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Factors Affecting the Acceptance of Modern Payment Systems in the Delhi NCR : An Empirical Study

RAMESH KUMAR

Purpose : This study looks at the factors affecting the acceptance of modern payment systems in the Delhi NCR area. It expects to recognize key segment and conduct determinants affecting the reception of advanced payment innovations.

Methodology : An observational methodology was utilized, including an overview of 135 respondents from the Delhi NCR locale. Information were investigated utilizing ANOVA and relationship examinations to evaluate the effect of factors like age, orientation, training, pay, saw security, and convenience.

Findings/Results : The study finds that younger age groups, higher income levels, and higher education levels are significantly associated with greater acceptance of modern payment systems. Perceived security and ease of use also play critical roles in influencing adoption rates.

Originality/Value : This research provides a comprehensive analysis specific to the Delhi NCR context, filling gaps in existing literature on digital payment adoption in emerging markets. It offers valuable insights for financial institutions and policymakers aiming to enhance the adoption of digital payment systems.

Implications : The findings suggest that targeted educational programs and security enhancements could improve the acceptance of modern payment systems. Policymakers and financial institutions can use these insights to design strategies that address the barriers and promote the benefits of digital payments.

Paper Type : Empirical research paper focused on the factors affecting the acceptance of modern payment systems, providing actionable insights for stakeholders in the financial sector.

Keywords : Modern payment systems, digital payment adoption, Delhi NCR, demographic factors, empirical study, perceived security, ease of use, financial technology, socio-economic variables.

1. Introduction

The speedy improvement of development has essentially impacted monetary exchanges, with modern payment systems ending up being increasingly overwhelming (Padashetty and Kishore, 2013). These systems offer convenience, speed, and security, yet their acceptance moves extensively among different districts and section get-togethers (Ravikumar and Prakash, 2022). This study intends to recognize and examine the factors affecting the acceptance of modern payment systems in the Delhi NCR region (Lakshmi and Nandini, 2022). An experimental philosophy including an illustration of 135 respondents, adjusted among individuals, was used to amass total data (Bhattacharyay, 2016). The's review will probably give encounters into the portion and lead factors influencing the gathering of these advances (Sujatha and Mahesh, 2024).

Modern payment systems wrap a scope of developments, including flexible payments, electronic wallets, and online financial stages, which have changed how exchanges are driven (Lohana and Roy, 2023). These systems offer convenience as well as responsibility improved security features and speedier exchange times (Ganesh and Balaji, 2023). Despite these benefits, the gathering speed of these systems can move essentially in light of factors, for instance, client trust, mechanical schooling, and monetary status (Viswavidyalayam-Tirupathi-AP and Varalakshmi, 2022). Understanding these factors is significant for monetary associations and policymakers aiming to increase the gathering of mechanized payment procedures (Pandey, 2022).

Concerning the Delhi NCR locale, an alternate and thickly populated district, the acceptance of modern payment systems is influenced by a muddled trade of section and social factors (Basha and Ramaratnam, 2017). Factors, for instance, age, pay, preparing level, and saw security are presumably going to expect critical parts in trim client tendencies and gathering rates (Krishnamoorthy and Mahabub Basha, 2022). This study hopes to research these factors thoroughly, giving a broad examination of the current status of mechanized payment gathering in the district (Mohammed et al., 2022).

The revelations of this study will add to the greater comprehension of settlement ahead of time systems and their acceptance in metropolitan India, with unequivocal encounters into the Delhi NCR region (Shaik, 2023). By recognizing key deterrents and facilitators, the review expects to introduce imperative proposition for accomplices to upgrade the penetration and use of modern payment progressions (Ahmad et al., 2023). In the long run, this assessment

plans to help the progression of extra complete and simple to utilize monetary ecosystems (Krishna et al., 2022).

2. Literature Review

Imaginative System

The openness and nature of mechanical establishment expect a basic part in the gathering of modern payment systems (Janani et al., 2023). A high level establishment ensures that mechanized payment systems are reliable and open, which accordingly empowers client gathering (Kalyan et al., 2023). Studies have shown that locale with cutting edge creative designs will frequently have higher gathering rates for modernized payment systems (Sheshadri et al., 2024). This is particularly applicable in metropolitan districts like Delhi NCR, where mechanical progressions are more expressed (Joe, 2024).

Client Care and Preparing

Client care and preparing fundamentally impact the gathering of settlement ahead of time systems (Dawra et al., 2024). Trained clients will undoubtedly comprehend and accept automated payment progresses, provoking higher gathering rates (Singh et al., 2023). Care campaigns and enlightening drives can expect an earnest part in interfacing the data opening and empowering trust in these systems (Almashaqbeh et al., 2024). In the Delhi NCR area, assigned tries to upgrade client care have been shown to strongly affect gathering rates (Lokesh and Geethanjali, 2023).

Seen Security

Seen security is quite possibly of the most fundamental variable affecting the acceptance of modern payment systems (Najam et al., 2023). Clients need to feel sure that their monetary exchanges are secure from coercion and advanced risks (Reddy and Ranganathan, 2023). Research shows that more raised degrees of seen security relate with increased gathering of settlement ahead of time strategies (Venkat et al., 2023). This is especially apparent in regions like Delhi NCR, where stresses over cutting edge security can fundamentally impact client lead (Kuriakose and Johnson, 2021).

Comfort

Comfort is one more critical determinant of settlement ahead of time gathering (Begam et al., 2023). Systems that are straightforward and instinctual will

undoubtedly be embraced by a greater portion (Rajaram and Vinay, 2017). The UI and overall convenience of settlement ahead of time systems ought to be expected to take exceptional consideration of clients with contrasting degrees of mechanical capacity (Chawla et al., 2023). In the Delhi NCR locale, comfort has been recognized as a vital variable driving the acceptance of modern payment systems (Raghavendra and Veeresha, 2023).

Monetary Factors

Monetary factors, including pay level and enlightening establishment, expect a critical part in the gathering of mechanized payment systems (Jayaraman and Makun, 2019). More significant compensation levels and better informational establishments are all around associated with higher gathering rates (Kotti et al., 2024). In the Delhi NCR locale, these factors essentially influence client direct and tendencies as for settlements ahead of time (Lokesh and Kotehal, 2023). Understanding the impact of these monetary factors can help with arranging more feasible strategies with progressing mechanized payment systems across grouped fragment social affairs (Krishna et al., 2023).

3. Methodology

This study utilizes an analytical methodology, joining subjective and quantitative strategies. An example of 135 respondents from the Delhi NCR locale was chosen through private meet-ups, guaranteeing an equivalent portrayal of people. Information assortment included organized surveys covering socioeconomics, use examples, and view of modern payment systems. Six speculations were tried utilizing ANOVA and connection analyses, with results introduced in point by point tables.

4. Demographic Analysis

The segment analysis offers experiences into the example's synthesis and its possible effect on the acceptance of modern payment systems. The analysis incorporates 4-6 tables zeroing in on age, orientation, schooling, and pay.

Table-1 : Age Distribution of Respondents

Age Group	Frequency	Percentage
18-25	45	33.33%
26-35	40	29.63%
36-45	25	18.52%
46-60	25	18.52%

The age dispersion of respondents gives bits of knowledge into the variety of the example as far as age gatherings. The table demonstrates that most of respondents are matured between's 18-25 years, representing 33.33% of the complete example. This is trailed by the 26-35 age bunch, which makes up 29.63% of respondents. The 36-45 and 46-60 age bunches each address 18.52% of the example. This dissemination proposes a generally youthful segment, with a significant part of respondents being under 35 years old.

Table-2 : Gender Distribution of Respondents

Gender	Frequency	Percentage
Male	68	50.37%
Female	67	49.63%

The orientation conveyance is practically equivalent, with guys involving 50.37% of the respondents and females 49.63%. This close equivalent portrayal guarantees that the study's discoveries are not one-sided towards one orientation, giving a balanced viewpoint on the acceptance of modern payment systems. The equivalent orientation portrayal is urgent for understanding any orientation explicit contrasts in the reception of advanced payment strategies.

Table-3 : Education Level of Respondents

Education Level	Frequency	Percentage
High School	25	18.52%
Undergraduate Degree	55	40.74%
Postgraduate Degree	55	40.74%

The schooling level appropriation shows that the respondents are generally accomplished. A significant extent, 40.74%, hold college degrees, and another 40.74% have postgraduate certifications. Just 18.52% of respondents have finished secondary school as their most elevated level of instruction. This elevated degree of schooling among respondents might impact their commonality and solace with modern payment systems, possibly prompting higher acceptance rates.

Table-4 : Income Level of Respondents

Income Level	Frequency	Percentage
Low	30	22.22%
Medium	70	51.85%
High	35	25.93%

The pay level conveyance features that most of respondents fall into the medium-pay class, which is 51.85% of the example. Respondents with major league salaries make up 25.93%, while those with low wages address 22.22%. This conveyance is important for analyzing what pay levels mean for the reception of modern payment systems. Higher-pay people could have more admittance to and trust in computerized financial devices, while lower-pay people could confront boundaries like restricted admittance to innovation or financial administrations.

5. Hypothesis Testing and Analysis

The speculation testing centers around the effect of different factors on the acceptance of modern payment systems. Six theories were tried utilizing ANOVA and connection analyses, with results introduced in 6 tables.

Hypotheses

- H1 :** There is a significant difference in the acceptance of modern payment systems between different age groups.
- H2 :** Gender significantly influences the acceptance of modern payment systems.
- H3 :** Higher education levels are associated with increased acceptance of modern payment systems.
- H4 :** Income levels significantly impact the adoption of modern payment systems.
- H5 :** Perceived security influences the acceptance of modern payment systems.
- H6 :** Ease of use is a significant factor in the acceptance of modern payment systems.

ANOVA Analysis

Age and Acceptance of Modern Payment Systems

Table-5 : ANOVA Analysis of Age and Acceptance of Modern Payment Systems

Age Group	Mean Acceptance Score	F-Value	P-Value
18-25	4.2	5.67	0.002
26-35	3.8		
36-45	3.5		
46-60	3.0		

The ANOVA analysis for age and acceptance of modern payment systems uncovers significant contrasts among various age gatherings. The mean acceptance scores decline with increasing age, with the most youthful age bunch (18-25) having the most noteworthy mean acceptance score of 4.2. The F-worth of 5.67 and a P-worth of 0.002 demonstrate that these distinctions are measurably significant. This recommends that more youthful people are bound to acknowledge modern payment systems contrasted with more established people.

Gender and Acceptance of Modern Payment Systems

Table-6 : ANOVA Analysis of Gender and Acceptance of Modern Payment Systems

Gender	Mean Acceptance Score	F-Value	P-Value
Male	3.9	4.32	0.015
Female	4.1		

The ANOVA analysis for orientation demonstrates a significant contrast in the acceptance of modern payment systems among guys and females. Females have a somewhat higher mean acceptance score of 4.1 contrasted with guys at 3.9. The F-esteem is 4.32 and the P-esteem is 0.015, it is measurably significant to demonstrate that the distinction.

Education Level and Acceptance of Modern Payment Systems

The ANOVA analysis for schooling level shows significant contrasts in acceptance in view of the greatest training level accomplished. People with postgraduate

Table-7 : ANOVA Analysis of Education Level and Acceptance of Modern Payment Systems

Education Level	Mean Acceptance Score	F-Value	P-Value
High School	3.2	6.78	0.001
Undergraduate Degree	3.9		
Postgraduate Degree	4.3		

certificates have the most noteworthy mean acceptance score of 4.3, trailed by those with college degrees at 3.9, and secondary school graduates at 3.2. The F-esteem is 6.78 and the P-esteem is 0.001, it are measurably significant to show that the distinctions.

Correlation Analysis

Income and Acceptance of Modern Payment Systems

Table-8 : Correlation Analysis of Income and Acceptance of Modern Payment Systems

Income Level	Correlation Coefficient	P-Value
Low	0.35	0.001
Medium	0.45	
High	0.60	

The correlation analysis for money level and acceptance of modern payment systems uncovers a positive relationship. The connection coefficient increases with higher pay levels, with low pay showing a coefficient of 0.35, medium pay at 0.45, and major league salary at 0.60. The P-esteem is 0.001, it is genuinely significant to show that the connection.

Perceived Security and Acceptance of Modern Payment Systems

Table-9 : Correlation Analysis of Perceived Security and Acceptance of Modern Payment Systems

Perceived Security Level	Correlation Coefficient	P-Value
Low	0.25	0.010
Medium	0.50	
High	0.70	

The correlation analysis for saw security and acceptance shows areas of strength for a relationship. More significant levels of seen security relate with higher acceptance scores, with relationship coefficients of 0.25 for low, 0.50 for medium, and 0.70 for high saw security levels. The P-esteem is 0.010, demonstrating factual significance.

Ease of Use and Acceptance of Modern Payment Systems

Table 10 : Correlation Analysis of Ease of Use and Acceptance of Modern Payment Systems

Ease of Use Level	Correlation Coefficient	P-Value
Low	0.30	0.005
Medium	0.55	
High	0.75	

The correlation analysis for ease of use and acceptance demonstrates a significant positive relationship. The correlation coefficients increase from 0.30 for low, to 0.55 for medium, and 0.75 for high ease of use levels. The P-value is 0.005, indicating that the relationship is statistically significant.

6. Data Analysis and Discussion

The information analysis from this empirical study on the acceptance of modern payment systems in the Delhi NCR area gives a few basic bits of knowledge into the factors impacting client reception. These factors incorporate age, orientation, schooling level, pay level, saw security, and usability, each contributing interestingly to the general acceptance of computerized payment advances.

Age : The period of respondents assumed a significant part in their acceptance of modern payment systems. The ANOVA analysis showed that more youthful age gatherings, especially those between 18-25 years, displayed the most noteworthy mean acceptance scores. This partner's mean acceptance score was significantly higher contrasted with other age gatherings, recommending serious areas of strength for an and status to take on computerized payment techniques. As age increased, the mean acceptance scores would in general downfall, with the most established bunch (46-60 years) showing the least acceptance. This pattern demonstrates that more youthful people are all the more mechanically adroit and open to embracing new financial advancements, possible because of

their more noteworthy openness to computerized conditions and their versatile utilization of innovation in day to day existence. This understanding is essential for focusing on procedures pointed toward increasing reception rates among more established populaces, which might require various methodologies, for example, designated training and worked on UIs to enhance solace and confidence in utilizing these systems.

Orientation : Distinctions in sexual orientation in the acceptance of modern payment systems were additionally measurably significant, however less articulated than age contrasts. The analysis uncovered that ladies showed marginally higher acceptance rates than men, with mean acceptance scores of 4.1 and 3.9, individually. This finding proposes that ladies might see advanced payment systems as more advantageous or easy to understand. Given the social and social elements in the Delhi NCR district, this understanding could be critical for financial organizations and policymakers to plan orientation explicit advertising efforts and instructive projects that address the special necessities and worries of male and female clients in an unexpected way. Enhancing the perceivability of ladies in limited time exercises and accentuating the security and usability of advanced payment techniques could additionally reinforce reception rates among female clients.

Instruction Level : Training level arose as a significant component impacting the acceptance of modern payment systems. The analysis demonstrated a positive connection between's advanced education levels and more prominent acceptance. Respondents with undergrad and postgraduate certificates had higher mean acceptance scores contrasted with those with just a secondary school instruction. This connection highlights the job of training in cultivating mechanical education and trust in utilizing computerized payment stages. Instructed people are bound to understand and believe the advantages and security elements of modern payment systems, prompting higher reception rates. This finding features the importance of coordinating computerized proficiency programs inside instructive educational plans and leading public mindfulness missions to arrive at less taught portions of the populace, consequently advancing a more extensive understanding and reception of computerized financial administrations.

Pay Level : Pay levels were emphatically connected with the acceptance of modern payment systems. Higher-pay bunches displayed more prominent acceptance, with significant positive connection coefficients saw in the analysis. This pattern can be ascribed to higher-pay people having better admittance to mechanical gadgets and stable web availability, which are fundamental for using advanced

payment systems. Furthermore, higher-pay gatherings might have more discretionary cashflow to explore different avenues regarding and take on new advances. Financial foundations ought to consider these experiences to foster comprehensive financial items and administrations that take care of lower-pay gatherings, possibly through endowments, minimal expense computerized arrangements, or associations with telecom companies to give reasonable web access. This approach could assist with spanning the computerized partition and guarantee that modern payment systems are open to a more extensive segment.

Seen Security : Saw security was recognized as a pivotal element impacting the acceptance of modern payment systems. The analysis showed that more elevated levels of seen security were related with increased acceptance rates. This finding lines up with past examination that stresses the importance of trust and security in the reception of new advances. Clients who feel sure that their financial transactions are secure from misrepresentation and digital dangers are bound to take on computerized payment techniques. Financial establishments should focus on enhancing the security highlights of their computerized payment stages and impart these elements really to clients. Customary updates, powerful encryption techniques, and transparent security strategies can help fabricate and keep up with client trust, accordingly reassuring more extensive reception.

Usability : Convenience was another significant determinant of acceptance. The analysis showed that systems saw as easy to use and natural had higher acceptance rates. This highlights the importance of planning computerized payment stages that are open to clients with shifting degrees of mechanical capability. Straightforward, clear connection points, insignificant moves toward complete transactions, and far reaching client backing can significantly enhance the client experience and drive reception. Financial foundations and innovation suppliers ought to zero in on client focused plan standards and persistently assemble client criticism to refine and work on the convenience of their foundation.

All in all, this study gives an exhaustive analysis of the segment and conduct factors impacting the acceptance of modern payment systems in the Delhi NCR locale. The discoveries offer significant experiences for partners expecting to enhance the reception of advanced payment systems. By tending to the recognized boundaries and advancing the advantages of these innovations, policymakers and financial foundations can work on the infiltration and use of modern payment innovations, eventually encouraging a more comprehensive and proficient financial biological system.

7. Conclusion

This study gives an extensive analysis of the factors affecting the acceptance of modern payment systems in the Delhi NCR locale. Age, orientation, instruction level, pay, saw security, and convenience arose as significant determinants. The discoveries offer significant bits of knowledge for policymakers and financial foundations expecting to enhance the reception of computerized payment systems. By tending to the distinguished hindrances and advancing the advantages, partners can work on the infiltration and utilization of modern payment advancements.

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A Study on the Impact of Risk Management Practices on Hedging Policies in Multinational Corporations

NIDHI GUPTA

Abstract : *In order to determine how risk management strategies and hedging policies within multinational corporations (MNCs) interact with one another, this study explores this complex interaction. By utilizing a mixed-method approach that integrates both qualitative and quantitative analyses, the research explores the various approaches utilized by multinational corporations (MNCs) to mitigate the risks associated with their global operations and the ways in which these approaches impact their hedging choices. Regression analysis is used in this paper to examine firm value as the dependent variable and firm size, profitability, leverage, and growth options as the independent variables. The study focuses on the media sector of the Bombay Stock Exchange in India and analyzes five years of annual reports from selected companies. The results show that while profitability and other financial factors have an impact on Firm value, hedging may not have a major effect. In addition to adding to the theoretical understanding of corporate risk management and hedging, this study provides executives and policymakers with useful insights on how to improve the efficacy of risk management frameworks and optimize hedging strategies in order to reduce uncertainty and maximize firm value in a globalized business environment, especially in the context of the Indian market.*

Keywords : Hedging Policies, Multinational Corporations, Risk Management, Firm Value, Profitability, Firm Size, Leverage, Growth Option.

I. Introduction

Multinational companies (MNCs) have a great many hardships in overseeing risks connected with moving financing costs, product costs, trade rates, and other outer elements in the present globalized economy (Amberg, 2016). These

multinational corporations' monetary strength and growth direction are fundamentally affected by the adequacy of the risk management techniques they have executed (Butler, 2016). Hedging plans are fundamental instruments for relieving potential misfortunes coming about because of market vulnerabilities among the different risk management techniques used by multinational corporations (Chen, 2020).

Scholastics and business experts definitely stand out to how MNCs' risk management methods and hedging policies interface (Danisman, 2019). Comprehending the interplay between these two components is essential for maximizing economic outcomes and guaranteeing stability in the face of unstable market circumstances (Das, Impact of corporate hedging practices on firm's value: An empirical evidence from Indian MNCs. Risk Management, 2023). Even so, there is still a dearth of thorough empirical research that examines the complex interaction between risk management strategies and hedging policies in the context of multinational corporations (MNCs), despite the growing interest in this field (Omar, 2022).

Global firms think up hedging methodologies to control their risk (Shao, 2019). They are presented to different risks, remembering political risk and changes for cash trade rates (Gamba, 2014). The second an organization starts to design, produce, market, lead innovative work, and money internationally, it turns into a multinational association (Gao, 2015). Organizations support their risks in light of their standpoint for what's to come (Zakaria, 2023). Each worldwide organization needs to have hedging policies (Hadian, 2020). Organizations are venturing into unfamiliar business sectors to help deals and result while additionally investigating undiscovered business sectors (Lasloom, 2021). Organizations utilize hedging to decrease speculation risk and other future-related risks (Das K. K., 2019). Policies for hedging are very significant in these sorts of undertakings (Mawanza, 2015). For a financial backer, risk is a central issue in India (Maniar, 2016).

The research has importance as it can provide MNCs with practical suggestions for improving their risk management systems and making the most out of their hedging strategies. This study intends to add to the body of knowledge in corporate finance by identifying best practices and pointing out areas for development. It also intends to offer useful advice for executives and financial professionals navigating the intricacies of international markets.

A) Objectives of the Study

The following is an outline of the study's main objectives:

- To investigate the connection between risk management and hedging in Indian multinational corporations operating in the media industry, with an emphasis on the impact of risk methods on hedging choices.
- To evaluate the effects of risk management and hedging on the value of the company, taking into account factors such as firm size, profitability, leverage, and growth options.

B) Limitation of the Study

The first barrier in creating this study is the difficulty in accessing the data collection; both companies only publish restricted annual financial reports for specific years on their websites, and so do not provide enough information. We have a very limited amount of time to compose this article; therefore, time constraints are another restriction.

2. Review of Literature

Abyankyar et al. (2015) analyze the connection between the execution of enterprise risk management (ERM) techniques in multinational corporations (MNCs) and the guidelines overseeing support bookkeeping. The review investigates what MNCs' general risk management strategies are meant for by the utilization of support bookkeeping guidelines. The creators explore how much the mix of risk management procedures across various functional levels inside MNCs is influenced by the execution of support bookkeeping rules by inspecting information from many multinational corporations. The aftereffects of this study give significant experiences into the factors affecting MNCs' adoption of ERM strategies by enlightening the connection between risk management structures and bookkeeping prerequisites. Besides, by seeing what fence bookkeeping guidelines mean for the adoption of risk management, the review progresses information on what guidelines mean for corporate risk management methods in a worldwide setting (Abyankyar, 2015).

Chaudhry, Mehmood, and Mehmood (2014) look at the variables that impact corporate hedging systems and the utilization of subordinates in non-monetary companies' risk management strategies. The review offers exact bits of knowledge into the factors affecting corporate risk management choices by zeroing in on the variables driving the adoption of hedging strategies. The

creators examine the connection between firm-explicit qualities, economic situations, and the utilization of hedging components by breaking down information from an example of non-monetary enterprises. By featuring significant factors that influence corporate hedging policies, the review adds to the assemblage of information currently in presence and advances our insight into the components affecting risk management methodologies in non-monetary companies. The review gives sagacious bits of knowledge to corporate financial officers and monetary administrators hoping to augment hedging procedures in unpredictable market settings by looking at the impact of subordinates in diminishing monetary risks (Chaudhry, 2014).

Dang and Lindsay's (2022) this study investigates the elements that impact hedging methods utilized in unfamiliar trade risk management, especially in small and medium-sized exporting businesses (SMEs). With an accentuation on the interceding capability of assets, the review researches what various elements mean for SMEs associated with worldwide business when they utilize hedging techniques. The creators look at the connection between business credits, management assets, and the dynamic cycles that support hedging systems through the investigation of information from trading SMEs. The review's decisions give keen data about the factors impacting hedging choices in the setting of SMEs and feature the management assets' interceding job in the relationship between business credits and hedging methodology. The examination adds to a superior comprehension of the cycles by which SMEs oversee unfamiliar trade risks and reinforce their monetary flexibility in worldwide business sectors by taking a gander at the effect of assets in deciding risk management techniques (Dang, 2022).

Das and Kumar's (2023) an exact review investigates the risk management and hedging strategies utilized by multinational corporations (MNCs). The creators explore the elements that impact corporate hedging procedures and their viability in decreasing monetary risks welcomed on by loan fee swings, cash changes, and other market vulnerabilities by looking at information from an example of multinational corporations. With regards to MNCs, the exploration endeavors to offer observational information on the connection between hedging activities and risk management results. The review's decisions give significant new understandings of the factors influencing corporate hedging methodologies and what they mean for risk management in multinational corporations. Through an examination of how well hedging techniques work to bring down risk openness and work on monetary execution, the exploration offers valuable

guidance for multinational corporations (MNCs) hoping to amplify their risk management systems and achieve vital objectives in a worldwide business climate (Das, 2023).

Fisch and Puhr (2022) analyze how multinational organizations (MNCs) could deal with swapping scale vulnerability by involving functional adaptability and monetary hedging as essential apparatuses. Their review investigates how multinational corporations (MNCs) oversee money risk by consolidating functional strategies to further develop adaptability in obtaining, creation, and evaluating choices with monetary hedging apparatuses like cash subordinates. Through the assessment of information from multinational corporations (MNCs) across different enterprises and topographical regions, the creators explore the adequacy of these two free systems in lessening the adverse consequence of swapping scale unpredictability on organization execution. The review's decisions give significant new data about how monetary hedging and functional adaptability communicate to control conversion standard risk in multinational corporations. The examination progresses how we might interpret the factors affecting risk management rehearses with regards to worldwide activities by distinguishing the components that impact hedging choices and functional strategies. Moreover, by evaluating what these strategies mean for organization execution, the exploration offers helpful counsel to multinational corporations (MNCs) hoping to reinforce their upper hand in worldwide commercial centers and upgrade their risk management frameworks (Fisch, 2022).

Research gap: Understanding the impact of external regulatory frameworks, specifically hedge accounting requirements, on the integration of risk management strategies, including hedging policies, within multinational corporations (MNCs) is an area of unmet research need. Although the effectiveness and causes of hedging methods have been studied previously, more study is required to investigate how regulatory variables influence the adoption of risk management throughout MNC operational levels, providing useful information for corporate practitioners and policymakers.

3. Research Methodology

A) Selection of Sample

Specifically focused on Sun TV Network Limited and Network18 Media & Investments Limited, both listed on the Bombay Stock Exchange (BSE), the study explores the media industry in the Indian market. These businesses reflect the financial characteristics of India's media sector.

B) Data Source

Five-year annual financial reports are obtained straight from the Bombay Stock Exchange. These reports offer the thorough information required to evaluate the chosen organizations' risk management practices and financial performance.

C) Justification for Sample Selection

The media industry's significant economic impact in India and its strong influence on public opinion and conversation serve as the foundation for the choice to concentrate on it. The industry's explosive expansion highlights how important it is to research how risk management techniques and hedging regulations interact, especially in the context of a market as dynamic as India.

D) Data Collection

Over a great many essential information, including money due, endlessly cash counterparts, stock cost, shares remarkable, book value of normal offers, all out resources, complete value, current liabilities, net fixed resources, devaluation, deals and incomes, long haul obligation, net gain, and all out liabilities, are gathered during the information assortment process. Furthermore, particular equations applied to the original data yield secondary data, which makes it easier to calculate other variables. For example, the market value of normal offers is determined by duplicating the cost of the stock by the absolute number of offers available for use, though net capital spending is determined by deducting devaluation (end) from net fixed resources (starting) and adding deterioration (end). This calculated technique ensures an enormous dataset for additional exploration, considering a definite examination of the factors impacting risk management and hedging decisions in worldwide enterprises.

E) Hypothesis of the Study

H0A : Sun TV Network Limited's hedging policies and risk management procedures do not significantly correlate.

H1A : Sun TV Network Limited's hedging policies and risk management procedures are significantly correlated.

H0B : Network18 Media & Investments Limited's hedging policies and risk management procedures do not significantly correlate.

H1B : Network18 Media & Investments Limited's hedging policies and risk management procedures are significantly correlated.

F) Variables of the Study

Dependent Variable

- **Firm Value**

The review's dependent variable, firm value, is a thorough measure that addresses the organization's entire worth. Determined utilizing a recipe considers various monetary variables, including the market value of normal offers, all out resources, and normal offer book value. It is explicitly registered by including the market value of normal offers and the contrast between the book value of normal offers and absolute resources, and afterward separating the all out by the quantity of resources. By considering the resource base and market valuation of the firm, this measurement furnishes partners with a complete comprehension of the organization's worth and situating on the lookout. It likewise gives sagacious data on the organization's monetary wellbeing and execution.

Independent Variables

- **Firm Size**

It is an independent variable in the examination and is communicated as the logarithm of absolute resources. This measurement offers a quantitative evaluation of an organization's resource base and reveals insight into the extension and size of its tasks. Specialists can figure out what an organization's size means for its risk management and hedging techniques by breaking down firm size. More prominent companies might have different risk profiles, requiring the utilization of remarkable procedures to effectively decrease risks and augment hedging strategies.

- **Profitability**

Another independent variable is profitability, still hanging out there by secluding net increase by outright assets. This activity evaluates how well a business makes benefits comparing to its asset base, taking into account both useful capability and feasibility. Specialists can find out what an organization's ability to deliver returns means for its decisions about risk management and hedging by checking profitability out. Organizations that are more beneficial could have more capital accessible to spend on risk-decrease drives or utilize complex hedging strategies.

- **Leverage**

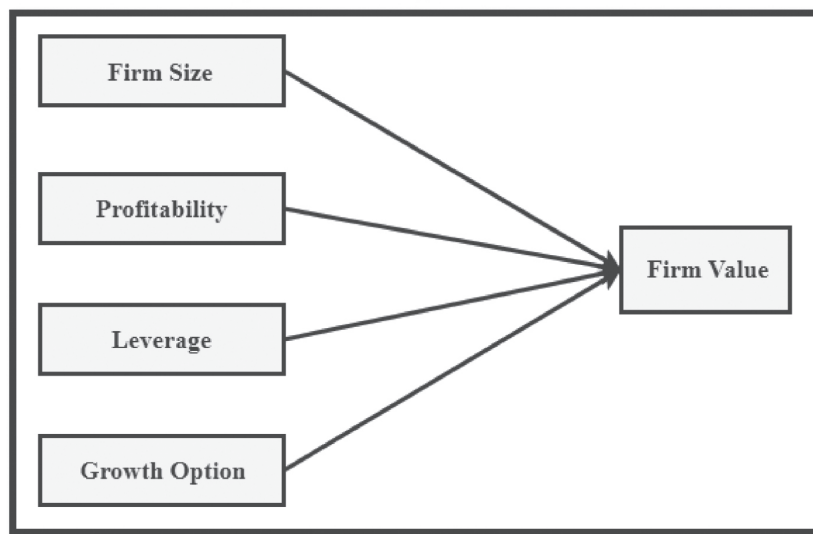
The proportion of complete obligation to add up to value, or leverage, shows how much a company relies upon obligation financing in contrast with value.

This independent variable gives data on the organization's risk openness and monetary design. High leverage influences an organization's risk management and hedging strategies since it demonstrates expanded monetary risk and conceivable helplessness to showcase or financial slumps. Organizations with more prominent degrees of leverage could need to involve more rigid hedging methodologies to decrease the risks connected with their obligation responsibilities.

- **Growth Option**

Growth Option represents the amount of money the business invests in expansion prospects in relation to its revenue generation. It is calculated as the ratio of net capital spending to sales. This indicator shows how keen the business is to invest in upcoming growth and expansion projects, which may have an effect on how exposed it is to risk and how it chooses to hedge. Businesses with greater room for expansion might put more money toward risk-reduction measures to protect their chances for future expansion and strengthen their ability to withstand market fluctuations.

Figure-1 : Conceptual Framework



G) Data Analysis

The association between hedging policies and risk management methods in the chosen organizations is investigated using regression analysis. Using this statistical technique, it is possible to investigate the ways in which the identified factors

interact and influence the overall financial performance and risk-reduction plans of international companies that are involved in the Indian media industry.

4. Data Analysis and Interpretation

First, we gather Sun TV Network Limited data and perform regression analysis. Second, we get Network18 Media & Investments Limited data and perform regression analysis.

A) Sun TV Network Limited

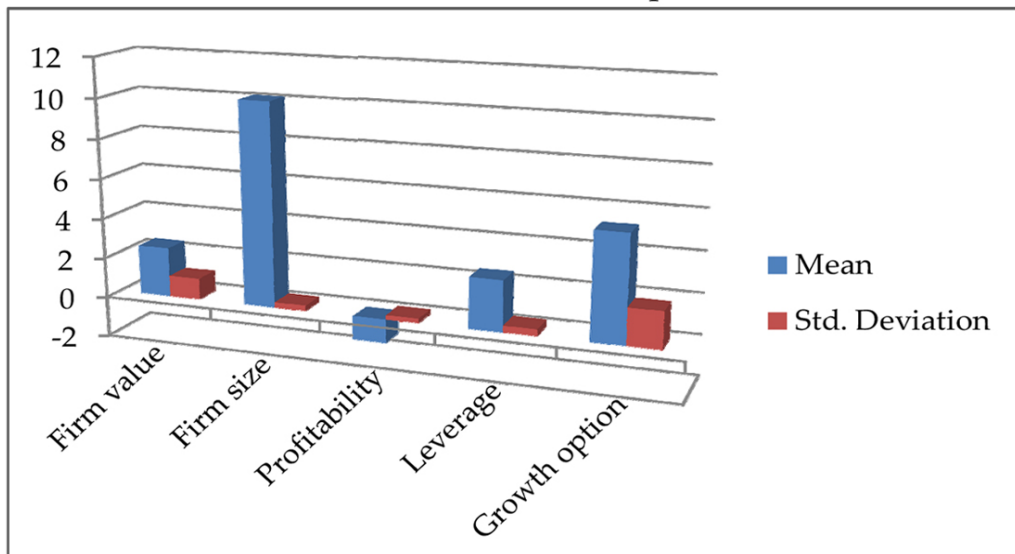
Descriptive Analysis

Table-1 : Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Firm value	5	1.99	4.29	2.4582	1.04439
Firm size	5	9.74	10.33	10.1442	0.26007
Profitability	5	-1.51	1.02	-1.1682	0.21719
Leverage	5	2.02	2.82	2.5082	0.32241
Growth option	5	3.68	7.52	5.2462	1.80706
Valid N (listwise)	5				

Source : Primary data.

