Takeuchi, 1995; Alavi & Leinder, 2001; Maier & Moseley, 2003). Knowledge Creation (KC), being the first and fundamental KM process, creates a far-reaching effects on the preceding stages of KM and, thus, impact organizational innovation (Mwangi et al., 2012; Wickramasinghe, 2006). Only a knowledge creating company can prosper in a knowledge society by diffusing the knowledge-creating tools and human beings with knowledge creating capabilities (Nonaka et al., 1996; Nonaka and Toyama 2007; Wagner et al., 2014). Organizational knowledge creation (OKC) is where the individual's knowledge is made available, amplified, crystallised and connected to a corporate system (Nonaka, 1994, Nonaka et al., 2004). OKC is crucial in knowledge-based industry like software characterised by fast- changing technology, ever-changing client requirements, timeline based projects and distributed employee network (Malhotra and Majchrzak, 2004; Mehta 2008; Singh, Singh and Sharma, 2014; Purushothaman, 2015). KM has remained nebulous in terms of disciplinary categorisation. Maybe this has been responsible for the difficulties in establishing a scientific approach to KC (Oliguibe, 2015), which is a severe concern in the software industry on account of being highly knowledge- centric.

Software organizations are project-based organizations and KM within project teams is a requisite. As a project-based organization, a software firm can either deliver projects to external customers or can rely on internal projects giving support to core business (Turner & Miterev,

2019). Management of projects is greatly dependent on how effectively knowledge is created, transferred and applied effectively in projects. KM helps to increase the delivery speed and precision of execution (Tiwana, 2000; Jackson & Klobas, 2008). The past literature on IT project management mentioned projects as temporary organizations which function for a specific time period with a team of professionals for a specific objective with an allotted financial aid (Bresnen et al., 2004; Williams, 2007; Todorovic et al., 2015). Project Knowledge Management (PKM) applies principles and processes designed to create and integrate relevant knowledge in the project team by minimizing knowledge losses and filling the knowledge gaps throughout the project (Lech, 2014). Organizational KM is often considered as a long-term process and Project Knowledge Management (PKM) is regarded as a short term practice (Bresnen et al., 2004; Todorovic et al., 2015). This approach has many flaws from an outcome perspective as both the approaches have many redundant practices. Moreover, a streamlining of these long-term and short-term KM practices can overcome many of KM issues such as redundancy, knowledge hoarding, and documentation issues. The primary initiative to solve this problem is to link the organizational KC to PKM.

Sokhanvar, Matthews and Yarlagadda (2014), in their study on importance of KM processes in project based organisations, had found that KC is more critical than any other KM process at various levels of project maturity. The OKC contributes to the individual knowledge of every project participant irrespective of his/her role, which further influences knowledge management in projects. This study explores the dimensions of OKC in the software industry and identifies the impact of these dimensions on PKM. Though people, processes and technology are the components of KM, this study confines to the people and process perspective. Definition of KC includes a wide range of conceptual coverage as it is explained as process, output and outcome (Mitchell & Boyle, 2010), but this study measures OKC as a process. As the actual application of knowledge happens at the employee level, i.e., the software professionals of the organizations who fundamentally use and apply knowledge at the project level in the developmental phases, software professional's perception of KM initiatives at the organizational level and project level seems to be necessary.

Previous studies have explored areas of KC and PKM individually, this study attempts to contribute to the literature by focusing on knowledge creation within the project-based organizations to bridge the gap between the areas. Researches on KM in project-based firms and KM in software projects exists (Lech, 2014; Sokhanvar, Matthews & Yarlagadda, 2014; Todorović et al., 2015; Turner & Miterov, 2019), but this study tries to integrate both dimensions for effective KM in software organizations. The OKC contributes to every project participant's knowledge irrespective of his/her role, which further influences knowledge management in projects. Hence it is vital to identify the impact of OKC dimensions on PKM so that the project-based organizations can focus on organizational KC dimensions that positively influence PKM, reducing redundancy and additional costs incurred in projects (Herbst, 2017). The study is on NASSCOM (National Association of Software and Services Companies) listed software companies in India. This list includes Multinationals and Indian software firms. The past literature reveals that the organizational culture significantly impacts KM in IT companies (Horvat, Sharma & Bobek, 2016). Cultural factors are crucial in PKM in terms of freedom, creativity and mistake tolerance (Foote & Halawi, 2016). The project management practices differ in MNCs and Indian Companies. Therefore, the study has also attempted to test the impact of organizational KC on PKM in two different contexts: multinational companies and Indian companies.

Literature Review

Knowledge is the understanding that people develop either through personal experience or organizational routines and knowledge resources play a significant role in differentiating an entity from the competition (Drucker, 1966; Davenport & Prusak, 1998; Abell & Oxbrow, 2001). Knowledge is powerful enough to control the opportunities for advancement and managing knowledge effectively, contributing to human capital (Drucker 1995; Stewart 1997; Wiig, 1999; Alavi & Leinder, 2001). The transformation of information into knowledge is a critical step in value reaction, which determines what kind of advantage an enterprise has in competition (Davenport & Prusak, 1998). Knowledge Management (KM) is, therefore, the strategic process of managing organizational knowledge resources and assets systematically through the creation, storage, sharing and application of knowledge with the support of enablers such as organizational structure, technology, leadership, people competency and networks (Wiig, 1993; Nonaka & Takeuchi, 1995; Davenport & Prusak, 1998; Sveiby 1997; Bukowitz & Williams, 2000).

Organizational Knowledge Creation

Organizational knowledge creation (OKC) makes available and amplifies knowledge created by individuals and crystallizes and connects it to an organization's knowledge system. OKC theory emphasizes that (1) knowledge within a particular individual needs to be shared, recreated, and amplified through interactions with others (Nonaka & Konno 1998); (2) Knowledge is believed to be created through a skilful action (performance of a task) in a defined situation (Stehr, 1992, 1994; Krogh, Nonaka & Ichijo, 2000); (3) Tacit and explicit knowledge are not separate but knowledge is explicit and tacit along a continuum (Nonaka et al., 2007). In knowledge-intensive organizations, knowledge workers need to leverage existing knowledge to develop a new understanding that requires employees to be engaged to develop shared mental models as new knowledge (Sitterle & Kessler, 2012; Little & Deokar, 2016). The innovation capability largely depends on how successful the organizational knowledge creation is with the support of organizational culture, management support and human capital (Zapata-Cantu, 2020).

Employee Engagement for KC

Engagement activities provide a crucial step in moving knowledge from one person to another, enabling the knowledge creation activities to occur through dynamic methods (Thompson & Cavaleri, 2010; Alavi & Leidner, 2001; Little & Deokar, 2016). By increasing engagement levels in knowledge creation and perspectives, task reasoning develops to allow for critical thinking and problem-solving capabilities leading employees to provide a higher perceived value for the organization (Grant, 1996; Hussini, 2004). Employee engagement through the collaboration for sharing new ideas and seeking new ways of learning through interaction with superiors and subordinates encourages OKC (Nonaka & Toyama, 2015; Shongwe, 2017; Zapata-Cantu, 2020). Engaged employees are self-motivated to learn and they effectively utilize online/offline training programs, seminars, and external knowledge creation sources (Little & Deokar, 2016; Shongwe, 2017; Chen, Yao & Zhou, 2020; Zapata-Cantu, 2020). The engagement of employees in project meetings, employee interaction with clients and knowledge created through customer negotiations and lessons learned from past projects contribute to organizational knowledge creation (Paraponaris et al., 2015; Todorović et al., 2015; Shongwe, 2017).

Organizational Resources for KC

The organizational resources for KC include manuals, briefs, reports, data warehouses constructed from a variety of organizational databases; applications, particularly those closely tied to strategic and competitive objectives. It also includes best practices of the firm and its

knowledge partners and lessons learned from projects and other organizational activities; and discussions among knowledge workers (Alavi & Leinder 2001; Wild & Griggs, 2008; ZapataCantu, 2020).). Organization induction program, organizational reports, company policies and procedures are all sources which can create a sense of psychological ownership among the employees and enhance creativity and knowledge creation (Little & Deokar, 2016; Shongwe, 2017; Yoon *et al.*, 2020). Technology-based organizational resources such as online portals and databases contribute to OKC (Little & Deokar, 2016). Organizational KC can utilize organizational resources for collaboration such as emails, groupware, intranet and organizational social networks (Attaran, Attaran & Kirkland, 2019; Mwangi, Thuku & Kangethe, 2015; Shongwe, 2017). The organizational controls through various resources not only provide descriptions of roles, responsibilities and resources but also state the policies and procedures for task completion and handling which are important for knowledge-intensive organization (Gold *et al.*, 2001; Little & Deokar, 2016).

KC in software companies

In global software development, KC involves teams, each made up of the three aspects: people, technologies and processes that can either be localized or distributed (Wickramasinghe, 2006; Mwangi *et al.*, 2012). Grant (1996) and Nonaka and Takeuchi's (1995) suggest that individuals (employees) in organizations create knowledge. The interaction of employees allowing the creation of knowledge in software firms can happen through formal meetings; informal communities; project teams; external interaction; and IT-Tools (Taylor, 2007; Spraggon & Bodolica, 2008). The KC in software industry happens in a group environment including teams, either virtual or real and there are four processes identified for group KC such as Accumulation, Interaction, Analysis and Integration (Gibson, 2001; Mitchell & Nicholas, 2006; DrachZahavy, 2011; Mwangi *et al.*, 2012; Barley *et al.*, 2018). The software professionals accumulate knowledge based on their functional areas from communities of practice, shared through collaborative platforms such as groupware which further adds knowledge through interaction (Nonaka & Toyoma, 2005; Mwangi *et al.*, 2012). The analysis process naturally happens through team's experiences and communication with customers and suppliers, which is further integrates through social networks (Mwangi *et al.*, 2012). Internally employees acquire knowledge from other employees, either subordinates or superiors and organizational documents such as manuals, textbooks, minutes of meetings, programming code samples, notes and emails and other documents kept in organisations (Shongwe, 2017). Internet, customers or clients and industry networks are KC's external sources (Shongwe, 2017). In software organizations, knowledge is generated by brainstorming, customer collaboration, regular feedback from clients, formal training, communities of practice, self-learning from online platforms, the use of technology especially internet (Boden, Nett & Wulf, 2011; Shongwe, 2017). The cross-functional environments and collaboration of knowledge among software developers become critical among the software development teams in reducing the redundant work in the process of software development (Chugh *et al.*, 2019).

Project Knowledge Management

According to Sankarasubramanian (2009), all projects have one thing in common—knowledge. The Japanese project management standard recognizes knowledge and experience as the main sources of project value (Project Management Association of Japan [PMAJ], 2005a, p. 86). Projects may be seen as a set of KM processes (Sauer & Reich, 2009). Project knowledge management, especially in complex projects, is one of the main success factors in project management; lack of project knowledge management is one of the main reasons for project failure (Desouza & Evaristo, 2004). Each software project begins with an interpretation, analysis and detailed consideration of project information, requirements and specifications as

the initial phase of PKM. At this stage, documentation, organizational knowledge, staff experience, decision support tools and technologies are used to enable project managers to make decisions. The client explains their requirements; stakeholders can get across their views about the project and what they require (Muriithi & Crawford, 2003; Oliguibe, 2015). The OKC contributes to the individual knowledge of every project participant irrespective of his/her role which further influences the knowledge management in projects. An organizational leader (entrepreneur) can provide the team members with an open environment that supports collaboration. Team members can develop solutions to the problems and aid the project's success (Latif et al., 2020; Renko et al., 2015; Sohmen, 2013). In the latter stage of PKM, knowledge is assimilated through everyday interaction, questioning, dialogue, explanations from team managers, group discussions and stakeholder meetings and mutual understanding about the project's development (Oliguibe, 2015). Project knowledge acquired, shared and applied in this process is useful for achieving project objectives. Table 1 explains the variables identified from the past literature.

Hypotheses

Employee Engagement enables the knowledge creation activities to occur through dynamic methods (Thompson & Cavaleri, 2010; Alavi & Leidner, 2001; Little & Deokar, 2016) and the technology-based organizational resources (Little & Deokar, 2016). The OKC contributes to every project's knowledge, which further influences the knowledge management in projects (Oliguibe, 2015). Hence it is hypothesized that:

H₁: Employee Engagement for Knowledge Creation has a significant impact on Project Knowledge Management in software companies.

H₂: Organizational Resources for Knowledge Creation has a significant impact on Project Knowledge Management in software companies.

Table 1: Variables of the study

| No | Knowledge Creation |
|----|---|
| 1 | Interaction with superiors enhance learning(Nonaka & Toyama, 2015; Shongwe, 2017) |
| 2 | Interaction with subordinates also increases knowledge about work(Nonaka & Toyama, 2015;Shongwe, 2017) |
| 3 | Discussions in project meetings helps in better learning(Paraponaris et al., 2015) |
| 4 | Customer feedback and recommendations provide better insights about organisation(Sharma, Chadee & roxas, 2016; Shongwe, 2017) |
| 5 | Learning from past projects helps in increasing knowledge(Todorović et al., 2015) |
| 6 | Knowledge is created as a result of self-motivation to learn(Nonaka & Toyama, 2015) |
| 7 | Online and offline technical courses help in creating better technical knowledge(Little & Deokar, 2016; Shongwe, 2017) |
| 8 | Quality control parameters create knowledge on software quality(Ahmed & Ahsan, 2014) |
| 9 | Organisation Induction Program is effective increasing knowledge(Shongwe, 2017) |
| 10 | Organizational reports are good reference tool for knowledge creation(Salmador & Bueno,2007;Wild & Grigs, 2008) |
| 11 | Company Policies and Procedures provide better organizational knowledge(Little & Deokar, 2016) |
| | Organisation networks Emails and Groupware help to provide new information(Mwangi, Thuku & |

- 12 Kangethe, 2015)
The Intranet facility greatly enhance knowledge creation process(Smith et al., 2005; Salmador & 13 Bueno,2007;Shongwe, 2017)
Team Management enhance team knowledge(Aubry and Lièvre, 2010; Kostopoulos and Bozionelos,
14 2011; Paraponaris et al., 2015)
-
- Project Knowledge Management**
-
- 15 Project Repository store updated information on project deliverables(Paraponaris et al., 2015)
16 Participating in cross-functional teams communities give better opportunities(Lakshman, 2005)
17 Applying knowledge in projects gives me more confidence(Lech, 2014)
Suggestions for improvement in projects are entertained in my organisation(Heaton, Skok & Kovala,
18 2016)
When innovative practices, ideas are suggested organisation provides support(Song, Van der Bij &
19 Weggeman, 2005)
20 Working with diverse projects give more opportunities for knowledge application(Herbst, 2017)
21 Project monitoring and control give opportunity to apply knowledge(Shwalbe, 2015)

Source: The authors

Methodology

The study is empirically conducted with the support of a structured questionnaire. A survey is done in the NASSCOM (National Association of Software and Services Companies) listed software companies in India. NASSCOM is a trade association of Indian Information Technology (IT) and Business Process Outsourcing (BPO) industry which was established in 1988 and registered under the Indian Societies Act 1860. A stratified random sampling method on a sample frame of 270 software companies included MNCs and Indian Companies. A total 608 software professionals responded to the online survey conducted in the social network platform, “LinkedIn”.