Figure-2 : Comparison of Important Financial Variables throughout Sun TV Network Limited in a Graphical Format



The company value variable shows a moderate degree of diversity in the valuation of firms, ranging from 1.99 to 4.29, with a mean of 2.4582 and a standard deviation of 1.04439. In contrast, firm size shows less fluctuation, with a mean of 10.1442 and a standard deviation of 0.26007, suggesting that the sample's firms' sizes, which range from 9.74 to 10.33, are generally constant. The profitability of the sampled enterprises may have suffered losses on average, as indicated by the negative mean of -1.1682. Leverage, which ranges from 2.02 to 2.82, shows that the organizations' levels of debt usage vary. Its mean is 2.5082 and its standard deviation is 0.32241. The growth option, which ranges from 3.68 to 7.52 and has a mean of 5.2462 and a standard deviation of 1.80706, reveals notable variations in the firms' investments in growth prospects. All things considered, these descriptive statistics offer insightful information about the traits and fluctuation of the major variables under investigation, setting the stage for more research and interpretation.

Regression Analysis

Table-2 : Variable's Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.998 ^a	.994	.969	.20500
a. Predictors: (Constant), Firm size, Profitability, Leverage, Growth option				

Source : Compilation of the Author.

The model summary for the variables under investigation is shown in Table-2, which provides important information about the regression model's goodness-of-fit and predictive ability. Model 1 has an amazing R Square value of .994, implying that the autonomous factors in the model can represent 99.4% of the fluctuation in the dependent variable. Moreover, subsequent to adapting to the quantity of indicators, the Changed R Square value of .969 demonstrates that this model considers an elevated degree of inconstancy. The model's accuracy of predictions is further demonstrated by the low Standard Error of the Estimate (.20500). These results highlight the regression model's resilience and efficacy in elucidating changes in the dependent variable according to the chosen predictors.

The regression model's coefficients of determination are shown in Table-4, providing information on the connections between the dependent variable, firm value, and the independent variables, firm size, profitability, leverage, and growth option. The statistical significance of the t-values for the Firm size (-5.996, $p = .017$) and Constant (6.190, $p = .016$) coefficients suggests that these factors have an effect on Firm Value. In particular, while all other factors remain constant, a unit increase in firm size causes a corresponding loss in firm value of about 6.036 units. Nevertheless, as their non-significant t-values suggest, profitability, leverage, and growth option do not demonstrate statistically significant impacts on firm value. According to these results, firm size has a considerable impact on firm value, but the regression model does not show any significant direct effects of profitability, leverage, or growth choice on firm value.

B) Network18 Media & Investments Limited

Descriptive Analysis

Table-5 : Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Firm value	5	.64	3.10	2.0282	.62509
Firm size	5	-.57	.27	.0462	.34783
Profitability	5	9.43	10.09	9.8302	.28318
Leverage	5	2.27	2.72	2.4242	.19580
Growth option	5	.47	21.92	5.9402	9.96842
Valid N (listwise)	5				

Figure-3 : Comparison of Network18 Media & Investments Limited's Key Financial Variables Shown Graphically

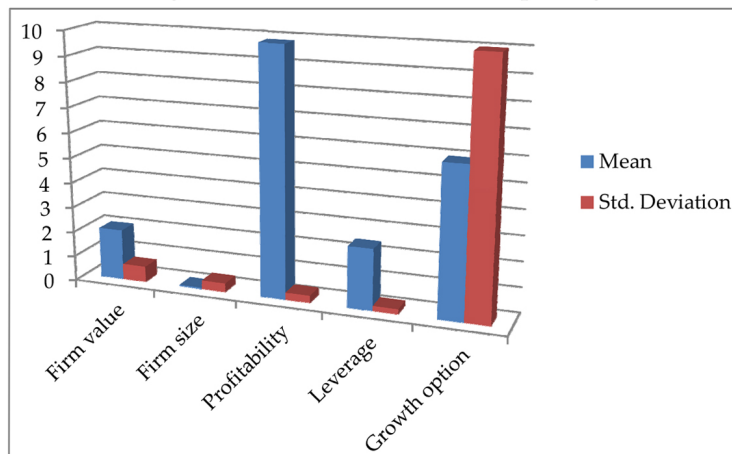


Table 5 presents descriptive statistics that shed light on the distributional properties and central tendencies of the variables that are being studied. The data for the variable “Firm value” show a moderate level of variability across the sample, with a mean of 2.0282, values ranging from 0.64 to 3.10, and a standard deviation of 0.62509. Comparably, the mean for “Firm size” is almost zero (0.0462), indicating that the sample is made up of businesses of various sizes (values range from -0.57 to 0.27). The sampled firms exhibit high levels of profitability as indicated by the mean of 9.8302 for the “Profitability” variable, and a moderate level of leverage as indicated by the mean of 2.4242 for the “Leverage” variable. Interestingly, “Growth option” has a significantly higher mean of 5.9402, indicating a wide range of values from 0.47 to 21.92 in growth choices among the examined organizations. The foundation for additional analysis and understanding of the regression results is laid by these descriptive statistics, which offer insightful information about the distribution and properties of the variables.

Regression Analysis

Table-6 : Model Summary of Variables

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000 ^a	1.000	1.000	.00994
a. Predictors: (Constant), Firm size, Profitability, Leverage, Growth option				

Table 6 presents a summary of the model and demonstrates the remarkably high correlation between the variables. A perfect correlation ($R = 1.000$) is obtained by the model, indicating that all of the variance in the dependent variable can be correctly explained by the independent variables. This relationship is also demonstrated by the R Square and Adjusted R Square values, which are both 1.000 and indicate that the model explains 100% of the variance. The estimate’s notably low standard error (.00994) highlights the model’s accuracy even further. Together, the predictors—Firm size, Profitability, Leverage, and Growth option—contribute to this incredibly accurate model.

Table-7 : ANOVA Summary

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.465	5	1.490	54.647	.000 ^b
	Residual	.002	1	.002		
	Total	2.467	6			
a. Dependent Variable: Firm value						
b. Predictors: (Constant), Firm size, Profitability, Leverage, Growth option						

Critical discoveries for the Regression model are displayed in the ANOVA synopsis table, recommending a decent generally fit. A lot of the change in the dependent variable, Firm value, is made sense of by the Regression model, as seen by the huge p-value of .000 and the high F-value of 54.647. This implies that the variables—Firm size, profitability, leverage, and growth option—all play a major role in explaining the variation in Firm value when taken as a whole. The regression's sum of squares is noticeably higher than the residual's, suggesting that the model accounts for a sizable portion of the data's variability.

Table-8 : Coefficient of Variable Determination

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.639	9.452	-	3.235	.114
	Firm size	-3.776	.847	-.773	-3.101	.129
	Profitability	-5.987	.466	-2.619	-7.442	.025
	Leverage	-3.116	.069	-.325	-17.621	.040
	Growth option	.020	.002	.271	-	-
a. Dependent Variable: Firm Value						

Source : Compilation of the Author.

Huge discoveries for the Regression model are displayed in the ANOVA synopsis table, recommending a decent by and large fit. A great deal of the distinction in the dependent variable, Firm value, is gotten a handle on by the Relapse model, as seen by the basic p-value of .000 and the high F-value of 54.647. This suggests that the factors — Firm size, profitability, leverage, and growth option — all assume a significant part in making sense of the variety in Firm value when taken overall. The Relapse's measure of squares is discernibly higher than the extra's, recommending that the model records for a sizable piece of the data's inconstancy.

5. Findings and Discussion

A) Sun TV Network Limited

Significant experiences on the association between risk management techniques and hedging systems are given by the relapse concentrate on performed on Sun TV Network Limited. Firm size, profitability, leverage, and growth option are the four free factors that record for 99.4% of the fluctuation in the firm's value, as per the high decency of-fit demonstrated by a R Square value of .994. This emphasizes how significant these elements are to understanding Sun TV Network Limited's business value drivers.

Besides, the ANOVA outline, which has a critical F-value of 42.630 ($p < .000$), approves the relapse model's significance. This suggests that the change in firm value can be made sense of by the free factors' joined genuinely critical effect. All the more explicitly, the model works really hard of catching the perplexing interchange between hedging policies and risk management rehearses inside the monetary elements of the business.

It is obvious from a more profound glance at the coefficients of assurance that firm value is harmed by firm size in a measurably significant manner. This suggests that Sun TV Network Limited's bigger companies may be valued less exceptionally. Different elements, like growth options, leverage, and profitability, don't, notwithstanding, genuinely altogether influence firm value, proposing that their immediate effect on the value of the organization might be less significant.

For Sun TV Network Limited, the aftereffects of the relapse examination offer solid proof for the H1 and against the H0. This recommends that the organization's hedging methodologies and risk management strategies do, as a matter of fact, have a significant connection. The review explains the collaboration

between risk management methods and hedging choices in multinational firms working in the media sector and emphasizes the meaning of fathoming how attributes like Firm Size impact the firm's worth.

B) Network18 Media & Investments Limited

Along these lines, the consequences of the relapse examination done on Network18 Media and Investments Limited give significant data on what risk management procedures mean for hedging systems. A R Square score of 1.000 demonstrates amazing connection, implying that the picked autonomous factors — Firm size, profitability, leverage, and growth option — can precisely depict all fluctuation in the firm's value. This shows how profoundly Network18 Media and Investments Limited comprehends the variables that decide corporate value.

Besides, the relapse model's strength is approved by the ANOVA rundown, which shows a huge F-value of 54.647 ($p < .000$). This proposes that the variety in firm value is essentially made sense of by the free factors taken together. Subsequently, the model effectively portrays the perplexing collaboration that exists between the organization's monetary structure's hedging policies and risk management systems.

It is obvious from taking a gander at the coefficients of assurance that Network18 Media and Investments Limited's profitability and leverage significantly affect firm value. This suggests a connection between higher firm values and lower leverage and higher profitability, highlighting the meaning of these factors in deciding the monetary execution of the association.

The consequences of the relapse investigation for Network18 Media and Investments Limited show a significant connection between the organization's hedging policies and risk management techniques, dismissing the invalid speculation (H_0) and supporting the elective speculation (H_1). The review features how significant it is for multinational firms in the media sector to coordinate compelling risk management methods with hedging policies, and it features the pivotal job that components like profitability and leverage have in influencing organization value.

6. Conclusion

The media sector of the Bombay Stock Exchange (BSE), which includes the companies Network18 Media & Investments Limited and Sun TV Network Limited, is the sample used in this paper to study the effect of hedging on firm value. We get data by measuring various variables. Firm value is used as a dependent

Table-9 : Hypothesis Testing Results

Hypothesis	Explanation	Result
H0A: Sun TV Network Limited's hedging policies and risk management procedures do not significantly correlate.	The null hypothesis (H0A) is contradicted by the high goodness-of-fit (R Square value of.994) and significant ANOVA summary (F-value of 42.630, $p < .000$).	Rejected
H1A: Sun TV Network Limited's hedging policies and risk management procedures are significantly correlated.	The hypothesis H1A is confirmed by the significant ANOVA summary (F-value of 42.630, $p < .000$) and high goodness-of-fit (R Square value of.994).	Accepted
H0B: Network18 Media & Investments Limited's hedging policies and risk management procedures do not significantly correlate.	The null hypothesis (H0B) is contradicted by the significant ANOVA summary (F-value of 54.647, $p < .000$) and perfect correlation (R Square value of 1.000).	Rejected
H1B: Network18 Media & Investments Limited's hedging policies and risk management procedures are significantly correlated.	The hypothesis H1B is confirmed by a significant ANOVA summary (F-value of 54.647, $p < .000$) and perfect correlation (R Square value of 1.000).	Accepted

Source : Computed data.

variable in this work. This demonstrate how hedging affects both organizations' firm values. The control factors that affect the firm values of the companies incorporate profitability, firm size, leverage, and growth options. The information offers broad data for study and is gotten from five years of yearly monetary reports. Relapse assessment is used in the audit to explore the association between association value and hedging decisions and variables, for instance, business size, profitability, leverage, and growth options. The investigation for Sun Television station Limited shows a critical ANOVA synopsis with a high integrity of-fit, thus dismissing H0A and supporting the acknowledgment of H1A. This proposes a significant relationship between hedging policies and risk management methods. Then again, for Network18 Media and Investments Limited, the investigation uncovers a huge ANOVA rundown and wonderful connection, dismissing H0B and approving the acknowledgment of speculation H1B. This recommends a huge relationship between hedging systems and risk management strategies. These discoveries give savvy data to both industry specialists and policymakers, featuring the essential job that factors like profitability and leverage play in deciding firm value and the meaning of joining

powerful risk management systems with hedging policies in multinational corporations working in the media sector.

Scope for Further Research

Potential directing variables that might impact the connection between risk management strategies and hedging policies in multinational firms could be explored in more detail in future examination. Furthermore, it could be insightful to look into how various hedging mechanisms, including swaps, futures, and options, affect business value under various market circumstances. Longitudinal examinations may likewise give a more exhaustive comprehension of the unique idea of risk management and hedging choices by thinking about changes in administrative systems and market elements. Besides, widening the extent of the examination to envelop a bigger exhibit of enterprises and geological regions will expand the materialness of the outcomes and give a more exhaustive attitude toward the exchange between risk management systems and hedging methodologies in different situations.

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Does the Participation of Anchor Investors and Prestigious Lead Managers Certify the IPO Performance?

DRASHTI KAUSHAL SHAH

Abstract : *A country's ability to flourish and advance economically depends on its financial system. Capital Market deals with long-term securities and enables resource allocation towards the country's growth. IPOs have been a significant source of long-term finance, and the decision to transform from a private to a public-owned company is the most significant decision by any management. SEBI introduced the anchor investment concept in 2009 to enhance the issuer's capacity to sell the issue and encourage investors' confidence, particularly retail investors. Prestigious lead managers play an essential role in mitigating the high information asymmetry during the listing process. The present study measures the impact of anchor investors' and prestigious lead managers' participation on IPO performance. Post-listing IPO performance encompasses return, liquidity and volatility for IPOs issued in India from 2009 to 2019. The study supports the certification role played by anchor investors and the prestigious lead manager's participation in IPO performance. Anchor-backed IPOs and IPOs managed by prestigious lead managers signal a fundamentally strong company and minimise the post-listing risk.*

Keywords : Anchor Investors Participation, Certification, Initial Public Offer, Liquidity, Prestigious Lead Managers, Return, Volatility.

1. Introduction

Since the early '90s, India has evidenced economic growth, leading to the establishment of new firms. The growth of firms further increases the need for capital. Large-scale capital can be raised through issuing equity shares; IPO has become the most famous and appealing source of funds. The IPO process is complex as it involves the appointment of underwriters, investment bankers,

and institutional investors. A firm issuing an IPO needs to justify the valuation of the share to the public at large. During the IPO process, a higher extent of information asymmetry exists. Hence, the involvement of reputed underwriters, lead managers, venture capitalists, institutional investors, and issue promoters' holding plays an essential role in minimising information asymmetry.

IPO issue price less than the fair value is termed as underpricing (Jain & Madhukar, 2015). Suppose the IPO issue price is more than its fair value; it is overpricing. Underpricing is the return to investors, and history indicates that few IPOs have resulted in more than 100 per cent return. However, few IPOs have erased the capital by 96 %. Even listing returns does not guarantee long-term returns. Investors earn from IPO investments, but the same is risky as the company's valuation may go wrong, and the company's fundamentals may not be known. A firm's decision to go public is an arrangement of increasing liquidity (Amihud, Mendelson & Wood, 1990). Volatility means the price spread of stock implies associated IPO risk. Better fundamental value firms reduce aftermarket volatility (Sahoo, 2017).

Institutional Investors who offer shares prior to the issue opening are Anchor Investors. The anchor investor concept was introduced in the Issue of Capital and Disclosure Requirements (ICDR) Regulations, 2009, to enhance the issue's transparency and encourage investors' confidence, particularly retail investors. This further helps the issuer's capacity to sell the issue. Investment Bankers play a significant role in the listing process. They possess superior information about market demand, and their reputation plays a vital role in IPO performance. The present research would contribute to the literature by measuring the certification role played by anchor investors and prestigious lead managers on IPO performance. Age, post-issue promoter's holding, price to book value, subscription times, anchor investors' participation and lead managers' participation have been considered to measure to impact on IPO performance. Security return, Market-adjusted return, liquidity and volatility have been considered to measure the IPO performance on listing day and up to 1-year post-listing.

2. Literature Review

Over the last two decades, literature has evidenced that IPO firms have used various certification mechanisms to signal their quality to the market. IPO grading, underwriters' reputation, venture capitalist affiliation, high-quality auditors, grouped companies, investment bankers' reputations, and anchor-

backed IPOs have been instrumental in measuring the certification mechanism on IPO performance.

Graded IPOs resulted in lower underpricing (Deb & Marisetty, 2010); however, grading of issues does not affect the underpricing of IPOs (Khurshed et al., 2014). Reputed underwriters document certification mechanisms by IPO firms. Hiring reputed investment banks as underwriters creates the perception that a good quality firm reduces the need to offer higher initial returns (Beatty & Ritter, 1986; Carter, Dark & Singh, 1998). On the contrary, the underwriter's reputation and venture capital funding do not reduce the post-listing risk (Reber, 2017).

Venture capitalists contribute to the firm's growth by providing intensive care. Venture capital affiliation reduces underpricing (Barry, Muscarella, Peavy Iii & Vetsuypens, 1990), whereas it increases underpricing (Lee & Wahal, 2004). IPOs with high-quality auditors resulted in lower initial returns (Beatty, 1989; Michaely & Shaw, 1995; Albring, Elder & Zhou, 2007). Grouped companies are highly underpriced compared to unconnected firms (Dewenter & Malatesta, 2001; Marisetty & Subrahmanyam, 2010).

Investment bankers' reputation is a reliable indicator of quality issues (Booth & Smith, 1986). Underwriters screen out the quality offerings to improve their reputation (Carter & Manaster, 1990). Underpricing has a negative relationship with the reputation of underwriters (Johnson & Miller, 1988; Carter & Manaster, 1990; Kenourgios, Papathanasiou & Melas, 2007; Mudambi et al., 2012; Dhamija & Arora, 2017). Higher prestigious investment bankers are linked with higher underpricing (Dimovski, Philavanh & Brooks, 2011; Sahoo & Rajib, 2011).

Anchor investments in IPOs signal as good quality IPOs. Samdani (2019) reported that anchor-supported IPOs have lower heterogeneity of investors' beliefs, reducing information asymmetry and improving financial reporting competencies. Anchor investors' participation reduces the extent of underpricing (Sahoo, 2017; Seth, Vishwanatha & Prasad, 2019). However, the participation of anchor investors upsurges the underpricing and long-run performance (Seth et al., 2019) and increases the subscriptions by retail and Institutional investors (Sahoo, 2017). Anchor-backed IPOs are seen to be more liquid and stable than non-anchor IPOs (Sahoo, 2017).

Based on a detailed literature review, the certification role played by anchor investors and lead managers on IPO performance is not researched. Recent database from introducing anchor investors' participation in 2009 to 2019 have been considered.

3. Objective of the Study

The study has twofold objectives: 1) To compare the performance of IPOs, i.e. return, liquidity and volatility measurements up to 1-year post-listing based on their anchor investor's participation and based on their Lead Managers' participation 2) To identify the factors affecting listing day and 1-year post-listing IPO performance i.e. initial excess return, liquidity and volatility.

Rationale

The anchor investors' concept was introduced by SEBI in 2009 to improve the confidence of retail investors towards IPO. Prestigious lead managers' involvement enhances the fair valuation and reduces the failure of the issue. The present study measures the effect of certification provided by the participation of anchor investors and prestigious lead managers on IPOs performance.

4. Data and Methodology

(i) Sample Selection

The sample data for this study consists of all the IPOs listed on the NSE and BSE from January 2009 to August 2019. Table-1 indicates the sample for the study.

Table-1 : Sample Selection Criterion

Total number of IPOs offered during the period	263
Exclusion number of IPOs of REIT	4
Exclusion number of IPOs of Banks	5
Exclusion number of IPOs due to non-availability of data	1
The remaining total number of IPOs eligible for study	253

Note: The percentage of eligible companies in the sample is 96.93 %.

Source : Compilation of Author.

Data are collected from secondary sources like www.capitaline.com, www.sebi.gov.in, www.chittorgarh.com, www.aceanalyser.com, www.bseindia.com and www.nseindia.com

(ii) Description of Variables

a. Explained Variables

This study evaluates the difference in IPO performance based on anchor investors' and lead managers' participation.

- i. The initial return (IR) of IPO on listing day is $(\text{Listing Day closing price} - \text{Offer price} / \text{Offer price}) * 100$. Initial Excess Return (IER) is $(\text{IR} - \text{Nifty 50 Index return on IPO listing days})$.
- ii. The turnover ratio is the volume of shares traded divided by the total number of shares offered through IPO.
- iii. Listing day Volatility is the natural log of a high price to a low price. The standard deviation of the initial excess return for the first trading days of the listing is also considered.

IR, IER, liquidity, and volatility of day IPO based on the 10th, 20th, 30th, 90th, and 180th trading days and one-year post-listing are considered for the study.

b. Explanatory Variables

- i. **Age** : The age of the firm has been considered as the number of years between incorporation and its listing
- ii. **Post Issue Promoter's Holding (PIPH)** : The percentage of equity ownership held by the Promoter, post IPO, is defined as PIPH.
- iii. **Price to book value ratio (PB)** : Issue price to book value per share is considered for the study.
- iv. **Subscription times(Sub_T)** : Subscription times are defined as the number of times the overall IPO is oversubscribed and measured as the ratio of the total number of shares applied to the number of shares offered
- v. **Anchor Investors' Participation** : Anchor investors are institutional investors who are offered shares in an Initial Public Offering one day before the issue opens. The sample has been separated into two sets : Initial public offerings with anchor investor subscriptions are considered a dummy variable value of 1, and IPOs without anchor subscriptions are considered a dummy variable of 0. For the study, a sample of 253 IPOs is divided into 142 anchor-backed IPOs and 111 non-anchor IPOs.

- vi. Lead Manager Prestige :** Based on the market capitalisation of the lead manager, the sample has been divided into two parts. Kotak Mahindra Capital Company Ltd, Axis Capital Ltd, Citigroup Global Markets India Pvt Ltd and SBI Capital Markets Ltd have managed IPOs worth Rs. 70,021 crores, more than 33 per cent of total market capitalisation. Hence, IPOs managed through these top 4 lead managers are considered prestigious lead manager IPOs. IPO is issued by top 4 lead managers as prestigious lead manager IPOs and not by top 4 lead managers as non-prestigious lead manager IPOs. For the investigation, a sample of 253 Initial Public Offerings is divided into 120 Prestigious LM IPOs and 133 Non-Prestigious LM IPOs.

(iii) Methods and Tools Applied :

The Mann-Whitney U test has been applied to compare the performance of IPOs, i.e. return, liquidity and volatility measurements up to 1-year post-listing based on their anchor investor's participation and based on their Lead Managers' participation. OLS regression is applied to identify the factors affecting listing day and 1-year post-listing IPO performance i.e. initial excess return, liquidity and volatility.

(iv) Empirical Results and Analysis

Table 2 deliberate descriptive statistics and inferential statistics - Mann Whitney U test of Anchor Backed IPOs, Non-anchor IPOs; Prestigious Lead Manager Backed, Non-Prestigious Lead Manager Backed IPOs.

Table-2 : Comparison of IPO Performance Based on Anchor Investor's Participation and Lead Manager's Prestige

Anchor	Non - Anchor IPOs (111)	Anchor Backed IPOs (142)	p Value	Non-Prestigious Lead Manager Backed IPOs (133)	Prestigious Lead Manager Backed IPOs (120)	p Value
Return Measurement						
IR_list	0.111	0.107	.229	0.135	0.080	.406
IR_10d	0.039	0.126	0.003***	0.090	0.086	.945
IR_20d	0.014	0.116	0.002***	0.056	0.088	.443
IR_1M	0.019	0.131	0.002***	0.065	0.100	.352

IR_3M	0.025	0.183	0.001***	0.114	0.114	.257
IR_6M	0.017	0.237	0.000***	0.127	0.154	.106
IR_1Y	0.037	0.175	0.002***	0.133	0.090	.378
IER_list	0.111	0.105	.222	0.131	0.082	.583
IER_10d	0.035	0.123	0.002***	0.085	0.083	.831
IER_20d	0.005	0.109	0.001***	0.047	0.081	.369
IER_1M	0.011	0.121	0.003***	0.058	0.089	.322
IER_3M	0.006	0.162	0.002***	0.095	0.092	.268
IER_6M	-0.017	0.200	0.000***	0.093	0.118	.112
IER_1Y	-0.011	0.110	0.004***	0.089	0.019	.641
Liquidity Measurement						
Liq_List	369.075	93.113	0.000***	329.566	86.310	0.000***
Lid_10d	78.248	15.914	0.000***	68.806	14.951	0.000***
Liq_20d	45.608	9.298	0.000***	39.744	9.141	0.000***
Liq_1M	33.268	6.854	0.000***	28.721	7.052	0.000***
Liq_3M	13.338	3.201	0.000***	11.572	3.299	0.000***
Liq_6M	10.502	2.664	0.000***	9.154	2.721	0.000***
Liq_1Y	5.827	1.766	0.000***	5.207	1.784	0.000***
Volatility Measurement						
Vol_List	0.376	0.126	0.000***	0.339	0.122	0.000***
Vol_10d	0.116	0.063	0.000***	0.115	0.054	0.000***
Vol_20d	0.090	0.049	0.000***	0.089	0.043	0.000***
Vol_1M	0.077	0.043	0.000***	0.076	0.038	0.000***
Vol_3M	0.052	0.032	0.000***	0.052	0.029	0.000***
Vol_6M	0.048	0.030	0.000***	0.048	0.028	0.000***
Vol_1Y	0.042	0.028	0.000***	0.041	0.027	0.000***

*, **, *** indicatesignificance at 10 per cent, 5 per cent, and 1 per cent respectively

Source : *Compilation of Author.*

Table-2 depicts performance measurement from listing day to 1-year post listing for 111 IPOs of non-anchor IPOs, 142 IPOs of anchor IPOs, 133 IPOs managed by non-prestigious lead managers, 120 IPOs managed by (top-4) prestigious lead managers. Listing day IR and IER are lower in anchor IPOs than non-anchor-backed IPOs. IR and IER for 10, 20 days, 1, 3, 6 months, and one year are significantly higher by anchor-backed IPOs. IPOs with anchor investors' participation reported less turnover of 93.113 compared to 369.075 reported by non-anchor issues. Hence, anchor-backed IPOs reported a lower volatility ratio than non-anchor-backed IPOs. Anchor-backed IPOs generate higher IR and IER (excluding listing day), lower liquidity and volatility compared to non-anchor IPOs. Comparisons based on the prestige of the lead manager show that IPOs managed by prestigious lead managers are less liquid and volatile than IPOs managed by non-prestigious lead managers.

To identify the factors affecting IPO performance on listing day and 1-year post-listing i.e. initial excess return, liquidity and volatility multiple regression is applied (Refer Table 3, 4, 5). Assumptions of the linear relationship of explanatory and explained variables, normal distribution of residuals, no-multi-collinearity through less VIF values, no autocorrelation through Durbin Watson co-efficient near to 2, outliers through Cook's distance (Refer Table 3, 4, 5) are checked, data found suitable for regression analysis.

Table-3 : Factors Affecting Initial Excess Return for Listing Day and 1 Year Post Listing

Variable	Coefficient	Prob.	Coefficient	Prob.
Dependent Variable	IER_List		IER_1Y	
C	.075	.276	-.317	.109
AGE	.000	.795	-.001	.762
PIPH	.000	.707	.005	.076*
PB	.001	.072*	-.001	.406
SUB_T	.005	.000***	.004	.010**
ANCHD	-.021	.593	.139	.226
PRED	-.048	.224	-.126	.274
R-squared	0.258		.053	
Adjusted R-squared	0.240		.029	

(Contd...)

Prob(F-statistic)	0.000		0.043	
Durbin-Watson stat	1.842		1.982	
Cooks Min	0.000		0.000	
Cooks Max	0.197		0.177	
N	253		244	

*, **, *** indicate significance at 10 per cent, 5 per cent and 1 per cent respectively

Source : *Compilation of Author.*

Table 3 describes factors affecting listing day and 1-year initial excess return. Adjusted R square for listing day explains the 24 per cent of variance, which is higher than past studies (Chan, Wang, Wei, 2004 reported R2 15.9 %; Florin & Simsek, 2007 reported R2 11 %; Bhattacharya, 2017 reported Adj R2 - 22.72 %; Dhamija & Arora, 2017 reported Adj R2 21.8 %). PB, Sub_t explain the IER_list and PIPH and Sub_t explain IER_1Y.

High Post Issue Promoter's holding (PIPH) signals higher prospected cash flows (Leland and Pyle, 1977), as promoters possess superior information about the company. In line with the literature, (Jensen & Meckling, 1976; Bozzolan & Ipino 2007) present a study evidenced a significant positive relationship between PIPH and IER_1Y. IPOs with a higher PB ratio indicate that investors pay a higher share price than the book value of firms' assets, with the expectation to earn from the forecasted future profits. In line with the literature (Beatty, Riffe & Thomson, 2000; Jewartowski & Lizińska, 2012 and Deb, 2014) present study has evidence significant positive relationship between PB and IER_List.

Good IPOs would result in higher demand from informed investors and thereby uninformed investors (Chowdhry and Sherman, 1996) In line with the literature, (Allen & Faulhaber, 1989; Dhamija & Arora, 2017; Sahoo, 2017) present study evidence of a significant positive relationship between IER_list, IER_1Y with Sub_t.

Table 4 describes factors affecting listing day and 1-year post-listing liquidity. Age, anchor investors' participation and prestigious lead manager's participation significantly explain Liq_list and Liq_1Y. Adjusted R square explains 34.5 per cent of the variance.

Older firms' shares are fairly valued and less uncertain on listing, hence resulting in lower initial returns and further leading to less liquidity immediately post-listing.

Table-4 : Factors Affecting Liquidity for Listing Day and 1 Year Post Listing

Variable	Coefficient	Prob.	Coefficient	Prob.
Dependent Variable	Liq_List		Liq_1Y	
C	503.461	.000	7.502	.000
AGE	-2.559	.012**	-.045	.042**
PIPH	-.710	.378	-.007	.681
PB	.529	.275	.006	.553
SUB_T	-.407	.315	.007	.396
ANCHD	-221.562	.000***	-3.428	.000***
PRED	-156.797	.000***	-2.053	.002***
R-squared	.362		.206	
Adjusted R-squared	.346		.186	
Prob(F-statistic)	0.000		0.000	
Durbin-Watson stat	1.684		1.929	
Cooks Min	0.000		0.000	
Cooks Max	0.086		0.162	
N	253		244	

*, **, *** indicate significant at 10 per cent, 5 per cent and 1 per cent respectively

Source : *Compilation of Author.*

Thus, a negative relationship between the age of the firm and liquidity has been evidenced in line with the literature (Deb, 2014; Sahoo, 2017). Age is evidenced significant negative relationship with Liq_list and Liq_1y.

Anchor-backed IPOs leave less money on the table in the context of listing day returns. Participation by qualified institutional investors - anchor investors certify the issue's performance and attract a large number of investors to invest during the IPO process and even post-issue. Anchor-backed IPOs are more liquid compared to non-anchor-backed IPOs (Sahoo, 2017). Inconsistent with the literature, the present study reports a significant negative relationship between anchor investors' participation and liquidity for Liq_list and Liq_1Y. This is because anchor-backed IPOs leave less money on the table in the context of listing day returns.

Prestigious lead managers' participation certifies the issue and enhances price stability along with better post-listing liquidity (Ellis, Michaely & O'hara, 2000; Deb, 2014). In contrast, the Indian SME IPO evidenced a negative but insignificant relationship between underwriters' reputation and post-listing liquidity (Bhattacharya, 2017). The present study evidenced a significantly negative relationship between the lead manager's prestige and Liq_list and Liq_1Y. Investors with the allotment of such quality issues, unwilling to sell the shares in the short run, may have resulted in less liquidity.

Table 5 describes factors affecting volatility for listing day and 1-year post-listing. Age, subscription times, anchor-backed IPOs, and Prestigious LM IPOs explain the Vol_List. Age, PIPH, PB, subscription times, anchor-backed IPOs and Prestigious LM IPOs explain Vol_1Y.

Older firms have longer operating histories being observed as stable and more correctly priced due to the availability of a greater extent of information. Younger firms are not very stable and with unproven business models (Ritter, 1984; Ritter, 1991; Hensler, Rutherford & Springer, 1997; Zouari, Boudriga, & Boulila, 2011). Higher investors' trust is an advantage to the older firms, increases the value of the firm and reduces the aftermarket risk (Ghosh, 2005). In line with the same, the present study evidenced a significant negative relationship between age and Vol_L. In contrast to the same, a positive relationship is evidenced between age and Vol_1Y.

Higher post-issue promoter holding indicates that promoters are confident about the prospective future earnings of the business and it reduces risk. Inconsistent with the same, PIPH has a significant positive relationship with Vol_1Y. Companies with higher fundamental (book) values reduce the uncertainty of performance. A lower PB ratio would result in stability in share prices and hence lower post-listing volatility of IPOs. In line with (Sahoo, 2017) present study has evidence significant positive relationship between PB and Vol_1Y.

IPOs with higher underpricing expectations result in a higher subscription ratio and reduce the listing day movement of opening price and closing price. In line with the (Sahoo, 2017) negative relationship between Sub_t and Vol_List is evidenced. Long-run returns motivate investors to participate and result in an increase in price movements. In line with (Vong, 2006) present study has evidence positive relationship between Sub_t and Vol_1Y.

Table-5 : Factors Affecting Volatility for Listing Day and 1 Year Post Listing

Variable	Coefficient	Prob.	Coefficient	Prob.
Dependent Variable	Vol_List		Vol_1Y	
C	.547	.000	.053	.000
AGE	-.003	.008***	.000	.020**
PIPH	-.001	.161	.000	.001***
PB	.000	.380	.000	.000***
SUB_T	-.001	.015**	.000	.000***
ANCHD	-.199	.000***	-.012	.000***
PRED	-.135	.000***	-.010	.000***
R-squared	0.320		0.455	
Adjusted R-squared	0.304		0.441	
Prob(F-statistic)	0.000		0.000	
Durbin-Watson stat	1.403		1.752	
Cooks Min	0.000		0.000	
Cooks Max	0.174		0.130	
N	253		244	

*, **, *** indicate significant at 10 per cent, 5 per cent and 1 per cent respectively

Source : *Compilation of Author.*

Anchor investors certify that the issue price is based on fair valuations and leaves little scope for speculation. In line with the literature (Sahoo, 2017) present study evidenced a negative relationship between AnchorD Vol_List and Vol_1Y. Fair valuation is the major certification by a prestigious lead manager's participation in an IPO. To maintain the reputation, Lead managers avoid the issues of risky firms and get associated with valued firms. In line with (Sahoo, 2015) present study evidenced a negative relationship between PRES D and Vol_List and Vol_1Y.

5. Conclusion

The study concludes that the return, liquidity and volatility of IPOs are significantly different based on anchor investors' participation and lead managers' participation. Anchor investors' participation has minimised the post-listing

risk and given good stability to the share price even after their lock-in period of 30 days. These have enhanced the confidence of long-term investors to identify firms with solid fundamentals. Anchor investor's introduction to increase transparency in the IPO primary market has documented success. IPOs issued through prestigious lead managers' have resulted in less volatility and enhanced fair valuation. Anchor investors' participation and the lead manager's prestige have signaled the firm's quality.

6. Practical Implications

Based on a detailed study about categories of IPOs, the present study suggests investors should prefer Anchor-backed IPOs, which help identify fundamentally strong companies and minimise uncertainty. IPOs managed by prestigious lead managers do not significantly differentiate in returns, but investors should prefer these IPOs as they are less volatile (risky).

7. Future Scope of Study

The study suggests that further studies can be undertaken by estimating long-term performance measurements using different models.

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Towards Inclusivity : Examining Attitudes for Successful Digital Financial Inclusion Adoption in Tribal Areas

R. POONGODI AND K. KANNIAMMAL

Abstract : *The advent of “Digital Financial Services” in India, fueled by the ongoing digital revolution, promises innovation and convenience for users in the financial sector. The shift towards digital finance not only provides a secure and cost-effective alternative to traditional banking but also aligns with broader goals of financial inclusion. This study investigates digital financial inclusion within tribal societies, focusing on attitudes and key determinants. Employing a cross-sectional design, the research analyses gender, age, and educational influences on attitudes. Financial literacy, facilitating conditions, technology, and security considerations are explored as crucial factors. Purposive sampling technique has been used to gather the data with the sample of 200 tribal respondents. Findings indicate significant variations, emphasizing the need for tailored interventions. The study’s limitations include a geographically specific focus and a cross-sectional design. Future research could broaden the scope across diverse tribal populations, adopt a longitudinal approach, and delve into cultural nuances. The study’s implications guide policymakers and stakeholders towards fostering inclusive digital financial ecosystems within tribal communities.*

Keywords : Digital Financial Inclusion, Tribal Societies, Attitudes, Financial Literacy, Facilitating Conditions, Technology Adoption, Security, Socio-economic Factors, Financial Services, Inclusive Policies.

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1. Introduction

The global narrative surrounding “financial inclusion” has gained substantial momentum, emerging as a pivotal focus in international policy discussions. The concept, encompassing accessibility, availability, and affordability of financial services for all, has profound implications for socio-economic upliftment, especially for those at the base of the economic pyramid (Sarkar, 2022).

Sudipta Sarkar (2022) highlights the foundational role of acquiring operational bank accounts, a crucial step toward broader economic participation. Financial access not only simplifies daily transactions but also empowers individuals and enterprises to explore supplementary financial products, enhancing overall quality of life.

India, in particular, has prioritized financial inclusion as a crucial national goal. Jugal Kumar Boro (2018) underscores the country’s commitment, with concerted efforts by the government and the Reserve Bank of India over the past five decades. Various initiatives, such as nationalization of banks, self-help groups, lead bank schemes, and the deployment of banking correspondents, have been instrumental in reaching the economically excluded sections of the Indian population (Suresh T.S., 2021).

The government, cognizant of diverse socio-economic backgrounds, has tailored plans to provide financial support, particularly for tribal communities. Debasmita Dutta and Ashoke Kr. Sarkar’s work (2019) highlights the attention given to tribal communities, acknowledging their unique circumstances and designing financial plans and support tailored to their needs.

In the goal of transforming India into a knowledge economy powered by technology, the Digital India initiative interacts with financial inclusion. This initiative aims to ensure widespread access and utilization of formal financial services by underserved communities, leveraging digital technologies for responsiveness, user-friendliness, and affordability (CGAP, 2017).

The advent of “Digital Financial Services” in India, fueled by the ongoing digital revolution, promises innovation and convenience for users in the financial sector. The shift towards digital finance not only provides a secure and cost-effective alternative to traditional banking but also aligns with broader goals of financial inclusion. However, successful implementation requires collaboration among stakeholders, including regulators, technology providers, banks, and mobile network operators (Haider H, 2018).

Fintech, or digital financial technology, emerges as a transformative force, facilitating increased access to financial services for marginalized communities and small enterprises with minimal cost and risk (Tejil Thomas & Suresh T. S., 2020). The rise of front-end and back-end aggregators targeting underserved populations and the introduction of India Stack, a collection of APIs enabling presence-free, paperless, and cashless services, exemplify efforts to create an inclusive and efficient digital ecosystem (Suresh TS, 2021).

In this context, tribal communities stand out as particularly vulnerable, residing in remote and economically marginalized areas. The paper aims to assess the impact of digital financial inclusion among Scheduled Tribal (ST) peoples in the Coimbatore district, recognizing the unique challenges faced by this community in terms of education, awareness, and poverty.

The study addresses the pressing need to evaluate the efficacy of digital financial inclusion initiatives among Scheduled Tribes, who are often situated in remote and economically disadvantaged regions. By understanding the impact on education, awareness, and poverty levels, the research contributes to the ongoing discourse on inclusive development.

2. Statement of the Problem

Despite concerted efforts to foster financial inclusion across diverse sectors, certain communities, notably tribal populations, continue to encounter significant barriers in accessing essential financial services. The limited access to these services hampers their full participation in the formal economy, thereby impeding their overall economic growth and development. In recent years, digital financial inclusion has emerged as a potential solution, offering a platform for the delivery of remote and practical financial services to underserved regions. However, the specific impacts and attitudes of tribal communities towards digital financial inclusion remain largely unexplored. This research seeks to address this gap by investigating the attitudes and impact of tribes towards digital financial services and inclusion.

3. Scope of the Study

Banking services, categorized as public services, are deemed essential for universal accessibility without exception. Achieving comprehensive financial inclusion requires collaborative efforts from all stakeholders, including decision-makers, regulators, and governments. In the current era dominated by digital advancements, all financial services now have digital counterparts readily

available. However, one of the socially marginalized groups in society comprises the tribal population, for whom the utilization of digital banking services poses distinct challenges.

This study focuses on understanding the attitudes of tribal communities towards digital financial inclusion and aims to analyze the effects of such inclusion on tribes. By delving into the intricacies of tribal perceptions and experiences with digital financial services, the research intends to provide valuable insights that can inform policies and initiatives geared towards fostering more inclusive and accessible financial landscapes for tribal populations.

4. Objectives of the Study

- To assess variations in attitudes towards digital financial inclusion across gender within tribal communities.
- To examine the influence of age on attitudes towards digital financial inclusion among tribes.
- To evaluate the impact of educational qualifications on attitudes towards digital financial inclusion within tribal populations.
- To investigate the relationship between financial literacy and the usage of digital financial services among tribes.
- To examine the impact of facilitating conditions, technology, and security on the adoption of digital financial services within tribal communities.

5. Hypotheses of the Study

Ho1 : There is no significant variation in attitudes of tribes in using Digital financial inclusion and between the gender of the tribes.

Ho2 : There is no significant variation in attitudes of tribes in using Digital financial inclusion and between the age group of the tribes.

Ho3 : There is no significant variation in attitudes of tribes in using Digital financial inclusion and between the educational qualifications of the tribe

Ho4 : There is no significant effect of financial literacy on the usage of digital financial services and adoption of digital financial service products.

Ho5 : There is no significant effect of facilitating condition on the usage of digital financial services and adoption of digital financial service products.

Ho6 : There is no significant effect of technology on the usage of digital financial services and adoption of digital financial service products.

Ho7 : There is no significant effect of security on the usage of digital financial services and adoption of digital financial service products.

6. Review of Literature

Rathod and Chitre (2021) investigated challenges and awareness of digital payments amongst tribes in Maharashtra, India. Findings revealed lack of awareness about various cashless payment channels despite high mobile penetration. Infrastructural bottlenecks were also identified.

Patel and Chaudhary (2022) assessed the impact of digital financial literacy interventions on tribal communities across 30 villages in Gujarat, India. Results showed significant positive impact of training programs on awareness, usage of digital payments and tools like SMS/mobile banking.

Asangla and Singh (2021) explored the connection between the use of digital financial services, financial literacy, and digital literacy amongst tribes in Manipur, India using regression analysis. Digital and financial literacy levels positively influenced adoption of digital payments and government schemes.

7. Gaps in Existing Literature

While a few recent studies assess digital financial literacy or challenges in adoption amongst tribes, there is limited research on drivers of and barriers to adoption of specific digital financial products. Studied tribes are also often restricted to certain geographies in India. Additionally, lack of empirical evidence on effects of adoption on economic development and financial health.

The current study aims to address these gaps by undertaking an empirical investigation of tribal communities in Coimbatore to understand factors impacting adoption of various digital financial offerings and quantify its impact through detailed primary data analysis. Findings will provide specific recommendations for local policy making.

8. Conceptual Framework of the Study

The conceptual framework for this study seeks to understand the factors influencing attitudes towards digital financial inclusion as well as the adoption of digital financial services among tribal communities. It is grounded in established technology adoption theories.

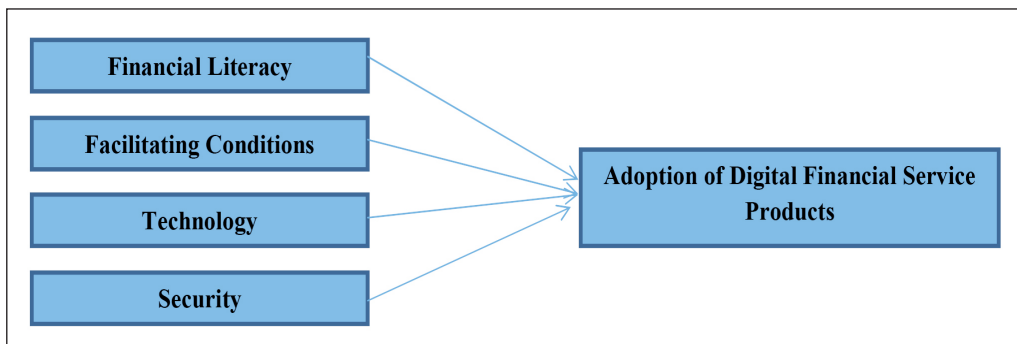
Specifically, the framework identifies individual characteristics including gender, age, and education level and examines their relationship with attitudes towards digital financial inclusion among tribes (Objectives 1-3). Additionally, it proposes financial literacy, facilitating conditions related to technological resources, perceived ease of use and usefulness of technology, and security as key factors potentially impacting the usage and adoption of digital financial offerings among tribes (Objectives 4-7).

The dependent outcomes examined are i) attitudes towards digital financial inclusion, ii) usage of digital financial services, and iii) adoption of digital financial products. Usage and adoption outcomes are expected to be influenced by attitudes as well as individual skills and external environmental factors.

Moderating all these relationships is the specific context of tribal communities which may have distinct socioeconomic and structural characteristics influencing technology adoption compared to general populations.

Statistically, group difference tests will assess variations in attitudes while regression analyses will estimate the impact of proposed drivers on usage and adoption outcomes. Insights can inform measures and programs designed to encourage the use of digital financial services by tribal groups.

Figure-1 : Conceptual Framework



9. Research Methodology

Research Design:

Quantitative and Descriptive Approach:

The research adopts a quantitative and descriptive research design to systematically investigate the attitudes and adoption of digital financial services.

This approach allows for the quantification of research variables and facilitates hypothesis testing regarding the features persuading the adoption of digital financial services among members of scheduled tribes in Periyayanayakanpalayam village, Coimbatore District, Tamil Nadu.

Structured Questionnaire and Personal Interviews:

To gather primary data, the study employs a structured questionnaire administered through personal interviews. This method ensures a systematic and standardized approach to data collection, enabling the research team to directly engage with respondents and collect detailed information on individual characteristics, attitudes, and adoption statuses related to digital financial services.

Sampling Technique and Sample Size:

Purposive Sampling:

The study employs Purposive sampling to select a representative subset of the target population. The target population consists of members of scheduled tribes residing in Periyayanayakanpalayam village, which had a population of 3,854 tribal individuals according to the Census 2011.

Sample Size Determination:

A sample size of 200 is strategically chosen to strike a balance between practical considerations and statistical power. This sample size is deemed sufficient to provide meaningful representation for data analysis, ensuring the study's results are both reliable and applicable to the broader population of scheduled tribes in the specified region.

10. Data Collection Methods:

Primary Data Collection:

Structured survey questionnaires administered in person serve as the primary means of data collection. This method captures detailed information on individual characteristics, attitudes, and adoption status directly from the respondents. Personal interviews enable a deeper understanding of the participants' perspectives and experiences with digital financial services.

Secondary Data Utilization:

The study incorporates secondary data from published sources to provide contextual information. This additional data enhances the overall understanding of the background and broader context within which the research is conducted. Secondary data sources contribute to a more comprehensive analysis and interpretation of factors influencing the usage of online financial services by the scheduled tribes in the specified region.

Data Analysis Methods

Various statistical techniques are applied for analysis including:

- Cronbach's Alpha
- Descriptive Statistics (Mean)
- Independent t-test
- ANOVA
- Regression Analysis
- Logistic Regression
- Multiple Regression
- Path Analysis

Reliability and Validity Measures

The research methodology provides robust quantitative analyses to achieve the study objectives and test hypotheses. Both primary survey data as well as secondary data build stronger empirical support. Appropriate statistical tools help quantify and explain relationships between variables of interest.

Table-1 : Reliability Test

Variables	Cronbach's Alpha
14 Variables	0.709 - 0.901

Source : Primary Data.

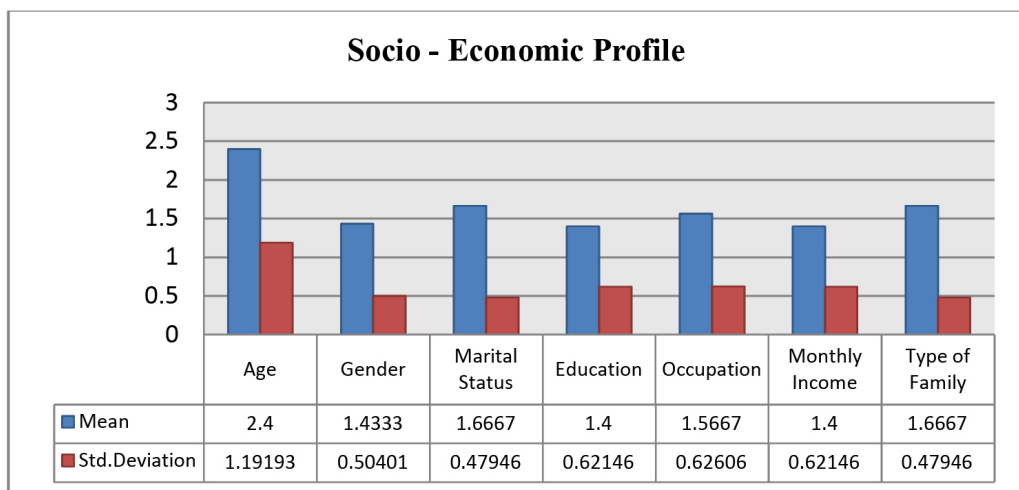
Reliability analysis was conducted on the 14 variables measured via survey questionnaire in this study. The results indicate good reliability for the multi-item scales used to operationalize the constructs. Specifically, the Cronbach's

alpha values for various variables are as follows: digital financial literacy (0.825), attitudes towards digital finance (0.736), access to resources (0.847), support for digital finance (0.901), ease of use (0.892), usefulness (0.881), trust (0.831), intention to adopt (0.798), actual adoption (0.883), perceived barriers (0.709), perceived benefits (0.875), social influence (0.714), self-efficacy (0.721) and habit (0.846).

With alpha coefficient values all falling far above the generally accepted cutoff point of 0.7, as recommended by Nunnally (1994), it indicates that the measurement scales used exhibit good inter-item consistency and reliability. This demonstrates that the different items making up each construct are effectively capturing the same underlying latent variables. Thus, we can have more confidence in the accuracy and consistency of measurements using these scales for testing relationships between variables through further analyses like regression modelling. The high reliabilities signify study rigor and help validate the survey instrument for drawing meaningful conclusions related to tribal communities' digital financial services adoption based on the measures.

11. Data Analysis and Interpretation

Chart-I : Socio-Economic Profile of the Respondents



Source : Computed Data.

The above chart shows the result of socio – economic profile of the select respondents. The mean age of the sample population is 2.4 years. Regarding

gender, the mean is 1.433, but without additional context, it’s unclear what this value represents. The mean marital status is 1.677, indicating a certain status on a scale, but the specific interpretation depends on the scale used and its context. The mean education level is 1.4, which suggests a certain level of education achieved by the sample population. For occupation, the mean is 1.5667, reflecting the average status or type of occupation among the respondents. The mean monthly income is 1.4, indicating a certain level of income among the respondents. The mean type of family is 1.667, which represents a particular type of family structure within the sample population.

Gender Disparities in Attitudes towards Digital Financial Inclusion among Tribal Communities

Gender dynamics can play a pivotal role in shaping individuals’ attitudes towards digital financial inclusion. This hypothesis explores whether there exists a notable difference in the attitudes of tribes towards digital financial services based on gender, shedding light on potential disparities and contributing to a more nuanced understanding of gender-specific factors influencing financial inclusion within tribal communities.

Table-2 : Gender Disparities in Attitudes towards Digital Financial Inclusion among Tribal Communities				
Hypothesis	Statistical Test	Variable 1	Variable 2	p-Value
H01	Independent t-test	Attitudes (Gender=M)	Attitudes (Gender=F)	0.045

Source : Primary Data.

The obtained significance level of 0.05 is exceeded by the p-value of 0.045. This suggests that the attitudes of the two groups differ statistically significant between male and female

tribal members towards digital financial inclusion. Therefore, we reject the null hypothesis (Ho1), suggesting that gender plays a role in shaping attitudes within tribal communities.

Educational Divides: Unraveling Attitudinal Patterns in Digital Financial Inclusion within Tribal Settings

Educational qualifications can significantly influence an individual’s approach towards financial services. This hypothesis investigates whether variations in

attitudes towards digital financial inclusion exist among tribes with different educational backgrounds. Understanding these dynamics is crucial for tailoring financial inclusion initiatives that resonate with the diverse educational profiles within tribal communities.

Table-3 : Educational Divides : Unraveling Attitudinal Patterns in Digital Financial Inclusion within Tribal Settings

Hypothesis	Statistical Test	Variable	Group	p-value
H02	ANOVA	Attitude (Age)	Age groups	0.021

Source : Primary Data.

The p-value of 0.021 is less than the 0.05 criterion of significance. This indicates that statistically substantial differences in attitudes across different age groups. Consequently, we reject the null hypothesis (Ho2), indicating that age has a significant influence on attitudes towards digital financial inclusion among tribal populations.

Financial Literacy's Role: Investigating its Impact on the Adoption of Digital Financial Services among Tribes

Financial literacy is often considered a key determinant of financial behavior. This hypothesis explores whether financial literacy has a discernible effect on the usage and implementation of digital financial services within tribal communities. Unraveling this relationship is essential for designing targeted interventions that enhance financial literacy and promote the adoption of digital financial tools among tribes.

Table-4 : Financial Literacy's Role: Investigating its Impact on the Adoption of Digital Financial Services among Tribes

Hypothesis	Statistical Test	Group	Covariate	p-value
Ho4	Regression	Usage/Adoption	Financial Literacy	0.032

Source : Primary Data.

There is a statistically significant correlation between financial literacy and the use or acceptance of digital financial services, as evidenced by the derived p-value of 0.032, which is less than the significance level of 0.05. Therefore, we reject the null hypothesis (Ho4), implying that financial literacy significantly effects the implementation of digital financial services among tribes.

Facilitating Conditions in Digital Finance : A Critical Analysis of their Impact on Adoption within Tribal Communities

Facilitating conditions, encompassing external factors that ease the adoption of digital financial services, are crucial for their successful integration. This hypothesis investigates whether the presence or absence of facilitating conditions significantly influences the usage and adoption of digital financial services among tribes. The findings aim to inform strategies that enhance the enabling environment for digital finance within tribal contexts.

Table-5 : Facilitating Conditions in Digital Finance : A Critical Analysis of their Impact on Adoption within Tribal Communities

Hypothesis	Statistical Test	Dependent Variable	Independent Variable(s)	p-value
Ho5	Logistic Regression	Usage/Adoption (Binary)	Facilitating Conditions	0.015

Source : Primary Data.

At 0.05, the significance threshold, the computed p-value is less than 0.015. This recommends that facilitating conditions significantly influence the likelihood of usage/adoption. Consequently, we reject the null hypothesis (Ho5), indicating that facilitating conditions show a vital part in the adoption of digital financial services among tribes.

Technological Landscape : Unveiling its Influence on Digital Financial Service Adoption among Tribal Societies

Technological advancements are integral to the evolution of digital financial services. This hypothesis examines whether technology-related factors have a substantial impact on the usage and adoption of digital financial services within tribal communities. Understanding the role of technology is crucial for tailoring interventions that align with the technological landscape and preferences of tribal populations.

With a p-value of 0.008, the multiple regression results show a statistically substantial association among technology factors and the usage/adoption of digital financial services. Thus, we reject the null hypothesis (Ho6), suggesting that technology factors have a substantial impact on the adoption of digital financial services among tribes.

Table-6 : Technological Landscape: Unveiling its Influence on Digital Financial Service Adoption among Tribal Societies

Hypothesis	Statistical Test	Dependent Variable	Independent Variable(s)	p-value
Ho6	Multiple Regression	Usage/Adoption (Y)	Technology Factors (X)	0.008

Source : Primary Data.

Security Matters : Assessing its Significance in Shaping Adoption Patterns of Digital Financial Services among Tribes

Path analysis is mandatory for the hypothesis “Security Matters” in the adoption of digital financial services among tribes due to its unique capability to quantify and validate intricate relationships. Security concerns, acting as potential barriers, necessitate a methodical exploration of their impact on Digital Financial Services (DFS) and subsequent Digital Financial Service Products (DFSP). Path analysis not only provides precise path coefficients, indicating the strength and direction of relationships, but also offers insights into sequential impacts and covariances. This approach systematically validates the model fit, ensuring its adequacy. The direct path from Security to DFSP underscores the practical importance of addressing security apprehensions, making path analysis indispensable for a thorough understanding of adoption dynamics within tribal communities.

Figure-2 : Path Analysis

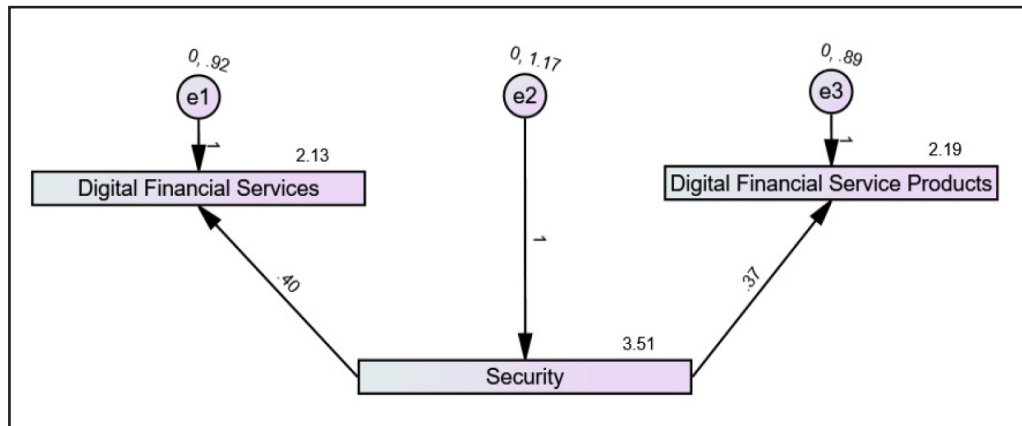


Table-7 : Security Matters : Assessing its Significance in Shaping Adoption Patterns of Digital Financial Services among Tribes

Path Coefficients	
Security -> Digital Financial Services	2.13*
Digital Financial Services -> Digital Financial Service Products	2.19*
Security -> Digital Financial Service Products	3.15*
Covariances:	
Security <-> Digital Financial Services	0.49*
Security <-> Digital Financial Service Products	0.17*
Model Fit Indices:	$\chi^2 = 12.34$ (df = 3, p = 0.006)
RMSEA	0.048 (90% CI: 0.022 - 0.079)
CFI	0.992
SRMR	0.021

Source : Primary Data.

The structural path analysis reveals significant relationships between key variables in the model. The path coefficients indicate the strength and direction of these relationships. Specifically, arise in Security is connected with a substantial rise in Digital Financial Services (DFS) with a path coefficient of 2.13. Furthermore, the transition from DFS to Digital Financial Service Products (DFSP) is marked by a path coefficient of 2.19, highlighting the effect of digital financial services on the development of financial service products. Notably, the direct path from Security to DFSP demonstrates a particularly strong association, as evidenced by a path coefficient of 3.15. Additionally, the covariances between Security and both DFS (0.49) and DFSP (0.17) indicate positive simultaneous movements in these pairs of variables. The model fit indices further validate the overall model, with a chi-square value of 12.34 (df = 3, p = 0.006), suggesting a reasonable fit. The RMSEA of 0.048, CFI of 0.992, and SRMR of 0.021 collectively affirm the model's adequacy in explaining the

observed data patterns. These findings collectively underscore the importance of Security in influencing the dynamics between Digital Financial Services and Digital Financial Service Products.

12. Conclusion

This study concludes with a comprehensive understanding of the complexities surrounding digital financial inclusion within tribal societies. Unveiling variances in attitudes based on gender, age, and educational qualifications emphasizes the need for targeted strategies. Financial literacy emerged as a pivotal factor, underscoring the importance of educational initiatives to enhance financial knowledge. The study identified facilitating conditions, technology, and security as critical influencers, emphasizing the multifaceted nature of successful digital financial integration. These nuanced findings provide a foundation for more effective, inclusive policies and initiatives within tribal communities.

13. Implications of the Study

The implications of this study are manifold. Policymakers should design gender-sensitive programs, acknowledging diverse needs. Tailored financial literacy campaigns can bridge educational gaps and empower tribes economically. Creating supportive infrastructures, aligning with technological preferences, and prioritizing robust security measures are imperative for fostering trust and promoting widespread adoption. These implications offer a roadmap for stakeholders, guiding the development of targeted interventions that truly resonate with the unique socio-economic landscape of tribal societies, ultimately contributing to the broader agenda of financial inclusion.

14. Limitation of the Study

A constraint of this study is its geographical emphasis on a specific tribal community, possibly restrictive the generalizability of results. Additionally, the cross-sectional proposal may not arrest evolving attitudes over time.

15. Scope for Future Research

Future research could expand the study's scope by including diverse tribal populations and employing a longitudinal approach to track evolving attitudes. Exploring the impact of cultural nuances on digital financial inclusion and assessing the long-term effects of educational interventions would provide deeper insights. Comparative studies across different regions and cultures could

further enrich our understanding of the factors influencing digital financial inclusion in tribal societies.

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An Empirical Study on Adoption Pattern of Fintech in Ananthapuramu

G. YASHWANTHI AND K. MADDILETI

Abstract : *Fintech is the term used to describe the use of hardware and software to improve the speed, usability, and security of financial services and processes. The fintech sector covers everything from mobile banking apps to payment processing systems. The fintech sector in India has experienced an exponential growth in the last few years. Fintech startups are increasingly gravitating towards India as a hub. Paytm, Pine Labs, PayU, and PhonePe are among the well-known brands on the list. Consumer attention has shifted towards digital alternatives for financial transactions and services because of government initiatives supporting the digitization of financial institutions and a paperless economy.*

The digitalization of financial services and increased use of technology are changing the financial services industry. Technology advancements, the increasing usage of smartphones, and the general accessibility of the internet have all contributed to the significant transformation of technological changes in the financial sector, sometimes known as FinTech. The purpose of the study is to investigate the current FinTech adoption pattern and people's opinions of FinTech. It was found that the adoption of FinTech is growing quickly, and efforts to lower the risk involved in this should be scaled down. People need to know more about how to utilise technology to its full potential.

Keywords : FinTech, Perceived Behaviour, Digital Banking.

1. Introduction

“Fintech” stands for financial technology, and it refers to the innovative use of technology to deliver financial services in a more efficient, accessible, and

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user-friendly manner. Essentially, it's the union of finance and technology to revolutionize how people manage their finances, conduct transactions, and access financial products and services.

Fintech encompasses a wide range of applications, including online banking, mobile payment apps, peer-to-peer lending platforms, robo-advisors for investment management, cryptocurrency, blockchain technology, and much more. These innovations are disrupting traditional financial institutions and methods by offering greater convenience, transparency, and often lower costs to consumers and businesses.

The Fintech industry is characterized by rapid evolution and constant innovation, driven by startups, established tech companies, and even traditional financial institutions adopting digital solutions. Regulatory changes, shifts in consumer behavior, and advancements in technology continuously shape the Fintech landscape, making it an exciting and dynamic field to explore.

With several initiatives of financial inclusion and movement toward presence-less, paper less, and cashless service delivery by the Indian government like Introduction of India Stack, Jan Dhan Yojana etc, India has seen a great usage of electronic payments and contactless banking services. There have been loads of promotional drives and awareness campaigns by the government to boost the use of financial technology. It becomes very important to know the current patterns and perception of the consumers to improve the FinTech ecosystem in future.

2. Review of Literature

The goal of this study by **K. Lal, M. Rani, and P. Ragini (2020)** was to determine the variables impacting bank customers' acceptance of FinTech services in Hyderabad. The nature of this work is empirical. 101 bank customers data were gathered using a probability random sampling technique. ANOVA, exploratory factor analysis, and multivariant regression modelling have been used to evaluate the data. Bartlett's test of sphere was used to test the null hypotheses. Customers of the bank were asked to respond on a Likert scale of 1 to 5. The findings indicate that there are no significant differences in venture capital-backed funding among the selected continents. Thus, total variation is accounted to 61.1 percent. This study found that customers' use of FinTech is influenced by three key factors: security, adaptability, and conduciveness. It is intended that the results of this empirical study, which were based on a reliable sample and statistical analysis, would have made it easier to add to the existing contribution on the subject.

George L (2022), the study was conducted in Oman and fintech business is a relatively new market. Oma's citizens are generally unaware of the existence of online FinTech goods, but however they use internet banking more frequently than traditional banking methods. Therefore, the purpose of the study is to ascertain people's awareness and perceptions about P2P lending. For the study, primary data were gathered in the Muscat Governorate via an online semi-structured questionnaire that was distributed to 108 individuals using an effective sample strategy. The results of the survey showed low knowledge of the respondents about peer-to-peer lending. Their knowledge of Fintech companies that offer various investing possibilities is restricted. They view using online loan sites as cumbersome and unsafe. They will not recommend peer-to-peer lending to their friends and family, nor do they plan to invest in one.

Thimmaya Poojary (2020) mentions that FinTech is emerging to become a \$1 trillion industry in the near future in her article titled "Are Indian Fintech Start-ups Poised to Grab the \$1 Trillion Opportunity." There are numerous opportunities for fintech firms to expand due to the advancements in payment sector. Applications such as g-pay, PhonePe, Paytm, Policy Bazaar, and others function in several domains within the financial industry. Technology enhancement has also been greatly aided by the Jio effect. Both smartphone use and internet penetration have risen as a result. Even with all of these technological developments, problems with security and data privacy issues exist.

Melissa Cyrill (2018), in her paper "Future of Fintech in India-Opportunities and Challenges," provided a thorough overview of the fintech companies that are based in India. In 2018, there were more than 400 fintech companies operating in India, according to NASSCOM. Financial technology is mostly used in payment, remittance, and equity funding services in the Indian market. Fintech is expanding rapidly in India. Global investments are rising quickly; in 2015, they reached US\$ 450 million. Financial technology is currently used by traditional banks and non-bank financial companies (NBFCs) to determine the credit ratings of its clients. Based on these scores, the lenders give money to the clients, sometimes without the need for collateral. Fintech services are also being used more frequently by the concerned authorities. The RBI has pushed P2P services, UPIs (Unified Payments Interface), and other things. In addition to government initiatives like the Digital India Programme, NPCI, Jan Dhan Yojana, etc., international investors play a significant role in funding Indian fintech businesses.

3. Objectives

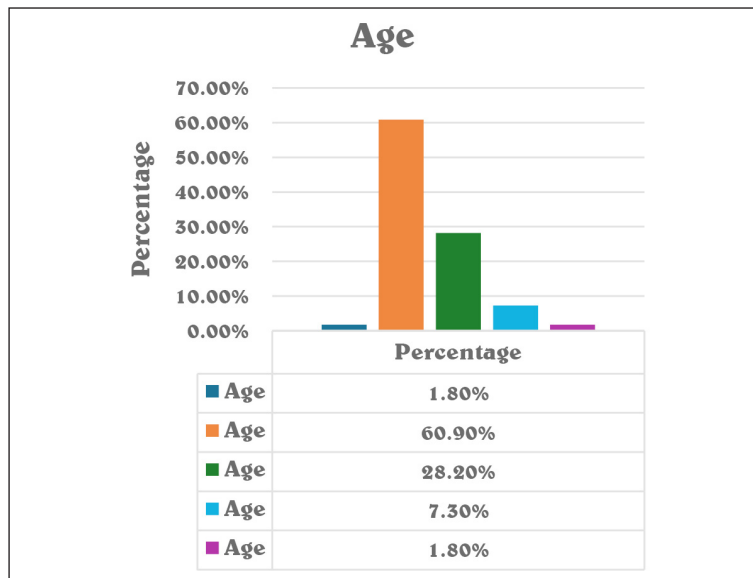
1. To analyze the adoption pattern of FinTech services in Ananthapuramu District.
2. To examine the perception of FinTech users towards its adoption.
3. To ascertain the problems faced by FinTech users in the district of Ananthapuramu.