A split sample procedure is adopted for data analysis. Exploratory Factor Analysis (EFA) of KC variables and correlation analysis of PKM variables are conducted on a sample of 300 responses. The measurement model (Confirmatory Factor Analysis) is tested on the remaining sample of 308 responses. The study conducted a structural equation modelling on a total sample size of 608 responses. A Multi-group Analysis method is adopted to identify the differences in the estimates of regression relations between KC dimensions and PKM in MNCs and Indian Companies.

Sample Design

The information given by the official website of NASSCOM reveals that there are 2434 IT companies registered under NASSCOM (<https://nasscom.in/members-listing>), out of which 520 companies are in Karnataka State (21.5%), which is the highest number compared to other states in India. Out of them, the independently registered software companies with core software services come around 270 (52%) which forms the study sample frame. Ideally, it is a complete and correct list of population members. The NASSCOM listed software companies can be divided into two segments or strata:

1. MNC (Multinational Company)
2. Indian Company.

As the study is on Knowledge Management Process in the software industry, it is important to include companies from each segment. Therefore a stratified random sampling technique is identified to be the best method. This also increases the statistical efficiency of the sample (Cooper, Schindler & Sharma, 2012). Out of 270 companies, 156(58%) were MNCs and 114(42%) were Indian Companies. Based on statistical formula for finite population, continuous a sample of 245 companies was obtained. The corresponding strata for this sample include 141 MNCs and 103 Indian companies. Taking proportion of these two strata (58% of 141 and 42% of 103) gives a final desired sample of 125 companies.

Data Collection

As the study is purely quantitative, a survey questionnaire is developed and administered to collect the primary data. Although there are many management scales existing in the area of KC, a questionnaire suitable for a KC and PKM process model in the software industry could not be identified. Therefore a new survey questionnaire was developed to identify the perception of software professionals on the KC processes and PKM. Accordingly based on a structured literature review, a set of questions were designed in each section of the questionnaire. The section on KC and PKM consist of questions presented in 5 point –Likert-scale ranging from Strongly Disagree (SD) to Strongly Agree (SA).

But as the HR managers informed that it would not be permitted to meet the employees during the working hours, the only option was to collect responses online. Therefore an questionnaire was developed using Google Forms, which could be sent as an email or shared in social network platforms like LinkedIn, where software professionals are very active. A “connect” request along with a self-introduction and need for the survey was sent to software professionals who were active in LinkedIn. They were chosen based on company names in the search option. The requests were sent to professionals with designations such as software engineer, senior software engineer, software test engineer, software developer, software analyst, team- lead and software consultant. This ensured that the respondents include all areas of software activities and exclude managerial and top management employees. From a total of 2200 connections, 820 professionals responded, showing an interest. But the survey was completed successfully by 565 professionals (excluding those companies which gave less than 3 responses through rigorous follow-up and regular reminders. The remaining 43 responses were collected through emails of personal contacts. Therefore the total responses equal to 608 from 125 companies, included 341 responses from 60 MNCs and 267 responses from 65 Indian Companies.

Data Analysis

A split sample procedure is followed in the data analysis process. Exploratory Factor Analysis (EFA) and correlation analysis are conducted on a sample of 300 responses from a total sample of 608 responses. The Confirmatory Factor Analysis is conducted on the remaining sample of 308 responses. Finally, Structural Equation Modelling (SEM) is executed on a full sample of 608 responses.

Exploratory Factor Analysis (EFA)

Principal Component Analysis with varimax rotation is used to explore the factors of organizational KC. Exploratory factor analysis requires certain basic assumptions to be satisfied: correlation and sampling adequacy (Grimm & Yarnold, 1995; George & Mallery, 1999; Lattin et al., 2003). The KMO Bartlett test includes the Bartlett test of sphericity that

measures the multivariate normality of variables in addition to analysing whether the correlation matrix is an identity matrix (i.e., a spherical set of multivariate data). The Kaiser-Meyer-Olkin (KMO) test can measure whether the sample size is adequate for conducting factor analysis; (George & Mallery, 1999). The KMO measure of sample adequacy is .945 which is greater than the acceptable threshold of 0.5. Therefore the sample is adequate for exploratory factor analysis. As Bartlett's Test of sphericity is highly significant ($p < .001$), the correlation matrix is identical and suitable for factor analysis. The results of EFA are reported in Table 2.

Table 2: Exploratory Factor Analysis

| No | Variables | Factor | Cronbach Alpha | Factor Loading | Cumulative Variance |
|----|---|---|----------------|----------------|---------------------|
| 1 | Learn through interaction with Superiors(EE1) | | | 0.741 | |
| 2 | Learn through interaction with subordinates(EE2) | | | 0.827 | |
| 3 | Discussion in project meetings create knowledge(EE3) | | | 0.751 | |
| 4 | Customer feedback and recommendations provide insights(EE4) | | | 0.676 | |
| 5 | Learning from past projects(EE5) | | | 0.794 | |
| 6 | Knowledge created from self-motivation to learn(EE6) | Employee Engagement for Knowledge Creation(EE) | 0.861 | | 37.605 |
| 7 | Online and offline technical courses create knowledge(EE7) | | | 0.694 | |
| 8 | Quality control parameters create knowledge on software quality(EE8) | | | 0.62 | |
| 9 | Organisation Induction program is effective in KC(OR2) | | | | |
| 10 | Organizational reports are good reference tool(OR1) | | | | |
| 11 | Company policies and procedure provide better organizational knowledge(OR3) | Organizational Resources for Knowledge Creation(OR) | 0.908 | 0.835 | |
| 12 | The intranet facility greatly enhance knowledge(OR4) | | | 0.781 | |
| 13 | Organizational networks , Email and Groupware help to provide more information(OR5) | | | 0.744 | 65.395 |
| | | | | 0.666 | |
| | | | | 0.643 | |

Source: The authors

Table 2 clearly explains the KC's two factors derived through EFA, where eight variables explain the first factor and five variables explain the second factor. The remaining one variable (team management to enhance team knowledge) was removed due to low factor loading and therefore, they do not significantly contribute to the factors. Based on the past literature, it was

identified that the first factor variables were related to Employee Engagement. Hence, the factor is named as Employee Engagement for Knowledge Creation (EE). The second factor is Organizational Resources for Knowledge Creation (OR) as the variables explain how the organizational resources are used for creation of knowledge. The two factors contribute to 65.395% of variance to the study and the unexplored variables contribute the remaining. EE contributes 37.605% and OR contributes 27.8% to the study, respectively. A Cron-bach alpha reliability test is done to identify the reliability of the factors. It is found that EE and OR have reliability values of 0.861 and 0.908 respectively (higher than the required threshold of 0.7).

Correlation Analysis

A correlation analysis is conducted on the seven scale variables of Project Knowledge Management (PKM). All these scale items were identified from the past literature on software projects (Table 1). The mean values and standard deviations of these variables are also identified. The results of correlation analysis indicate that all 7 PKM variables are highly correlated (p value < .001). The correlation coefficients, mean values and standard deviations of PKM variables are illustrated in Table 3. It is observed that the mean values of all the PKM variables are high indicating that all the variables are rated high by the software professionals. The cron bach alpha reliability value of PKM is 0.908 which is higher than the acceptable threshold of 0.7 indicating high reliability.

Table3: Correlation Analysis

| PKM Variables | Mean | S.D | PKM1 | PKM2 | PKM3 | PKM4 | PKM5 | PKM6 | PKM7 |
|--|------|------|--------|--------|--------|--------|--------|--------|------|
| Project Repositories(PKM1) | 3.94 | .884 | | | | | | | |
| Participating in cross functional communities of practice(PKM2) | 3.95 | .872 | .477** | | | | | | |
| Applying knowledge in projects is a motivation(PKM3) | 4.20 | .872 | .450** | .749** | | | | | |
| Suggestions to improve projects are encouraged by the organisation(PKM4) | 3.91 | .925 | .476** | .629** | .668** | | | | |
| Support for innovative ideas and practices related to Project(PKM5) | 3.84 | .946 | .448** | .679** | .674** | .764** | | | |
| Working with diverse projects give opportunity for knowledge application(PKM6) | 4.09 | .857 | .418** | .652** | .732** | .639** | .637** | | |
| Project Monitoring and control give opportunity to apply knowledge(PKM7) | 3.81 | .863 | .426** | .564** | .588** | .565** | .532** | .536** | |

** . Correlation is significant at the 0.01 level (2-tailed).

Source: The authors

Confirmatory Factor Analysis

The three major factors of the study are EE, OR and PKM and it is important to develop a measurement model and confirm the factor structure by testing if the observed variables are linked to these factors through hypothesis testing and then assuring these construct's reliability and validity .The CFA model found that three observed variables in the EFA output are correlated with the factor's other variables. Hence they are removed. After testing, the final model is found to be a good fit model with the adequate fit indices, as reported in Table 4. The recommended values are based on the theories of Byrne (2010).

Table 4: Confirmatory Factor Analysis- Model Fit Indices

| Model Fit Indices | Recommended Value | Obtained Value |
|--|------------------------------------|----------------|
| Chi-square to the degree of freedom ratio(CMIN/df) | 4.000 or below | 2.34 |
| Comparative fit index (CFI) | 0.930 or above | 0.944 |
| Normed Fit Index(NFI) | 0.900 or above | 0.906 |
| Tucker Lewis Index(TLI) | 0.900 or above | 0.934 |
| Root mean square of error approximate (RMSEA) | less than .08 and not more than .1 | 0.066 |

Source: The authors

The factor structure is confirmed by testing the hypothesized relationship between the observed variables and their constructs (factors) and ensuring the reliability and validity of the constructs. Table 5 explains that all the indicator's hypothesized paths to the respective construct are highly significant ($p < 0.001$). The Composite Reliability of EE, OR and PKM are 0.87, 0.83 and 0.87 respectively (Table 5). This is higher than the acceptable threshold of 0.7, indicating that all the latent constructs are reliable. Construct validity is the extent to which a set of measured variables actually reflects the latent construct they are designed to measure (Hair et al., 2006) which is established in this study by ensuring the convergent validity and discriminant validity of the latent constructs. Convergent validity is assessed by examining the factor loadings and average variance extracted (AVE) of the constructs. All the indicators has significant loadings onto the respective latent constructs with values varying between 0.462 and 0.833 (Table 5). In addition, the AVE for each construct (is greater than or equal to 0.50, which further supports the convergent validity of the constructs. Fornell and Larcker (1981) state that discriminant validity can be assessed by comparing the square root of average variance extracted (AVE) with the corresponding inter-construct squared correlation estimates.

Table 5: Composite Reliability and Convergent validity

| Variables | Constructs | P Value | Estimates | Composite Reliability | AVE |
|--|--------------|---------|-----------|-----------------------|------|
| Online and offline technical courses help in creating better technical knowledge | <- -- EE_ | *** | 0.689 | | |
| Knowledge is created as a result of self-motivation to learn | <- -- EE_ | *** | 0.805 | | |
| learning from past projects has greatly helped in increasing knowledge | <- -- EE_ | *** | 0.828 | | |
| Customer feedback and recommendations provide better insights about organisation | <- -- EE_ | *** | 0.711 | 0.87 | 0.58 |
| Discussions in project meetings helps in better learning | <- -- EE_ | *** | 0.69 | | |
| Interaction with subordinates also increases knowledge about work | <- -- EE_ | *** | 0.811 | | |
| We can learn more through interaction with superiors | <- -- EE_ | *** | 0.764 | | |

| | | | | | | |
|---|----------|-----|-----|-------|------|------|
| The Intranet facility greatly enhance knowledge creation process | <- -- | OR_ | *** | 0.662 | | |
| Organisation networks Emails and Groupware help to provide new information | <- -- | OR_ | *** | 0.775 | | |
| Company Policies and Procedures provide better organizational knowledge | <- -- | OR_ | *** | 0.735 | 0.83 | 0.55 |
| Organizational reports are good reference tool for knowledge creation | <- -- | OR_ | *** | 0.792 | | |
| Organisation Induction Program is effective in increasing knowledge | <- -- | OR_ | *** | 0.726 | | |
| Project monitoring and control give opportunity to apply knowledge | <- -- | PKM | *** | 0.702 | | |
| Working with diverse projects give more opportunities for knowledge application | <- -- | PKM | *** | 0.833 | | |
| When innovative practices, ideas are suggested organisation provides support | <- -- | PKM | *** | 0.775 | | |
| Suggestions for improvement in projects are entertained in my organisation | <- -- | PKM | *** | 0.765 | 0.87 | 0.56 |
| Applying knowledge in projects gives me more confidence | <- -- | PKM | *** | 0.819 | | |
| Participating in cross-functional teams communities give better opportunities | <- -- | PKM | *** | 0.795 | | |
| Project Repository store updated information on project deliverables | <- -- | PKM | *** | 0.462 | | |

Source: The authors

The discriminant validity is explained by Table 6. The Square root of AVE for each construct are .760, .740 and .750 respectively which are higher than the inter-construct correlations, namely, .731, .601 and .559 which supports the discriminant validity of the constructs. This is further ensured by observing that Maximum Shared Variance (MSV) and Average Shared Variance (ASV) are less than AVE. Thus the measurement model holds good with better fit indices, reliability and validity.

Table 6: Discriminant Validity

| | AVE | Sqrt of AVE | MSV | ASV | EE | OR | PKM |
|------------|------|-------------|-------|-------|-------|-------|-----|
| EE | 0.58 | 0.76 | 0.534 | 0.448 | 1 | | |
| OR | 0.55 | 0.74 | 0.534 | 0.423 | 0.731 | 1 | |
| PKM | 0.56 | 0.75 | 0.361 | 0.337 | 0.601 | 0.559 | 1 |

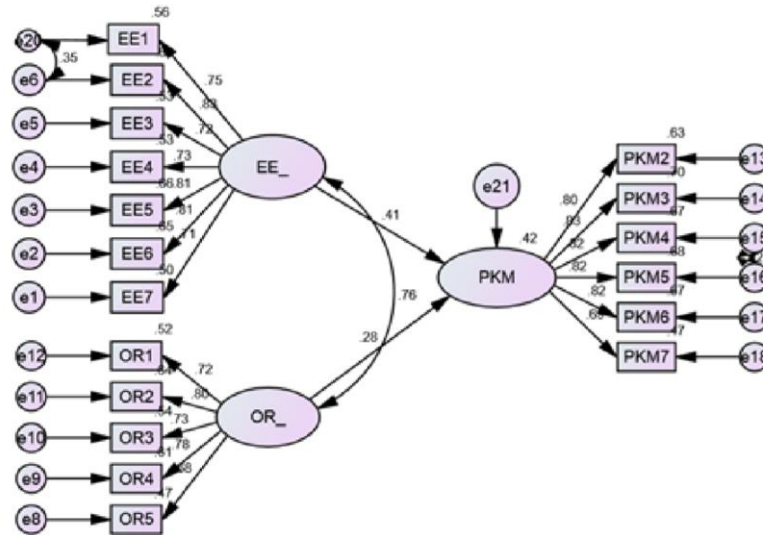
Source: The authors

Structural Equation Modelling

The impact of factors Organizational KC (EE and OR) on Project Knowledge Management (PKM) in software companies are tested using a structural equation modelling approach. Table

7 illustrates the fit indices of the structural model constituting the relationships of EE and OR on PKM (Byrne, 2010). It can be observed that PKM1(Project Repository store updated information on project deliverables) is removed from analysis as it is poorly loaded to PKM compared to other variables(Table 5) .Fig 1 explains the impact of hypothesized relationships.

Fig 1: Structural Model



Source: The Authors

Table 7: SEM- Model Fit Indices

| Model Fit Indices | Recommended Value | Obtained Value |
|--|------------------------------------|----------------|
| Chi-square to the degree of freedom ratio(CMIN/df) | 4.000 or below | 2.977 |
| Comparative fit index (CFI) | 0.930 or above | 0.962 |
| Normed Fit Index(NFI) | 0.900 or above | 0.944 |
| Tucker Lewis Index(TLI) | 0.900 or above | 0.956 |
| Root mean square of error approximate (RMSEA) | less than .08 and not more than .1 | 0.057 |

Source: The authors

In Fig 1, the structural relationships are indicated as one-sided arrows. These arrows represent the hypothesized paths between the independent and dependent constructs. The p-value for both the hypothesized is all highly significant (p-value <.001). This indicates that Employee Engagement for KC (EE) and Organizational Resource for KC (OR) have a significant impact on Project Knowledge Management (PKM). Therefore, H₁ and H₂ holds true. The model was tested on a dataset of 608 responses from 92 NASSCOM listed software companies. Out of these 341 responses are from Multinational Companies (MNCs) and remaining 267 responses are from Indian software companies. A multi group analysis is done to identify the impact of KC factor on PKM in each of these groups separately.

Fig 2: Structural Model: MNCs

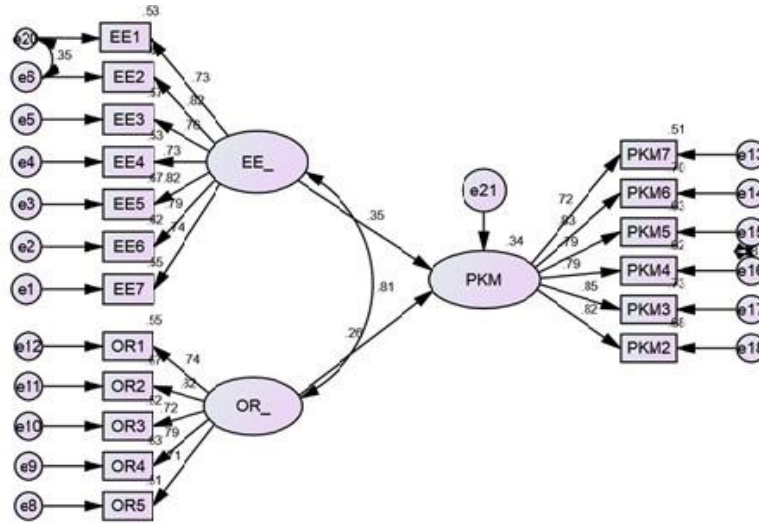
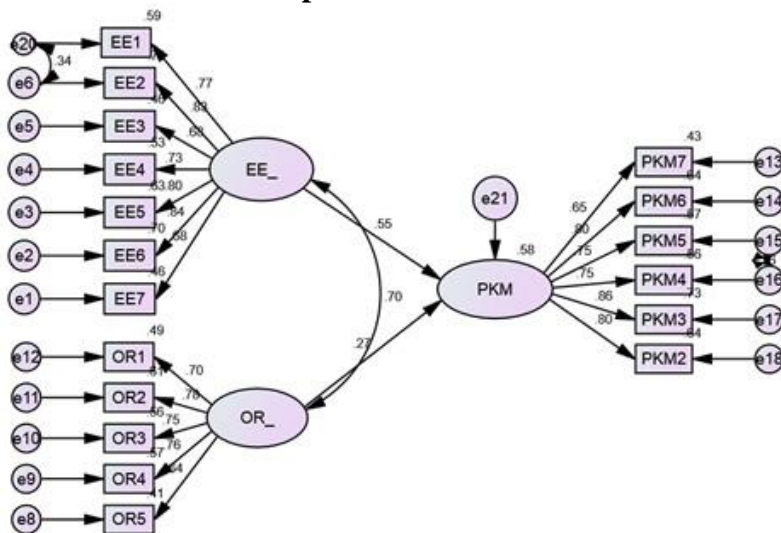


Fig 3: Structural Model: Indian Companies



The multi group analysis revealed that the impact of EE and OR on PKM are significant for both MNCs and Indian Companies. The p values are explained in Table 8.

Table 8: Multi group analysis

| Hypothesised Path | | β | P values |
|----------------------------------|-----|---------|----------|
| MNCs(N= 341) | | | |
| PKM <-- | EE_ | .328 | *** |
| PKM <-- | OR_ | .231 | .012 |
| Indian Companies(N= 267) | | | |
| PKM <-- | EE_ | .467 | *** |
| PKM <-- | OR_ | .212 | .001 |

‘***’ indicates p value < .001

Source: The Authors

It is observed that Employee Engagement (EE) has a significant impact on PKM. Though OR impact PKM, its effect is not as powerful as EE. More importantly, EE’s beta coefficient is low

for MNCs and high for Indian Companies indicating that Employee Engagement for KC and its influence on PKM is more significant in Indian Companies than MNCs.

Discussions

Though employee engagement and organizational resources were mentioned as crucial factors of knowledge creation in the past studies, this study has established EE and OR as the factors of KC in software companies through the exploratory analysis. It is not surprising to find that both these factors significantly impact PKM as organizational KC is expected to influence on PKM (Todorovic et al, 2014). Although the research was conducted in the past on PKM and Project Management, general solutions on how to manage knowledge in projects and projectbased firms considering inter- organizational KM still remain unexplored (Fang et al., 2013; Lech, 2014). But this study contributes in the following ways: 1) by removing the gap of analysing KM from two different perspectives, the organization at a large and projects as smaller organizations 2) by overcoming the redundancy perspective mentioned in the past studies by considering only those variables of PKM which are specific to projects at different levels of maturity. 3) Identifying the differences in OKC dimensions (OR and EE) on PKM in MNCs and Indian companies

PKM include generic and specific knowledge (Lech, 2014) carried through creation, sharing, storage and application within the projects (Gasik, 2011). The variables pertaining to these aspects can be considered if the PKM is alone measured in software projects. But as this study aimed to link OKC and PKM, specific variables that do not overlap with OKC were used to measure PKM. This is done to test the relationship, excluding the redundancy issue. It is often mentioned as a major problem in managing projects in organizations and suggests general solution for managing knowledge and knowledge in projects simultaneously (Lech, 2014). One of the major challenges in PKM is the lack of transfer of lessons learned in projects to the organization to initiate KC at the individual levels improving themselves in future projects. OKC, if done in the form of guidelines, best practices, checklists, templates and standards can overcome this challenge (Herbst, 2017). The explored dimensions EE and OR clearly explain these processes.

, Another challenge from the PKM perspective is the action/ task orientation of projectintensive organizational structure where project team members are not geared for learning as there is often no mechanism or motivation for knowledge creation and sharing (Williams, 2007; Todorovic et al., 2014). This study has clearly defined PKM as a smaller organization emphasizing the specific variables on creation, sharing and application of knowledge in projects. The macro-level aspects of learning are included in the OKC and the impact of the same on PKM is measured to avoid the issues of redundancy and duplication issues.

As the organization's structure and culture are likely to influence the project management in software organizations(Todorovic et al., 2014) , the study attempted the multi-group analysis to identify the level of significance of EE and OR on PKM separately for MNCs and Indian Companies. Such a comparative analysis has not been considered in the past researches. The MNCs and Indian Companies are often individually researched from KM perspective besides the fact that emphasize on PKM is very rare. Surprisingly, the multi-group analysis revealed that the beta coefficients of EE on PKM are low for MNCs compared to Indian firms and level of impact of OR on PKM remains comparatively lower than EE in both groups. It can be understood that global organizations are giving more emphasis on managing knowledge within the projects, rather than at the organizational level. Jain, Celo, and Kumar (2019), in their study on the speed of internationalization of Indian software firms, have identified that the external

linkages with international clients are often managed by the core technical staff, especially those involved and experienced in projects. Still, the control over projects and firm profitability is initiated through internal linkages where organizational KC through employee engagement and organizational resources are more important. The employee engagement for KC in MNCs need to be reoriented at the organizational level to contribute to projects at various levels of maturity. Specialized training and investments exclusively for projects can also be brought down and overall, OKC can be given attention as it automatically reflects the PKM parameters as well. Though many past studies on PKM had emphasized the role organizational resources such as past reports, intranet facility, communities of practice, groupware, and trainings, the extent to which they are utilised from the PKM viewpoint needs to be explored.

Conclusion

Organizational Knowledge Creation and Project Knowledge Management are both powerful catalyst for innovation in technology based firms. Though the study had attempted to remove the gap of managing knowledge in organizations and project knowledge management in knowledge-based firms, the cultural impact on the relationship of organizational KM and PKM remain unexplored, which can be empirically tested in future research. The study was conducted purely based on the perception of software professionals; the view of top management, which also remain significant on organizational KC and PKM, is not considered in spite of the significance to ensure the relationship of KC and PKM. The study contributes by identifying the importance of EE and OR and betterment on these KC factors to reflect a positive outcome for projects. Further, the MNCs are provided with clear insights to focus more on employee engagement for knowledge creation in a way to improve the contribution of software professionals in project management.

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AI Based Recruitment Automation Solution

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Abstract

The HR department of an organization conducts recruitment activities like screening, shortlisting, evaluation, rating, selection of the right candidate, background verification, etc. manually but in many cases the quality of the interview process is not up to the mark and less candidate engagement causes more drops in joining. Another pain area of the HR department is fair performance rating & attrition prediction of an employee. Our proposed AI-based product will have an automated candidate recruitment process, background verification, character profiling, employee performance and attrition prediction. This will improve recruitment quality, communication, feedback platform, and rating system along with a faster and reliable background verification. In short, it is a one-stop solution for workforce management of an organization.

Keywords: Recruitment, Natural language processing, Recommendation system, Job Seekers.

Introduction

In the era of the fourth industrial revolution and digitalization, organizations are looking for bright, talented, multi-skilled human resources in their workforce to meet the competition in the global market.

The first artificial intelligence introduced by (Mccarthy, 1956) has open the doors to new opportunities for organizations. According to (Dimple Agarwal, Josh Bersin, Gaurav Lahiri, Jeff Schwartz, 2018) artificial intelligence applications such as problem solving and data driven function are streamlining the recruitment process in HR Department.

However, that doesn't make it any less difficult for HR managers to find expertise because the truth is that there is a labor shortage and also a growing skills gap. Finding the best talent for the company has never been more difficult than it is in 2021. This is the first time in the history of tracking these statistics that there are more job openings than people seeking employment.

In order to manage the demand supply gap, we need to analyse millions of job seekers and employer database to identify the talents and keeps the talent interested in roles in their geographic area. Therefore we need to use smart recruitment technology based on AI/ML so that candidates are made available, interested, and matched to roles when those roles become open.

Recruitment is becoming extra critical now. The overall challenge is to stay ahead of the artificial intelligence (AI) revolution in staffing. Today, the recruitment industry or organization are now a days closer to adopt artificial intelligence into the process of recruitment. In fact, there are many studies claims on the role of AI in the recruitment process (Upadhyay & Khandelwal, 2018), (Bullhorn, 2018), (Paradox,2018).

AI in the hiring process is helping Talent Acquisition Managers (TAs) automate an array of time- sucking tasks. From mundane administrative tasks to creating and improving standardized job matching processes and speeding up the time it takes to screen, hire, and onboard new candidate. AI will change the recruiter role through augmented intelligence which will allow

recruiters to become more proactive in their hiring, help determine a candidate's culture fit, and improve their relationships with hiring managers by using data to measure KPIs such as quality of hire.

In many developing and developed organization, the Human Resource (HR) are using the technology of Artificial Intelligence to recruit, retain and inspire the proficient manpower which has helped in the growth of the organization and the employees. Due to the introduction and implementation of this technology in the recruitment process has resulted in bringing down the cost of recruitment process, selection of the appropriate employee in the desired position and has most importantly reduced the time taken by this process. In fact, early stats show that recruiters that use AI see a 30% reduction in cost- per-hire.

This is especially true, now more than ever, due to the hybrid work environment and the expectations from a large percentage of millennials in the workforce who have grown up as netizens.