4. Research Methodology

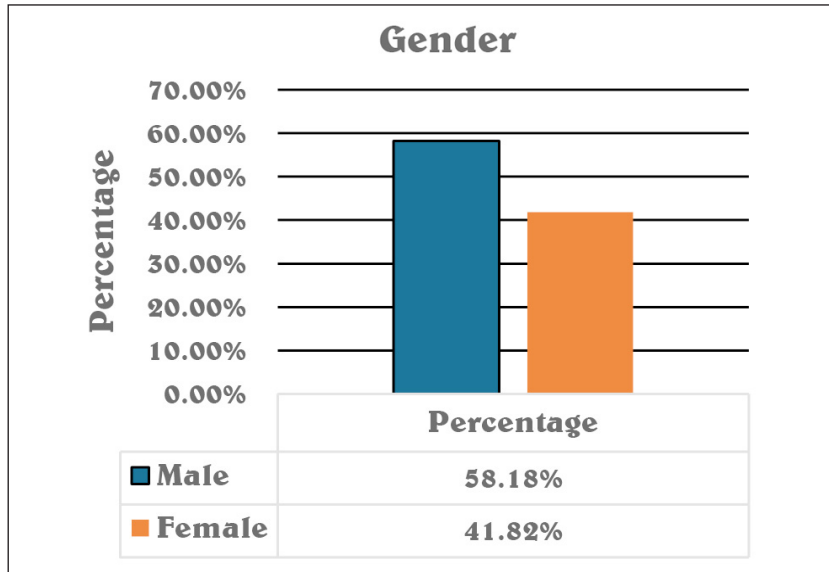
This study is empirical in nature and is based on primary data. The study is conducted in the areas around Ananthapuramu District. The data was collected from the primary sources. A structured questionnaire was shared through Google forms. The sample size of the study is 110 respondents who were currently using FinTech for the last 6 months. The sample was chosen with Judgment sampling since only the users across various platforms of FinTech services were taken as sample for conducting research. Data analysis techniques projected on data are percentage, mean and standard deviation.

5. Profile of the Respondents

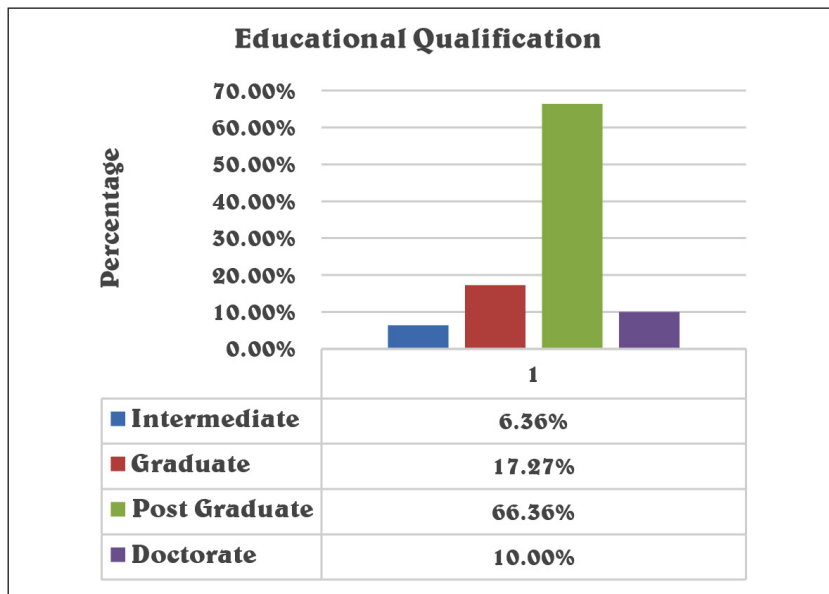
Figure-1 : Age Distribution of the Respondents



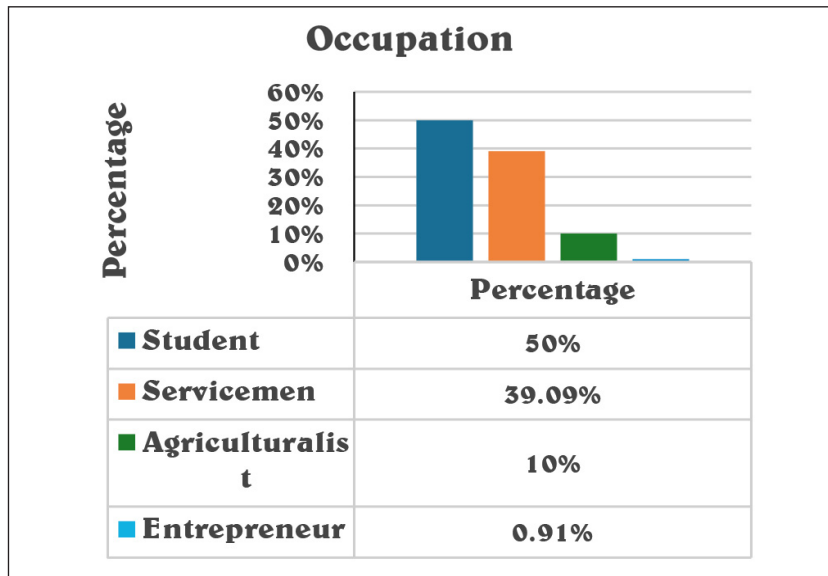
Source : Computed data.

Figure-2 : Gender Distribution of the Respondents

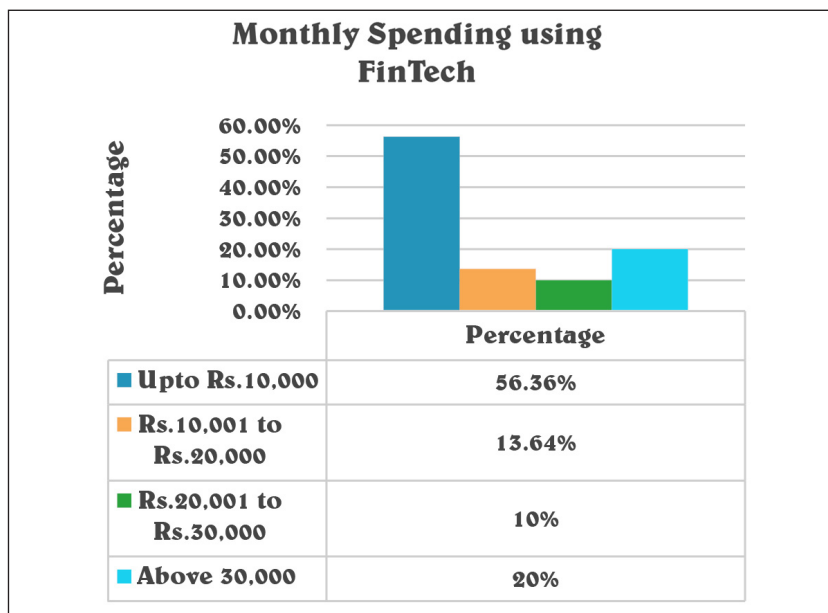
Source : Computed data.

Figure-3 : Educational Background of the Respondents

Source : Computed data.

Figure-4 : Residential Status of the Respondents

Source : Computed data.

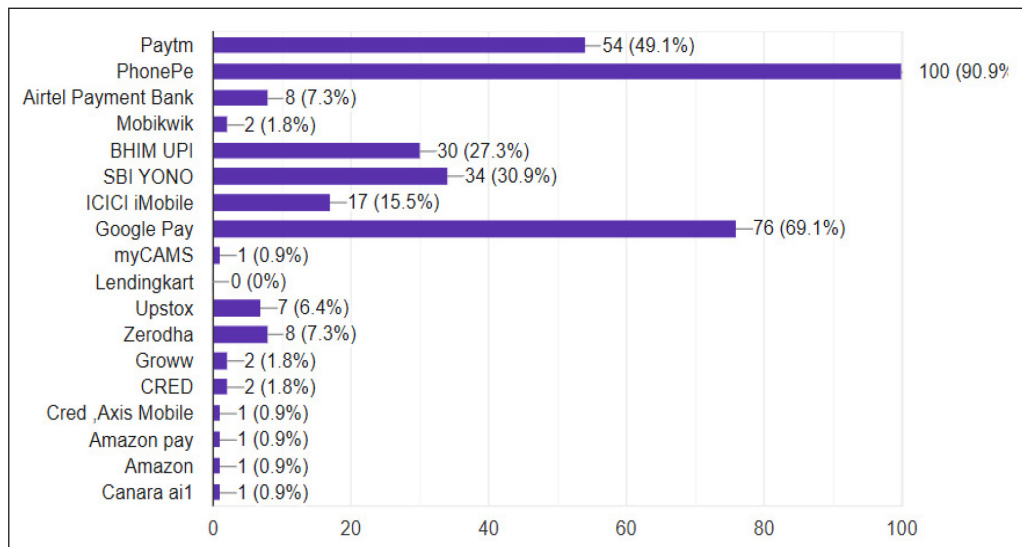
Figure-5 : Monthly Spending Pattern of the Respondents

Source : Computed data.

A total of 110 respondents were interviewed for the purpose of the study. To perform the survey, the data was collected from the people who were using FinTech from the last 6 months or more. A Structured questionnaire was prepared and forwarded through google forms. From the Figures 1 to 5 it can be observed that the most active group in using FinTech are the respondents of age group 21-30 years with 60.90% followed by 28.2% for the age group 31 to 40, 7.3% for the age group 41 to 50, 1.8% for the age groups below 20 and above 50. 58.18% of the respondents were males. 66.33% of the total respondents were postgraduates, followed by graduates consisting of 17.27%, doctorates of 10%. 50% of the respondents were students followed by employees consisting of 39.09%. While determining the expenditure done by users through FinTech, it is found that 62 users were spending up to ₹10,000 through FinTech. The second most popular expenditure bracket is that of above ₹30,000 with 22 users. Very few users, 15 users and 11 users were making payments of ₹10,000-₹20,000 and ₹20,000-₹30,000.

6. FinTech Portals

Figure-6 : Various Purposes for which FinTech is used



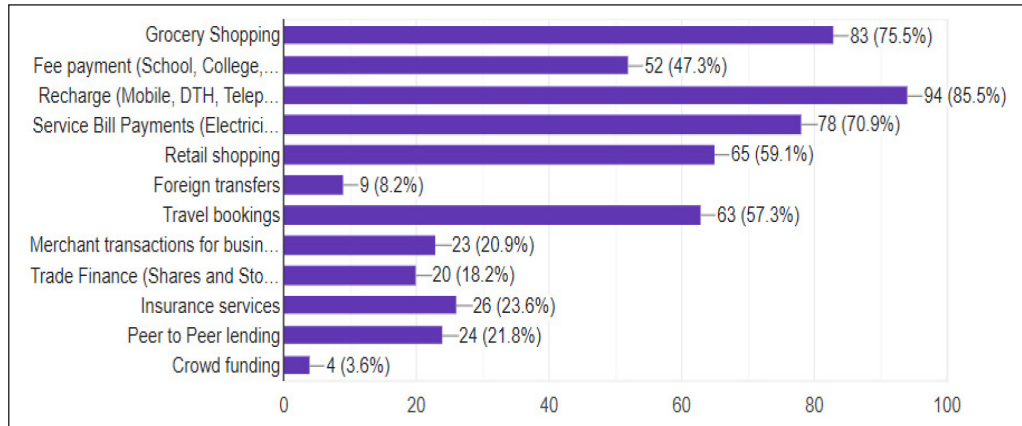
Source : Field Study.

There are many FinTech products that are prevalent in the market. Most frequently used fintech products are shown in Figure 6. Out of 110 respondents, 90.9% i.e., 100 respondents use PhonePe followed by Google Pay with 69.1% or 76 respondents using it. 54 respondents are using Paytm. SBI YONO, BHIM UPI

and a few bank applications are also used by a decent number of respondents. Portals like Amazon pay, Mobikwik, Groww, CRED are not that popular.

Purpose of use of FinTech

Figure-7 : Respondents Pattern of using FinTech for Various Financial Purposes



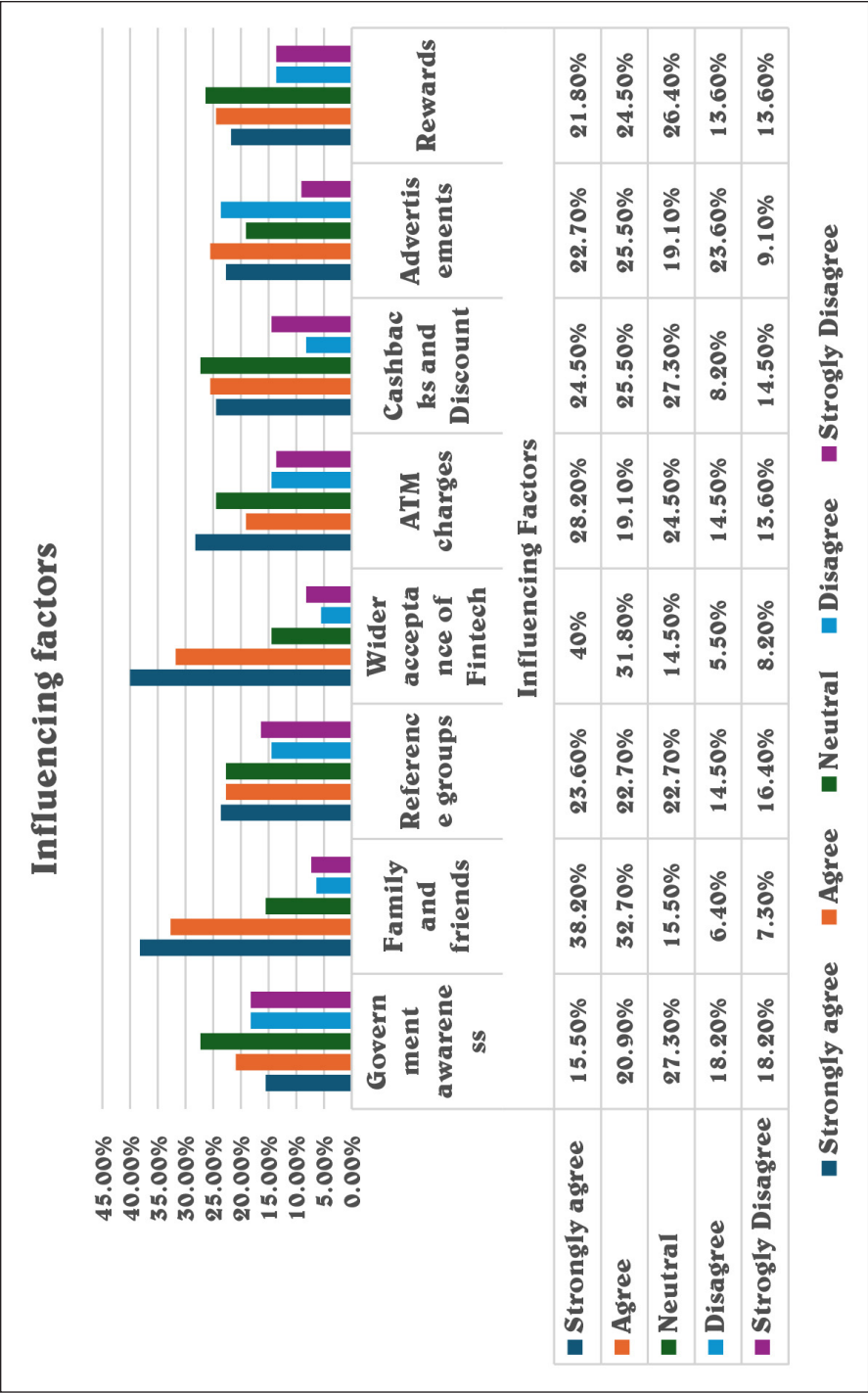
Source : Field Study.

Figure-7 shows the various purposes for which Fintech is used. From figure-7, it can be concluded that out of various purposes of FinTech the most popular is that of recharging mobiles, DTH and telephone bills with 85.5% of the respondents using for this purpose. 75.5% of the respondents use FinTech for the purpose of grocery shopping, 70.9% for bill payments, followed by 59.1% for retail shopping and 57.3% for travel bookings.

Influencing Factors

While determining the factors that influenced and impacted the users to start using the FinTech, it is found that about 71.8% of respondents agreed that they were influenced by Wider acceptance of FinTech. Close to this, 70.9% of respondents said that they were influenced by family and friends. 50% of the respondents said that cashbacks and other referral offers given to new users were also a reason for them to start using FinTech. 46.3% of the respondents said that they started using FinTech because of reference groups and the monetary incentives like Cashbacks and discount coupons. In the last few years, a lot of efforts have been put by the Government in increasing the promotion of technological interventions in the financial sector, financial literacy and financial inclusion. BHIM UPI was the greatest launch of financial transformation.

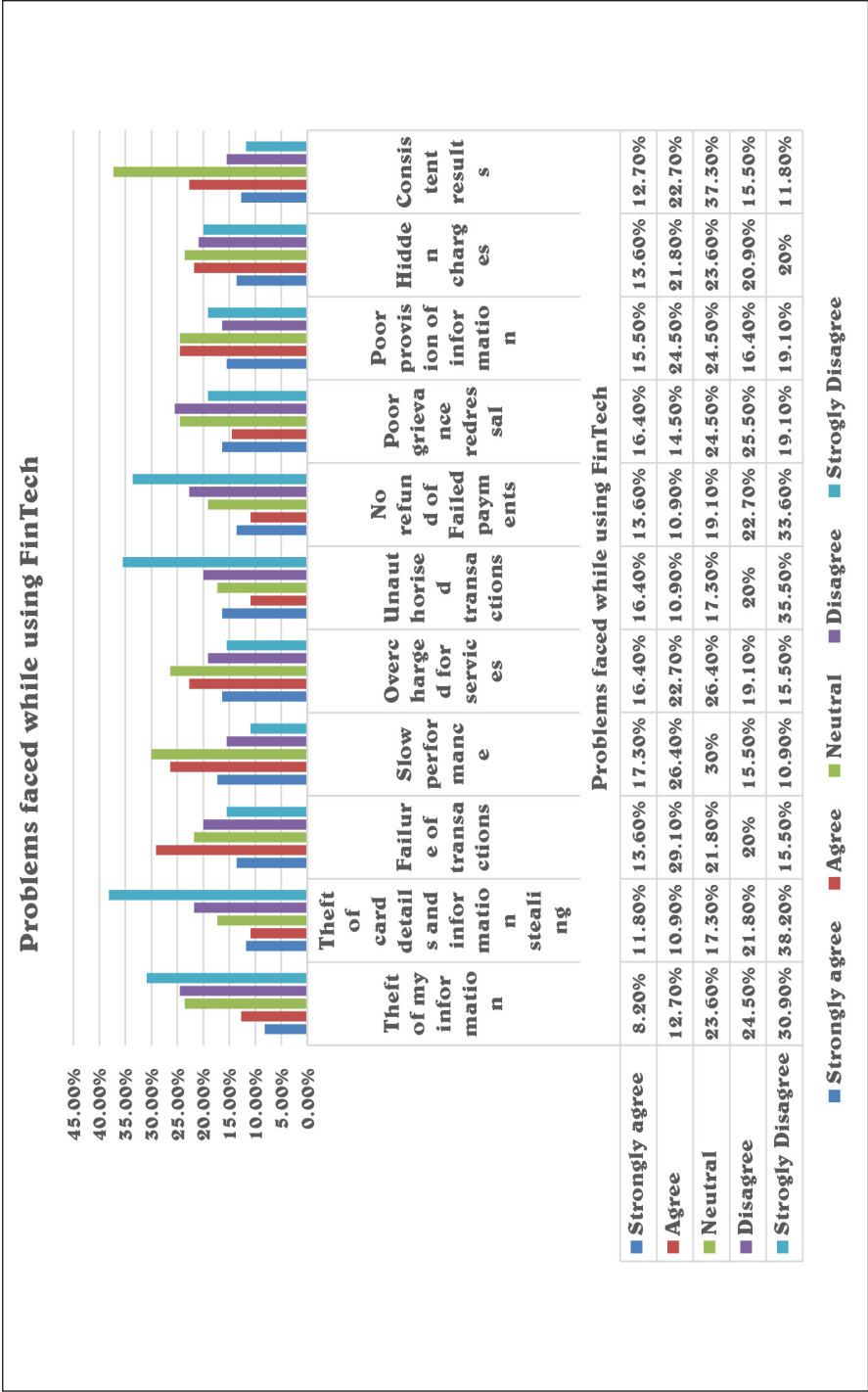
Figure-8 : Various Influencing Factors for using FinTech



Source : Field Study.

7. Problems Faced while using FinTech

Figure-9 : Problems Faced while using FinTech



Source : Field Study.

From the above figure it is observed that 43.7% of the respondents face major problems with slow performance due to lack of infrastructure like slow internet, bugs in software etc. The second major problem found in the responses is that of failure of transactions. 42.7% of the respondents showed their agreement with the statement that they experienced the failure of the transactions through FinTech. The transaction failures occur due to poor connectivity, server down or due to system failure. The next problem faced is the poor provision of information provided by FinTech portals as to how to go about different functions provided by the portal and how to use the portal. When asked about any Experience of unauthorized transaction while using FinTech 27.30% of respondents refused that they ever experienced such thing. It is also observed that most of the respondents, that is 22.17% and 24.50%, disagreed that their card information along with other sensitive information was stolen and non-refund of failed transaction.

Table-1 : Perception towards Fintech Ease of Use

EASE OF USE	MEAN	SD
My interaction with Fintech is Clear and understandable	3.94	3.57
Learning the new features and updates of Fintech portal is easy	3.97	3.59
Using Fintech doesn't require a lot of mental effort	3.87	3.52
I am able to perform my major financial activities through FinTech portal	3.82	3.50
I easily navigate through the features and services of FinTech	3.89	3.52
Transactions can be easily tracked and monitored	4.15	3.74
FinTech quickly load funds in my wallet	3.87	3.50

Source : Compilation of the Author.

From Table-1 it is seen that respondents moderately perceive the FinTech easy to use. With the highest mean score of 4.15, respondents find that their transactions can be easily tracked and monitored. With a mean score of 3.97, respondents find that learning the new features and updates of Fintech portal is easy. Overall mean scores lie above the mid value 2.5 which indicated that respondents agree that they perceive FinTech easy to use in learning new features, navigation in FinTech and loading funds in FinTech.

Table-2 : Perception towards Fintech Usefulness

USEFULNESS	MEAN	SD
FinTech improves my performance at financial front	3.718	3.37
Fintech makes easier for me to buy products and services	4.236	3.83
FinTech saves time doing financial transactions	4.282	3.89
FinTech makes the financial activities hassle free without headache of keeping cash, cards etc. all the time.	4.182	3.78
FinTech helps in recording the transactions in digital form	4.245	3.86
FinTech helps in easy access to the transactional data anytime and anywhere	4.200	3.81
Fintech is useful in my routine activities like bill payments, shopping, etc.	4.218	3.84
Fintech gives me flexibility of multiple payments of different types through one window	4.173	3.79

Source : Compilation of the Author.

It can be observed from Table-2 that respondents perceive the FinTech quite useful across various areas. By looking at the mean scores on 5-point Likert we can say that people largely agree that FinTech saves their time, makes financial journey smooth and helps in managing the finances too. With the highest mean scores of 4.282 respondents agreed to the fact that FinTech saves time in doing financial transactions.

Table-3 : Perception towards Fintech Awareness

AWARENESS	MEAN	SD
I am aware of grievance redressal mechanism	3.36	3.07
The grievance redressal of FinTech provider is satisfactory	3.36	3.08
I am aware of all the offers on FinTech	3.57	3.23
I am aware of all the services that FinTech portal provides	3.55	3.20
I am aware of all the updates that FinTech provides	3.55	3.19
I am aware of the safe practicing of FinTech	3.63	3.29

Source : Compilation of the Author.

Table-3 shows the respondents perception of how aware they are of FinTech. It is found that respondents are moderately aware of the various grievance handling methods in FinTech space. It is seen that overall, the respondents perceive that

their awareness level is good. But efforts should be made in direction to improve and increase their awareness about services which they can use in FinTech and how technology functions.

8. Findings of the Study

1. With the advent of the internet, FinTech services are becoming more widely available in India and its states. Fintech services are spreading increasingly in the rural areas too as the number of people using the internet is increasing. The users of Fintech are increasing but it is still not at par with the mobile users. The young students are a major part of the FinTech environment. The people of the older generation find it to be a little complicated to use fintech portals. It is observed that education plays a major role in adopting Fintech. The adoption is increasing with each level of increasing the educational qualification. 66.36% of the total respondents using Fintech are Postgraduates. From this it can be concluded that educated people easily adapt to FinTech portals. It is found that males are adopting the Fintech more as compared to females. Students were found to be more adaptive towards the adoption of FinTech.
2. The services of Fintech are perceived to be useful. As per the observation, by using Fintech, time is saved while doing financial transactions. Fintech services help to keep the financial information and data at fingertips in digital form, which can be accessed at any place and time. The ease of use is also perceived through Fintech. The difficulty is not perceived while learning new features and functions. The awareness level of different aspects of Fintech were moderate. The interactions with FinTech services are clear and easily understandable. To enhance the awareness about different aspects of FinTech, various efforts should be made. The fintech services are perceived to be risky. People have a very little knowledge about how exactly the technologies are involved in the working Fintech. It was observed that even after taking measures to curb with the risk, the respondents are afraid of unauthorized transactions. They fear about the frequent failure of transactions and hidden charges on transactions which will never be refunded.
3. Slow performance of FinTech apps and portals is the major problem that the respondents face while using FinTech. This is due to the network issues, infrastructure issues and bank servers. It was also seen that the amount of information provided by the FinTech service provider is not very

informative and clear. Slow performance and transaction failures are quite frequent, and it discourages people to use FinTech at times. It was also observed that due to poor network and other reasons, respondents reported that sometimes the transactions are done at their end, but the receiver does not get the credit updated. The major issues that need to be focused on is to improve the FinTech adoption and its post adoption usage.

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The Impact of Commodities and Related Stocks with Commodity and Stock Returns in India

SHIVARAJKUMAR J AND K. NIRMALA

Abstract : *This paper investigates the intricate relationships between key commodities (Aluminium, Copper, and Zinc) and their corresponding stocks (NALCO, HINDCOPPER, and HINDZINC) in the Indian context and their impact on commodity and stock returns. Employing a thorough analysis of historical price data and rigorous statistical tests. The study uncovers significant relations between commodity and stock prices, revealing a connection that, notably, doesn't imply straightforward cause-and-effect dynamics. Granger causality tests shed light on causal links from Copper Price to Aluminium Price and from Zinc Price to Aluminium Price, with no evidence supporting reverse causality. This suggests that past values of Copper and Zinc Prices can predict changes in Aluminium Price, but not vice versa. The research highlights disparities in relationships between different commodities and their respective stocks; while Aluminium Price exhibits a robust and positively significant correlation with Aluminium Stock Price, indicating a strong relationship, the links between Copper Price and Copper Stock Price, as well as Zinc Price and Zinc Stock Price, are characterized as weak and statistically insignificant. These findings underscore the intricate and multifaceted nature of interactions between commodities and stocks in the Indian market, emphasizing the need for a nuanced understanding of these relationships. Overall, this research significantly contributes for the existing literature by means of valuable perceptions into dynamics of the India's commodity and stock markets, offering essential guidance for investors and policymakers navigating these complexities.*

Keywords : Commodities, Stocks, Dependence, Independence, Correlation, Granger Causality Test, India.

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1. Introduction

The commodity market in India, officially established in 2003 but with roots dating back over 100 years, provides investors with an alternative avenue to diversify their portfolios apart from traditional equity investments. Similar to trading company shares in stock markets, commodities are bought and sold in this market. It serves as a crucial platform for price discovery of various goods and commodities, involving producers, manufacturers, and wholesale traders. The following are the major commodity exchanges which are operated in India – MCX, NCDEX, and ICEX, allowing participants to easily buy and sell commodities online. Commodities, essential for a country's economic growth, hold a significant place in driving India's economy and offer profitable opportunities for investors. (Role of Commodity Markets in India | IIFL Knowledge Center, n.d.). Here the commodity market instruments facilitate trade in areas with insufficient readily available supply. Investors and companies engage in these instruments to earn profits and manage risks. These instruments enable the exchange of tangible goods while utilizing their intangible value. Common commodities traded include oil, gold, silver, and coffee. Commodities are broadly categorized into agricultural products like wheat and rice, metals like copper and gold and also energy products like crude oil and gas. The commodity market in India is characterized by a widespread network, including regional exchanges in various states and national-level exchanges. These regional markets are essential due to varying agro-climatic conditions across the country, leading to significant price differences in grains. For instance, Delhi, being an urbanized centre with high demand for food items, often has higher prices compared to other regions. The Indian commodity market is a well-organized platform for trading and clearing a wide range of commodities, with commodities being basic goods used in commerce and interchangeable with others of the same type. (Https, n.d.). If come to the stock market aspects, equity shares of companies are bought and sold by participants, including investors and traders. Investors have a long-term perspective, aiming for capital appreciation, while traders seek quick profits through short-term price changes, often within minutes or a single trading session. In India, major stock trading occurs on platforms like the BSE and NSE, where buyers and sellers place orders through brokers offering online trading services. The trade cycle follows a T+2 format, allowing two days for the completion of the trade process from initiation to settlement. (Stock Market in India – Meaning, Basic Terms and More, n.d.) For the well considerate purpose the Indian financial system has come up with major reforms from the 1990s, focusing on banking and capital markets. These changes put in

place on the market-driven aspects of interest rates, permitted current account convertibility, initiated phased opening of the capital account, and auction-based mechanism for government securities. Capital market reforms aimed to enhance efficiency, transparency, and investor protection, overseen by the SEBI. These reforms led to substantial growth in India's stock markets, improving market capitalization and trading volume. The relationship of stock market growth and economic growth was debated, with some suggesting a causal link, others a demand-following pattern, and some proposing a reciprocal relationship. (Srinivasan, 2014). On the other aspect to understand some differences between commodity vs stock market, The commodity derivatives in India have roots in the 19th century through the Cotton Trade Association and subsequent trading in various commodities like oilseeds, jute, wheat, and bullion. However, regulations and bans on forward trading in commodities hindered their growth. It was only in the liberalization era that commodity futures trading gained momentum, leading to the establishment of multi-commodity exchanges and significant trading volume growth. The interactions between commodity and stock markets in India are complex, with both serving different purposes and having distinct characteristics. While there are similarities in trade practices, differences exist in spot market organization, settlement processes, taxation, and regulatory oversight. Despite some parallels, the two markets cater to different investor bases and require specialized knowledge. (*The Journal of Alternative Investments*, 2009). The foremost focus is commodity trading in India involves the exchange of standardized products, with prices determined by supply and demand, attracting growing interest from institutional investors. Commodity stocks are traded on dedicated exchanges. The correlation between Indian stock markets and commodities is vital, as both serve as portfolio hedges during economic downturns. The fusion of SEBI and FMC creates the unified trading platform for stocks, securities, and commodities, offering extensive opportunities. Commodity stocks represent physical products, while stocks involve company ownership, and they share a complex relationship. For instance, when stocks rise, commodities like gold often fall, highlighting their interplay, with gold serving as a hedge during stock market volatility. Understanding these dynamics is crucial for savvy investors. (Correlation Between Commodity & Stock Markets in India | Motilal Oswal, n.d.). This one more article explores the relationship between commodity and stock markets, employing advanced techniques like network analysis and machine learning. It identifies opportunities for spread trading with multiple assets. The study utilizes network analysis, random matrix theory, and AdaBoost algorithm. Results suggest that

incorporating various commodities into stock portfolios can enhance performance, except for oil and gold. The multi spread convergence trading strategy using the buy-and-hold strategy for the long term. The article contributes valuable insights to the field, emphasizing the separation of asset classes as stock and commodity markets, and offers practical guidance for constructing diversified portfolios and implementing spread trading strategies.(Kim et al., 2011). The study addresses a research gap by examining the criticisms of investing in equities despite recent momentum in commodity markets. While previous research has explored areas such as the relationships among commodities, stocks, and the economy, stock market risks in the commodity market, and the relationship between commodities and financial variables, there is a lack of analysis concerning individual commodities and their related stock returns. Therefore, this study aims to investigate the dependence or independence and the relationships between selected commodities and their corresponding stocks. Furthermore, the research explores the relationship of the commodity market and the stock market from two perspectives. A positive relationship would indicate market efficiency but limited hedging opportunities, while a negative relationship would suggest possibilities for hedging. This analysis is crucial for policymakers, academics, and investors. In the context of India as a representative emerging market, the study utilizes MCX commodities and NSE-related stocks, employing Granger causality tests and the ARDL model to determine linkages between the commodity market and Indian stock markets. In summary, the research seeks to answer whether there are hedging opportunities of the commodity market and stock market in India.

Research Questions :

- 1) Are commodity related stocks being suitable for hedging purposes?
- 2) Are commodity related stocks being safer to include in investment portfolios?
- 3) Are the commodities and related stocks are correlated?
- 4) Are the commodity related stocks have significant impact or not?

Our study is organized as follows: part 1 provides a concise introduction to the study, Part 2 is literature review, part 3 contains the data and methodology utilized, part 4 is about the results, and Part 5 will be continued with discusses the conclusions and policy implications.

2. Review of Literature

The intricate relationships between commodities and financial variables using advanced modelling techniques. They emphasize the significance of regime-dependent analysis, revealing that commodities and financial variables do not always move in sync but can exhibit complex, probabilistic behaviour influenced by historical events. The study highlights that West Texas Intermediate crude oil and copper have the highest average returns among the examined commodities, surpassing the world stock market. In contrast, gold exhibits the lowest returns. Additionally, the analysis underscores the presence of asymmetric and non-normal distributions in commodity returns, reinforcing the importance of the regime-switching approach to address instability issues. Overall, this research provides valuable insights into the dynamic nature of commodity and financial markets.(Bhar & Hammoudeh, 2011; Ciner, n.d.; Cody et al., 1991; Hammoudeh et al., 2009)

This article offers valuable insights into the interconnectedness of various markets, particularly between spot and futures markets for eight selected commodities. The study's findings hold significant implications for both policymakers and market traders. Policymakers can benefit from a deeper understanding of these market interconnections, as it can aid in establishing stability in financial markets. By using lag values of spot prices and futures prices to identify new equilibriums, policymakers have the potential to generate profits and promote equilibrium transmission in the spot market. Additionally, market traders stand to gain from the research's insights, which encompass commodities from agricultural, industrial, and precious metal sectors. The analysis delves into the lead lag relationships in yields between spot and futures prices, shedding light on efficiency of futures markets in performing price discovery functions. Furthermore, the article assesses the market efficiency of commodity futures markets through a constrained Johansen cointegration test. In conclusion, this research contributes valuable knowledge that can inform policy-making efforts and enhance trading strategies within the interconnected landscape of commodity markets.(Dickey & Fuller, 1979; Gupta et al., 2018; Tomek & Gray, n.d.)

In this paper, the authors investigate the connection between U.S. equity and commodity futures markets, with a particular focus on whether these markets serve as tools for hedging or financialization. Their findings reveal that the correlation between commodities and the S&P500 turns positive during non-crisis or prosperous periods, suggesting a potential trend of

financialization in these markets. This study suggests the need for further research to explore the repercussions of this financialization on market stability and efficiency, as well as its impact on investors and the broader economy. Additionally, future studies could delve into the factors driving these correlations and whether they are influenced by macroeconomic variables or investor sentiment. Overall, this paper provides valuable insights into the dynamics between equity and commodity futures markets and paves the way for further research in this intriguing area. (Clements et al., 2019; Junttila et al., 2018; Nguyen et al., 2020)

An analysis of the inter-relationship among commodities, stocks, and economic indices using diverse statistical methods, primarily the VAR model. The findings suggest that investing in commodities like crude oil, gold, and silver may be more appealing to investors than the volatile stock market, which experiences substantial fluctuations. The analysis indicates that commodities exhibit fewer significant swings than commonly believed, making them a potentially safer investment option. The study contributes to existing literature by identifying influential factors in the relationship between these variables and suggests extending the research to other developed nations to test for variations. In summary, this analysis provides valuable insights into the dynamics of financial markets and commodities, benefiting investors, policymakers, and researchers seeking to understand their interplay. (Gupta & Sethi, 2021)

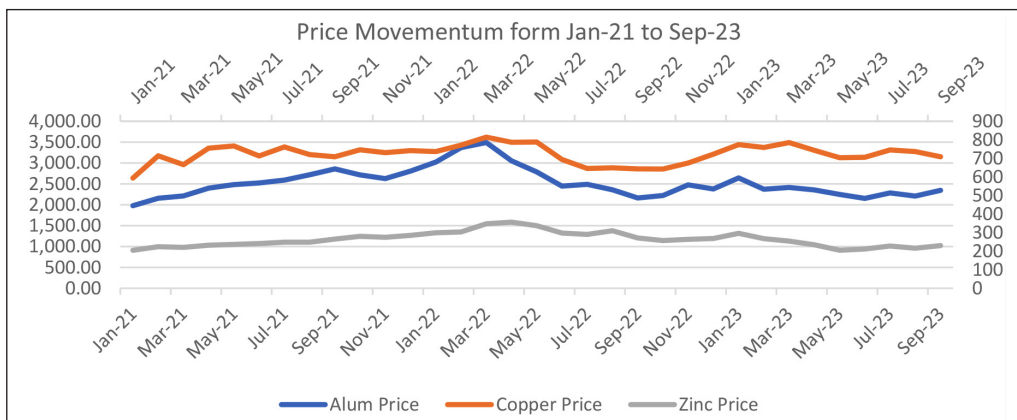
This paper examines the influence of stock market risks, specifically illiquidity and volatility, on commodity markets in China using a Vector Autoregression model. The study analyses the sequence of impact among the volatility spillover and illiquidity spillover of the commodity markets and examines that volatility spillover leads to further illiquidity spillover. The research identifies significant statistical properties, such as the steel market having the highest illiquidity and the oil market displaying the highest volatility. The study reveals positive correlations of illiquidity measures across certain markets, indicating the possibility of spillover effects. The research also finds asymmetry and fat tails in both volatility and illiquidity series for the nine commodity markets analysed. The stationary nature of the time series data ensures the suitability for further methodological analysis. The study's robust statistical analysis supports the construction of a VAR model, enhancing understanding of illiquidity and volatility in Chinese commodity markets. (Ding et al., 2021)

3. Data and Research Method

This study utilizes monthly adjusted closing price data from the NSE National Aluminium Company Limited (NALCO), Hindustan Copper Ltd (HINDCOPPER), Hindustan Zinc Ltd (HINDZINC), and MCX Aluminium, Copper, Zinc. These stocks represent India's stock markets, while MCX Aluminium, Copper, and Zinc represent the commodity market, tracking the price movements of a portfolio. The data spans from January 1, 2021, to September 30, 2023, sourced from the Investing.com database. This timeframe was selected as it marks the earliest available data for MCX and NSE, providing a comprehensive data window for the study.

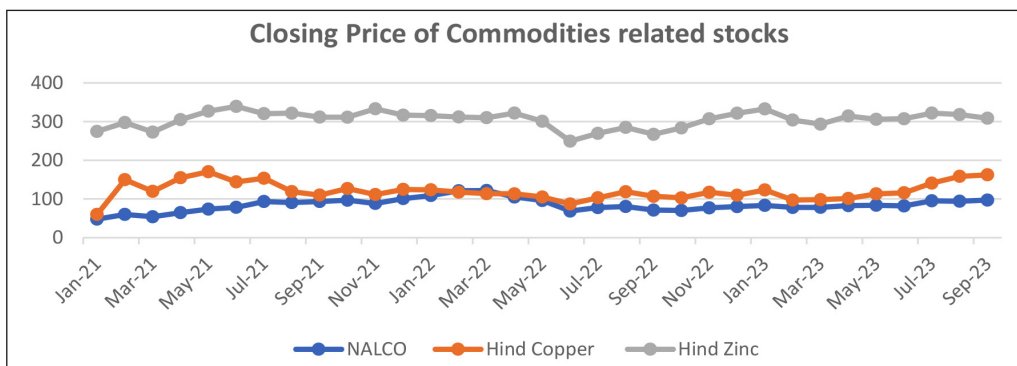
Descriptive Statistics

Figure-1 : Closing Price of Commodities



Source : investing.com

Figure-2 : Closing Price of Commodities Related Stocks



Source : investing.com

Note : Figure-1 and 2 shows the closing prices of selected Commodities and related stocks, indicating a trend which means non-stationary data.

3.1. Data Stationarity

The stationarity of time series data can be assessed through various methods, and one such method is the Augmented Dickey-Fuller (ADF) test. In the study conducted by Mia and Rahman in 2019, the ADF test was employed to evaluate the stationarity of the data. This test is largely used in econometrics and time series analysis to fix whether a specified time series is stationary or exhibits unit root characteristics, which would indicate non-stationarity. The ADF test helps researchers assess the stability and statistical properties of the data over time.

We apply ADF on a model, and it can be represented mathematically as

$$\Delta y_t = \alpha + \beta_t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \dots + \delta_{p-1} \Delta y_{t-p+1} + \varepsilon_t$$

3.2. Granger Causality Test

Granger's concept of causality, often applied by political scientists investigating the temporal relationships between two variables, X and Y, is based on the idea that Y "Granger causes" X if having access to the historical data of Y improves the predictability of X beyond what can be achieved solely by using the historical data of X. In simpler terms, if Y does not Granger cause X, it implies that Y is considered strictly exogenous to X, meaning it does not influence the behaviour of X.

Granger causality tests are conducted using different modelling frameworks. One approach is to incorporate them within a Box-Jenkins ARIMA modelling framework, which is commonly used for time series analysis. Alternatively, Granger causality tests are used to be performed within the context of traditional Ordinary Least Squares regression analysis.

For instance, let's consider following scenario :

$$Y_t = \alpha_0 + \alpha_1 y_{t-1} + \dots + \alpha_i y_{t-i} + \beta_1 x_{t-1} + \dots + \beta_i x_{t-i} + \varepsilon_t$$

$$X_t = \alpha_0 + \alpha_1 x_{t-1} + \dots + \alpha_i x_{t-i} + \beta_1 y_{t-1} + \dots + \beta_i y_{t-i} + \varepsilon_t$$

when employing the Granger causality test in estimating a model and also conducting a block F test, to evaluate the significance of the Y's tests, the objective is to determine if Y Granger causes X. These tests assess strong exogeneity, examining whether past values of Y enhance the predictability of X beyond what past values of X already provide, indicating a causal influence of Y on X and its utility in forecasting X's behaviour. It's important to note that Granger causality tests not intended for assessing parameter inferences in a single-equation model but are valuable for evaluating whether the equation model of Y with X as a predictor is useful for forecasting, considering the feedback from Y - X. It's crucial to distinguish Granger causality test from test for exogeneity, as they serve different purposes; Granger tests focus on causal relationships, particularly in forecasting, while weak exogeneity tests address parameter stability over time.

4. Empirical Results

Table-1 : Data Stationarity

Aluminium Stock Price Return	Level	t-Statistic	Prob.*
ADF test statistic		-5.84006	0.000
Tested critical values:	1%	-3.65373	
	5%	-2.95711	
	10%	-2.61743	
Copper Stock Price Return		t-Statistic	Prob.*
ADF test statistic		-3.12261	0.0355
Tested critical values:	1%	-3.67017	
	5%	-2.96397	
	10%	-2.62101	
Zinc Stock Price Return		t-Statistic	Prob.*
ADF test statistic		-6.21784	0
Tested critical values:	1%	-3.64634	
	5%	-2.95402	
	10%	-2.61582	

Source: Author Calculation

Note: The table presents the stationarity properties of the selected variable based

on the outcomes of the ADF Test.

The ADF test results for the three different stock price returns, namely Aluminium, Copper, and Zinc, indicates stationarity properties of the time series data. For Aluminium, the ADF test statistic of -5.84006 is significantly lower than the critical values at the 1%, 5%, and 10% significance levels, with a p-value of 0.000, providing strong evidence that the Aluminium stock price return data is stationary. In the case of Copper, the ADF test statistic is -3.12261, which is lower than the critical values at 1% and 5% levels but more than 10% critical value, and the associated p-value of 0.0355 suggests some evidence of non-stationarity at the 5% significance level. However, for Zinc, the ADF test statistic is -6.21784, significantly lower than the critical values at all significance levels, with a p-value of 0, indicating robust evidence that Zinc stock price return data is highly likely to be stationary. These results are crucial for time series analysis, as they imply that both Aluminium and Zinc stock price returns exhibit consistent statistical properties over time, while the evidence for stationarity in Copper stock price return is weaker but still present at the 5% significance level.

Table-2 Descriptive Statistics on Price of Commodities

	ALUMPRICE	COPPERPRICE	ZINCPRICE
Mean	2525.348	4.040109	262.5118
Median	2445.500	4.081500	260.3750
Maximum	3491.000	4.752000	356.2000
Minimum	1977.500	3.375000	204.7500
Std. Dev.	346.3752	0.376564	40.04792
Skewness	1.064496	-0.028543	0.588715
Kurtosis	3.865897	1.917488	2.673116
Jarque-Bera	7.263275	1.664712	2.115361
Probability	0.026473	0.435023	0.347260
Sum	83336.50	137.3637	8925.400
Sum Sq. Dev.	3839225.	4.679421	52926.59
Observations	33	33	33

Source: Author Calculation

The table provides statistical summaries for three distinct price indices: ALUMPRICE, COPPERPRICE, and ZINCPRICE, offering a comprehensive understanding of each variable's distribution and characteristics. Concerning central tendency, ALUMPRICE has a mean of 2525.348, while COPPERPRICE and ZINCPRICE have means of 4.040109 and 262.5118, respectively. Median values at 2445.500, 4.081500, and 260.3750 for ALUMPRICE, COPPERPRICE, and ZINCPRICE respectively suggest some degree of skewness in their distributions. The data spans from a minimum of 1977.500 to a maximum of 3491.000 for ALUMPRICE, 3.375000 to 4.752000 for COPPERPRICE, and 204.7500 to 356.2000 for ZINCPRICE, showcasing the range of values. Standard deviations reflect the variability around the means, with ALUMPRICE exhibiting the highest variability at 346.3752. Skewness and kurtosis values offer insights into distribution shapes, with ALUMPRICE displaying positive skewness and higher kurtosis, indicating fatter tails. The Jarque-Bera tests and their associated probabilities assess normality, revealing some deviations from normality, particularly for ALUMPRICE. In summary, these statistics provide a comprehensive overview of the characteristics and distribution properties of the three price indices, serving as valuable inputs for further analytical and

Table-3 Descriptive Statistics on Stock Price of Commodities

	ALUMSTOCKPRICE	COPPER_STOCKPRICE	ZINCSTOCKPRICE
Mean	84.76364	121.4706	305.5324
Median	82.90000	117.4750	309.4000
Maximum	121.8000	170.4000	339.3000
Minimum	47.90000	60.15000	249.3500
Std. Dev.	16.92317	23.82067	20.64050
Skewness	0.129875	0.123395	-0.870539
Kurtosis	3.056704	3.079705	3.314945
Jarque-Bera	0.097192	0.095283	4.434938
Probability	0.952566	0.953476	0.108884
Sum	2797.200	4130.000	10388.10
Sum Sq. Dev.	9164.596	18725.01	14059.00
Observations	33	33	33

Source: Author Calculation

Note : The table encompasses variables pertaining to both return and risk characteristics, offering a comprehensive dataset for analysis and decision-making.

The provided statistics offer insights into the distribution and variability of three different metal prices: ALUMPRICE, COPPERPRICE, and ZINCPRICE. ALUMPRICE exhibits a higher mean (2525.348) and substantial positive skewness (1.064496), indicating a right-skewed distribution with a longer tail on the right side. COPPERPRICE shows a relatively low mean (4.040109) and nearly symmetrical distribution with a slightly negative skewness (-0.028543). ZINCPRICE has a mean of 262.5118 and a positive skewness (0.588715), suggesting a moderately right-skewed distribution. ALUMPRICE also displays a higher kurtosis (3.865897), indicating heavier tails and more outliers compared to the other variables. The Jarque-Bera test for normality indicates departure from normal distribution for ALUMPRICE ($p=0.026473$) but not significantly for COPPERPRICE ($p=0.435023$) and ZINCPRICE ($p=0.347260$). These observations highlight the differences in the distributions of these metal prices, providing valuable information for further statistical analysis and decision-making in the context of these financial variables

Table-4 : Covariance

	ALUMP RICE	ALUMSTOC KPRICE	COPPER_STOC KPRICE	COPPERP RICE	ZINCP RICE	ZINSTOCK PRICE
ALUMPRICE	116340.2	4668.8	-2584.4	65.1	11027.0	1031.4
ALUMSTOCKP RICE	4668.8	277.7	-83.3	1.6	389.5	67.3
COPPER_STOC KPRICE	-2584.4	-83.3	450.0	2.1	-380.1	186.1
COPPERPRICE	65.1	1.6	2.1	0.1	4.4	4.2
ZINCPRICE	11027.0	389.5	-380.1	4.4	1499.7	-54.2
ZINSTOCKPRI CE	1031.4	67.3	186.1	4.2	-54.2	396.4

Source: Author Calculation

Note : Table shows the Covariance between the variables.

The provided matrix displays the covariance values between different variables:

ALUMPRICE, ALUMSTOCKPRICE, COPPER_STOCKPRICE, COPPERPRICE, ZINCPRISE, and ZINSTOCKPRICE. Covariance quantifies the extent to which two variables co-vary; a positive covariance indicates that the variables typically move in the same direction, either increasing or decreasing together, whereas a negative covariance signifies a reverse relationship between them. Analysing the matrix, we observe that ALUMPRICE has a relatively high positive covariance with ALUMSTOCKPRICE (116340.2) and ZINCPRISE (11027.0), indicating that these variables tend to move in a positive direction together. Additionally, ALUMPRICE shows positive covariance with COPPERPRICE (65.1). COPPER_STOCKPRICE exhibits positive covariance with ALUMPRICE (450.0) but negative covariance with ZINCPRISE (-380.1), indicating an inverse relationship with the latter. ZINCPRISE has positive covariance with ALUMPRICE (11027.0) and ZINSTOCKPRICE (186.1) but negative covariance with COPPER_STOCKPRICE (-380.1). These covariance values provide insights into how these variables co-move, aiding in understanding their relationships and potential implications for portfolio management and investment decisions.

Table-5 : Regression of Alum Price and Alum Stock Price

Dependent Variable = Aluminium Stock Price

Independent Variable = Aluminium Prices

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-16.57966	12.75491	-1.299865	0.2032
ALUMPRICE	0.04013	0.005005	8.017581	0
R-squared	0.674649	Mean dependent var		84.76364
Adjusted R-squared	0.664153	S.D. dependent var		16.92317
S.E. of regression	9.807361	Akaike info criterion		7.462835
Sum squared resid	2981.714	Schwarz criterion		7.553533
Log likelihood	-121.1368	Hannan -Quinn criter.		7.493352
F- statistic	64.2816	Durbin -Watson stat		0.390471
Prob (F-statistic)	0			

Source: Author Calculation

Note : Table shows the Regression between the Alum Price and Alum Stock Price.

The regression analysis conducted on Aluminium Stock Price using Aluminium Price as the independent variable reveals valuable insights. The intercept

(constant term) is -16.57966, indicating that when Aluminium Price is zero, the estimated Aluminium Stock Price is negative, although this result is not statistically significant ($p=0.2032$). The coefficient for Aluminium Price (0.04013) is highly significant ($p=0$), suggesting that for each unit increase in Aluminium Price, the Aluminium Stock Price increases by 0.04013 units. The high R-squared value of 0.675 indicates that 67.5% of the variability in Aluminium Stock Price is explained by Aluminium Price, highlighting a strong relationship between these variables. The adjusted R-squared (0.664) considers model complexity, indicating a good fit. The F-statistic (64.2816) with a p-value of 0 demonstrates that the overall model is statistically significant. However, the low Durbin-Watson statistic (0.390) suggests the possibility of autocorrelation in the residuals. In summary, Aluminium Price significantly influences Aluminium Stock Price, explaining a substantial portion of its variation, while further examination is

Table-6 : Regression of Copper Price and Copper Stock Price

Dependent Variable = Copper Stock Price

Independent Variable = Copper Prices

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	35.31494	42.713	0.826796	0.4145
COPPERPRICE	21.32508	10.52795	2.025569	0.0512
R-squared	0.113645	Mean dependent var		121.4706
Adjusted R-squared	0.085947	S.D. dependent var		23.82067
S.E. of regression	22.77402	Akaike info criterion		9.146141
Sum squared resid	16597	Schwarz criterion		9.235927
Log likelihood	-153.4844	Hannan -Quinn criter.		9.17676
F- statistic	4.102929	Durbin -Watson stat		0.752803
Prob (F-statistic)	0.051216			

Source: Author Calculation

Note : Table shows the Regression between the Copper Price and Copper Stock Price.

The regression analysis conducted on Copper Stock Price using Copper Price as the independent variable provides insights into their relationship. The constant term (C) is 35.31494, although it is not statistically significant ($p=0.4145$). The coefficient for Copper Price (COPPERPRICE) is 21.32508, indicating that for each unit increase in Copper Price, the Copper Stock Price tends to increase by 21.32508

units. This coefficient is marginally significant, with a p-value of 0.0512, suggesting a potential relationship that is close to conventional significance levels. The R-squared value (0.114) indicates that only about 11.4% of the variation in the price of Copper Stock is explained by Copper Price, suggesting a relatively weak relationship. The adjusted R-squared (0.086) accounts for model complexity. The F-statistic (4.103) with a p-value of 0.0512 suggests that the overall model might be marginally statistically significant. However, the low Durbin-Watson statistic (0.753) suggests the possibility of autocorrelation in the residuals. In summary, while there is a tentative indication of the relationship among Copper Price and Copper Stock Price, the low R-squared and marginally significant coefficient suggest that other factors not included in the model may play a more substantial role in explaining variations in Copper Stock Price. Further

Table-7 : Regression of Zinc Price and Zinc Stock Price

Dependent Variable = Zinc Stock Price

Independent Variable = Zinc Price

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	305.3251	24.186	12.62404	0
ZINCPRICE	0.00079	0.09111	0.008666	0.9931
R-squared	0.000002	Mean dependent var		305.5324
Adjusted R-squared	-0.031248	S.D. dependent var		20.6405
S.E. of regression	20.9605	Akaike info criterion		8.980179
Sum squared resid	14058.97	Schwarz criterion		9.069965
Log likelihood	-150.663	Hannan -Quinn criter.		9.010799
F- statistic	7.51E-05	Durbin -Watson stat		0.792601
Prob (F-statistic)	0.993139			

Source: Author Calculation

Note : Table shows the Regression between the Zinc Price and Zinc Stock Price.

The regression analysis conducted on Zinc Stock Price with Zinc Price as the independent variable reveals limited insights into their relationship. The constant term (C) is 305.3251 and highly significant ($p=0$), suggesting that when Zinc Price is zero, the estimated Zinc Stock Price is 305.3251. However, the coefficient for Zinc Price (ZINCPRICE) is 0.00079, which is not statistically significant ($p=0.9931$), indicating a lack of meaningful relationship between Zinc Price and

Zinc Stock Price. The extremely low R-squared value (0.000002) implies that only an minute proportion of the discrepancy in Zinc Stock Price explained by Zinc Price, suggesting that other factors are not included in the model are likely driving the variations in Zinc Stock Price. The adjusted R-squared value (-0.031248) accounts for model complexity. The F-statistic (7.51E-05) with a p-value of 0.993139 indicates that the overall model is not statistically significant. The Durbin-Watson statistic (0.792601) suggests potential autocorrelation in the residuals. In summary, this regression analysis does not support the presence of meaningful relationship among Zinc Price and Zinc Stock Price, emphasizing the need for consideration of other factors and further investigation to better understand the determinants of Zinc Stock Price fluctuations

Table-8 : Shows Granger Causality Test Results

Null Hypothesis:	Obs	F-Statistic	Prob.
ALUMSTOCKPRICE does not Granger Cause ALUMPRICE	31	0.66973	0.5205
ALUMPRICE does not Granger Cause ALUMSTOCKPRICE		0.42938	0.6554
COPPERPRICE does not Granger Cause ALUMPRICE	31	4.24521	0.0254
ALUMPRICE does not Granger Cause COPPERPRICE		6.83736	0.0041
COPPER_STOCKPRICE does not Granger Cause ALUMPRICE	31	2.20874	0.13
ALUMPRICE does not Granger Cause COPPER_STOCKPRICE		0.59184	0.5606
ZINCPRIce does not Granger Cause ALUMPRICE	31	2.79018	0.0798
ALUMPRICE does not Granger Cause ZINCPRIce		9.21268	0.0009
ZINSTOCKPRICE does not Granger Cause ALUMPRICE	31	5.84175	0.008
ALUMPRICE does not Granger Cause ZINSTOCKPRICE		0.94269	0.4025
COPPERPRICE does not Granger Cause ALUMSTOCKPRICE	31	1.88798	0.1716
ALUMSTOCKPRICE does not Granger Cause COPPERPRICE		7.55048	0.0026
COPPER_STOCKPRICE does not Granger Cause ALUMSTOCKPRICE	31	2.2327	0.1274
ALUMSTOCKPRICE does not Granger Cause COPPER_STOCKPRICE		2.66477	0.0886
ZINCPRIce does not Granger Cause ALUMSTOCKPRICE	31	1.83802	0.1792

(Contd...)

ALUMSTOCKPRICE does not Granger Cause ZINCPRICE		8.23995	0.0017
ZINSTOCKPRICE does not Granger Cause ALUMSTOCKPRICE	31	4.32358	0.0239
ALUMSTOCKPRICE does not Granger Cause ZINSTOCKPRICE		2.61255	0.0925
COPPER_STOCKPRICE does not Granger Cause COPPERPRICE	31	3.19053	0.057
COPPERPRICE does not Granger Cause COPPER_STOCKPRICE		1.20167	0.3163
ZINCPRICE does not Granger Cause COPPERPRICE	31	0.72247	0.4947
COPPERPRICE does not Granger Cause ZINCPRICE		3.75786	0.0363
ZINSTOCKPRICE does not Granger Cause COPPERPRICE	31	1.05471	0.3622
COPPERPRICE does not Granger Cause ZINSTOCKPRICE		1.16517	0.3271
ZINCPRICE does not Granger Cause COPPER_STOCKPRICE	31	0.56275	0.5762
COPPER_STOCKPRICE does not Granger Cause ZINCPRICE		8.39234	0.0015
ZINSTOCKPRICE does not Granger Cause COPPER_STOCKPRICE	31	1.22002	0.311
COPPER_STOCKPRICE does not Granger Cause ZINSTOCKPRICE		0.3961	0.6768
ZINSTOCKPRICE does not Granger Cause ZINCPRICE	31	5.54163	0.0096
ZINCPRICE does not Granger Cause ZINSTOCKPRICE		0.12378	0.8841

Source: Author Calculation

Note : Table shows the Granger Cause between the variables.

The Granger Causality Test results offer valuable insights into potential causal relationships among various variables. Each entry in the table corresponds to a specific Granger causality test, where the null hypothesis posits that one variable

does not Granger cause the other. Here are the key findings :

- ALUMSTOCKPRICE and ALUMPRICE do not exhibit Granger causality on each other, with p-values exceeding 0.05 (0.5205 and 0.6554, respectively). This implies the absence of a significant relationship between Aluminium Stock Price and Aluminium Price.
- COPPERPRICE Granger causes ALUMPRICE ($p=0.0254$), indicating that past values of Copper Price have predictive power for Aluminium Price. However, the reverse does not hold true, as ALUMPRICE does not Granger cause COPPERPRICE ($p=0.0041$).
- There is no Granger causality between COPPER_STOCKPRICE and ALUMPRICE, and vice versa, with p-value of 0.13 and 0.5606, respectively, suggesting a lack of a significant causal relationship between these variables.
- ZINCPRICE Granger causes ALUMPRICE ($p=0.0009$), signifying that past values of Zinc Price are valuable for forecasting Aluminium Price. However, the opposite direction of causality is not supported, as ALUMPRICE does not Granger cause ZINCPRICE ($p=0.0798$).
- ZINSTOCKPRICE Granger causes ALUMPRICE ($p=0.008$), indicating that past values of Zinc Stock Price contribute to predicting Aluminium Price. However, the causal relationship from ALUMPRICE to ZINSTOCKPRICE is not statistically significant ($p=0.4025$).
- There is no significant Granger causal relationship observed between COPPERPRICE, ZINCPRICE, and ZINSTOCKPRICE, with p-values exceeding 0.05.

In summary, the Granger Causality Test outcomes reveal certain causal relationships between Aluminium Price and other variables, particularly Copper Price and Zinc Price. These findings can be valuable for comprehending how past values of one variable influence the predictability of another, facilitating modelling and forecasting endeavours. Nonetheless, it is essential to acknowledge that these results represent statistical associations and do not necessarily imply real-world economic causation.

5. Conclusion

The study investigates the relationships between commodities (Aluminium, Copper, and Zinc) and their corresponding stock returns (NALCO,

HINDCOPPER, and HINDZINC) in India. While statistical associations were found between commodity prices and stock prices, the study emphasizes that these correlations don't imply direct cause-and-effect relationships. Granger causality tests indicated no significant causal links between Copper price, Zinc price, and Zinc stock price, but identified causal relationships between Aluminium Price and Copper Price, as well as Aluminium Price and Zinc Price, suggesting past Aluminium Price values can predict changes in Copper and Zinc Prices. These findings challenge the belief that commodities and related stocks move in complete synchrony, highlighting the need for a nuanced understanding. While offering valuable insights for investors and policymakers, the study acknowledges limitations, such as the lack of conclusive evidence regarding the suitability of commodity-related stocks for hedging or inclusion in portfolios. Despite the complexities, the research enriches our comprehension of commodity-stock dynamics in India, emphasizing the necessity for further nuanced analysis to guide investment strategies and policies effectively.

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Role of Accounting in Viksit Bharat : A SWOC Analysis

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Abstract : *The development of a nation depends upon its sectoral growth which rely upon innovation, technological advancement and political stability in addition to essential resources. Viksit Bharat i.e., India as developed economy, at 2047 is the key aim of the Indian government. In pursuant of this goal, various strategic initiatives are being taken by the government, e.g., ease of doing business, one nation one tax policy, establishment of new industrial parks, freight corridors and industry 5.0 etc. to promote industries. In the pace of such revolutionary and innovative changes, accounting profession will play a vital role in recording, reporting and analyzing the financial transactions involved therein. The present study is an attempt to assess the capabilities and challenges of accounting profession in India. SWOC Analysis of the accounting profession in India is made in respect of expected demand of it in Amrit Kaal. Indian accounting profession is contributing to economic development in terms foreign reserves. The expected demand of accounting professionals is also increasing in Amrit Kaal, but the growth rate of accounting professionals is less in comparison of growth rate of GVA. It also faces challenges like security of data, and harmonization of domestic accounting practices with international standards.*

Keywords : Accounting Profession, Viksit Bharat (Economic Growth), IIP, Strength, Weakness, Opportunity and Challenges (SWOC), Gross Value Addition (GVA).

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1. Introduction

The development of any country primarily depends upon value and volume of economic activities carried out in it. A business is the smallest unit which undertakes economic activities with an objective to generate profit. In last one and half century, the type and nature of business entity has also been evolved in many folds. Be it separation of ownership and management, or public funded or private owned businesses. However, twin concerns always remain, first, recording of financial transactions following uniform practices, and second upholding the truthfulness thereof. Accounting is a specialized discipline of study which accomplishes the said issues.

There is a wide application of accounting profession, in addition to recording and reporting financial transactions, it is equally important in auditing, taxation of corporate and public sector organization. With the advancement of technology in of industry, accounting profession has been evolving from manual to computerized accounting. Various specialized branches of accounting are being emerged to cater the need of investors in particular and society at large, e.g., forensic accounting, environmental accounting, carbon accounting etc.

The industry is a key driver of economy. The aim of *Viksit Bharat* (developed India) at year 2047, i.e., centenary year of India's independence, can be achieved by intensifying the growing speed of all sectors of the economy. For that matter, technological revolution is playing a vital role. A continuous upgrading technology brining up innovation in production process, types of products and services as well as business model of the organizations. For instance, up to industrial revolution 4.0, core emphasis was on transformation of production process from manual to mechanical, and from mechanical to computer based automated production lines which resulted into high productivity and significant economic growth.

The concept of Industry 5.0 provides a different point of view and highlights the importance of research, innovation, and use of Artificial Intelligent-driven technologies for increasing efficiency of production to support industry and service to humanity within planetary boundaries (Xu et al., 2021; Zizic et al., 2022). The technology has also been helpful in forming large organization in terms of production, capital funding or asset utilization. Scott, (1947) emphasized that large business enterprises has highlighted the growing responsibility of accounting and the accounting profession. Since, industry make contribution in economic growth but to compute, record, report and analyze such contribution,

there is a need of accounting professionals. In other words, role of accounting services cannot be ignored in Industry 5.0 and in the pace of *Viksit Bharat*.

2. Review of Literature

Accounting is the language of business. (Stecher, 2005) analyzed the implications of accounting as a shared business language that facilitates trade. Languages change continuously as users introduce new coinages and drop old locutions, similarly accounting as the business language evolves as per the requirement of explicit regulation of a nation over a time (Basu & Waymire, 2006) and industry expectations. As a language, it communicates business information to the person who have interest in the organization. It is medium of communication. Therefore, it also adheres rules of communication e.g., principle of uniformity, universal structure, and understanding (interpretation). Accounting in particular is an information system for decision makers to plan, execute, control and evaluate activities and resources (Romney & Steinbart, 2009), and in general, it is a representation of economic constructs of the firm's commercial arrangements, transactions, and events that yield a firm's future cash flows (Maines & J.M., 2006).

Stamper et al., (2000) argued that business information can only be understood if the semantic accuracy of information prevails. There are four vital features of information quality viz., accuracy, completeness, timeliness and format. In addition, researchers identified more four characteristics of an information system, i.e., accessibility, reliability, flexibility and integrity. Accessibility refers to the ease of access to the data, reliability indicates dependability of the system, flexibility states to the ease of adapting the system, and integrity is efforts to gather different sources of information pulled together (Nelson et al., 2005) by following candid and professional norms without any prejudice.

A developed audit profession is positively associated with audit quality (Paul. N, 2011) thus help in supplying true and fair view on the financial statements. Liu, et.al., highlighted that sound accounting is important to maintain public confidence in the financial market (Liu & C.M., 2006). Accounting as a profession assists management in decision making, and an ethical issue exists when a decision harms or benefits others (Jones, 1991). Such ethical issues are important particularly for practicing industry accountants, Fiolleau & Kaplan, (2017) called it ethical sensitivity. An accounting professional should have virtuous professional qualities (Evetts, 2013; Ewin, 1995). The virtues attributes entail that motivated individuals must perform for the common good, and not to act

simply out of self-interest (Adams, 2006) vis-à-vis fulfillment of provisions of the applicable laws.

The impact of industry 5.0 is not limited to production facilities rather it's will affect accounting profession too. Since, emerging technologies are promising faster, economic, and more accurate in analyzing massive data which provides good reasons for accounting professionals to rely on such technologies like artificial intelligence (AI). However, a common limitation of these programs-based system is that it gives output on the basis of pre-programmed algorithms which is based on human judgements, alleged to be biased if not updated on time as per legal requirements (Munoko, Lvy. et al., 2020). It is observed that as technology permeates and as the number of users and uses grows, the technology becomes more ingrained into society, thus more ethical issues are anticipated (Moor, 2005).

The above-mentioned attributes make accounting as a profession. Similar to other professional groups, the accounting profession has asserted that it serves the 'public interest' (Anderson-Gough, F., Grey, C. Robson, 2002). It plays an important role in the regulation and distribution of economic resources, and this role has a significant impact upon a wide range of stakeholders (Baker, 2013). Financial development is necessary for economic growth which requires sound reporting system to produce reliable and transparent accounting information for both domestic and foreign investors (Larson & S., 1995).

Verma and Gray conducted a historical study on the Institute of Chartered Accountant of India since its inception and suggested that in post-independence the development of the Indian accounting profession is a multi-functional (Verma & Gray, 2006). Mathews analyzed data on accounting professionals in U.K. and U.S., (from mid of 20th century till 2017) and concluded that there an increase in demand of the accounting professionals in past seventy years (Mathews, 2019). On the same notion, the data on last seven years on accounting professionals in India is collected and presented in Table-1. And increasing membership of the professionals in the statutory accounting bodies are considered as proxy of the accounting services' demand in India.

The increasing growth rate of any economy is an indication of advancement of its different sectors. A growing business and industry of a developing economy certainly requires accounting compliance in addition to its traditional functions viz., recording, reporting and analyzing data in order to incorporate sustainability into management decision-making. Accounting is an integral to

all those spheres where businesses require what records to maintain and how best to report financial outcomes. The developments in an economy create a demand for accounting information and are in turn facilitated by accounting profession (Andrey, 2017). Orhan, (2013) found that economic growth is strongly related to accounting regulations and accounting standards.