Our AI based workforce management product is based on four important pillars of employee recruitment till retention of talented resources and contains the following features given below:-

A. Recruitment Process: Automated hiring activities like screening, shortlisting, evaluation, rating, selection of right candidate, background verification before offering, offer letter generation & joining formalities etc. This will also provide a communication platform to the candidate as well as the recruiter which will increase candidate involvement.

(Please refer appendix A & B for the schematic view & process flow.)

B. Background verification & rating system: Block chain based background verification & rating system. This process can be split into key functions:

- Rating Based on background verification.
- Identification of Fake Certificate using Block Chain Techniques.
- Employer Rating based on Background Verification & Industry Performance. (Please refer appendix A for schematic view background verification model.)

C. Employee Performance & attrition prediction system: AI-powered Chat bot for new joiners as soon as the offer letter has been rolled out. This Chat bot will leverage Machine Learning to segment frequent questions as per persona types. Personas will be set up specific to employee segments in different organizations to improve personalization.

HR Analytics to improve employee experience, employee engagement and hence employee retention is probably the most significant role of an HR professional. Our prototype of the AI powered solution will help simplify the analytics and provide models based on past trends, current indicators and a prescriptive model to improve retention in the future.

(Please refer appendix A to understand this model in more detail.)

D. Social Media based character profiling of candidate: This feature will enabled recruiter to use social media more effectively for recruitment & scanning through the candidate's social media posts through AI/ML to understand the characteristics of candidate and scoring / rating will get updated in system which will help not only during the recruitment but also during employee life cycle .

1. Existing AI based applications or competition in HRM sector

According to Forbes, employee attrition is the highest in 10 years and associated costs are expected to touch \$680 Billion and to grow further. Talent acquisition's use of Artificial

Intelligence is growing. According to the research firm Absolute Market Insights, the market for AI recruitment platforms will grow at a compound annual growth rate of 7.6% through 2027. Given the advantages that recruiters gain when they leverage AI, this makes sense. LinkedIn found that 67% of recruiters and hiring managers say AI saves them time, while 47% report it reduces human bias in the hiring process and 31% believe it delivers better candidate matches.

Artificial Intelligence has been getting increasingly popular in the HR sector. According to the Gartner 2019 Artificial Intelligence Survey, 70% percent of organizations use AI-based solutions for HR functions, and another 30% will do so in 2022. A Gartner report for HR trends states two-thirds of early AI adopters have plans to double the number of projects from 2 to 3 by the end of 2022. Many use-cases have already show proven results, with improvements reported as significant by:

- 62% of those that have deployed AI to improve data-based decision making
- 57% of those wanting to improve employee experience
- 56% of those trying to further automate repetitive or manual tasks
- 51% of those hoping to capture cost savings

This means that more and more companies that provide HR services or have HR departments are seeking to optimize, improve, and automate their operations in order to remain competitive, as applying solutions built around artificial intelligence can help them generate value.

With AI, HR firms and HR departments intend to:

- Automate their existing manual processes.
- Reduce human error processing large employee databases.
- Enhance employee and candidate experience by improving talent acquisition, onboarding, talent management, and training.
- Ultimately, by using Artificial intelligence in HR, companies intend to improve their employee's retention, performance, and productivity.

Based on our assessment, majority of talent acquisition use-cases appear to fall into three major categories:

- A. Talent Recruitment** - Companies are training machine learning algorithms to help employers automate repetitive aspects of the recruitment process such as resume and application review
- B. Talent Sourcing** - Companies are using machine learning to help identify top candidates from large candidate pools.
- C. Candidate Screening and Engagement** - Companies are developing AI assistants to pre-screen candidates and to respond to inquiries regarding positions using natural language processing.

2. Specific example - Market price analytics application for HRM

When it comes to building a successful business, arguably the most valuable asset is the people within the organization. Human resource management departments are increasingly looking to data analytics to inform their key people decisions, and thanks to evolving artificial intelligence and machine learning, HR professionals now have even more data available to help inform these decisions. While tech-driven intelligence and data analytics plays a critical part in the hiring process for many organizations, a growing number are applying increasingly sophisticated HR metrics to make data-driven people decisions that will impact employees throughout their career journey within the organization. As Deloitte reported in 2017, 71% of companies said they considered people analytics a high priority for their organization with 31% rating it “very

important.”

Areas that used to be determined solely through human feedback and review, including promotions, salary rates, attrition and retention, and training and development, are now increasingly data-driven decisions informed by artificial intelligence-powered analytics. A key value differentiator of these AI- derived metrics is that they can be gathered and analyzed in real time to help support in-the moment decisions.

Here are five ways HR and talent management teams are applying data analytics to cultivate employee development and create high-performing organizations.

3. Measuring Performance

Organizations can use analytics tools to establish employee performance benchmarks, and then coach existing and incoming employees to understand those qualities and their impact. Deloitte, along with other companies, analyzes human performance data, travel data and billing hours, to help individuals boost their professional performance as well as their wellness and energy. Organizations can even use data gathered from top-performing teams or individual employees as a means to understanding effective processes and set standard benchmarks for other groups in the organization to follow.

4. Understanding Attrition and Increasing Retention

Performance-based analytics can also be applied to predict which employees might be more prone to leave, while also telling a story about what factors contribute to attrition. Money may be less of a factor than the quality of managers and supervisors, according to management consulting firm McKinsey & Co. For example, McKinsey cites a case study of a major U.S. insurance company that implemented a bonus program in an effort to retain employees but saw little success. Then, the company began to apply data analytics to understand at-risk workers, and they uncovered a trend: people who were on smaller teams, went longer between promotions, and who reported to lower-performing managers were all more likely to leave. Instead of pouring money into these employees, the company began pouring resources into making stronger managers.

Organizations can also glean data on their turnover rate (both voluntary and involuntary attrition divided by average headcount) to understand trends and address sudden spikes. For example, a surge in involuntary attrition may be an indication the recruiting and training process needs a review; an uptick in voluntary attrition may require deeper dives into specific departments or managers.

5. Turning Data Analytics into People Analytics

While these intelligent data metrics certainly give HR professionals valuable knowledge, it's crucial for HR to continue to maintain the human element of their role to ensure these tools truly add human value. One way is using the analytics behind these five applications to inform organizational design through predictive strategy that can help guide the specifications of future positions, help prepare workers to up their skill sets for these roles and meet the organization's needs.

With roughly 40% of companies worldwide automating their HR departments, a data-rich HR department needs professionals who are adept in the analytical competencies to interpret and harness the power behind data-driven intelligence. Expanding skills and knowledge in data mining and management, machine learning applications and business analytics can provide HR

professionals (and their organizations) a competitive advantage.

Markets forecasts the global HR analytics market size to grow from USD 1.9 billion in 2019 to USD 3.6 billion by 2024, at a Compound Annual Growth Rate (CAGR) of 13.7% during the forecast period.

The growing need among enterprises to reduce the costs associated with HR processes and streamline the HR processes is expected to drive the growth of market across industry verticals globally.

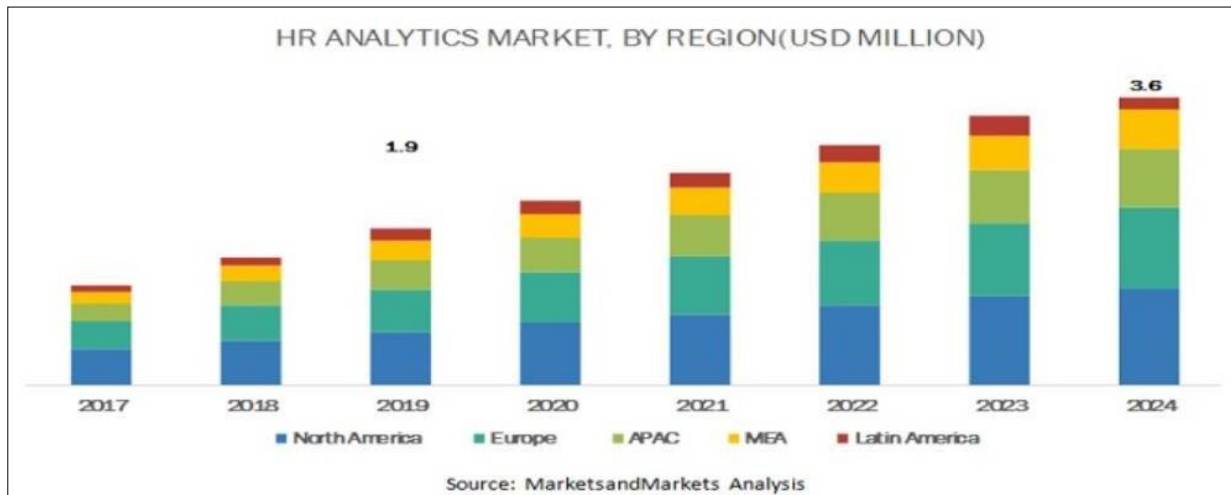


Figure.1 HR Analytics Market

6. Conclusion: Data Science and Social Change

The purpose of usage of AI/ML, Data Science, Block Chain and Social Media Profiling in our product is not to replace human talents with technology. The advent of automation is to create more opportunities and enhance human capabilities and improve performance. Thus the use of technology will help in performing repetitive tasks in an automated manner and help with administrative functions. Recruiters will also be able to spend more time on strategic and productive hiring rather than spend time on backfilling. They can also invest more in engagement with the candidates and in-person communication to build a relationship with them contributing to the company's culture and productivity. Human communication forms the basis of a strong foundation for the organisation, which is something talent recruiters understand perfectly. Automation is one benefit that was already mentioned. Another potential use-case is the use of predictive algorithms that can assess a new hire's future prospects in the company. The world of HR has just recently started to explore the potential of AI, and there are many more potential use-cases that can be explored.

We understand the challenges and needs of this product, the most important is acquiring different types of data:

- **Resume Repository** – This is required to build the algorithm for Recruitment model.
- **Certificate Repository** – Understanding with Universities and Colleges to share the certificate repository database. This will help in building background verification model.
- **Data from Social Media Platforms** – Understanding with social media platforms to scrape the individual's data for candidate profiling.

Overall our applications helps in building a robust recruitment record for companies which is

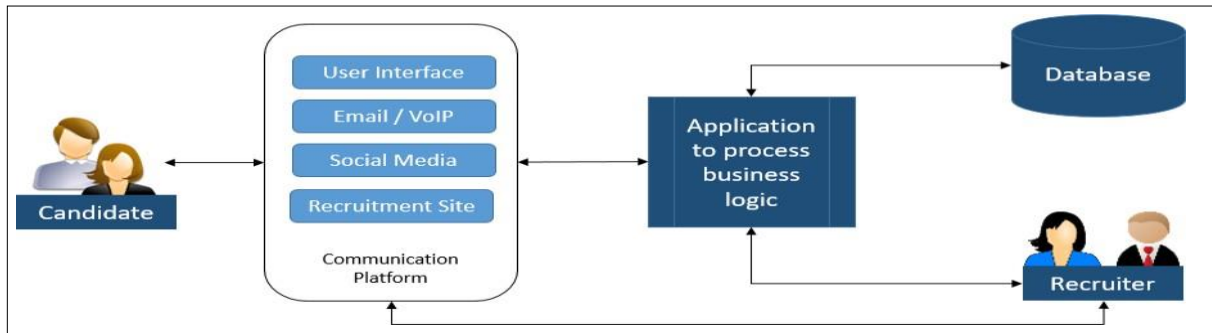
valuable for execution at any point of time. This also builds a reputation for recruiting quality candidates who contribute to the company's growth and thus retaining such talents for the organizational growth.

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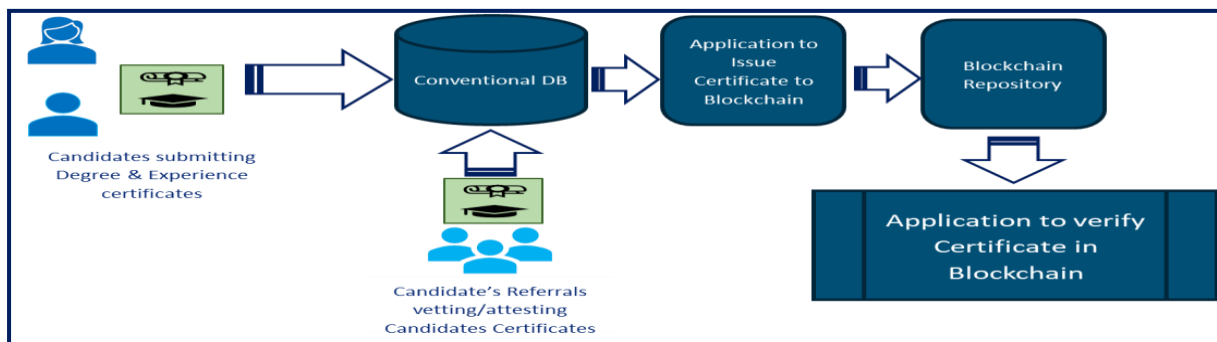
Appendix A – Data collection and cleaning process

Schematic view of recruitment model data collection & cleansing process:-

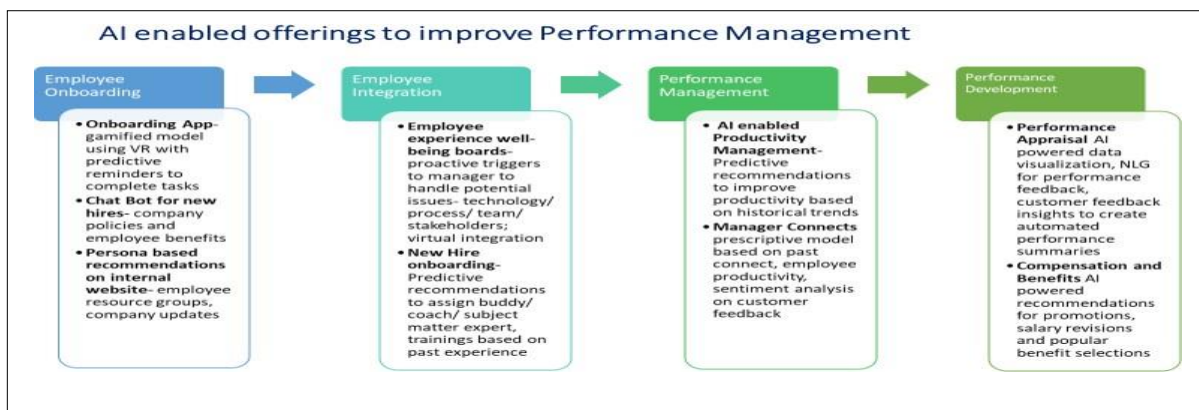


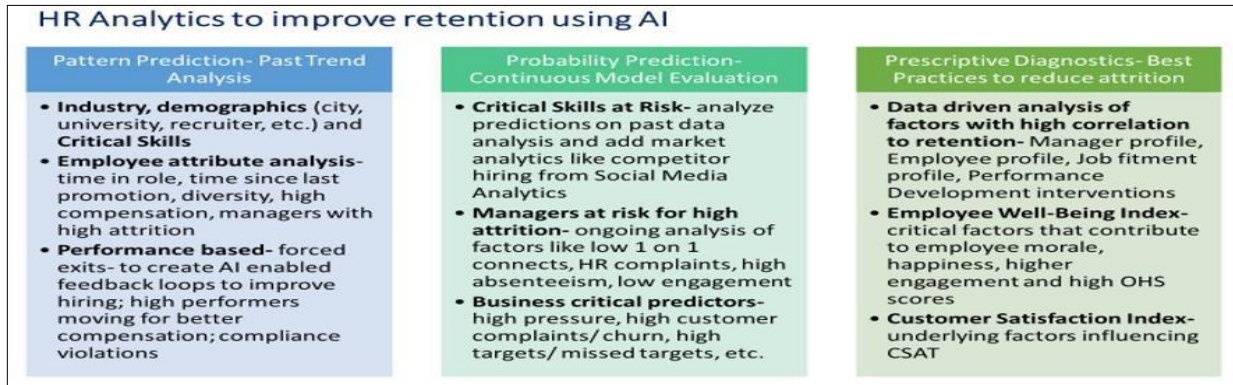
Data privacy protection has been considered here & candidate data will be fetched from different platform, social media etc. with prior permission & agreement with candidate.

Schematic view of background verification: -

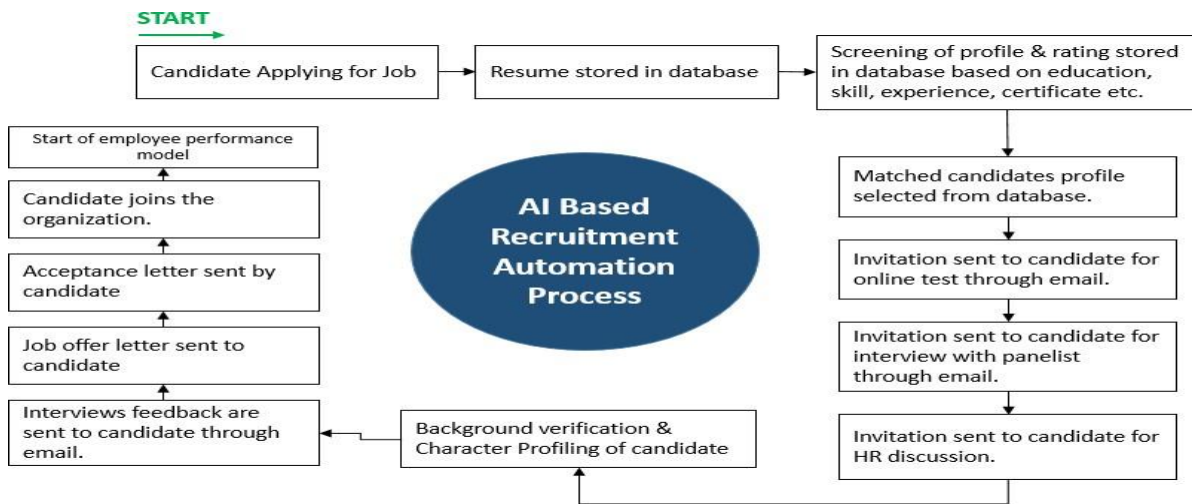


Performance Management: -





Appendix B – Process flow for the interaction between users and AI based application



Assessing the Impact of Agriculture Market Digitization on Farmers' Price Realization: The Case of Indian eNAM

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Abstract

One of the major challenges facing Indian farmers has been the imperfect agricultural markets and the resultant poor market access and price realization. To address this issue, the government of India has set up electronic National Agriculture Markets (eNAM) in 2016. eNAM envisages digitization of agriculture markets and improved market access for farmers. In this backdrop, this paper uses Gioia framework based qualitative analysis and quantitative analysis to understand the perception of farmers towards market digitalization and evaluate the impact of eNAM on farmers' price realization. The results reveal that the market digitalization measures have failed to gain the confidence of the farmers and provide remunerative prices for their produce.

Keywords: Agriculture Markets, Digitisation, eNAM, Farmers' perception, Price realisation, India

Introduction

Agricultural markets in India are characterized by several imperfections. They mainly include pervasive government intervention and controls, lesser role for private sector in building the marketing system, inadequate direct marketing facilities for farmers, under developed marketing infrastructure, grading and standards, huge post-harvest losses, low price realisation by farmers, presence of large number of market intermediaries, high complexity and transaction costs due to multiple taxes and levies and licensing requirements (Acharya, 2006; Pavithra, 2018). Agricultural markets in India are regulated by the state governments under the purview of their respective Agricultural Produce Marketing Committee (APMC) acts (Department of Economic Affairs, 2015). Since agriculture is a state subject as per the Indian Constitution and considering the lack of support from states for the agricultural marketing reforms proposed by the central government by way of developing a Model APMC Act, as a middle- ground solution, the central government introduced a pan-India electronic/online trading platform christened electronic National Agriculture Market (eNAM) in April 2016 within the existing agricultural markets regulated by the APMC Act.

In the eNAM system, the farmer can sell the produce either directly or through CAs. Direct selling is the process by which a farmer sells his/her product directly to the trader without the intervention of CA. Under direct sale, the farmer enters the market yard, completes the assaying requirements and makes the produce ready for auction yard. The trader then visits different lots of different farmers and decides prices for the lots he/she selects. The trader then proceeds to online auction and the trader with the highest bid for each lot is declared as winner. If the farmer accepts the bid price, the lot is sold to the trader, produce is weighed, sale bill is generated and the transaction ends. The trader is required to remit the proceeds of sale within twenty four hours of the execution of the trade via online/direct transfer to bank accounts of the farmers. There are few major differences in case of direct sale transactions. Firstly, the payment is received by the farmer within 24 hours of the execution of the deal compared to 10-14 s in case of sale made through CAs. Secondly, the farmer receives the whole amount compared to the reduced amount which the CAs would remit after deducting his commission, charges on inputs, handling charges and interest on loan (Singh & Bhogal, 2015). In the eNAM system, if the farmer choses to sell through CAs, the system is as same as the *mandi* system. The only difference is that the traders from different part of India can take part in the auction and that sale process has become

totally digitalised under the eNAM system. The *mandis* charge a market fee from the traders for participating in the e-auction. The other major features of eNAM are: (a) single license for traders which is valid across all *mandis* in India; (b) provision for quality testing of agriculture produce in every *mandi*; (c) common tradable parameters for agriculture commodities; (d) fully transparent auctioning process; (e) availability of all APMC related information and services in the eNAM portal; (f) access to eNAM portal in eight languages and to online trading facility in six languages; (g) availability of information on performance of each *mandi* through MIS dashboard; (h) mobile application to enable farmers to watch real-time bidding progress and access assaying certificates; and (i) a grievance redressal system at *mandis* to report any technology issues relating to eNAM portal (Businessline, 2019a, 2019b; Kumar et al., 2016; NITI Aayog, 2018).

The objective of this paper is to contribute to discussion on the eNAM policy initiative by examining the perception of farmers on the initiative and estimating the impact of the initiative on the prices received by the farmers. The study focuses on a case study of Kadapa *mandi* in the state of Andhra Pradesh, India.

Literature Review

Majority of the literature points out to positive externalities related to direct selling. Gale (1997) found that direct marketing plays a key role in rural development in the US by encouraging entrepreneurship environment. It also bolsters farm income and promotes alternative forms of agriculture. Wang et al. (2014) investigate the impact of contractual arrangements of direct sales and spot marketing for farmers in Vietnam. They find that direct selling has significant and positive impact on farmers' income. Uematsu and Mishra (2011) identify that the intensity of adoption of direct marketing strategies in the US have no significant positive impact on gross cash farm income. Detre and Mark (2011) gauged the effectiveness of direct marketing strategy on farmers in the US and found positive results on farmers' income. The study found that farmers who adopted direct sales strategy earned an improved share of consumers' food expenditure. The two key determining factors that helped farmers earn higher income is the practice of organic farming and the farmers' geographic location. This adds to the argument that the absence of intermediaries help farmers earn a better price for their produce.

Banker et al. (2011) evaluate a digital platform's impact on the price received by the coffee growers. This work identifies that the introduction of the digital platform by ITC, a private conglomerate in India, helped the coffee farmers gain more price than the physical auction trading. The digital platform was introduced in 2002 by the company to directly buy coffee from the growers. The empirical study uses price data from the digital platform as well as the physical auction data for 20 months. The regression model compares the price received through the digital platform and the physical market or the farm gate price. The study identifies that the introduction of the digital platform helped the farmers realize better returns. Bisen and Kumar (2018) conducted a systematic literature review on the studies dealing with the marketing reforms and policies and the articles that talk about the e-auctioning or e-tendering of agricultural products in the Indian context. The study considered majorly qualitative literature on the implementation of an electronic nationwide agricultural market and is silent on whether the price received by the farmers has increased or not. The study recommends amending the state APMC Acts to suit the requirements of the current marketing structure.

Methodology and Data

We conduct a two stage analysis involving qualitative analysis based on focus group discussions (FGD) among farmers and participant observation and quantitative analysis of the prices. Each

focus group consisted around four to six farmers totalling 16 farmers from the Kadapa Mandi. The farmers were all men and their age varied from 35-50 years. The FGD was conducted in March, 2019 with a semi structured questionnaire which contained questions on various aspects of eNAM. FGD's were conducted and sample was selected based on emerging theory, concepts extracted and their characteristics (Bitsch, 2005). Sampling and data collection was curtailed at 16 farmers when the theoretical saturation was reached.

For the quantitative analysis, we collected the modal prices of three commodities namely turmeric finger, turmeric bulb, and groundnut, which are traded at the Kadapa Mandi. We collected the data on quantity in quintals, maximum price, minimum price, and the modal price. Modal price refers to the mode value of set of all the prices of a given commodity prevailing in the market on a given day. The study was conducted in the eNAM of Kadapa located in Andhra Pradesh. Kadapa is the district headquarters of the Kadapa district in Andhra Pradesh. As of 31st March 2020 10,308 farmers, 35 CAs and 51 traders have been registered in this market. Out of this, however only 25 traders are active.

Results

Qualitative analysis

Using the framework used in Gioia et al. (2013), we break down the findings of the FGD into various codes, sub codes and emergent themes. These themes help us understand the various constructs emerging from our FGD using a top down approach. The findings of the FGD suggest that the success or failure of market digitisation depended on many factors. For the purpose of our analysis, we categorise the factors into two: endogenous and exogenous (Figure 1). Those factors germane to the functioning of eNAM are considered as endogenous factors. All other factors external to eNAM have been considered as exogenous factors. The three key aspects internal to eNAM which contribute to its outcome are perceptions, constraints and resistance to change from farmers. Three main categories which are exogenous to eNAM and affects its prospects are related to government, farmers and agriculture market. The broad themes related to government are price realisation and government support policy. The themes related to farmers are credit constraints, crop diversification and viability of farming. The themes under agriculture market related factors are information asymmetry, role of intermediaries and imperfect markets. Figure 1 depicts all the broad themes. In total, we obtained 83 first level codes which we categorised into 11 second level codes. In the rest of this section, we elaborate on the four themes namely overall perception on eNAM, information asymmetry, concerns about direct sale system and role of intermediaries which are relevant in answering our research questions.

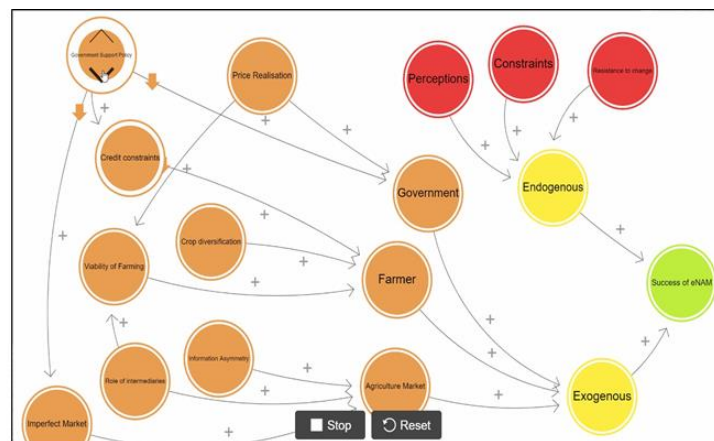


Figure 1: Summary of Emergent themes post coding (Source: Created by the authors)

Overall Perception on eNAM

Most of the farmers have a negative perception about eNAM because of their resistance to change. The farmers preferred older system mainly because of its heavy dependency on CA's and less digitalisation. In absence of gradual shift from paper based system to digital system, farmers who are not literate face serious troubles. These include not being fully aware of the process and not understanding the importance of new facilities added to the markets

“ENAM has really spoiled our life. At least in olden system, we made some money. It would have been better if the older system was made strict and implement some measures to tackle issues.”

Information asymmetry and imperfect markets

The agriculture markets in current form also could lead to success/failure of eNAM system as eNAM is digitalisation of already existing market. Information asymmetry was one of the widely reported problems with the current agriculture market. Most of the farmers reported that there was a lack of awareness of the system. The traders and CAs are usually more informed than them. Also they pointed out that government has not taken initiatives to conduct any programmes to improve the awareness of the eNAM.

“It was better earlier. Because earlier we (farmers) knew the whole process. It was transparent. But now it's hidden and we are unaware of what's happening.”