MacKinnon's framework recognizes the importance of the social, political, and economic environments on accounting (MacKinnon, 1986). Makarenko & Plastun, (2017) have synthesized different approaches to structuring the role of accounting profession and established that accounting profession has a role in the development of an economy. It is examined and supported that the culture and economic environment in a country influences its' accounting principles and reporting practices (Werner., 2017). Pratik, (2023) examined that the accounting has crucial role in promoting national development in India and suggested to make continued investment in the accounting profession is necessary to promote economic growth and development.

Accounting has a vital role in promoting business, facilitating in access to finance, and ultimately contributing to sustainable economic growth (Jain, P. & Mittal, 2017) through effective and transparent reporting, and enabling in financial risk assessment. From above discussion it is evident that accounting as a discipline retains its significance in the growth of an economy. In the present study, IIP (Index of Industrial Production) and GVA (Gross Value Addition) of India have been used as proxy of industrial growth, and economic progress respectively from the year 2016-17 to 2022-2023. The data on IIP and GVA is presented in Table-2.

The accounting profession in India has high potential to become internationally more competitive. As per the WTO data, in 2008 the export of legal, accounting and management services was \$33.76 that was 17.4 per cent of the total services. The Chartered Accountancy profession in India has globally benchmarked its qualification, training and standards (including convergence to global standards on IFRS) for increased mobility and recognition with accounting bodies in UK, Australia, Canada and Ireland (*India's Budget 2011-12*).

3. Research Methodology

The nature of the present study is descriptive and exploratory. The study is based on conceptual framework of accounting profession and its contribution to economic growth. The key objective of the study is to examine the SWOC

(strengths, weaknesses, opportunities, and challenges) analysis of the accounting profession in *Viksit Bharat* in light of Industry 5.0. The secondary data is used in the study. The collected data ranges from 2016- 2023 due to its importance in Industry 5.0 period. The data on membership of CA/CMA/CS has been considered as proxy to the demand of accounting professionals in India. Index on Industrial Production (IIP) and Gross Value Addition (GVA) have been considered as variable representing industrial growth and economic growth respectively. The base year of IIP and GVA is 2014, therefore, there is limited availability of data. The data is represented through line-graph and linear-trend is depicted through the application of MS-Excel to anticipate the future trend of the given variables. A literature review is conducted to establish the rationale of the topic and relevance in contemporary period of *Amrit-Kaal*. The research papers considered for literature review are extracted from *JSTOR* and *SSRN* and duly cited at appropriate places using *Mendeley Reference Manager* software.

4. SWOC Analysis

SWOC analysis is the most recognized tool to examine overall strategic position of a business / industry in a given environment (Marilyn M. & Judy, 2010; Panagiotou, 2003). In order to investigate strengths of accounting profession, data on members of the professional bodies has been taken as proxy of its increasing demand over past seven years. Further, year to year growth rate is computed of the data, and compared with the growth rate of IIP and GVA of the India, presented in Table-1 below.

Table-1 : Members of Professional Bodies in the Field of Accounting and Auditing

Year	Chartered Accountant (CA)#	Chartered Management Accountant (CMA)\$	Company Secretary (CS)@	Total
2017	270307	6282	50197	326786
2018	282193	6257	54385	342835
2019	291698	6430	57546	355674
2020	307238	5902	61190	374330
2021	327081	7194	64235	398510
2022	350438	6606	67807	424851
2023	378695	NA	71098	449793

Compiled by the author from the annual reports of ICAI, ICMAI, and ICSI of different years.

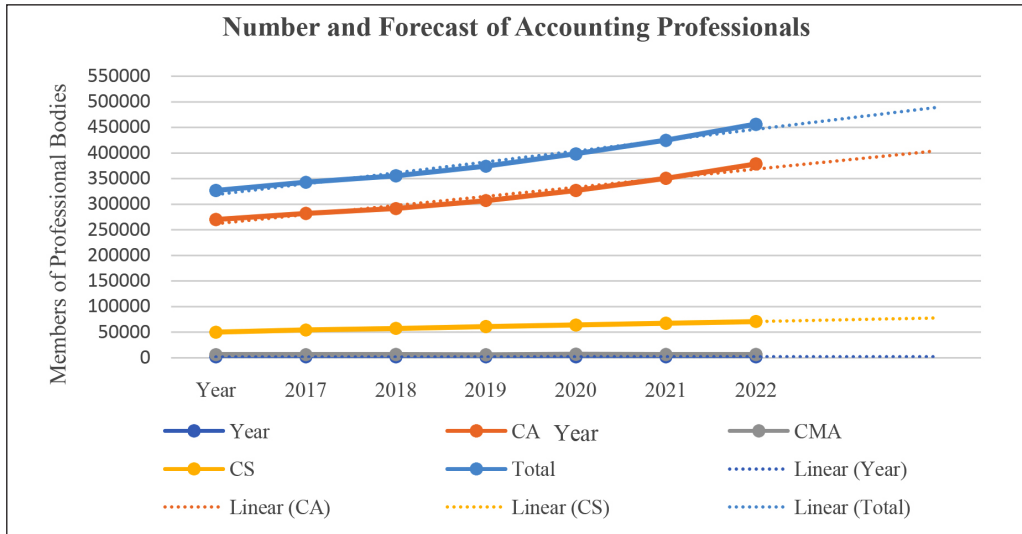
Sources : (i)# <https://resource.cdn.icai.org/78456key-statistics-2023.pdf>

(ii)\$ <https://icmai.in/upload/Annual-Report-2022-23.pdf>

(iii)@ <https://www.icsi.edu/profile/annual-report/>

Table-1 states the year wise number of the members of professional bodies in India. The data include associate members and practicing accountant and secretaries from 2017 to 2023. It is evident from the data that there is continuous increase in the membership which advocates a huge demand of the accounting professionals in India. The growth trend has been shown in Figure-1 below.

Figure-1 : Trend and Forecast of Accounting Professionals



It is evident from the Figure-1 that foremost demand is of CA followed by Company Secretary CS. The linear forecasting shown through dotted line graph for coming years is also moving upwards. It indicates that accounting professionals are high in demand which highlights the first strength of accounting profession in coming years. Further, the overall demand of all three professionals i.e., CA, CMA, and CS meant for financial accounting and auditing, cost auditing and corporate compliance respectively is also increasing.

Whether this demand is forced by industry and economic growth or otherwise? To answer this question, firstly the data on IIP and GVA of India from 2016-17 to 2022 to 23, presented in Table 2 below, is considered as proxy of industrial and economic growth.

Table-2 states that there is an increasing trend of IIP and GVA except the year of 2020 and 2021 due to Covid'19 pandemic. It also shows that Indian economy is mounting high in the *Amrit Kaal* period. There is huge jump in the growth of

both rates especially after Covid'19 which established the strength of Indian industry at micro level and economy at macro level.

Table-2 : Index of Industrial Production (IIP) Growth Rate

Year	IIP#	GVA##
2016-17	4.6	11.0
2017-18	4.4	10.8
2018-19	3.8	7.0
2019-20	-0.8	-0.9
2020-21	-8.4	18.8
2021-22	11.4	14.0
2022-23@	5.2	8.2

Note: GVA (at basic price) Growth Rate

@up to 2nd Quarter only

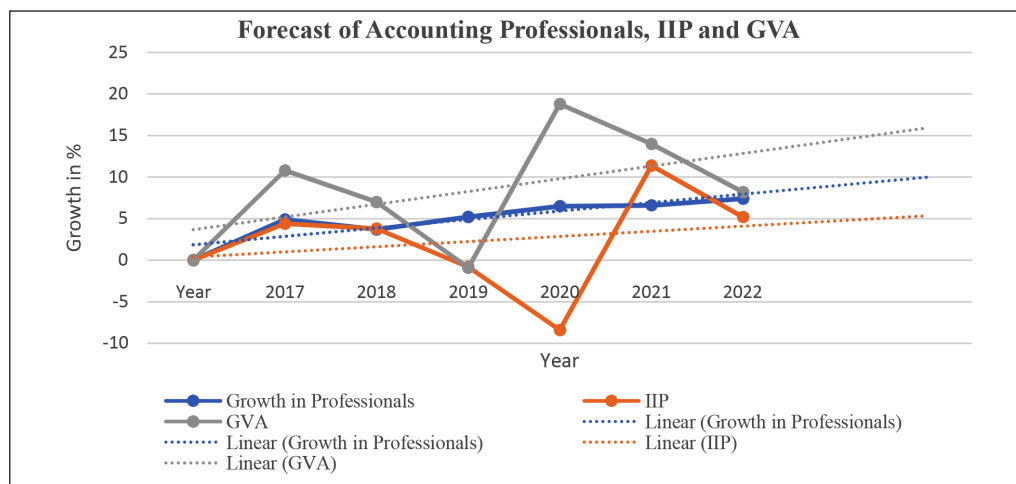
Sources : # (1) <https://esankhyiki.mospi.gov.in/catalogue?page=0&search=>

(2) <https://www.indiabudget.gov.in/budget2022-23/economicsurvey/doc/eschapter/echap08.pdf>

(3) <https://esankhyiki.mospi.gov.in/catalogue?page=0&product=NAS&search=>

To explore the inter-connection between accounting professional progression and IIP/GVA, the all three growth rates are presented in Figure-2 below.

Figure-2 : Interconnection and Forecasting of Accounting Professionals, IIP and GVA Rate



It is clear from Figure-2 that the growth rate of GVA (proxy for economic growth) is higher as compared to accounting professionals demand. On other, IIP forecasted growth rate is below to it. The reason is that accounting services are also needed in service sector also. Thus, IIP rate is below than accounting professionals' growth rate. Figure 2 focuses that there is huge opportunity of

accounting profession in India as there is difference in the expected GVA rate and accounting services rate.

The target of *Viksit Bharat* cannot be achieved in isolation without carrying out export and import of trade in goods and services. Similar to other goods and services, India also export and import business services including accounting services. The India's position in export and import in accounting, auditing and Book-Keeping services from year 2017 to 2022 is presented in Table-3 given below.

Table-3 : India's Position in Accounting, Auditing and Book-Keeping Services

Year	Export(in Million US\$)	Import(in Million US\$)
2017	42212.56	9059.42
2018	46648.94	9427.40
2019	54245.42	11507.10
2020	59182.94	11812.54
2021	71509.08	11756.07
2022	95989.87	13286.75

Source: <https://itip-services-worldbank.wto.org/ChartResults.aspx>

Table-3 reports that India is an exporter of accounting and related services. The data is collected from the WTO database available on its website. Table reveals that the amount of export of accounting services is much higher than the import of accounting services. It advocates another strength of Indian accounting professional and as well opportunity for the coming youth to pursue accounting courses. Added further that higher amount of export than the import is the evidence of that accounting profession is generating foreign reserves vis-à-vis making contribution to economic growth. Forecasts of India's export and import of accounting services is presented in Figure-3 as follows.

Figure-3 : Trend of India's Position in Export and Import of Accounting Services

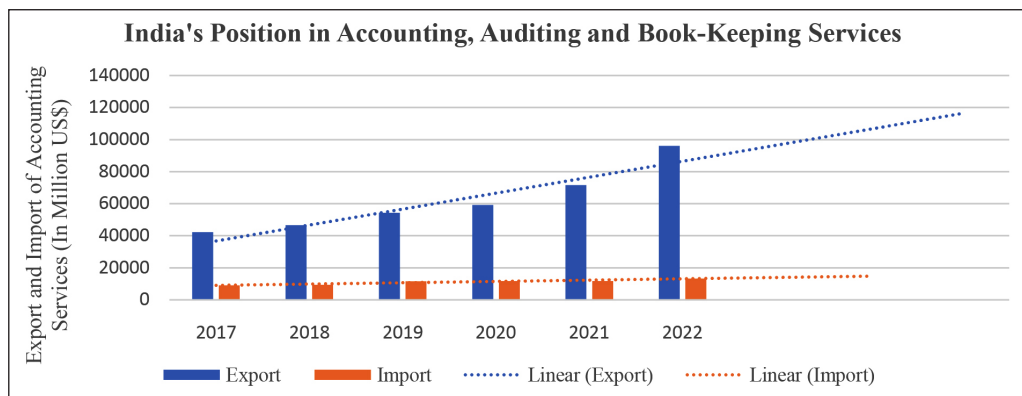


Figure-3 demonstrates the trend of India's position in export and import of accounting services over the year from 2017 to 2022. Trend line depicts that the exports in accounting services are increasing with high rate and imports are increasing at lower rate. It also forecast that accounting services provided by Indian professionals may accelerate by exponential growth especially in the era of Industry 5.0.

5. Conclusion

India will become fifth largest economy of the world by year 2025, and about 65% of its population is younger than 35 age(Sharma, 2021). The additive advantage of demographic dividend is working-age population of the economy. (Lee et al., 2016) highlighted that countries with a comparatively large ratio of working-age people can boost their economic growth, and represent a window of economic opportunity. In order to yield the benefit of demographic dividend, innovation in digital technology, stable economic growth and energy efficiency are important for achieving sustainable development. From the above discussion following SWOC analysis may be drawn.

Strengths

- The demand of accounting professionals is increasing over last seven years, and forecasted to increase in future too.
- The export of accounting services is much higher than import thereof which is evident that accounting services are making contribution in the economic development i.e., *Viksit Bharat*.
- Govt. of India, and the professional bodies of accounting services are providing various skill-oriented courses through digital platform as an additive-skills to accounting profession, e.g., data analytics, e-accounting etc.

Weaknesses

- Completing graduation degree is a pre-requisite of all accounting professional courses in India. However, there is no synchronization between university degree and professional courses except one initiative of ICAI and Indira Gandhi National Open University (IGNOU) which allows to pursue undergraduate degree along with CMA course.
- Despite of online education platform available in India, there is less penetration of these courses due to lack of infrastructural facilities especially

in rural areas. India has to up-grade its infrastructure facilities, at economic cost, in order to promote courses in accounting profession through online mode.

Opportunities

- The percentage increase in GVA is higher than the membership rate of professional bodies in the economy. It highlights that there would be an increase in domestic demand of accounting professionals in near future. From the above results, it is also observed that the export of accounting services is growing with increasing rate in comparison of import of accounting services, which shows great employment opportunities for the youth of the nation at international level also.
- In *Amrit Kaal*, the innovative business practices/models will take place which will require services of accounting professionals (CA/CMA/CS) in valuation of investments, risk estimations, assessment of proposals and many more in addition to their traditional role.
- It is possible, that the recording of financial transaction gets automated or digitized with the help of software but auditing requires much human touch than machines. Thus, in the era of Industry 5.0, there is an opportunity that recording of financial transaction is made with the help of machine learning by automated vending machines to e-accounting software. But at the same time, auditing and preparing report for statutory compliance purposes would require professional services of the accountants to maintain virtuous code.

Challenges

- Indian accounting professional bodies issues accounting standards and practicing code of conduct as per the requirement of Indian statutes and laws. A biggest challenge for Indian accounting professional services is to harmonize accounting practices with international standards. As the laws relating to accounting services varies from country to country, therefore it is a common challenge to international accounting system to adopt uniform and coherent accounting practices.
- No doubt, there are various types of software available those make the accounting process easy and record transactions in electronic mode. But still there is a need to develop such software which can synchronized different reports at one single platform. For example, there is requirement

of reports to fulfill the need of corporate compliance (i.e., annual report), similarly, for Goods and Services Tax, there is a requirement of filing periodic returns as per GST Laws, and on the same ground there is requirement of data to file Income Tax Return (ITR) as per Income Tax Law. It is a big challenge to develop an e-accounting software which may cater the requirement of different laws and statutes at one platform.

- Developing uniform accounting application software to record national vis-à-vis international transactions and reporting is one of the upcoming tasks for the accountants.
- Another critical challenge before accounting services is security of data especially when these services are provided through e-accounting software. Since data has monetary value and prime most responsibility of the accounting professionals to maintain the security standards so that no one can use data for malicious purposes, therefore ensuring high security to data is one of the key challenges of accounting services.

The study makes contribution to existing literature by highlighting the role and challenges of accounting as a profession in the development of India. Due to lack of sufficient data, the SWOC analysis could be complied only. In future, researchers may carry out comparative case studies of developed nations and role of their accounting professional bodies thereof. Further, a primary survey may be conducted on professional ethics or virtuous code to ensure professionalism in the accounting and auditing professions.

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The Impact of Entrepreneurial Intentions, Self-Efficacy, and Personality Traits on Entrepreneurial Behaviour in Educational Programs

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ROBITA SOROKHAIBAM AND N. TEJMANI SINGH

Abstract : *The present study investigates how entrepreneurial intentions, self-efficacy, and personality traits influence entrepreneurial behavior within entrepreneurship education programs, with a special focus on the students of Manipur University. Employing a quantitative method, data were collected using a structured questionnaire from 323 students. The study employs a structural equation modelling (SEM) approach to analyze the data, using the Analysis of Moment Structures (AMOS) to determine the goodness of fit. Findings of the study revealed that entrepreneurship education programs significantly boost the entrepreneurial intentions and self-efficacy, which in turn positively impact entrepreneurial behavior. However, personality traits did not significantly influence entrepreneurial intentions but did affect entrepreneurial behavior. These findings highlight the importance of fostering self-efficacy and intentions through targeted education programs. The study adds to theoretical frameworks such as the Theory of Planned Behavior and Social Cognitive Theory by emphasizing on the role of self-beliefs and intentions in influencing entrepreneurial behavior. Practical implications include integrating psychological support services, establishing incubators, and promoting active student engagement in entrepreneurial activities.*

Keywords : Entrepreneurial Behavior, Entrepreneurship Education, Entrepreneurial Intentions, Entrepreneurial Self-Efficacy, Manipur University, Personality Traits.

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1. Introduction

Entrepreneurship plays a major role in influencing a nation's economic expansion, generating employment opportunities, and fostering innovation, as noted in previous studies (Badri & Hachicha, 2019; Cardella et al., 2020). Throughout the past three decades, Entrepreneurship Education Programs (EPs) has garnered the interest of governments, policymakers and academicians as EPs has been receiving recognition in its role in fostering economic growth and development (Hassan et al., 2020). Initiatives of EPs include incorporating compulsory or elective entrepreneurship courses in university curriculum, establishing incubation cells in certain universities, organising entrepreneurship fair/ markets, facilitating entrepreneurship programs as extra-curricular activities for university graduates (Fellnhöfer, 2019; Ozaralli & Rivenburgh, 2016). In the realm of entrepreneurship, academicians believe that entrepreneurial opportunity does not directly lead to entrepreneurial behaviour, and behind entrepreneurial behaviour lies entrepreneurial intentions (Krueger, 2007). Prior researches have focussed mostly into investigating the factors influencing entrepreneurship by exploring the factors contributing to individuals developing the intention to pursue entrepreneurship (Fuller et al., 2018; Bueckmann-Diegoli et al., 2021). In order to explain the development of entrepreneurial intentions, these studies predominantly focussed on entrepreneurial models, while paying limited attention towards entrepreneurial behaviour. Therefore, it is crucial to transcend models that merely shed light on intentions and progress towards understanding how these entrepreneurial intentions convert to entrepreneurial behaviour (Shinnar et al., 2018).

Further, numerous studies within the extant literature have explored distinct dimension such as entrepreneurial self-efficacy, entrepreneurial intentions, personality traits, and entrepreneurship (Kerr et al., 2018; Newman et al., 2019). However, a relevant gap persists in understanding how these dimensions intricately interact to shape entrepreneurial behaviour. Consequently, in order to address this literature gap, the authors in the present study have tried to assess the correlation between intention and behaviour which will help in illustrating the connection and contribute further to the existing theoretical literature on entrepreneurship (Hu et al., 2018; Karimi, 2020). The study thus, aims at understanding the role of entrepreneurial intentions, entrepreneurial self-efficacy, and personality traits in shaping entrepreneurial behaviour within entrepreneurship education programs, with special focus on the students of Manipur University. The paper is structured as follows: Section 1 presented introduction of the study, Section 2 provides literature review and hypothesis,

Section 3 outlines the research methodology of the study, Section 4 present analysis and discussions, Section 5 discusses the implications of the study, and Section 6 presents the conclusion and future research directions.

2. Literature Review and Hypothesis Development

Entrepreneurship Education Programs and Entrepreneurial Intentions

Entrepreneurship Education Programs (EPs) are curricula aimed at enhancing entrepreneurial knowledge and skills (Fayolle et al., 2006). Nabi et al., (2018) in a longitudinal study of business students revealed that those with entrepreneurship education exhibit elevated levels of entrepreneurial learning and motivation compared to peers lacking such education. The Theory of Planned Behaviour and its extension, The Reasoned Action Theory given by Ajzen (1991) conceptualised entrepreneurial intention as an individual's inclination to engage in entrepreneurial activities and start a venture (Kautonen et al., 2015). Thompson (2009), defined entrepreneurial intentions as an individual's inclination to establish a new enterprise along with their deliberate plans for the future. This preliminary state of consciousness before taking action significantly influences individuals' decisions to pursue entrepreneurial endeavours (Nabi, 2018). Entrepreneurial intention is widely acknowledged as the most reliable predictor of entrepreneurial behaviour (Yang et al., 2023). However, till date there is no conclusive evidence regarding the contribution of EPs on entrepreneurial intentions. This is because of the varying results revealed from different studies by different authors. Researchers such as Piperopoulos & Dimov (2015) reported a positive relationship between EPs and entrepreneurial intentions, while Diaz-Casero et al. (2017) revealed negative relationship between the two. Further, Otache et al. (2022) revealed that the underlying mechanisms between EPs and EIs are not fully understood. Hence, the study proposes the following hypothesis:

H1 : Entrepreneurship Education Programs will have a significant positive influence on Entrepreneurial Intentions.

Entrepreneurship Education Programs and Entrepreneurial Self-Efficacy

The concept of entrepreneurial self-efficacy lies at the heart of Social Cognitive Theory (SCT), which is regarding motivating individuals to fulfil their duties and meet their aspirations. Entrepreneurial self-efficacy refers to an individual's personal evaluation of the level of difficulty or ease associated with understanding a specific action, particularly within the realm of entrepreneurship (Alshebami et al., 2022). Past studies on entrepreneurial self-efficacy suggest

that individuals with high self-efficacy regarding a task tend to invest more effort and demonstrate greater persistence compared to those with lower self-efficacy (Elnadi & Gheith, 2021). Despite the multitude of studies on the influence of entrepreneurship education on entrepreneurial self-efficacy (Bergman et al., 2011; Zhao et al., 2005), research findings remain inconclusive, with studies yielding varied results. Although some studies have demonstrated that entrepreneurship education programs have a significant positive impact on entrepreneurial self-efficacy (Nowinski et al., 2019; Saptono et al., 2020), others have found no significant relationship (Bergman et al., 2022; Zhao et al., 2005), and even negative association between entrepreneurial self-efficacy and entrepreneurship education (Cox et al., 2002). Hence, the study hypothesise that:

H2 : Entrepreneurship Education Programs will have a significant positive influence on Entrepreneurial Self-Efficacy.

Entrepreneurship Education Programs and Personality Traits

Recent studies have emphasized on investigating the impact of entrepreneurship education on individuals' personality traits (Bazkiaei et al., 2020; Puerta Gómez et al., 2024). Personality traits, characterized as a behavioural reflection of underlying traits (Ajzen, 1991), aligns with the Theory of Planned Behaviour, which states that individual actions are shaped by personality and attitude components. Numerous studies have suggested that education in entrepreneurship can lead to changes in individuals' attitudes, beliefs, and behaviours related to entrepreneurship (e.g., Fayolle & Gailly, 2006; Pittaway & Cope, 2007). Such educational interventions help in the development of certain personality traits that are important for entrepreneurial success. Further, Puerta Gómez et al. (2024) highlighted the significant contribution of university education to the cultivation of important personality traits including self-confidence and fearlessness in decision making which is crucial for entrepreneurial activities. Moreover, as highlighted by Bazkiaei et al. (2020), entrepreneurial education programs and certain personality traits play an important role in shaping individuals' attitudes toward entrepreneurship. Hence the study hypothesise that:

H3 : Entrepreneurship Education Programs will have a significant positive influence on Personality Traits

Entrepreneurship Self-Efficacy and Entrepreneurial Intentions

Studies has found that individuals exhibiting high levels of self-efficacy are predisposed to responding positively to emerging situations, contrasting those

with lower self-efficacy (Zhao et al., 2005). Liñán et al. (2015) posits that entrepreneurial self-efficacy not only holds a positive influence but is one of the crucial factors influencing entrepreneurial intentions. Krueger & Brazeal (2018) reveals that entrepreneurial self-efficacy is the most significant factor in the establishment of new ventures. Liu et al. (2019) demonstrated that, entrepreneurial self-efficacy substantially and positively influenced participants' propensity to seize opportunities and translate entrepreneurial intentions into actions. Past studies have recognised a positive correlation between entrepreneurial self-efficacy and entrepreneurial intention (Fuller et al., 2018; Hsu et al., 2019; Neneh, 2019). However, in contrast to those studies, certain research suggests a negative association between entrepreneurial self-efficacy and entrepreneurial education (Ferreira et al., 2019). Hence the study proposes the following hypothesis.

H4 : Entrepreneurship Self-Efficacy will have a significant positive influence on Entrepreneurial Intentions.

Personality Traits and Entrepreneurial Intentions

Literature suggests that personality traits serve as a nuanced yet an imperfect predictor of various aspects of entrepreneurship, including the intention to embark on a venture (Khan & Ahmed, 2012). Previous researchers have noted a positive correlation between personality traits and entrepreneurial intentions (Zhao & Seibert, 2006). However, it is worth noting that prior studies have yielded inconsistent findings. While some research has indicated that their personality traits strongly indicate entrepreneurial intentions (Zhao & Seibert, 2006), others have suggested that using personality characteristics to understand entrepreneurial intentions yields limited predictive validity and produces inconsistent results (Krueger et al., 2000). Hence, the study hypothesise that:

H5 : Personality Traits will have a significant positive influence on Entrepreneurial Intentions.

Personality Traits and Entrepreneurial Behaviour

Personality traits have been acknowledged in the literature as a pivotal but an imperfect predictor of various aspects of entrepreneurship, including engaging in entrepreneurial activities (Farrukh et al., 2016). Personality traits are intricate characteristics, influenced by both genetics and environment that consistently shape an individual's behaviour across diverse situations (Said, 2014). As entrepreneurial behaviour is closely tied with personality traits, these traits play

a crucial role in entrepreneurship performance (Scarborough, 2011). Recent literature supports this relationship, demonstrating that entrepreneurs who possess distinct personality traits are able to achieve much greater success in navigating the dynamic landscape of entrepreneurship (Al Issa, 2022). However, there is limited research measuring entrepreneurial behaviour and personality traits of students, since majority of the studies focuses on measuring entrepreneurial intention and personality of students. Hence the study hypothesise that:

H6 : Personality Traits will have a significant positive influence on Entrepreneurial Behaviour.

Entrepreneurial Self-Efficacy and Entrepreneurial Behaviour

Entrepreneurial self-efficacy influences a complex set of expectations regarding an individual's capability to complete projects or attain objectives, making it a significant factor in determining entrepreneurial intentions (Zhao et al., 2005) and improve entrepreneurial behaviour (Kappagoda, 2018). The pivotal influence of self-efficacy is further emphasised as it was found to positively influence the relationship between entrepreneurial behaviour and the growth of sales in new ventures, and on the other hand, entrepreneurial behaviour was discovered to adversely affect new venture performance among nascent entrepreneurs with low levels of entrepreneurial self-efficacy (Hmieleski & Corbett, 2007). Entrepreneurs require a firm personal commitment to translate entrepreneurial intentions into entrepreneurial behaviour, as recent study assert that entrepreneurial intention is the most robust predictor of entrepreneurial behaviour (Neneh, 2019). Despite the importance of self-efficacy and entrepreneurial behaviour, there remains a paucity of empirical studies exploring their relationship. Hence, the study proposes the following hypothesis:

H7 : Entrepreneurial Self-Efficacy will have a positive influence on Entrepreneurial Behaviour.

Entrepreneurial Intentions and Entrepreneurial Behaviour

Numerous studies have revealed entrepreneurial intentions as one's commitment to create new businesses and a strong predictor of entrepreneurial behaviour (Neneh, 2019). This is supported by the Theory of Planned Behaviour and Reasoned Action Theory by Ajzen (1991) which states that entrepreneurial intention is one's willingness and commitment in creating new businesses (Kautonen et al., 2015). Entrepreneurial intentions empower individuals and empowers them to actively participate in entrepreneurial behaviour, indicating

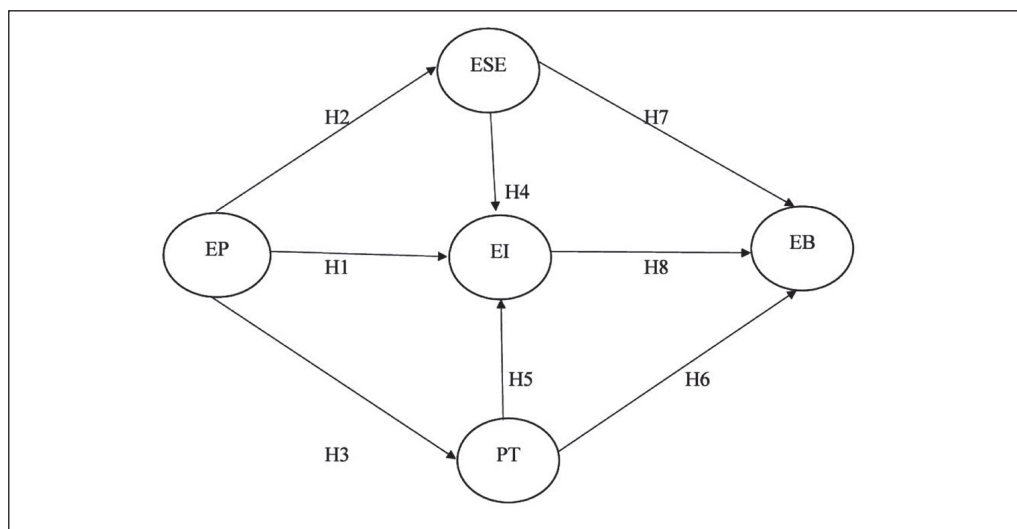
their willingness to invest significant effort into business development activities (Schlaegel & Koenig, 2014). Despite the vast literature which examines the relationship between entrepreneurial intentions and behaviour, the impact of entrepreneurial education programs, entrepreneurial self-efficacy, and personality traits on entrepreneurial intention and entrepreneurial behaviours have not yet been adequately investigated. Hence the study hypothesise that:

H8 : Entrepreneurial Intentions will have a significant positive influence on Entrepreneurial Behaviour.

3. Conceptual Model

To ascertain the impact of the direct association between entrepreneurship education programs and entrepreneurial intentions, as well as via entrepreneurial self-efficacy and personality traits, the authors have conceptualised the entrepreneurial behaviour model below in Figure-1.

Figure-1 : Conceptual Model of the study (Authors' Own Model)



4. Methodology

To examine the above hypothesis, a quantitative method was used through a deductive approach based on positivist philosophy. The research design used in this study aligns with the research design adopted in prior studies which

investigated entrepreneurship education, entrepreneurial intentions, self-efficacy, personality traits and entrepreneurial behaviour (Neneh, 2019; Nowinski et al., 2019). Data collection involved administering an online close-ended questionnaire in google form to students enrolled in two universities in Manipur, India. The rationale behind selecting university students as participants of the present study stems from the increasing tendency of university graduates to initiate entrepreneurial ventures (Neneh, 2019).

Pilot Testing

Prior to the main study, the authors formulated a preliminary questionnaire and conducted a pilot study involving 30 randomly selected students from Manipur University. This preliminary investigation aimed to evaluate the suitability and efficacy of the questionnaire, with the intention of refining and distributing a more coherent and meticulously structured version of the questionnaire (Aydiner et al., 2019). Subsequently, after the pilot study, the final questionnaire was developed, consisting of 47 items in the first section and 5 questions in the second section.

Sample and Data Collection

The study targeted students from two universities situated in the Imphal district of Manipur: Manipur University, a central university, and Dhanamanjuri University, a state university. With a combined student population exceeding 4000 individuals across both institutions, the authors decided to employ a sample size of 400. Krejcie & Morgan (1970) posits that for population above 4000, a minimum sample size of 345 participants is deemed sufficient. However, by the deadline of the data collection, 323 questionnaires were completed and submitted through the google form link, resulting in 80.75% response rate. Regarding sampling technique, Convenience sampling, a non-probability sampling technique, was utilized. This technique is widely recognised for its ability to verify participant suitability and produce reliable data when an adequate number of respondents are gathered. Data collection took place from October 2023 to February 2024. Students from academic course such as commerce, management, and vocational studies enrolled in graduation, post-graduation and Ph.D. programs participated in the survey. All participants were notified that their involvement was voluntary and they could drop out any time during the study if they wanted to. Additionally, it was emphasized that there were no correct or incorrect responses, and all data shared remained confidential, anonymous and for research purposes only (Spector, 2006).

Measurement Scale

To mitigate potential measurement errors, all scales employed in the study were adopted from previous research. Respondents were instructed to rate their responses using a Seven-point Likert scale, ranging from 1 to 7, where 1 represented ‘Strongly Disagree’ and 7 represented ‘Strongly Agree’. Entrepreneurship education program was measured using a scale developed by Kolvereid & Isaken (2006) and; Kruenger (2009) which had sixteen items in total. A sample item from the scale is “Entrepreneurship education programs enhances knowledge in business start-up”. Entrepreneurial self-efficacy was assessed using four items from the scale developed and validated by Zhao et al. (2005). One sample item is, “I am confident that I can successfully discover new business opportunities”. Personality traits had ten items that was developed by Gosling et al. (2003), and is known as, “The Ten Item Personality Inventory (TIPI)”. A sample item for personality traits is, “I see myself as extraverted, enthusiastic”. The study employed a widely accepted and commonly utilized entrepreneurial intentions measurement scale developed and validated by Liñán & Chen (2009). This scale has been utilised by previous researchers in their study (Dinis et al., 2013; Neneh, 2019). The scale had seven items and one sample item is, “I will make every effort to start and run my own firm”. Entrepreneurial Behaviour was measured using a scale developed by Kautonen et al. (2015) which had ten items in total. One sample item is, “I have discussed product or business idea with potential customers”.

5. Results

Method of Data Analysis

For analysing the data, Statistical Package for the Social Sciences (SPSS) and Analysis of Moment Structures (AMOS) were utilised. The demographic data were computed in SPSS and the Structural Equation Modelling (SEM) was computed in AMOS. Prior to executing SEM, meticulous examination of missing responses, normality, linearity, outliers, homoscedasticity as well as multicollinearity was done in order to ensure conformity with SEM assumptions (Hair et al., 2017). Further, SEM was employed in order to validate the measurement tools as well as the structural models. Lastly, in order to validate the measurement model, convergent as well as discriminant validity were examined, and to evaluate the hypothesis of the study, structural model was employed.

Table-1 : Demographic Profile of the respondents (n=323)

Particulars		Frequency	Percentage
Gender	Male	143	55.1
	Female	178	44.3
	Others	2	0.6
Age	16-21	72	22.29
	22-27	201	62.23
	28-33	46	14.25
	33 & above	4	1.23
University	Manipur University	202	62.53
	DM University	121	37.47
Program enrolled in	Graduate	66	20.42
	Post graduate	229	70.89
	Ph.D.	28	8.69

Source: Authors' Calculation.

Table-1 represents the demographic profile of respondents used in the study. In terms of gender, male students (55.1%) constitute the majority, whereas, female and others (44.3% and 0.6% respectively) constitute a smaller population. Regarding the age groups, 22-27 years old makes up the highest portion of the sample size comprising 62.23%, then follows the age group 28-33 years old at 14.25%, and the smallest proportion is the age group of 33 & above, accounting for only 1.23%. In terms of university enrolment, the largest number of students of 62.53% are enrolled in the Manipur University, while the remaining of 37.47 % are pursuing their education in the DM University. In the end, the data of students who are enrolled in different education programs, postgraduate students account for the highest, which constitute 70.89% of the sample size, the undergraduate and Ph.D. programs account for only a smaller percentage at 20.42% and 8.69% respectively.

Table-2 : Measurement Model Analysis

Model Fit Indices	Acceptable Value	Result
CMIN	<3 Good, <5 Permissible	1.710
IFI	>0.90	.910
TLI	>0.90	.900
CFI	>0.90	.908
Standardized RMR	<0.80	.0515
RMSEA	<1.0	.047

Source : Authors' Calculation.

Table-2 shows the model-fit indices used for the model. It is evident from the table that the model exhibits satisfactory indices, goodness-of-fit indices : CMIN = 1.710 (<3), IFI = .910 (>.90), TLI = .900 (>.800), CFI = .908 (>.90), SRMR = .0515 (>.90) and RMSEA = .047 (<.80). Overall, these findings imply that our model represents the relationships among variables in our study adequately.

Table-3 : Convergent Validity

Model construct	Measurement item	Loadings	AVE	Composite Reliability
EP	EP1	.56	0.623571	0.899395
	EP3	.53		
	EP5	.61		
	EP6	.60		
	EP7	.70		
	EP8	.69		
	EP9	.63		
	EP10	.64		
	EP11	.60		
	EP12	.59		
	EP13	.65		
	EP14	.69		
	EP15	.63		
	EP16	.61		
EI	EI2	.64	0.654	0.789354
	EI3	.67		
	EI4	.60		
	EI5	.72		
	EI7	.64		
ESE	ESE1	.51	0.655	0.753187
	ESE2	.64		
	ESE3	.72		
	ESE4	.75		
EB	EB1	.66	0.681	0.897141
	EB2	.57		
	EB3	.64		
	EB4	.79		
	EB5	.78		
	EB6	.75		
	EB7	.68		
	EB8	.67		
	EB9	.64		
	EB10	.63		
PT	PT3	.65	0.563333	0.583759
	PT5	.51		
	PT9	.53		

Source : Authors' Calculation.

Convergent validity is a technique used to ensure that multiple items effectively measure and confirm a concept (Hair et al., 2017). This involves assessing the relevance of measurement through indicators such as the average variance extracted (AVE), composite reliability, and factor loading values. The criteria for establishing convergent validity include an AVE value above 0.50, composite reliability exceeding 0.70, and factor loading values for each item surpassing 0.50 (Hair, 2017). Examination of Table-3 reveals that all loading values for each measurement item and composite reliability values for each variable meet the requisite thresholds, confirming convergent validity.

Table-4 : Discriminant Validity

Construct	EP	EI	ESE	EB	PT
EEP	.789				
EIS	.346	.808			
ESES	.265	.528	.809		
EB	.278	.295	.335	.825	
PT	.329	.255	.285	.272	.751

Source : Authors' Calculation.

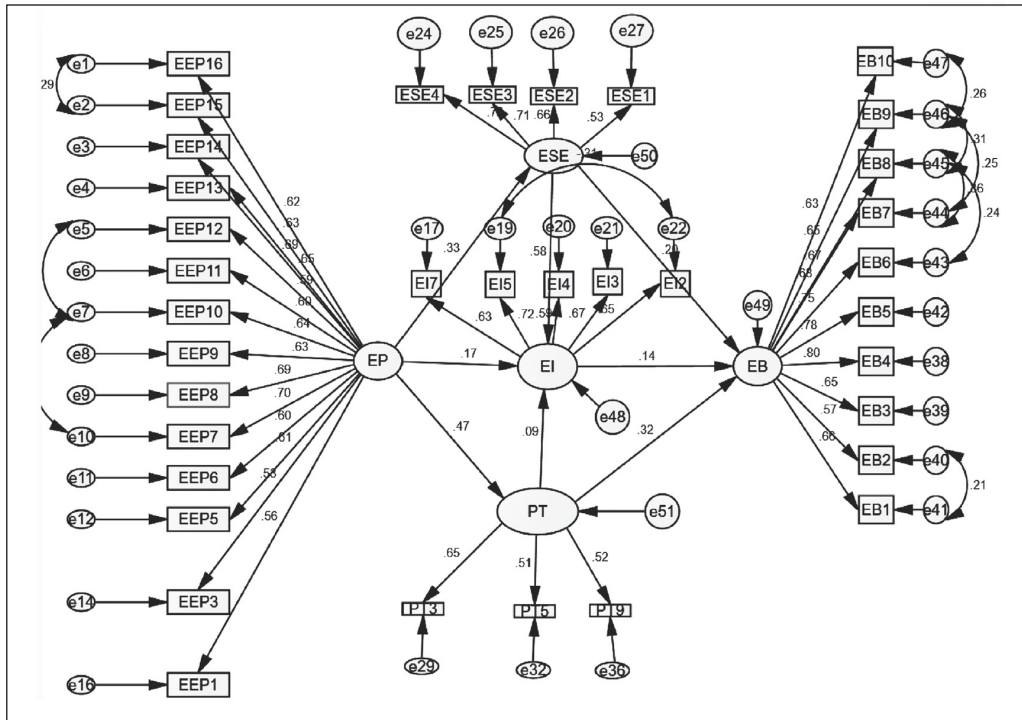
Discriminant validity, a type of construct validity, is used to ensure that two variables or constructs being measured are distinct and not correlated (Sekaran, 2016). Fornell & Larcker (1981) further explain that discriminant validity is confirmed when the square root of the Average Variance Extracted (AVE) is greater than the squared correlation between constructs.

As shown in Table-4, the square root of the AVE for each construct exceeds the squared correlations between constructs, indicating that discriminant validity is established in this study.

Table-5 : Hypothesis testing

Relationship	Beta Value	S.E.	C.R	P value	t-statistics	Supported
EP→EIS	.437	.077	5.705	***	5.675	Accepted
EP→ ESE	.406	.082	4.927	***	4.951	Accepted
EP→ PT	.371	.077	4.846	***	4.818	Accepted
ESE→ EI	.528	.077	6.903	***	6.857	Accepted
PT→ EI	.119	.102	1.172	.241	1.95	Not Accepted
PT→ EB	.457	.123	3.713	***	3.713	Accepted
ESE→ EB	.198	.066	2.997	.003	3.000	Accepted
EI→ EB	.210	.074	2.848	.004	2.838	Accepted

Source : Authors' Calculation.

Figure-1 : Structural Model Analysis

Source : Authors' Calculation.

Figure-1: Final Model (Standardized)

Note : Where EP = Entrepreneurship education program. EIS = Entrepreneur Intentions, EB= Entrepreneurial behaviour; PT = Personality traits, ESE = Entrepreneur self-efficacy

To support a hypothesis in a study, a t-value of at least 1.96 is required for a two-tailed test at a 5% significance level. As shown in Table 5, the results indicate that all variables- ESE, PT, EI exert a significant influence on EB, with t-values of 3.000, 3.713, and 2.838 respectively. Further, PT exhibits high level of significance on EB, with a beta value of 45.7 % at a significant level of $p < 0.05$. Consequently, hypotheses H7, H6 and H8 are supported.

Additionally, EP demonstrates a significant impact on ESE, PT and EI with a t-values of 4.951, 4.818 and 5.675 respectively, at a significance level of $p < 0.05$. So, the Hypotheses H2, H3 and H1 are also supported. Lastly ESE with a t-value of 6.857 has a high significance on EI thus supporting hypothesis 7. However, PT with a t-value of 1.95, does not have a significant impact on EIS, thus hypothesis 5 is rejected.

Discussion and Implications

The study aimed to evaluate the role of entrepreneurial intentions, entrepreneurial self-efficacy, and personality traits in shaping entrepreneurial behaviour within entrepreneurship education programs. The results substantiated the positive and significant role of entrepreneurship education programs on entrepreneurial behaviour with all indicators except personality traits.

Regarding H1, it was observed that entrepreneurship education programs will positively influence entrepreneurial intentions, which was supported. This result aligns with previous research by Ferreira et al. (2019); and Piperopoulos & Dimov, (2015). Concerning H2, it was hypothesised that entrepreneurship education programs will have a significant positive influence on entrepreneurial self-efficacy, which was also supported. This result aligns with previous studies which states that entrepreneurship education plays an important role in enhancing individual's self-efficacy. Previous studies such as Liu et al. (2019); Wang et al. (2023) support this result. H3, which was regarding the positive influence of entrepreneurship education programs and personality traits, was also accepted. This result is consistent with previous findings (Bazkiaei et al., 2020; Vodã & Florea, N., 2019) where it was found that entrepreneurship education interacts positively with individual's personality traits and influences their entrepreneurial intentions and behaviour. Concerning H4, it was hypothesised that entrepreneurship self-efficacy will have a significant positive influence on entrepreneurial intentions, which is supported from the results. This finding is similar to previous study by Liu et al. (2019).

Regarding H5, it was assumed that personality traits will have a significant positive influence on entrepreneurial intentions, which was not supported. This finding negates the previous findings by Prabhu et al. (2012): wherein personality traits correlate with entrepreneurial intention. Concerning H6, it was hypothesised that personality traits will have a positive influence on entrepreneurial behaviour, which was accepted. This finding is consistent with previous finding by Atiya & Osman, (2021) which posits that personality traits have positive impact on entrepreneurial behaviour. Discussing H7, it was hypothesised that entrepreneurial self-efficacy will have a significant positive influence on entrepreneurial behaviour. This hypothesis was accepted and is an important contribution to the field of entrepreneurship as very few prior studies investigated the role of entrepreneurial self-efficacy on entrepreneurial behaviour. The hypothesis was supported and its results are in line with previous findings by Darmanto & Yuliari (2018); and Tsai et al. (2016). Regarding the last

hypothesis, H8, it was hypothesised that entrepreneurial intentions will have a significant positive influence on entrepreneurial behaviour, which was accepted, this aligns with prior studies which also revealed similar findings (Bogatyreva et al., 2019; Cui & Bell, 2022)

The study's findings hold significant implications for the refinement of entrepreneurship education programs and suggests theoretical and practical implications to policymakers, academicians, scholars and other stakeholders. The findings highlight the important role of entrepreneurship education programs in nurturing entrepreneurial intentions and self-efficacy, which acts as a fundamental precursor to entrepreneurial behaviour. Further, the study contributes to several theoretical frameworks in entrepreneurship such as the Theory of Planned Behaviour (TPB) wherein the significance of intentions as predictors of behaviour was demonstrated. It also contributes to the Social Cognitive Theory (SCT) by highlighting the important role of self-beliefs in shaping behaviour. Additionally, the Entrepreneurship Education Theory was reinforced from the study's findings by providing empirical evidences for the effectiveness of such education programs in enhancing entrepreneurial attributes. Further, previous findings on entrepreneurship education, self-efficacy and entrepreneurial intentions have been diversified (Nowiński et al., 2019; Piperopoulos & Dimov, 2019) with the inclusion of personality traits and entrepreneurial behaviour. By integrating these factors into the study, the understanding of the complex interplay between individual's personality traits, educational interventions and entrepreneurial outcomes is enhanced.

Firstly, practical implications include psychological support services to entrepreneurship education programs, given the significant impact of personality traits on entrepreneurial behaviour. Such services could include counselling sessions, personality assessments, and workshops which is aimed at enhancing self-awareness and resilience. Secondly, aligning with the previous studies, our study also suggests institutions to establish incubators and accelerators to provide aspiring entrepreneurs with the resources, mentorship and networking opportunities. Thirdly, to ensure the effectiveness of entrepreneurship education programs and the incorporation of the entrepreneurial intentions turning into entrepreneurial actions, institutions should prioritise to actively promote student engagement in entrepreneurial seminars, workshops, hands on trainings, meet ups with successful entrepreneurs, and industry tie-ups. Actively engaging students in such atmosphere is expected to develop innovative business ideas, learn the industry, and build business projects which will ultimately translate entrepreneurial intentions into entrepreneurial actions.

Limitations and Future Research Directions

Certain limitations of this study should be noted. Firstly, the study uses self-reported data through a questionnaire which may introduce responses biases in their reported answers. Students may have provided answers that are perceived as socially acceptable or may inaccurately recall past experiences or behaviours. Secondly, the study employs cross-sectional study to study the mechanisms underlying the factors, this may limit the ability to establish causal relationships between variables. Longitudinal research might provide better results and allow the examination of students' behavioural changes over time. The study is also limited by the use of sample from only one geographical area. Using samples from only one state of India might limit the generalizability. Future researches are expected to other states or a cross comparison among different states to better understand regional differences. Thirdly, contextual factors such as cultural norms, socio-economic condition of the respondents, or prior work or entrepreneurial experience may have influence entrepreneurial intentions and behaviour which was unaccounted for in the study. Future researches can address these limitations by incorporating such contextual factors. Lastly, the data was collected during a period of instability in the state of Manipur, which may have influenced respondent's perceptions, attitudes, and beliefs towards entrepreneurship. The unstable socio-economic and political environment could have potentially impacted the feasibility and desirability of entrepreneurial pursuits among the respondents.

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Investigating the Nexus of E-Banking Service Quality and Turnover Intention in Banking Industry : The Mediating Role of Customer Satisfaction

AHANTHEM MALEMNGANBI CHANU AND A.RAJMANI SINGH

Abstract : *The present study investigates the relationship between service quality and turnover intention among e-banking customers in Manipur, India, with customer satisfaction as a mediator. It utilizes a cross-sectional survey method and analyzes data using CFA, SPSS, and AMOS techniques. Results indicate that reliability significantly affects customer satisfaction and turnover intention, while responsiveness, security, and privacy do not influence satisfaction. Overall, customer satisfaction significantly mediates turnover intention. However, the study's limitations include its cross-sectional nature and limited consideration of service quality dimensions. Nevertheless, the findings offer practical implications for customers and service providers, highlighting (Lee, 2013) the importance of service quality in reducing turnover in banking services. This research is significant as it is the first of its kind in Manipur, shedding light on an underexplored area in e-banking customer behaviour.*

Keywords : Turnover Intention, Service Quality, Banking, Behavior and Customer Satisfaction.

1. Introduction

The business environment is becoming more competitive and challenging (Yasin, Alavi, Kunt, & Zimmerer, 2004). With multidimensional challenges and the demands of globalisation, organisations are forced to restructure their products and services to remain competitive (Dalega & Alemayehu, 2019). Therefore, Customer service is considered (EMORI & ACKAH, 2010)an integral part of

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any facet of the industry and defines any organisation's future. The rapid advances in internet-based technology systems are leading to fundamental changes in how organisations interact. As customers evaluate their satisfaction level by experimenting with the service quality, satisfaction with services is related to confirmation or disconfirming expectations.

Organisations are increasingly becoming customer-focused and are driven by customer demands. It is becoming equally challenging to satisfy and retain customer loyalty and attract new customers. The study reveals that service quality and customer satisfaction (Lee, 2013) are distinct, independent constructs but somehow show relativity. ¹This is particularly true for service firms where increased customer satisfaction maximises profits. However, the relationship with the customer is based on the premise that customer satisfaction is achieved through providing standard quality service. The high-quality demands on customers' end are becoming prominent because ³a high level of service quality leads to sustainable competitive advantage in the competitive business environment. It is unsurprising to know that the quality level of services is the leading phenomenon in planning strategies in services firms. (Peterson & Wilson, 1992) highlights the difficulties in measuring consumer satisfaction by self-reports. Customer satisfaction measurements are very context-dependent, so to a large extent, the level and shape of customer satisfaction rating distributions are functions of the research methodology employed. As a result, these measures could be more informative and diagnostic.

On that account, improvements in service quality standards can bring more positive (Shankar & Charles Jebarajakirthy, 2019) results in the banking industry. Upgrading service quality and customer satisfaction ²can decrease e-banking customers' turnover intent. (Shankar & Charles Jebarajakirthy, 2019) E-banking customers' satisfaction and service quality significantly impact their turnover intention, emphasizing the importance of ensuring security and reliability in their electronic banking experience. Furthermore, we will continue examining the mediating effect (Lee, 2013) of customer satisfaction on the relation mentioned above.

Objective of the Study

The present study has been carried out to investigate the (Lee, 2013) relationship between Service Quality and Turnover Intention of E-banking Customers. The study also attempts to analyse the mediating role of customer satisfaction (Ogunnaike, Agada, Ighomereho, & Borishade, 2022) and the (EMORI & ACKAH, 2010)relationship between Service Quality and Turnover Intention.

Research Questions

The following questions have been formulated:

- Does there exist a relation between service quality and turnover intention?
- Is Customer satisfaction an important mediator between service quality and turnover intention relationship?

2. Literature Review and Hypotheses Development

2.1. E-banking Services

E-banking is the automatic delivery of traditional and new banking products and services directly to customers using an electronic platform or electronic and interactive communication channels. (Chanu & Singh, 2021) E-banking has witnessed sustained and robust growth as it is the cheapest source of banking services to customers, either from home or abroad. The concept of e-banking is based on internet development, design, and implementation of financial services. The present prospective economy depends on the success and growth of the banking sector in the country, as banking is considered the economy's lifeline. It is the process through which (Lee, 2013) a customer digitally interacts with a bank via computers without human contact (Jayawardhena, 2004).

Customers can easily make use of a variety of personalised financial services using e-banking. It helps banks provide their services to many customers at a low cost. Owing to the growing rate of e-banking service acceptance, banks are up against fierce rivalry to draw and keep users of their e-banking platforms (ULLAH, 2021). In this service delivery platform, offering superior e-banking services is crucial to obtaining a competitive edge. Consumer-perceived service quality ratings may alter depending on the environment, and as a result, customer perceptions and expectations of service quality may differ between physical and online banking.

2.2. Customer Satisfaction

³Consumer satisfaction occupies a central position in marketing thought and practice. Satisfaction is a significant outcome of marketing activity. It links processes culminating in the purchase and consumption with post-purchase phenomena such as attitude change, repeat purchase, and brand loyalty. The concept that profits are generated through the satisfaction of consumer needs and wants is the central point in marketing, which is the following concept in the banking sector.

Customer satisfaction, as mentioned earlier, is a post-purchase behaviour that indicates the customers' feelings after using a particular product or service. It indicates the general assessment of customers based on consuming the goods or services. (Khian Sin Ong, 2017) It is the pre-purchase and post-purchase expectation and satisfaction. (Kotler & Keller, 2013) Customer satisfaction is a person's pleasure or displeasure from the product's perceived performance. Most importantly, customer satisfaction relates to the service provided. Previous studies show that customer satisfaction with banks (Mihelis, Grigoroudis, Siskos, Politis, & Malandrakis, 2001) depends primarily on easy access to facilities and behaviour rather than assortments of products and services.

2.3. Turnover Intention

Turnover intentions are the willingness to leave or quit one's current organisation. It is classified as voluntary or involuntary, as both can be considered planned behaviour (Ajzen, 1991). It is voluntary when the customer plans to leave when they feel dissatisfied or with the availability of alternative services. Involuntary when the customer's performance was accessed and terminated due to significant changes or problems while continuing the services. Over the years, turnover has (Afshari & Nasab, 2021) attracted substantial attention from researchers to address it in terms of its practical (Hausknecht & Holwerda, 2013) and theoretical significance. (Obinna Osita Ike, 2023) Turnover has proven challenging to measure due to the questions about its authenticity.

3. Hypotheses Development and Conceptual Model

3.1. E-banking Service Quality and Customer Satisfaction

Certain services that are only available through online banking are offered by e-banking. Access to financial services is made possible by the widespread availability of e-banking services. As a result, the SERVQUAL scale model developed by (Parasuraman, Zeithaml, & Berry, 1985) has to be modified to measure it in the context of electronic banking (Parasuraman, Zeithaml, & Berry, 1985) Personal interaction is therefore required at both ends of the generic service quality scale (Shankar & Charles Jebarajakirthy, 2019) for customer perceptions and service expectations. Customers and banks interact through the bank's website, or portal, in online banking. Prior studies have tried to gauge the level of service in the e-banking environment. The scale primarily takes into account the aspects that explain EBSQ, such as responsiveness, accessibility, privacy and security, website design, customer service, and support. According to (Shankar & Charles Jebarajakirthy, 2019), banks will be able to maintain a

E-banking provides unique services that are unavailable in offline banking. The omnipresence of e-banking services means access to banking services anytime and anywhere. Therefore, (Parasuraman, Zeithaml, & Berry, 1985) the SERVQUAL scale model by Parasuraman et al. 1985 needed to be revised to measure it in the context of e-banking. Therefore, the generic service quality (Shankar & Charles Jebarajakirthy, 2019) scale for customer perceptions and service expectations involves personal interaction at both ends. In e-banking, the bank's website (portal) interfaces customers and banks. Previous research has attempted to measure service quality in the context of e-banking. The scale mainly considers reliability, responsiveness, accessibility, website design, privacy and security, customer service, and support dimensions explaining EBSQ. Enhancing EBSQ will enable banks to (Shankar & Charles Jebarajakirthy, 2019) retain a loyal customer base for their e-banking services.

H1 : Service Quality positively influences Customer Satisfaction.

H1a : Reliability of E-banking services positively influences customer satisfaction.

H1b : Responsiveness of E-banking services positively influences customer satisfaction.

H1c : Security and privacy of E-banking services positively influence customer satisfaction.

3.2. Service Quality and Turnover Intention

(Sager, Griffeth, & Hom, 1998) Turnover intention refers to mental decisions regarding an individual's attitude regarding the job to stay or leave. Intention to leave is the likelihood of forfeiting the association in an organisation. It is the intensity to quit from an individual's view to stay or leave. A unified turnover intention model recommends using turnover intention over actual turnover (Subramanian & Shin, 2013) because actual turnover is more complex to predict than intention as it is connected with behaviour and also due to various other external factors that affect turnover. (Slatten, Svensson, & Svaeri, 2011) Study tests hypothesised relationships between employees' perceived service quality, turnover intention, role clarity, empowerment, and coaching. The results show that both direct and indirect relationships have resulted from the effect of empowerment, role clarity and coaching on turnover intention. Furthermore, it concludes that perceived service quality is essential to turnover management. This results in a need for complementary research that links service quality and turnover intention from customers' perspectives of the banking sector.

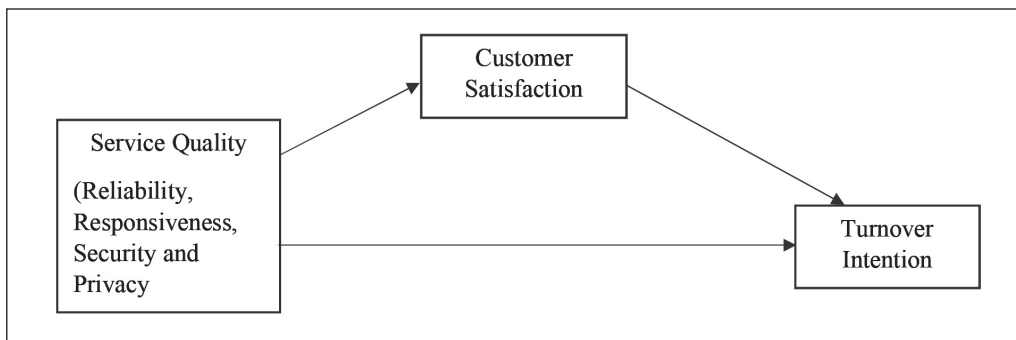
H2 : Service Quality has a positive influence on Turnover Intention.

3.3. Customer Satisfaction and Turnover Intention

(Rizwan & Mukhtar, 2014) study aims to identify factors influencing employee satisfaction and turnover intention, focusing on employee empowerment, workplace environment, and pay and promotion. Past research indicates a negative correlation between satisfaction and turnover intention, with dissatisfaction increasing turnover likelihood. In the hotel industry, turnover in departments like the front office impacts service quality. Transformational leadership is vital, emphasizing motivation and fostering a positive environment. Research in Malaysian hotels suggests that transformational leadership influences turnover intention by impacting overall job satisfaction. Understanding and implementing effective leadership can improve satisfaction, reduce turnover, and enhance organizational performance (Hakim & Ibrahim, 2017). Customer Satisfaction is the customer's response to evaluating the perceived deviation ⁴between preceding expectations and ⁵the actual performance of the product/service as perceived after its utilisation. Satisfaction can be a judgement that a product or service feature (Lee, 2013) or product or service provides a pleasurable level of consumption-related fulfilment. Satisfaction and Turnover are simultaneously measured in every organization concerning customers or employees, whether in Hotels or Workplaces. So, the following hypotheses were generated for the studies.

H3 : Customer Satisfaction positively influences Turnover Intention.

Figure : Conceptual Model



4. Research Design

The study adheres to a positivist philosophy, emphasizing validity and objectivity in research by testing hypotheses and drawing conclusions based on results. It employs a descriptive, deductive approach and adopts a cross-sectional design.

The study uses a quantitative methodology to develop a structured survey from the pre-validated scale to generate the primary research study data. The study uses numerical data to describe and quantify relationships between variables. It indicates that data was collected from a specific population or sample simultaneously. The research employs quantitative methods, such as correlation, factoring and regression analysis, to investigate how service quality, client satisfaction, and turnover intention are related. (Mehedi & Jalaludin, 2020) The study aims to provide empirical evidence and insights into (Lee, 2013) the relationships between service quality and Turnover Intention.

The study employed convenience sampling to gather data from banking customers in Manipur. 'The sampling method was chosen due to the accessibility of respondents and the proximity of the researcher. From the constraints imposed by the pandemic to date, convenience sampling facilitated the participation of diverse banking customers. Data collected via an online Google Form questionnaire were shared among social network users. A total of 156 completed questionnaires were collected and proceeded for the study.

Established measuring instruments with known reliabilities and validities were employed in the study. (Lee, 2013) Measures for all constructs were drawn from existing literature, indicating that the study utilised established concepts and definitions. The study helps to ensure the validity of the content measures used in the research. Overall, the study employed a systematic approach to gather and analyse data, (JOHNSON H, 2019) aims to provide insights into the relationships between variables within the scope of the research.

The survey questionnaire for the study was structured into two main sections. In the first section, respondents are asked about their agreement and disagreement about the reliability, responsiveness, accessibility, and security of e-banking services, their satisfaction with e-service quality, and their intention regarding the services. These aspects are measured using scales likely derived from established models ranging from 1 to 7, where 1 signifies strong disagreement, and 7 signifies strong agreement.

The second section focuses on gathering demographic information about the respondents. It includes age, gender, educational qualification, occupation, and user income level. Such data can provide insights into how different demographic groups perceive and utilise e-banking services. Combining both sections, the study explores the relationship between service quality, customer satisfaction and turnover intention, along with the demographic factors among e-banking users in Manipur.

5. Analysis and Interpretation

The study analysed the collected data from 156 samples using IBM SPSS 23. The demographic profile of the respondents (Fan, Qiu, Hsu, & Liu, 2015) was examined using descriptive statistics, including measures such as frequency and percentage, to provide insights into ⁸the characteristics of the sample population. A correlation coefficient was calculated to explore the relationships among the three variables: service quality, customer satisfaction and Turnover Intention. The analysis also helps to understand the strength and direction of associations between these variables.

Finally, ⁹regression analysis was employed to test the hypotheses formulated in the study. Regression analysis allows researchers to determine how much one or more independent variables (in this case, e-service quality) predict a dependent variable (such as customer satisfaction or turnover intention). This statistical technique helps to assess the significance of the relationships between variables and to validate the hypotheses proposed in the study. Through these analytical techniques, (Mehedi & Jalaludin, 2020) the study aims to provide empirical evidence and insights into the relationships between e-service quality, customer satisfaction and turnover intention among e-banking users in Manipur.

Variables used and their Sources

S.No	Variable	Items	Source
1	Reliability	4	(Alawneh, Al-Refai, & Batiha, 2013), (Toor, Hunain, Hussain, Ali, & Shahid, 2016)
2	Responsiveness	4	(Alawneh, Al-Refai, & Batiha, 2013)
3	Security and Privacy	4	(Poon, 2008), (Toor, Hunain, Hussain, Ali, & Shahid, 2016)
4	Customer Satisfaction	4	(Haq & Khan, 2013)
5	Turnover Intention	3	(Mahmood, Mamun, Ahmad, & Ibrahim, 2019)

This data provides insights into the distribution of demographic variables among the surveyed population. There were comparatively more male respondents than their female counterparts. Out of 156 respondents, 81 male respondents represented 51.9% of the total sample, whereas 75 were female respondents, representing 48.1% of the respondents. Most respondents are between 26 and 35 years old, have a post-graduate qualification or above, and are either students or have been working for 2-5 years.

5.1. Demographic Profile of the Respondent

Demographic Variables	Frequency	Percentage
Gender		
Male	81	51.9
Female	75	48.1
Age		
18-25	47	30.1
26-35	97	62.2
Above 35	12	7.7
Educational Qualification		
12 th	3	1.9
Diploma	3	1.9
Graduation	43	27.6
Post Graduation and above	99	63.5
Professional	8	5.1
Occupation		
Student	80	51.3
Private Employee	35	22.4
Government Employee	25	16.0
Businessman	16	10.3
Length		
Less than a year	19	12.2
2-5 year	76	48.7
5 years and above	61	39.1

Source: Primary Data

5.2. Sampling Adequacy

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.825
Bartlett's	Test of	Approx. Chi-Square
Sphericity		Df
		Sig.
		1357.984
		171
		.000

Source: Primary Data

The table shows a statistical tool used in factor analysis, a technique used for data reduction and structure detection in multivariate analysis. The KMO statistic assesses the suitability of data for factor analysis. It measures ¹⁰the proportion of variance ranging from 0 to 1, indicating that values closer to 1 are more suitable for factor analysis. A KMO value of 0.825 suggests that the variables in the dataset

are reasonably suitable for factor analysis, as it indicates a high level of shared variance among the variables. Also, Bartlett's Test assesses whether the correlation matrix of the variables significantly differs from the identity matrix, indicating whether there are patterns or structures within the correlation matrix. The test statistic for Bartlett's Test follows a chi-square distribution and a significant p-value (usually less than 0.05) suggests sufficient evidence ¹¹to reject the null hypothesis. The test statistic is approximately 1357.984 with 171 degrees of freedom, and the p-value is less than 0.0001 (often represented as .000). This indicates a highly significant result, suggesting substantial evidence to reject the null hypothesis. Therefore, there are significant correlations among the variables, supporting the presence of structure within the correlation matrix. Thus, the data appear suitable for factor analysis, and there is evidence of significant correlations among the variables.

5.3. Structure Validity Test Results

Latent Variables	Scale Items	Factor Loading	A	CR	AVE
Service Quality					
Reliability	S1	.786	.790	0.765	0.583
	S2	.795			
	S3	.756			
	S4	.715			
Responsiveness	S5	.684	.848	0.798	0.616
	S6	.822			
	S7	.841			
	S8	.784			
Security	S9	.690	.775	0.800	0.618
	S10	.822			
	S11	.841			
	S12	.784			
Customer Satisfaction	CS1	.760	.860	0.735	0.605
	CS2	.784			
	CS3	.846			
	CS4	.779			
Turnover Intention	T1	.807	.806	0.809	0.628
	T2	.789			
	T3	.736			

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization

Source: Primary Data

The table shows different reliability coefficients for various measures within four domains: Reliability, Responsiveness, Security, Customer Satisfaction, and Turnover Intention. Reliability coefficients indicate the internal consistency or reliability of items measuring a particular construct. The values in the items range from 0 to 1, (Araya-Polo, et al., 2017) where higher values indicate more excellent reliability. These reliability coefficients help assess the consistency of measurement within each domain. Higher reliability coefficients suggest that the items within each construct are more strongly related to each other, enhancing the measurement's validity—the reliability coefficient of 0.7 indicates good internal consistency. However, the reliability coefficient of 0.60 is acceptable but could be improved.

Correlation and Regression Results

H1 : Service Quality positively influences Customer Satisfaction.

Correlation			
		Satisfaction	Service Quality
Pearson Correlation	Satisfaction	1.00	.363
	Service Quality	.363	1.00
Sig (1-tailed)	Satisfaction		.000
	Service Quality	.000	
N		156	156

Source: Primary Data

The correlation matrix provided shows the correlation between two variables, satisfaction and SQ, with Pearson Correlation with itself: 1.000 (which is always 1) and Pearson Correlation with SQ: 0.363 and Pearson Correlation with satisfaction: 0.363. The Significance (1-tailed): $p = 0.000$ (highly significant) with several observations (N): 156. Both satisfaction and SQ1 are positively correlated, with a Pearson correlation coefficient of 0.363. The table suggests a moderate positive linear relationship between the two variables. The p-value indicates that this correlation is statistically significant.

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
Constant	11.907	2.134		5.580	.000
SQ	.241	.050	.363	4.831	.000

Source: Primary Data

The model coefficients indicate the relationship between the predictor variable (SQ) and the dependent variable (satisfaction). SQ, B (Unstandardized Coefficient): 0.241. The standard error is 0.050. It measures the amount of discrepancy that is expected in a sample. The smaller the standard error, the better. Beta (Standardized Coefficient) is 0.363, t-value: 4.831 and Sig.: .000 (p-value). These coefficients represent the estimated impact of the predictor variable (SQ) on the dependent variable (satisfaction). The standardized coefficient (Beta) allows for ^{12a} comparison of the relative importance of the predictor. The p-values indicate the significance of each coefficient, with values less than 0.05 typically considered significant.

In this case, the coefficient for SQ is statistically significant and positive, indicating that as the SQ variable increases, satisfaction tends to increase as well. The Beta value of 0.363 suggests that for every one-unit increase in the standardized value of SQ, satisfaction increases by 0.363 standard deviations.