Concerns about direct sale system

Majority of the farmers apprehended that the direct sale mechanism would work against their interests. One of the main features of the direct sale is that the trader has to make payment to the farmer with 24 hours of execution of the trade. While this may appear as a positive step for the farmers, it has some unintended consequences. In case of direct sale, because of the instant payment clause, the trader wouldn't be able to bid for more than a limited amount due to credit constraints. Another unique feature of the direct sale system is the elimination of commission agent (CA). Direct sale is essentially between trader and farmer. This too might appear beneficial to the farmers as it eliminates the middlemen. The CA isn't totally detrimental to farmers' interest. The farmers depend on CA for their credit needs, reducing counter party risk and bargaining power of traders, loading and unloading of the agricultural produce, storage and processing facilities, and transportation. The farmers feel that elimination of CA would deprive them of these benefits and most importantly may lead to reduction in their bargaining power over traders.

“In that case, the power shifts more to the trader (as CA is eliminated and the only 2 parties are farmer and trader. And farmer doesn't have much bargaining power on any day).”

Role of intermediaries

Farmer surprisingly preferred being dependant on CA's. Our interviews point of number of reasons towards the same. Firstly, the CA's bear the counterparty risk of the farmers. The trader has a time limit of two weeks currently to remit the money to the farmers. However if traders fail to make payments to the farmers the CA steps in and compensates farmers for any loss. Secondly, the farmers are closely related to CA's and are hence excessively dependant. Even though the farmer end up paying excessive charges to CA the farmers still seem to accept and prefer CA as intermediaries. Further there is also convenience with CA because of the ease of access and the spontaneity of obtaining credit. All these factors contribute to farmers being dependent on CAs. Hence introduction of any system which reduces the role of CAs was not accepted by the farmers. Of all the intermediaries in the agriculture supply chain, the farmers seemed to be sympathetic more towards CAs and more against the traders.

“Most of us farmers are dependent on the CA for all his expenses right from expenses for marriage, education of children etc.”

Quantitative analysis

In this section, we conduct quantitative analysis to understand the impact of eNAM on the prices realised by the farmers in the Kadapa Market for the period from 21-09-2015 to 18-03-2019. The focus area of analysis was to examine if there occurred any increment in the model prices using structural break analysis and treatment effect model. Model prices of three commodities namely turmeric finger, turmeric bulb, and groundnut traded at the Kadapa Mandi were collected. We collected the data on quantity in quintals, maximum price, minimum price, and the model price. We adopt econometric models, which find the effect of a treatment. Our quantitative analysis follows a two pronged strategy. In the first part, we run a structural break analysis (SBA) on the historical prices prevailing in the eNAM. We conduct SBA with two objectives. First is to check for the stationarity of the data. Second is to find out if the introduction of eNAM acted as a break point. In the second part of the quantitative analysis, we estimate the impact of eNAM using treatment effect models.

Structural Break Analysis

A structural break appears because of a considerable shift in the time series data. Due to the hypothesised break, the values of parameters of linear regression do not remain constant over the time period (Bodhanwala et al. 2020). This break might be because of external forces, major policy changes or many other causes (Gujarati & Porter, 2004).

| Iteration | 1 | | 2 | | 3 | |
|-----------------------|-----------------|-------------|-----------------|-------------|---------------|-------------|
| Original observations | 437 | | 437 | | 437 | |
| | % | Values | % | Values | % | Values |
| Left Trim | 1% | | 1% | | 1% | |
| Right Trim | 1% | | 30% | | 74% | |
| Revised observations | 431 | | 302 | | 110 | |
| eNAM event position | 11.9 percentile | | 17.1 percentile | | 50 percentile | |
| Data range | 7-435 | | 7-308 | | 7-116 | |
| | statistic | p value | statistic | p value | statistic | p value |
| swald test | 87.995 | 0.00 | 71.136 | 0.00 | 71.136 | 0.00 |
| awald test | 47.237 | 1.00 | 43.603 | 1.00 | 45.877 | 1.00 |
| alr test | 44.726 | 1.00 | 41.429 | 1.00 | 43.599 | 1.00 |
| Exogenous variables | qty | | qty | | qty | |
| Coefficients in test | qty_cons | | qty_cons | | qty_cons | |

Table 1: Results of Structural Break analysis of Groundnut prices

In all the above iterations, we find that the average tests for structural break fail to reject the null hypothesis as indicated by *awald* test statistic and p value. The results therefore suggest that there was no structural break in the Groundnut data. Similar strategy was adopted for turmeric finger and turmeric bulb. The results shown depicted by *awald* test statistic, confirm presence of no structural breaks for either of the commodities during the observed period.

Potential Outcome (PO) means

We then compute the treatment effect using PO means estimators. This method gives the PO mean for the control group, and the PO mean for the treatment group. The estimation of the potential outcome, calculates the mean value of the variable of interest for the population as a

whole and for the treated observations only. The PO means for the three commodities and the estimators are as follows:

| Commodity | Turmeric Finger | | Turmeric Bulb | | Groundnut | |
|------------------|-----------------------|----------|-----------------------|----------|-----------------------|----------|
| | Treatment | | Treatment | | Treatment | |
| | 0 | 1 | 0 | 1 | 0 | 1 |
| Coefficient | 7542.248 | 6249.924 | 7325.528 | 5919.564 | 4196.577 | 3396.821 |
| Robust Std error | 204.406 | 42.355 | 203.218 | 47.038 | 93.804 | 35.316 |
| z | 36.900 | 148.620 | 36.050 | 125.850 | 44.740 | 96.180 |
| p value | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Outcome model | Linear | | Linear | | Linear | |
| Estimator | Regression Adjustment | | Regression Adjustment | | Regression Adjustment | |
| Treatment Model | None | | None | | None | |

Table 2: Estimated potential outcome means

In case of Turmeric finger, the PO mean for the treatment = 0 group is 7542.24, which represents the model price for a quintal of turmeric finger received by the farmers before the implementation of eNAM. While the PO mean for treatment = 1 group is 6294.92, implying that the model price for a quintal of turmeric finger received by the farmers after the implementation of eNAM. The resultant is a decrease of Rs. 1247.32 per quintal of turmeric finger from the amount received by the farmers after the implementation of eNAM. The results suggest similar decrease in model prices of Turmeric Bulb and Groundnut by Rs.1405.96 and Rs. 799.75 per quintal respectively. The above calculation presents the reduction in the model price received by the farmers as the difference between the PO means of treatment and the control groups.

Summary and policy conclusions

The quantitative results were in line with our qualitative results which show that eNAM did not have any considerable impact on prices received by farmers in Kadapa market. However, while interpreting the results one need to consider the fact that in the eNAM under study, the facility of Interstate and Inter Mandi trades have not kicked off yet. This is one of the key provisions along with direct sale, real time information, closed auction, assaying facilities which was expected to benefit farmers get better prices. However, barring interstate and inter Mandi trades, all the features have been implemented in the Kadapa Mandi.

This paper contributes to the literature in two distinct ways. First, it adds to the emerging literature related to digital marketplaces in agriculture and eNAM. Secondly, ours is the first study using mixed methods to study the impact of agriculture marketing reforms. Our study explores the nature, perception, and impact of reforms through qualitative data for exploratory analysis and quantitative data for confirmatory analysis. We find four key policy implications from this study. Firstly, resistance to change from farmers has to be tackled through awareness building. Secondly, the direct sale would work in favour of farmers only if the traders are offered a relatively flexible payment mechanism. Thirdly, the dependence of farmers on CAs, especially on credit, storage, and transportation, has to be reduced through government intervention/appropriate public policies. Finally, the policymakers should take steps to reduce the dependence of farmers on CAs for credit and other assistance in order for eNAM to work efficiently.

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Factors Influencing Urban Residential Water Consumption In Bengaluru

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Abstract

Bengaluru city faces severe water crisis, with dying sources and inefficient use of drinking water. Usually, the demand for water is more elastic with respect to public piped water supply, as the pricing is often subsidized due to the fact that it is a social good rather than an economic good. Identifying the factors influencing water consumption in Bengaluru city is the key to offer suitable policies for efficient water utilization and management. In this study, urban residential water consumption and its influencing factors are identified and analyzed by using the Ordinary Least Square method. The results show that the various variables considered are statistically significant, which affect residential water consumption.

Keywords: Water, Factors, Bengaluru, residential domestic water, OLS

Introduction

Water is a vital resource for the existence of living species. Not just the availability of water but its availability at a certain prescribed quality and quantity cannot be over emphasized. It is the paramount task of the regulating authority to ensure maximum efficiency in managing the resource with as much equity as possible in distributing it. There is ample scientific evidence now to show that the pace of economic growth is not in proportion to the pace at which resources are getting replenished. (Ranganathan (2014), Danker (2010)). There are many studies that have estimated the per capita water supplied to Bengaluru city and have concluded that it is less than the WHO supply norm of 150 litres per capita per day (lpcd) and even the Central Public Health and Environmental Engineering Organisation (CPHEEO) supply norm of 135 lpcd. (Metha et al (2013), Krishna Raj (2013)).

The discussion above highlights a key policy question: how to create appropriate institutions or initiate reforms in existing institutions to ensure there are both incentives as well as disincentives created which can influence the behaviour of all the relevant stakeholders responsible for efficient, equitable and integrated water management. To explore the above question, it becomes imperative to understand the factors which influence water consumption in Bengaluru city, and if they have been considered while making policy decisions. Against this background, this paper attempts to examine in detail the behaviour of various identified variables on residential water consumption in Bengaluru. The analysis is restricted to urban settings of Bengaluru since the quantity of water demanded and consumed is relatively more when compared to rural settings. The responsibility of providing piped water supply and sanitation for the city rests with Bengaluru Water Supply and Sanitation Board (BWSSB). This study is restricted to piped water supply supplied by BWSSB to urban households in Bengaluru. Also, the study focusses only on surface water, though there is a decent amount of usage of ground water by the households in Bengaluru.

Research Methodology

The findings of the study are based on primary survey data collected from Bengaluru Urban households using the structured questionnaire method. The total sample needed with a population of 96.22 lakh as per Census 2011 and with 95 per cent confidence level is 384. However, data for 500 households were collected. Post data cleaning and sorting, the data, that which could be used for analysis, was 457. To ensure representation from the entire study area, city was divided into stratas. Each stratum represented one of the 8 BWSSB zones.

Proportionate stratified sampling technique was further used whereby a minimum of 40 households was visited in each zone randomly to collect the data.

Empirical Model

The empirical model for testing the above hypothesis is elaborated below. For the analysis, the multiple regression model was used. Since the data collected was cross sectional, literature suggests Ordinary Least Square method to be the most apt to quantify the relationship dependent and independent variables.

The model used in the present study is specified as follows:

Household water consumption = f (Household size, number of dependents, number of working members, locality, knowledge about water price, education, source of water)

The model is estimated and is also checked for assumptions according to the Gauss Markov theorem. A detailed list of the variables used for the study are mentioned in the table below:

Table 1: List of Variables used in the OLS Model

| Dependent Variable | Explanatory Variables | Explanatory Variables Description |
|---|---|--|
| Monthly Water Consumption (in litres as per the water bill) | No of dependents | No of people falling in the age group of (0-14) and (60+) |
| | No of Working Members | Dummy variable |
| | Locality | Zone wise. There are eight zones. Each zone is represented by a dummy variable |
| | South | Dummy variable Name zone 1_dummy |
| | East | zone 2_dummy |
| | West | zone 3_dummy |
| | Bommanahalli | zone 4_dummy |
| | Yelahanka | zone 5_dummy |
| | RR Nagar | Reference Variable |
| | Dasarahalli | zone 7_dummy |
| | Area of the House | In square feet |
| | Source of Water Supply Public Source (BWWSB) or Other. In case of 'Other' source the below mentioned combinations are considered: Private water supply (private borewell, private water tanker, private open well, bottled water, others) | dummy variable |

| | | |
|--|---|----------------|
| | Piped Water Supply + Private Water Tanker | |
| | Piped Water Supply + Private Water Tanker + Private Borewell | |
| | Piped Water Supply + Bottled Water | |
| | Knowledge about price of water | Dummy Variable |
| | Education: Primary and Higher Education University and Above | Dummy Variable |

The reason for not considering water price in the model is the fact that it may lead to spurious regression since water price data is collected through the primary survey using the proxy variable – the latest BWSSB water bill amount paid by the respondent. Data on the quantity of water consumed by the respondent which is the dependent variable in the model is also collected from the latest water bill. The effect of water price on water consumption can be estimated only if there is a change in the water price fixed by the authority and when the data can capture the quantity consumed before and after the price change. But this study data has this limitation. Hence the water price variable is dropped from the model.

Results and Discussion

The primary data was keyed into STATA and then the OLS model was run. The results were tested for linearity, outliers, multicollinearity and heteroscedasticity.

The results of the OLS model run are mentioned below:

$$Y = 54.16 + 2.466 \text{ no_dependents} + 0.941 \text{ no_of_working_members} + 1.755 \text{ location_zone1} + 12.81 \text{ location_zone2} + 11.85 \text{ location_zone3} + 2.659 \text{ location_zone4} + 7.362 \text{ location_zone5} + 21.39 \text{ location_zone7} + 3.376 \text{ lnsizeofthehouse} - 9.239 \text{ others} - 3.156 \text{ knowledge_abt_price} + 0.830 \text{ primary_higher_edu} + 4.378 \text{ university_above_edu} + e$$

| | | |
|---------------------|--------------------------|-------------------|
| Number of obs = 459 | R-squared = 0.307 | Prob > F = 0.0000 |
| F(19, 437) = 34.02 | Root MSE = 12.124 | |

The above table denotes the summary of the regression model. The Prob >F at 0.00 signifies that the OLS fitted for the multiple regression model capturing the effect of various qualitative and quantitative independent variables on water consumption demand in the city of Bangalore is statistically highly significant at 1% confidence interval. The R- square value given at 0.307 denotes that 30.7% of the variations in the water consumption demand is being explained by the selected independent variables.

The OLS Model Result

| VARIABLES | OLS Model | VARIABLES | OLS Model |
|-----------------------|---------------------|----------------|---------------------|
| no_dependents | 2.466*** (0.626) | location_zone7 | 21.39*** (2.724) |
| no_of_working_members | 0.941 | lnsizeofhouse | 3.376** |

| | | | |
|--------------------|----------|----------------------|-----------|
| | (0.484) | | (1.709) |
| location_zone1 | 1.755 | others | -9.239*** |
| | (2.825) | | (2.017) |
| location_zone2 | 12.81*** | knowledge_abt_price | -3.156** |
| | (2.559) | | (1.558) |
| location_zone3 | 11.85*** | primary_higher_edu | 0.830 |
| | (2.276) | | (1.588) |
| location_zone4 | 2.659 | university_above_edu | 4.378** |
| | (2.245) | | (1.748) |
| location_zone5 | 7.362** | Constant | 54.16*** |
| | (2.955) | | (13.05) |
| Observations - 459 | | | |
| R-squared - 0.307 | | | |

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

For the above result to be more robust, some of the post estimation has been done.

Analysis of the Significant Variables

Size of the House

From the above model, 'size of the house' variable is significantly influencing water consumption in Bengaluru Urban. From the total 459 households surveyed, largest number of houses falls in the category of 1501-2000 square feet and the second largest falls in the category of 1001-1500 square feet. Both these categories account for more than 50 per cent of the sample, indicating that the majority of consumers fall in the category of middle income. Hence the policies which aim to achieve reduction in water consumption, must consider middle-income class households as an important category.

Number of Dependents

The variable **number of dependents** in the family is significant at 1% and has a positive slope. It denotes that a unit increase in the number of dependents in a household increases the water consumption by 2.466 units, keeping everything else constant. Dependent age category consists of two bands – 0-14 yrs. of age and 60+ age category. The data revealed that the majority of households i.e. 128 households out of the total sample of 457 have one child below the age of 14 in their houses and 87 households have two children in the same category. More than half the sample size i.e. 228 households do not have any members who fall in the age category of 0-14 years. The increased consumption of water in such households with children is obvious due to inelastic demand. Similarly, in the 60+ category, of the total sample of 457 households, 73 households have one member while 96 have 2 members in the household falling into the age category of 60+. Again, more than half the sample i.e. 265 households do not have any members falling in the age category of 60+. A further break-up of the analysis shows that 26 households have 2 members falling in the 0-14 age category along with 2 members falling in the 60+ category. Followed by this, 23 households have one member falling in the 0-14 age category along with 2 members falling in the 60+ category.

Knowledge about the Price of Water

The **knowledge about the price of water**, which is determined in terms of presence or absence of knowledge, is significant at 5%, and has a negative slope implying an inverse relationship between them. It can be inferred that if the individual possess knowledge about the price of water, then water consumption falls by 3.156 units. If the objective is to bring about behavioural change among consumers, then it is important for consumers to be aware of the product they

are consuming and its price. Of the total sample, surprisingly more than half of the sample (59 percent) were not aware about the per unit price of the water they were consuming.

Source of Water

In the variable source of water, public piped water source versus others category is included in the model. As mentioned above, the others category comprises all combinations of private water supply sources other than BWSSB piped water supply. The model shows the variable is significant at 1 % and the slope coefficient is given at -9.239, implying an inverse relationship between other sources of water and water consumption i.e if the source of water supply is other than public piped water supply, then water consumption falls. The reasoning for the same could be the higher price which the consumer pays for a private source relative to the public piped water source which brings in consciousness about water usage. For every litre of water the BWSSB supplies to a residential connection, it charges 0.04 paise. In the case of private water tankers, the average price they charge for a litre of water in Bengaluru Urban is 0.15 paise. Also, the effort taken to procure private water supply could also be a reason for the inverse relationship observed. Though there are many sources for water for households in Bengaluru, of the sampled households 334 depended solely on BWSSB piped water supply.

Location

Of the total sample considered for the study, RR Nagar Zone has been considered as a reference variable in the model. From the model, Zone 2 (East), 3 (West) 7 (Dasarahalli) and Zone 5 (Yelahanka) are significant. **Zone 2 (East), 3 (West) and 7 (Dasarahalli)** are significant at 1 per cent while Location 5 (Yelahanka) is significant at 5 per cent. The sign of all the coefficients are positive, implying if the sample belongs to either zone 2, 3, 5 or 7, the water consumption increases as against the base category which is zone 6 (RR Nagar). For inequity in water distribution to be assessed and also to identify wasteful usage of water, it becomes imperative to identify from which zones the water consumption is highly inelastic.

Education

Variable **education** is divided into two categories – **primary and higher education** as one variable and **university and above** education as another variable. Of the two variables in the model, university and above variable is significant at 5 per cent with a coefficient of 4.37, implying that if the household has a member with an education level of university or above, then the water consumption increases by 4.378 units. The reasoning for the same could be that increased education increases the probability of securing a high-paying job and hence the proportion of income spent on water will become less, thereby reducing the consciousness of water conservation and efficient water usage. Of the sampled households, 364 households comprised members whose education level was a university degree and above.

Conclusion

In conclusion, the paper draws light upon the factors which significantly affect residential water consumption in Bengaluru Urban district. Often, the focus of the urban local body responsible for supplying piped water to Bengaluru residents (BWSSB) is on expanding the infrastructure necessary for increasing the water supply. However, a key point observed is that a majority of the resources for this infrastructural increase come in the form of loans and assistance from the state government and also international collaborations. This form of resource often tends to be unsustainable if the revenue from water tariff is not sufficient to cover the costs. While fixing water tariff, the BWSSB needs to ensure that at least the marginal cost of providing water is recovered. To achieve this, apart from the price factor alone, the BWSSB needs to focus on other significant variables which influence water consumption as highlighted in the study.

Hence fixing the correct water tariff even under the IBT system must be backed by scientific reasoning and must consider all crucial factors influencing water consumption. Secondly, awareness about water pricing will influence water consumption as identified in the study. If the BWSSB intends to conserve water by reducing water demand, then it becomes important to create awareness about the price of water that the consumer consumes. As identified in the study, more than 50 per cent of the consumers were unaware of the per unit price of the water they pay. Awareness about water scarcity and hence water conservation must be given focus by the BWSSB which has ignored it in its efforts to tide over the water crisis in the city. Thirdly, to reduce the inequity in water supply, BWSSB must make an attempt to identify which of the zones or even BBMP wards consume less water compared to the stipulated norm and what is the reason for it. Hence a monthly chart showing the water consumed in lpcd by BBMP wards can be calculated and also tracked monthly so that targeted action can be taken on such wards which receive very little water. On a macro perspective, it is imperative to move towards an integrated water management system if the water situation in Bengaluru city is to become reliable, equitable and sustainable.

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**Economic Measurement and Analysis of Health Inequality in Odisha –
A Statistical & Econometric Approach**

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Abstract

WHO's Thirteenth General Programme of Work 2019–2023 (GPW 13) & the 2030 Agenda for Sustainable Development Goal 3, call on all stakeholders to ensure healthy equity. The study objective is to portray 'health inequality' across districts of Odisha in terms of key health indicators, to reveal group-related dispersal. The methodology uses robust statistical measures of dispersion, like concentration curves, concentration indices of infant mortality rate, death rate, birth rate and Gini index measure of per capita NDDP. Further, an econometric analysis of regression model for health concludes, literacy and infant mortality rate are significantly related to health inequality in Odisha. The empirical results segregate the high health inequality districts and call for public investments in health and monitoring effectiveness of health programs in those districts.

Key words: Health Concentration Curve, Concentration Index, Gini coefficient, Per capita NDDP

Who Bears the Burden of Rising Prices of Petroleum Products Due to Taxes in India?

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Abstract

Incidence of hike in the prices of petroleum products in India post 2014 primarily due to higher petroleum taxes is examined in this paper. Using data from India Human Development Survey (2011-12) and Input-Output framework we analyze both direct and indirect effect of rising prices of petroleum products. Results indicate that petroleum taxes are highly regressive, especially at bottom two deciles, as raising prices of petroleum products increases the overall cost of living and thus, poor sections of the society may be forced to cut expenditure on essential commodities. Therefore, both union and state governments ought to slash taxes and ease the burden of bottom deciles through appropriate subsidization measures not only to ease the economic burden of the people.

Key Words: Green Tax, Distributional Impact, Petroleum Products, Input-Output Matrix.

Impact of Trade Openness and Quality of Institutions on Economic Growth: Evidence from BRICS countries

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Abstract

The present study attempts to fill the knowledge gap in the nexus between trade openness and economic growth in BRICS countries by incorporating the role of institutional quality covering the period from 1991 to 2019. To develop the institutional quality index, principal component analysis (PCA) is utilized. Further, system GMM is employed to examine the nexus empirically. The findings reveal an overall significant positive influence of trade openness on economic growth. Though the poor quality of governance evidently sways away the positive effect of overall trade and exports on economic growth. As a result, it is recommended to vitalize operational mechanisms of government institutions with the help of digitalization which lowers the corrupt practices and ensures better regulatory practices resulting in fostered economic growth.

Keywords: Economic Growth, Trade openness, Institutions, System GMM, BRICS.

Is COVID-19 Induced Work From Home Causing Job Stress And Employees to Cyberslack? - A Study among IT Sector Employees in India

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Abstract

The purpose of this study is to investigate the effects of occupational stress on possible cyberslacking behavior that may occur among employees who are working from home in the wake of COVID-19. It also intends to understand the influence of ethical organizational climate as a moderator on the stress-cyberslacking relationship. Responses were collected from 272 employees working for 3 private IT sector firms via structured questionnaire and analyzed using structural equation modelling. Job stress produced direct positive effects on cyberslacking behavior indicating that any increase in job stress causes employees to move away from their work suggesting that withdrawal may be a way to cope with stress. Further, ethical organizational climate was found to mitigate the strong positive effects job stress has on cyberslacking.

Keywords: Cyberslacking, Ethical Climate, Unethical Behavior, Job Stress, Coping Theory

A Pandemic Impact Study on Working Women Professionals: A Qualitative Approach

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Abstract

The study intend to acquire an in-depth recognizing of challenges faced by working women in India during the COVID-19 and the what were the initiatives taken by the organizations to lessen the troubles of these working women. A multi method qualitative research approach was used. A total of 36 females working from different states od India with different organizations were included in this study. The sentimental analysis revealed that majority of them had very negative sentiments while some had moderately negative to moderately positive sentiments during this pandemic. The thematic analysis revealed themes related to challenges faced by working professionals which mainly includes burnout in context to gender, poor or bad mental health, overloaded domestic responsibilities, insecurity and fear for their jobs, Conflict between work and family roles, and exploitation etc.. The major themes that emerged for the initiative taken by the organizational to lessen the impact of this pandemic were flexibility in working hours, opportunity of equal participation in decision making and major roles in the organizations, bonus, incentives, mediation online camps, counseling sessions with experts, and medical facilities etc.

Keywords: Working women, Challenges, COVID-19, Qualitative study, India

Identifying HRM Practices Enabling Retention and Engagement of the Gen Z Workforce during Pandemic

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Abstract

With changing employee demographics, it is important to retain employees as attrition contributes to significant expense in any organization. In the coming days, generation Z will contribute to almost one third of the India's workforce out of which BFSI sector itself will employ 1.6 million Gen Z employees. However, the prominent issue with this generation is their retention in the organizations. Hence, the study identifies factors that affect engagement and retention of Generation Z employees in BFSI sector. To attain this objective, this study carried out unstructured interviews with 16 Generation Z employees employed in BFSI sector. Further, this study applied thematic content analysis to identify the contributing factors to disengagement and attrition of employees in BFSI sector. Results highlighted five prominent factors namely transformation leadership, employee investment practices, egalitarian practices, negative work home interference and job characteristics that act as a significant precursor to employee engagement and subsequently employee retention.

Keywords: employee engagement, retention, attrition, generation Z employees, BFSI, content analysis, qualitative analysis, India

Examining the Inter-dependencies among Virtual Communication, Effective Decision Making and Emotional Intelligence

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Abstract

Existing research shows a link between virtual communication and successful decision-making. Nonetheless, there is limited evidence that emotional intelligence may bridge virtual communication and successful decision-making. This study aims to fill that gap and supplement the few investigations that occurred during COVID periods. A total of 296 individuals who use the virtual medium of communication were administered a standardized set of questions to measure the effect of emotional intelligence on the association between virtual communication and decision-making effectiveness. The study findings suggest that emotional intelligence mediates the link between virtual communication and decision-making. The study validates the Task Technology Theory, emphasizing individual characteristics that significantly impact task-technology fit. Implications and future study topics are presented to inspire additional work in the field of emotional intelligence.

Keywords: Virtual communication, Emotional Intelligence, Decision making, Virtual Teams

Impact of Teacher Training Initiatives in an Indian Ed-tech Organization: A Qualitative Study

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Abstract

Different conceptual frameworks of teacher effectiveness have been proposed and tested. However, no significant advances have been made in conceptualizing a framework of online teaching effectiveness particularly in the Indian ed-tech industry. There is an acute digital skills gap, since conventional teachers are unable to rise up to the expectations of navigating the complexities of online teaching. This calls for an exhaustive teacher upskilling process. This qualitative study, through focus group discussions with significant stakeholders shows the impact of teacher training initiatives in an Indian ed-tech organization called Vedantu. The findings of the study have practical implications for ed-tech organizations aiming to implement similar initiatives to influence key learning outcomes.

Keywords: Ed-tech, Online Teaching Effectiveness, Training Evaluation

Introduction

It has been known in educational research, that teacher effectiveness is an important determinant of student performance. Teacher effectiveness is defined as a set of attributes and dispositions that interact with social, cultural and educational contexts to influence student outcomes (Strong et. al., 2011; Ko et. al., 2013; Grant & Drafall, 2013; Chen et. al., 2021). Different conceptual frameworks of teacher effectiveness have been proposed and tested with empirically validated results in the last two decades. However, no significant advances have been made in conceptualizing a theoretical framework of online teaching effectiveness. Online teaching assumes significance, especially in the wake of the Covid-19 pandemic which disrupted conventional face-to-face education across the world. The implications for developing countries like India is paramount with close to 340 million students impacted by the crisis. The last two years (2019-2021), witnessed a growth in the Indian ed-tech industry with many Indian educational technology platforms like Byjus, Vedantu, UnAcademy and others offering online classes for the K-12 segment. The key drivers for this rise of online learning are increased access to technology, innovations in learning technologies, increased student demand and diversity of offerings (Song et al, 2004; Muirhead, 2007; Sun et al., 2008). Today, India's Ed-tech industry is the second largest in the world and is poised to grow to \$3.2 billion by 2022. With Covid-19 as a point of emphasis, these ed-tech companies are revolutionizing the idea of education by replacing conventional classroom sessions with highly interactive, technology-enabled learning formats harnessing technologies like Artificial Intelligence, Augmented and Virtual Reality. However, there is an acute digital skills gap as K-12 education has not kept pace with the new teaching demands of the multimedia-rich online platforms (AT Kearney Report, 2017). Proficiency in online teaching platforms is an imperative to be successful in being effective teachers in the digital space. This calls for an exhaustive skilling of conventional teachers, and a concerted effort to co-ordinate training initiatives for teachers to adapt themselves to online teaching.

Literature Review

Extant literature on teaching effectiveness is replete with several models that links various forms of teaching practice to student performance outcomes. An exhaustive coverage of all the research strands is outside the scope of this paper. A significant contribution to distance learning and online learning is based on Computer Mediated Communication (CMC) contexts from the perspective of teacher delivery and course design (Ali et al, 2004; Song et al, 2004;

Stonebreaker & Hazeltine,2014). One of the most cited models of online teaching effectiveness is the Community of Inquiry Model (Garrison & Anderson, 2000). It is a social constructivist framework of managing learning processes in online and other blended learning environments. The model has three dimensions: Teaching Presence, Social Presence and Cognitive Presence. Teaching presence looks into the design, facilitation, and direction of cognitive and social processes. It involves activities based on instructional design, facilitation of learning and training delivery. Social presence refers to the ability to perceive others/oneself as real in an online environment and therefore involves building rapport with students through affective expression and group cohesion. Cognitive presence pertains to the learners' construction and confirmation of meaning through sustained reflection and discourse. The model facilitates cognitive presence by reinforcing both social and teaching presence (Garrison & Anderson, 2003). Online learning is synonymous with virtual learning in computer mediated environments. There is a perceived sense of self-control and intimacy in virtual learning contexts due to the high amount of flexibility it offers (Heinrich & Jensen, 2007). It enhances teaching and learning convenience as online teaching can happen in both synchronous and asynchronous contexts (Singleton et al, 2004; Milles & Ribble, 2010; Traynor & Nilsen, 2017). However, in the absence of a trained online teaching workforce, the benefits accrued from online learning is easily lost (Williams & Casale, 2014; Frazer et. al., 2017).

Online teaching can increase a teacher's workload and the overall quality of instruction may be diluted due to the perceptible absence of aural and visual presence in the online medium. Teachers also feel that the impersonal nature of online learning and teaching hampers learner experience due to the lack of social presence (Wingo et. al., 2017). The competence of teachers in administering learning technology is a cause of concern and it calls for the need to equip teachers digitally to meet this challenge (Holman, 2007). Students feel a sense of isolation and frustration due to the lack of social environments to connect and can even feel disinterested in the subject matter (Brown, 1996; Hara & Kling, 2000; Maki et al, 2000). The quality of online teaching is correlated with the high dropout ratio leading to poor course completion rates. Another significant issue is the effective administration of online assessments. Such assessments need a systematic approach to grading students by aligning learning outcomes with the modalities of the technical platform in which it is used (Robles & Braathon, 2002; Liang & Creasy, 2004). Hence, there is a need for online teachers to be equipped with the right skill sets to be successful in impacting student outcomes. Training is an integral aspect of ensuring that these skill sets are effectively transferred to teachers to deliver engaging virtual classes. The primary objective of any training initiative is to improve the employee performance by facilitating learning transfer (Kraiger et. al., 1995). Learning transfer is a formidable challenge for most organizations as it is estimated that only 10% of formal learning is transferred by employees during the actual job. Existing empirical studies have focused on training design factors, individual differences that affect the nature and level of transfer and organizational environment which influences learning transfer (Gist, et. al,1995; Kraiger, et. al, 1995; Tracey, et. al, 1995). An important model in evaluating training effectiveness is Kirkpatrick's four-level training evaluation model (Kirkpatrick, 1959). Kirkpatrick's Model of training evaluation has four levels to measure Training Effectiveness; Reaction, Learning, Behavior and Results. Level 1 (Reaction) measures the reaction of trainees on the overall training program through a feedback questionnaire. Level 2 (Learning) focuses on the extent to which the trainees have actually understood the concepts. Level 3 (Behavior) measures on-the job application of training (learning transfer) reflected through the behavior change of the employees. Level 4 (Results) measures the organizational impact of training in terms of improvement of real-time business metrics.

Objective

The ed-tech industry is extremely competitive and fragmented. Poaching of effective teachers is a perennial threat in the Indian ed-tech industry where students migrate to a particular organization's platform when their preferred teacher joins that organization. Most of the players in this space have reported this as causing a dent in their bottom-line profits. Therefore, the key differentiator for the contenders in this space is the brand value their teachers demonstrate through their subject mastery and pedagogical skills. To a large extent, this issue can be addressed through effective training interventions. Such interventions can create a pipeline of effective teachers against the threat of poaching by competitors. This study was conducted in an Indian ed-tech organization, Vedantu, which specializes in multiple class formats like OTO (One-to One tutorials), OTM (One to Many tutorials) and OTF (One-to-Few tutorials) that caters to its diversified student base under tuitions and test preparation categories. Vedantu hires teachers for K-12 segment in all the subjects for CBSE (Central Board of Secondary Education) and ICSE (Indian Certificate of Secondary Education) school boards. 90% of its teachers do not have prior experience in online teaching. The teachers are inducted into the organization through orientation programs that impart them with knowledge on the processes and pedagogical skills required to deliver effective online sessions through webinar and YouTube programs. Since teachers are the main differentiators for ed-tech companies, this paper aims to understand the digital teacher training initiatives through a qualitative research methodology. The study analyzes both YouTube and webinar training and certification programs for teachers at Vedantu. The study aims to understand the perceptions of online teaching from the relevant stakeholders (students, parents, teachers and trainers) and determine the effectiveness of the webinar and YouTube teacher training certification programs through Kirkpatrick model of training evaluation.

Methodology

In keeping with the social constructivist views of education, a blended learning methodology integrating peer-to-peer learning, one-to-one coaching and guided assignments were incorporated into YouTube and webinar teacher certification (Sharples, 2002; Kim, 2007; Anderson, 2008; Fry, et. al., 2009; Marin et. al., 2012). In this study, due to Covid-19 pandemic, face to face instructor-led programs were substituted with Virtual Instructor-Led programs (ViLT). The programs under study were a culmination of an eight-week long exhaustive content development process with dry runs and multiple iterations from stakeholders. Some of the salient features of the training and certification program involved a multi-facilitator model on topics like online session delivery, presentation, sales pitch, Bloom's taxonomy, online assessments, whiteboard audio video environment (WAVE) engagement, live sessions on YouTube, emotional intelligence, planning, articulation skills and child safety policies. Formative and summative assessments were designed to check in-depth understanding of each module. The teachers were asked to demonstrate their proficiency on YouTube and WAVE platform. The teachers were rated on a customized teaching grading rubric and the trainers documented the observations from their sessions. Discussion forums were organized on Google Meet every week to facilitate self-reflection and establish teaching benchmark practices through peer-to-peer learning. They were evaluated using Kirkpatrick's model. At level 1 the trainers had to obtain a minimum of 4.8 on a scale of 5 as feedback from the teachers. At level 2, all the teachers should have scored a minimum of 80 % in knowledge-based (objective and subjective questions) and skill-based assessments (role plays and demonstrations). At level 3, all teachers should demonstrate on-the job the concepts learnt in the training by scoring a minimum of 4 on a scale of 5 on webinar and YouTube grading rubrics (on-the job demonstrations). At level 4, the business metrics applicable to teachers should show substantial improvement during and after the training. The key metrics for webinar teachers were teacher ratings (to achieve a

minimum of 4.6 out of 5) and student stickiness (to achieve a minimum of 25%) and for YouTube teachers, they were average watch time (Teacher vs. Channel comparison), comment to view ratio (0.05 %) and auto sales (1 sale per video). The metrics were analyzed before, during and after training as evidence of improvement. Purposive Sampling technique was used for the study. A multi-level analysis of respondents comprising of teachers, trainers, students and parents were considered to understand the multiple perspectives of online teaching from all relevant stakeholders. The sample size of the study was 29 and comprised Teachers (9), Trainers (2), Parents (9) and Students (9). Teachers were selected on the basis of their performance in the respective business metrics and represented top and bottom quartile performers during the period of study. The two trainers were the ones who delivered the program end-to-end. The nine students were the ones who underwent the online teaching sessions imparted by these nine teachers. The inclusion of parents in the sample is significant and warranted for the study because they exhibited a deep interest in their wards' education (Pavan Varma, 2007). All respondents were debriefed on the intent of the study and an opt-in consent was obtained. Pseudonyms are used to mask the identity of the respondents. Online focus group discussions were conducted to collect the data from the respondents two-weeks post training. Each session lasted for around 35-40 minutes. All the questions were representative and aligned with the objectives of the study. Parents and students being the end consumers of online learning were asked a set of questions on their overall online learning experience, perceived challenges in Vedantu online learning platform, facilitation style of teachers, subject matter knowledge of teachers, comparison of Vedantu teachers with schoolteachers and suggestions and recommendations for further improvement. Questions to trainee teachers were focused, but not limited to content of the training program, training design, effectiveness of the facilitator, real-time application, personal challenges faced as a teacher, key strengths and improvement areas of training. Trainers were asked to recount their training experiences on trainees' receptivity, knowledge transfer, demonstration of real-time application, training design, personal facilitation style as well as key improvement areas of training. Thematic Analysis was used to identify the patterns that emerged from the focus group discussions. The themes identified were further compared with the key research questions to ensure that all the objectives were covered. A coding framework was identified from the discussions in alignment with the research objectives to label the data. The observations recorded were further validated by the respondents through one more level of one-to-one discussions after compiling the themes to ensure data triangulation.

Results

Through focus group discussions with stakeholders, labels were identified and incorporated into a coding framework. Parents reported an increased confidence and improvement in the academic scores of their wards in class tests and assignments. They were appreciative of the teacher's approachability, patience and empathy towards their wards in the online classroom. Some parents reported that the stress level in the family has decreased as their wards have become increasingly self-reliant with minimal supervision. However, a negative attribute reported was the language barrier for students in comprehending concepts. For example, when Hindi was exclusively used in the sessions, parents expressed concerns if their wards could follow and therefore suggested a bi-lingual approach for easy comprehension. Overall, the parents were positive about the online teaching effectiveness of their wards' respective teachers. Students constantly referred to the competence of teachers in the online session delivery and highlighted the names of their favorite teachers during the discussions. They frequently compared the high-engaging sessions of Vedantu teachers with their schoolteachers highlighting that they '*have fun*' while learning at Vedantu than at school. They reported increased satisfaction with the motivational sessions of teachers and felt energized even if the

sessions were online. One of the negative observations from students was the lack of personal acknowledgment by the teachers in a one-to-many classroom format of 500 + students. Language barriers were cited as a concern as teachers tended to use Hindi to explain core concepts. Students felt that the language of instruction could be bi-lingual or English for easy comprehension.

Teachers reported a great sense of satisfaction in being able to impact at scale through virtual engagement. All teachers who underwent the training reported that they were able to apply the tools and techniques learnt in the webinar and YouTube Training for effective teaching. Most teachers reported that they were well-equipped to handle the technical dynamics of the WAVE platform and student harassment after training. Teachers also reported substantial improvement in their ratings and other business metrics after the training program. However, a few felt that the sales training offered by Vedantu, could be further enhanced by giving them adequate time to implement the learnings through multiple trial and error methods. The trainers were able to observe improved demonstrations of tools and techniques during their session reviews and coaching conversations. They reported increased satisfaction in being able to improve the business metrics of teachers through feedback conversations. However, they expressed concerns about instances where teachers did not comply with the policies and processes in the YouTube and webinar space.

Trainers also had suggestions for the next version and felt that the training design should be an iterative process with the lessons learnt from the initial batches. In summary, the perceptions of online teaching effectiveness by stakeholders were positive and testified to the effectiveness of training. The second objective of the study was to report the effectiveness of training through the Kirkpatrick Model of Training evaluation. Level 1 (Reaction) - The average trainer feedback was 4.97 on a scale of 5 resulting in 99.4% high-impact sessions for YouTube and webinar sessions. Level 2 (Assessments) - 75% of trainees scored above 80% (pass percentage) for the knowledge-based assessments testifying to high learner engagement and comprehension in all the modules. Level 3 (Application) - 80 % of teachers achieved a rating of 4 on a scale of 5 in the customized YouTube and webinar grading rubric during their demonstrations of real-time webinar and YouTube sessions. Level 4 (Business Impact) - 60 % of teachers trained were able to improve their average watch time and comment to view ratios. However, only 20% of teachers trained were able to achieve the required sales target. 85 % of teachers trained for delivering webinars on WAVE platform were able to achieve minimum teacher ratings of 4.6. 60% of them could achieve the minimum student stickiness of 25%.

Discussion

The objectives of the study were two-fold as seen above and the study established that training is an important predictor for online teaching effectiveness. All the teachers in the study reported that they have applied the techniques learnt in training in their webinars and YouTube sessions. They also favorably rated the facilitators and the content. There was a clear improvement in the training and business outcomes before and after training at all the four levels in the Kirkpatrick framework testifying to training effectiveness. Most of the teachers reported that the emotional intelligence module helped them face the online harassment by students. On the contrary, teachers reported two specific factors that could have been improved. The training did not help them handle online pitching as effectively as they expected. They perceived the training of sales processes negatively and suggested that sales training should enable them to be more organic in delivery. Teachers also perceived that the course design can be improved with some of the teachers requesting for an extended time period for application of the concepts.

These findings are pertinent to ed-tech organizations, particularly operating at scale using proprietary platforms. Generally, a good student-teacher ratio online is considered to be 30:1, where instruction is delivered through open-source platforms (Lawrence Tomei, 2004). The training program mentioned in the study was to enable teachers to deliver sessions to as many as 2000-5000 students and impact at scale. There are only a few studies in the extant literature on teacher training programs which addresses effective online teaching at scale. Therefore, this study is significant as it has practical implications for the design of online teacher training programs in ed-tech organizations focusing on teaching at scale. The study also found that a one-size fits all approach cannot be used for designing online teacher training programs. In ed-tech organizations, dynamics of the platform like online engagement tools, streaming of live student engagement analytics, business imperatives like pitching, work flow processes on platforms and stakeholder management plays an important role in the course design. This study has potential limitations. This is a case study from an organization and hence might be limited in its generalizability. Also, the study acknowledges that attributing training as the only a determinant of teacher performance is a limitation, as there could be other extraneous factors.

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