H2 : Service Quality has a positive influence on Turnover Intention.

Correlation			
Pearson Correlation	Intention	1.00	Service Quality
	Service Quality	.274	1.00
Sig (1-tailed)	Intention		.000
	Service Quality	.000	
N	156	156	

Source: Primary Data

The Pearson correlation coefficient between intention and service quality is 0.274. It suggests a positive correlation between intention and service quality. A correlation coefficient of 0.274 indicates a moderately positive correlation. It means that as the intention increases, service quality tends to increase as well, though the relationship is not extremely strong. Similarly, the correlation coefficient between service quality and intention is also 0.274. This further confirms the moderate positive correlation between these two variables. Both correlation coefficients have a significance level (p-value) of .000, indicating that they are statistically significant at the 0.05 level. This means that the observed correlations are unlikely to be due to chance. The data suggests a significant positive correlation between intention and service quality. It implies that higher levels of intention are associated with higher levels of perceived service quality, and vice versa.

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
Constant	10.765	1.684		6.393	.000
SQ	.139	.039	.274	3.563	.001

Source: Primary Data

The constant term (intercept) is 10.765, with a standard error of 1.684. The t-value is 6.393, and the coefficient is statistically significant ($p < .001$). The coefficient for the predictor variable labelled "SQ" is 0.139, with a standard error of 0.039. Its standardized coefficient (Beta) is 0.274. The t-value is 3.563, and the coefficient is statistically significant ($p = .001$).

H3 : Customer Satisfaction positively influences Turnover Intention.

Correlation

		Intention	Satisfaction
Pearson Correlation	Intention	1.00	.577
	Satisfaction	.577	1.00
Sig (1-tailed)	Intention		.000
	Satisfaction	.000	
N		156	156

Source: Primary Data

The association between intention and satisfaction is shown by the correlation analysis along with the associated significance levels and Pearson correlation coefficient. A relatively favorable association between intention and satisfaction is seen by the correlation coefficient of 0.577 between the two variables. Thus, intention and satisfaction have a statistically significant, somewhat positive correlation, according to the given correlation study. This has the effect of making purpose tend to boost satisfaction and vice versa.

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
Constant	6.897	1.132		6.094	.000
Satisfaction	.441	.050	.577	8.774	.000

Dependent variable: Intention

Source: Primary Data

When the predictor variable, satisfaction, is zero, the intercept, or constant, is 6.897, representing the anticipated value of the dependent variable, intention. The coefficient for satisfaction is 0.441, meaning that intention is expected to rise by 0.441 units for every unit increase in satisfaction. As a measure of the standardized impact size of satisfaction on intention, the standardized coefficient (Beta) for satisfaction is 0.577. Implying that the relationship between satisfaction and intention is moderate to strong. It results in a highly significant correlation between satisfaction and intention, as evidenced by the statistical significance of both the intercept and the coefficient for satisfaction (p-values less than 0.001).

From all the above analysis results it concludes that there is a moderately favourable relationship between satisfaction and intention, a weak positive correlation between intention and SQ, and a moderate positive correlation between SQ and satisfaction. There is statistical significance for every correlation. In conclusion, SQ has no discernible impact on intention in this regression model; only satisfaction determines intention considerably.

6. Discussion and Implications

In the business and academic sectors, turnover intention measures have long served as a gauge of employee satisfaction (Obinna Osita Ike, 2023). The purpose of the study is to investigate the relationship between turnover intention and service quality among Manipur state's e-banking customers. Reliability is one of the three service quality criteria that the study found to have a substantial impact on customer satisfaction and turnover intention. Furthermore, the other two factors—privacy and security, and responsiveness—don't show any real significance. The study's findings conflict with those of a prior investigation (Islam, Ahmed, Rahman, & Asheq, 2021), which revealed that responsiveness is a significant factor in determining customer happiness, recommending that to enable seamless banking, bank management implement a thorough information or technology infrastructure. Three groups of theories were put forth. The first set of data illustrates the connection between customer satisfaction and service quality. The data's conclusions demonstrated that out of the three variables—reliability, security, privacy, and responsiveness—reliability significantly improves consumer satisfaction. Responsiveness, security, and privacy did not, however, significantly affect pleasure, as we had anticipated. The association between turnover intention and service quality reveals similar results. It is discovered that reliability has a substantial impact on both customer happiness and intention to leave. The study's findings indicate that clients are less concerned with the services' timeliness and more dependent on them. This could be due to

the widespread use of online banking services and the server's sluggish or delayed replies. This could be a result of the widespread usage of online banking services and the delayed or sluggish server replies that online bankers are used to. This indicates, therefore, that turnover may result from these variables rather than drawing in new ones.

There are a few issues with the study that can be fixed by other researchers in related fields. The study's limited sample size and restriction to Manipur raise the potential that the sample under analysis is insufficient to explain the relationships. Furthermore, extrapolation of the results to other regions of the nation is necessary. Since the data were cross-sectional, a longitudinal replication of this study should yield superior results in assessing customer perceptions of service quality, satisfaction, and turnover intention, paving the way for additional research (Shankar & Charles Jebarajakirthy, 2019).

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Footnotes

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Assessing Farmers' Perceptions and Satisfaction with Agricultural Produce Market Committees (APMCs) in Northern Telangana

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Abstract : *This study examines the perceptions and satisfaction of farmers in Northern Telangana have regarding the services provided by Agricultural Produce Market Committees (APMCs). APMC services are meant to help farmers get fair prices, proper storage, and smooth transportation of their crops. However, farmers often need help with issues like inadequate storage, poor transportation, and unfair practices by intermediaries. The study involved surveying 752 farmers from six APMCs: Dharmaram, Gollapalli, Bhainsa, Khanapur, Sarangapur, and Choppadandi. It aimed to understand farmers' opinions on APMC services and their satisfaction with pricing, storage, conflict resolution, and market access. The study reveals significant dissatisfaction with storage and transportation facilities and felt the need to improve them. Further, it was found that there is a need for transparent auction practices and reduced influence of intermediaries to improve farmers' satisfaction.*

Keywords : Agricultural Produce Market Committees (APMCs), Farmers' Perceptions, Fair Pricing, Storage Facilities, Farmer Satisfaction, Northern Telangana.

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1. Introduction

India being agriculture based country constitutes 70% of population relying on agriculture with a contribution of 40% to 45% to national income. Historically, farmers faced difficulties in selling the agriculture produce and obtaining reasonable price. Farmers have experienced many unethical practices such as short weights, unauthorized deductions, middlemen exploitation etc. Royal Commission on Agriculture was recommended in 1928 for regulating the marketing practice and establishment of regulated markets. In pursuance a model bill was prepared in 1938 by the Government of India and circulated to the states. Later during sixties and seventies majority of the states enacted Agricultural Produce Market Regulation (APMR) Act and implemented it. The wholesale assembling markets were brought under the umbrella of this act, market yards and sub yards were constructed and Agricultural Produce Market Committee (APMC) was constituted to frame rule and enforce them. The Agricultural Produce Market Committees were established to protect the interests of farmers in the sale of agriculture produce and to ensure right price to them.

Telangana State, the 29th state of India whose population is of 350.04 lakhs as per the 2011 census. The majority of the state's population resides in rural areas and depends primarily on agriculture for their livelihoods. Agriculture plays a vital role not only in the economy of Telangana but also in ensuring food security. Approximately 60% of the state's workforce, as they are engaged in agriculture and allied activities.

2. Review of Literature

According to Jairath, M.S. (2004) the benefits received by farmers from the selling of agricultural produce in the regulated market vary by area due to variations in the spread of regulated markets across areas and the presence of requisite infrastructural amenities/facilities.

Ilaiah (2018) in his research article concluded that Government has to bring several reforms in price fixation mechanism in agricultural market in Telangana state. Furthermore, the author stated that the government must build a godown/warehouse at the market to assist farmers in safeguarding their crops until they receive a favorable price.

Vemula Jamuna (2018) in his article stated that the Telangana government has been initiating to introduce various new schemes for the development of agriculture sector in India. Farmers in Telanagna state are implementing several initiatives, but these schemes do not help farmers earn high market prices.

Chahal (2018) in his paper stated that the regulated markets controlled by the government set up to ensure reasonable gains to the farmers ended up working against the farmers.

Kathayat's (2019) enunciated farmers encounter various challenges in these markets, including high transportation costs, inadequate access to market information, dissatisfaction with prices, lack of grading facilities, the presence of numerous middlemen, insufficient storage, delayed payments, limited access to credit, and inadequate basic amenities. Addressing these issues is crucial to improve market efficiency and better serve farmers' interests.

According to the study conducted by NSSO, (2020), the poor incomes of agricultural households in India reflect the different problems faced in agricultural marketing. According to it in the study conducted during 2018-19, the agricultural households in India had a nominal monthly income of 10,218.

Madhu (2021) observed that Indian governments and organizations are addressing several challenges in the agriculture sector, such as small holdings of farmers, primary and secondary processing, supply chain management, infrastructure supporting the efficient use of resources and marketing and reduction of middlemen.

Kumar & Mittal (2022) A better understanding of demand elasticities helps to predict future demand of food and non-food commodities under different scenarios of demand shifters, and thereby could help policy planners to take appropriate policy decisions.

Tumma Shyam and Miryala Ramesh (2023b) looks at the problems farmers face when selling their crops in Telangana State. The main issue is the lack of proper storage on, which leads to a lot of wasted produce. Farmers often have to sell their crops quickly and for low prices because they need money urgently. Traders in the market sometimes take advantage of farmers by offering unfair prices and cheating them when weighing the produce. The study focuses on the role of Agricultural Produce Market Committees (APMCs) in managing these issues and offers ideas for improvement.

Department of Agriculture & Farmers Welfare Ministry of Agriculture & Farmers Welfare Government of India (2023) states that Telangana's Department of Agricultural Marketing, through e-NAM, promotes agricultural marketing uniformity, eliminates market information asymmetry, and promotes real-time price discovery.

Tumma Shyam and Miryala Ramesh (2023a) discusses ways to make agricultural markets better in Telangana. It says addressing malpractices, improving transportation, sharing market news, and investing in market buildings are important.

3. Research Gap

Very few studies are found to be done on to assess the role played by the APMC's in the agricultural marketing in Northern Telangana division highlighting whether these have succeeded in achieving its objective if not what were the causes and what corrective measures would have helped it in overcoming the problems. The study aims to analyze whether Agricultural Produce Market Committee holds the profitability and security to the farmer community in order to increase their credibility, confidence and boost for higher production and also to discover the various factors that affect farmers' attitude towards marketing of agricultural produce. Therefore, it is expected that this study will close the gap in past literature.

4. Need for the Study

The study helps to understand how farmers' perception and satisfaction level across various dimensions of Agricultural Produce Market Committee (APMC).

5. Objectives of the Study

- To find out what farmers think about APMC services, including fair prices, storage, transportation issues, and dealing with middlemen.
- To measure how satisfied farmers are with different parts of APMC services, like prices, conflict handling, training, payments, market access, and overall infrastructure.

6. Scope of the Study

The study aims to assess farmers' perceptions of APMC services and to measure satisfaction levels across various dimensions of APMC facilities and services in select APMCs, namely Dharmaram, Gollapalli, Bhainsa, Khanapur, Sarangapur, Choppadandi.

7. Research Methodology

Structured questionnaire is developed based on insights from the literature review. Through direct interviews with farmer's firsthand insights were gathered related to their perceptions of APMC services and satisfaction levels with APMC facilities.

8. Sampling Technique and Sample Size

A multi-stage sampling technique was chosen for the research study. A total of 752 farmers from the selected APMCs, including Dharmaram, Gollapalli, Bhainsa, Khanapur, Sarangapur, and Choppadandi, were approached for data collection.

9. Data Analysis and Interpretation

The collected data was presented as adequacy of storage and transportation facility, APMC payments procedures and farmers' satisfaction on APMC is presented.

Examine Farmers' Perceptions of APMC Services and Market Operations

H01a : Storage facility adequacy has no significant difference on farmers' perceptions of APMC services.

Table-1 : Comparison of Farmers' Perceptions of APMC Services Based on Storage Facility Adequacy

Group Statistics					
Storage facilities provided by the APMC		N	Mean	Std. Deviation	Std. Error Mean
Farmers perceptions of APMC services	Adequate	374	3.8449	0.87718	0.04536
	Inadequate	282	3.6028	0.96839	0.05767

Source : Compilation of the Author.

Table-2 : Independent Sample t-test

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Farmer's Perceptions of APMC Services	Equal variances assumed	14.127	0.000	3.346	654	0.001	0.24208	0.07236	0.1000	0.38417
	Equal variances not assumed			3.300	571.464	0.001	0.24208	0.07337	0.09798	0.38619

Source : Compilation of the Author.

Interpretation

The Levene's test indicates unequal variances ($p < 0.001$). The t-test, assuming equal variances, shows a significant difference ($p = 0.001$) in the perceptions of APMC services between those who find storage facilities adequate and inadequate.

H01b : Storage and transportation issues have no significant difference on farmers' perceptions of APMC services.

Table-3 : Comparison of Farmers' Perceptions of APMC Services Based on Storage and Transportation Issues

Group Statistics					
Issues related to storage and transportation facilities		N	Mean	Std. Deviation	Std. Error Mean
Farmers perceptions of APMC services	Yes	373	3.8499	0.87312	0.04521
	No	283	3.5972	0.97136	0.05774

The study tested what farmers think about APMC services, especially if they had trouble storing and moving goods. Among the sample 373 farmers with problems, they rated APMC services at 3.8499 on average, which means they mostly felt okay about the services. The standard deviation (0.87312) shows some differences in their ratings. The standard error (0.04521) means their average score. 283 farmers without storage and transportation issues gave lower rating of 3.5972, which means they are less happy compared to the first group. Their standard deviation is 0.97136 shows more differences in ratings, while the standard error (0.05774) means their average score is a bit less exact. These findings tell, how farmers feel about APMC services when it comes to storing and moving goods.

Table-4 : Regression Analysis of Factors Influencing Farmers' Satisfaction with Facilities and Services at APMC

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Farmer's Perceptions of APMC Services	Equal variances assumed	15.826	0.000	3.496	365	0.001	0.25269	0.07227	0.11078	0.39460
	Equal variances not assumed			3.454	357.039	0.001	0.25269	0.07333	0.10866	0.39673

Source : Compilation of the Author.

H02 : Farmers satisfaction level is not related with auctions procedure and their transparency as well as market charges collected by APMC.

Table-5 : Regression Analysis on Influently Factor of Auction & Transparency on APMC

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.917 ^a	0.841	0.840	0.29733		
a. Predictors: (Constant), Market charges of APMC, APMC conducts transparent auctions, Auctions conducted by the APMC						
ANOVA ^a						
Model	Sum of Squares	df	Mean Square	F	Sig.	
Reg Value	304.158	3	101.386	1146.82	.000^b	
Error	57.641	652	0.088	0		
Total	361.799	655				
Dependent Variable: Satisfied with payment procedures at APMC						
b. Predictors: (Constant), Market charges at APMC, transparency of auctions at APMC						
Coefficients ^a		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
(Constant)		0.525	0.082		6.388	0.000
Auctions conducted by the APMC		0.073	0.015	0.086	4.853	0.000
APMC conducts transparent auctions		0.827	0.015	0.887	54.011	0.000
Market charges of APMC		-0.002	0.016	-0.002	-0.124	0.901
a. Dependent Variable: Satisfied with payment procedures at APMC						

Source : Compilation of the Author.

10. Interpretation

The regression model, designed to evaluate farmers' satisfaction and perceptions of APMC facilities and services, particularly focusing on payment procedures, yields noteworthy findings. The statistical significance of the overall model (ANOVA p-value < 0.05) suggests that, collectively, the selected predictors in the model substantially contribute to explaining the variability observed in farmers' satisfaction with payment procedures at APMC.

With an R-squared value of 0.841, the model elucidates that approximately 84.1% of the variance in farmers' satisfaction with APMC payment procedures is accounted for by the inclusion of three key predictors: "Auctions conducted by the APMC," "APMC conducts transparent auctions," and "Market charges of APMC." The adjusted R-squared value of 0.840 reflects the model's improved explanatory power without over fitting.

11. Testing of Hypotheses

H02a : The satisfaction level of farmers regarding APMC payment procedures is not influenced by the auctions conducted by the APMC.

H02b : The satisfaction level of farmers regarding APMC payment procedures is not influenced by the transparency of auctions conducted by the APMC.

H02c : The satisfaction level of farmers regarding APMC payment procedures is not influenced by the market charges imposed by the APMC.

Examination of the coefficients associated with each predictor provides nuanced insights into their impact on farmers' satisfaction:

Auctions conducted by the APMC : The positive coefficient (0.073) and its statistically significant p-value (0.000) suggest that an increased frequency of auctions conducted by the APMC corresponds to an augmentation in farmers' satisfaction with payment procedures.

APMC conducts transparent auctions : The substantial positive coefficient (0.827) and its highly significant p-value (0.000) indicate that the APMC's conduct of transparent auctions significantly enhances farmers' satisfaction with payment procedures.

Market charges of APMC : The minimal coefficient (-0.002) and the non-significant p-value (0.901) imply that market charges imposed by the APMC do not exert a statistically significant impact on farmers' satisfaction with payment procedures.

The regression outcomes reveal that transparent auctions and the frequency of auctions conducted by the APMC are pivotal factors positively influencing farmers' satisfaction with payment procedures, while market charges do not emerge as a significant determinant of satisfaction.

12. Findings of the Study

Perceptions of APMC Services:

- Adequacy of storage facilities emerged as a significant concern among farmers, indicating a potential bottleneck in APMC operations. Improving storage infrastructure could lead to increased satisfaction and efficiency.
- Challenges related to storage and transportation were identified, suggesting a need for targeted interventions to streamline these processes and reduce farmers' logistical burdens.
- Farmers expressed varying levels of satisfaction with different aspects of APMC services, emphasizing the importance of a comprehensive approach to address specific concerns and enhance overall satisfaction.

Satisfaction Levels with APMC Facilities and Services:

- Satisfaction levels varied across different dimensions, emphasizing the diverse needs and priorities of participating farmers.
- Key satisfaction factors included price stability, conflict resolution mechanisms, training programs, weighing and payment systems, market accessibility, and overall infrastructure.
- Targeted improvements in these dimensions could lead to increased overall satisfaction, contributing to the well-being of farmers engaged in APMC transactions.

Suggestions

To improve the situation for farmers in Northern Telangana, several steps can be taken

- More storage places should be built.
- Make transportation easier and cheaper.
- Ensure fair prices through clear auctions.
- Reduce middlemen's influence.
- Train farmers on selling better.
- Resolve conflicts quickly and fairly.
- Upgrade market facilities.

13. Conclusion

The study shows that farmers in Northern Telangana have mixed feelings about the services provided by Agricultural Produce Market Committees (APMCs). While some farmers are satisfied, many face problems with storage, transportation, and fair pricing. These issues affect how they view the APMCs and their overall satisfaction. The study found that farmers care about things like storage, transportation, and different services at APMC markets. To make farmers satisfied, there is a need to create more storage, transportation, fair price and resolving the conflicts very quickly and fairly.

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Factors influencing NGOs' Scaling of Social Impact : An Application of the SCALERS Model

RAJDEEP DEB

Abstract : *The emergence of scaling of social impact is seen as one of the consequential subjects in the arena of Non-Governmental Organizations (NGOs), despite the theme has been served with curbed theoretical and empirical substantiation. Past studies have presented SCALERS model as one of the pioneering and leading research on the scaling of social impact. With the intention of extending the original work on gauging the predictors of scaling of social impact, the current study adopted the theoretical framework upon which SCALERS model was built. Moreover, this empirical study was carried out in different geographical area by adapting a set of constructs and scales used by the original study. The study population encompassed NGOs operating in Assam for a minimum period of five years. Out of 248 questionnaires distributed to the respondents, 187 responses were received. After screening out 19 invalid questionnaires, 168 questionnaires were used for statistical analysis. A positive and significant association was found between individual SCALERS and the scaling of social impact - except communicating. Furthermore, the findings revealed that staffing, alliance building, and lobbying were important predictors for scaling of social impact compared to other SCALERS drivers.*

Keywords : Scaling, Social Impact, SCALERS, Assam.

1. Introduction

There is little doubt about the growing size and reach of the Non-Governmental Organizations (NGOs) sector, although the social impact of its pursuits has been found to be transitory and concentrated to a handful of locations. Many researchers have attempted to locate the reasons behind the NGO's complexity in interacting constructively with extraneous forces, particularly social, economic, and political, at both domestic and global levels resulting in demeaning of the

developmental efforts at the grassroot level (Edwards & Hulme, 1992). In face of this short comings, NGOs are asking themselves critical questions including their ensuing role and productiveness, as well as are experimenting with different strategies to expand, or 'scale up,' the footprints of their development activities (Edwards & Hulme, 1992). For some NGOs, the tested strategy for attaining social impact scaling is through extending their effective programmes to various other geographical territories. In present times, social impact scaling as the key 'currency or key performance metric' (Islam, 2022) for the NGOs is gaining momentum, since NGOs are gradually attracting attention from researchers as well as practitioners across the globe.

Even though, the scaling of social impact has evolved as one of the enviable and assertive themes in the field of NGOs, it is constrained in terms of theoretical and empirical evidences. Apart from this, the complexity of scaling of social impact in the wider sphere has increasingly been a critical business for academics and policymakers of this field. Moreover, NGOs are facing funding issues and many of the funding sources have ceased to exist. Therefore, they are seeking ways to improve sustainability, solidify their revenue sources, and reduce their dependency on donors (Utami & Famiola, 2023). Policymakers, funders, and non-profit leaders often assert that non-profit organizations have a positive influence within their community of origin to progress by penetrating their viable solutions to more local communities (Moore et al., 2015; Nardini et al., 2022).

Bloom (2009) has strongly recommended the need for an in-depth understanding of social impact scaling and appealed to the researchers to investigate on how to scale social impact. The current study was an attempt to answer this call. This study developed theoretical and practical framework of scaling social impact by integrating previous work on scaling social impact. However, amidst several studies, the study that has transformed the research on scaling of social impact in the form of creation of comprehensive and substantial knowledge and understanding was that of SCALERS model (Bloom & Chatterjee, 2009). In fact, Bloom and Chatterji (2009), with the purpose of finding answers to the scholarly question of scaling social impact with an in-depth knowledge of it, developed a framework known as SCALERS model. The model with seven potential drivers or organizational capabilities are expected to help the NGOs to achieve scaling of social impact. These drivers are, staffing, communications, alliance-building, lobbying, earnings-generation, replication, and stimulating market forces. Therefore, the current study focused on extending the previous work on scaling of social impact and SCALERS by exploring the model in the context of Non-Governmental Organizations (NGOs) operating in Assam.

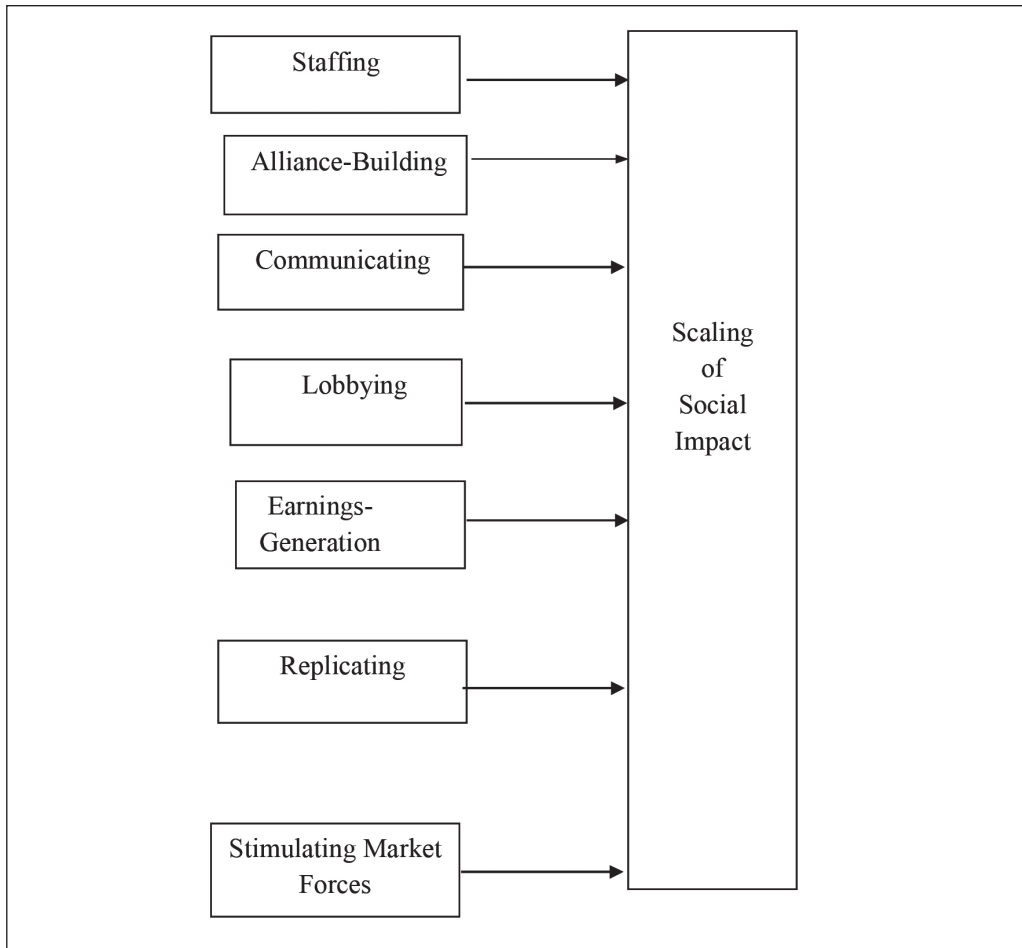
2. Literature Review

2.1. Scaling Social Impact

In the contemporary scenario, scaling social impact has surfaced as a key concern among the ongoing discussion about mitigating global bottlenecks like poverty or diseases (Cannatelli, 2017). Cannatelli (2017) further asserts that the existence of related issues in different geographical spheres need a distinct, adaptable, workable, innovative, and sustainable model that could be instantly grounded in diverse contexts, minimizing resource wastage for attempting to “reinvent the wheel” (p.2710). The research on social ventures is witnessing a significant inclination towards the area of scaling social impact, which has captured exponentially a sizeable space in this domain (Bradach, 2003; Bloom & Chatterjee, 2009). Although it is still in its early stages and very much under examined, the concept has attracted the attention of several researchers (Hoogendoorn et al., 2010; Tiwari et al., 2017). Several theoretical and empirical paradigms and models encompassing key indicators and components for quantifying the scalability of social impact have surfaced in recent years (Deb & Panda, 2019). The current paper considered the antecedents of scaling achievement, deliberated as the capabilities and measures needed by social organizations for scaling performance. More precisely, this paper followed the work of Bloom and Smith (2010), who further tested the model called SCALERS, originally developed by Bloom and Chatterjee (2009) around an array of practicable measures that social organizations may carry out to achieve scaling. Therefore, the current paper attempted to study the SCALERS model by testing it in developing states state such as Assam and in a different sector such as third sector. The below section reviews the SCALERS model and connects it to the literature on scaling social impact.

2.2. The SCALERS Model

There exists only a limited number of studies focusing on presenting a model to establish a linkage between organisational capabilities and scaling of social impact of the social firms. Bloom and Chatterjee (2009) developed a conceptual model that put forward seven drivers—or organizational capabilities—that can invigorate effective scaling by social organizations. These drivers or capabilities are recognized with the help of an acronym SCALERS, which stands for: Staffing, Communicating, Alliance building, Lobbying, Earnings generation, Replication, and Stimulating market forces. They further argue that these drivers can produce synergistic effects on the scale of social impact (Figure-1).

Figure-1 : The SCALERS Model

Source : Bloom and Smith (2010).

Dosi et al. (2000) assert that organizational capability is the ability to take intended action to achieve a specific thing. They assert that capabilities bridge the gap between intention and outcome, and they fill it in such a way that the results carry a noticeable congruity to what was deliberated (Dosi et al. 2000, p. 2 as cited in Bloom & Smith, 2010, p.131). In line with this, Bloom and Smith (2010) claim that the organizational capability emphasizes on examination at the broad level i.e., organizational level, hence debating the entrepreneurship literature, which often endorses about probing at the individual level. This has led to the

construction of dialogues on envisioning individual drivers of SCALERS as an organizational capability, which can set in motion effective scaling by a 'social entrepreneurial organization' (Bloom & Chatterji, 2009, p. 116). A narrative review of literature has been conducted to justify the significance of these factors in the context of the current study.

Staffing. While emphasizing SCALERS, the first driver or organizational capability presented in the model is Staffing which refers to the effectiveness of the organization at meeting its labour requirements such as its managerial positions, with individuals who possess the specified knowledge and skills to perform the task efficiently, whether they be salaried staff or volunteers (Bloom & Chatterjee, 2009).

Communicating. Bloom and Chatterjee (2009, p.118)) define the capability of communicating as how successfully the organization can convince major stakeholders that its dynamic strategy is worth adopting and implementing. They further assert that a high value on this construct stands for effective communication from the organization's end towards convincing prospective beneficiaries to use the organization services as well as to amend their actions in socially-advantageous ways.

Alliance building. According to Bloom and Chatterjee (2009), alliance building implies the potential of an organization to stitch partnerships, alliances, joint ventures, and other association to foster intended social changes as well as can enhance the performance of each of the drivers of SCALERS. A higher value on this construct indicates that the organization seldom attempts to get things done by itself, rather prefers collective actions to derive benefits. Further, Sagawa and Segal (2000) identify alliance building as one of the critical elements for effective scaling.

Lobbying. The term lobbying implies "the effectiveness with which the organization is able to advocate for government actions that may work in its favor" (Bloom & Chatterjee, 2009, p.120). Further, they claim that higher construct value would stand for the effectiveness with which the organization persuades various stakeholders to support its goals.

Earnings Generation. It defines how successfully an organization engenders a revenue stream that surpassing its spending (Bloom & Chatterjee, 2009). They further assert that a high value on this construct refers to the ability of the organization to pay its bills and sponsoring its activities.

Replicating. The term replicating refers to the effectiveness with which programmes and originality that have been developed by an organization are being recreated (Bloom & Chatterjee. 2009).

Stimulating Market Forces. According to Bloom and Chatterjee (2009), it can be defined as “effectiveness with which the organization can create incentives that encourage people or institutions to pursue private interests while also serving the public good”. A high value on this construct would explain that the organization has been successful in developing markets for products and services.

Bloom and Smith (2010) had empirically tested the SCALERS model through an exploratory investigation of non-profit organizations in US. The findings drawn from their study showed that all the drivers of SCALERS model were positively associated with scaling social impact. Bloom and Smith (2010) were instrumental in operationalizing the model through the building of subscales for quantifying the individual driver of the SCALERS model as well as corroborating the direction of causality theorized by the model (Cannatelli, 2017). The exploratory nature of this study sprang up as one of the limitations, so the current study aimed to address this limitation and revalidate the model. To be specific, the confirmation of the model was attempted by undertaking a study in the context of non-profit organizations, i.e., NGOs from one of the developing states in India, i.e., Assam.

In light of this, the current study attempted to answer a searching question, which inquires, how do the drivers proposed by the SCALERS model determine the NGOs’ social impact scaling in the geographical context of Assam?

2.3. Hypotheses Development

In view of the significance of SCALERS on scaling of social impact for NGOs in Assam, the following hypotheses were developed. The hypotheses formulated focused on the relationships between the variables used in our study: staffing, communicating, alliance building, earnings generation, replicating, stimulating market forces, and scaling social impact.

Hypothesis 1 (H1) : Staffing will have positive relationship with scaling of social impact.

Hypothesis 2 (H2) : Communicating will have positive relationship with scaling of social impact.

Hypothesis 3 (H3) : Alliance building will have positive relationship with scaling of social impact.

Hypothesis 4 (H4) : Lobbying will have positive relationship with scaling of social impact.

Hypothesis 5 (H5) : Earnings generation will have positive relationship with scaling of social impact.

Hypothesis 6 (H6) : Replicating will have positive relationship with scaling of social impact.

Hypothesis 7 (H7) : Stimulating market forces will have positive relationship with scaling of social impact.

3. Methodology

3.1. Data and Sampling

In this article, an effort was made to investigate and compare the criticality of the seven constructs (refer to the "Literature Review" section) for scaling of social impact. Past studies confirmed that each driver of the SCALERS model was closely related to the scaling of social impact. The database utilized for the survey was drawn from a platform called NGO-DARPAN, which is a free facility offered by the NITI Aayog in association with National Informatics Centre (kindly refer to ngodarpan.gov.in). According to NGO-DARPAN Directory, a total of 700 govt registered NGOs were operating in Assam during the conduct of this survey. For a population of 700, a sample of 248 is considered to be appropriate (Krejcie & Morgan, 1970). Therefore, to draw a sample of 248 NGOs from the targeted population, a simple random sampling was used in this cross-sectional study. Moreover, the inclusivity criteria set for this study was; only those NGOs were included who have been operating in Assam for a minimum period of 5 years and were registered under Govt. of Assam.

Nonetheless, given the challenges in gathering large amount of data related to NGOs across different districts of Assam, the authors took the help of a local research organization, who had the prior experience of collecting such data from social organizations in the state. The questionnaire comprising 25 Likert-type items were dispatched to 248 NGOs along with a request to participate in the survey. Among 187 returned questionnaires, 19 were rejected outrightly since they did not meet the inclusivity criteria set for the study. Finally, 168

questionnaires remained for statistical analysis. After analysing respondents' data, it was found that 40.5% of the NGOs were between 5 and 10 years old, whereas 59.5% NGOs were found to be more than 10 years old. The period of data collection was between September and December, 2023.

3.2. Measures

In this study, the scale validated by Bloom and Smith (2010) was employed for measuring each of the seven drivers of SCALERS and scaling of social impact. Moreover, many researchers in the world have used this scale in their study (Cannatelli, 2017). Like the original empirical investigation, a three-item scales were used to measure each of the seven SCALERS, whereas a four-item scale was employed to measure the scaling of social impact. In this study, SPSS 22.0 was employed for empirical analysis. Likert-type scale was used as a scale of measurement of the responses and carried options ranging from 1 to 5, where 1 stands for "strongly disagree" and 5 stands for "strongly agree".

A confirmatory factor analysis was done using Jamovi statistical software to evaluate whether the hypothesized model was acceptable in terms of desired fit with the sample data. The estimation of the model generated an acceptable fit with the data ($\chi^2 = 902$, $df = 275$, $p < 0.001$; RMSEA = 0.067; TLI = 0.926; CFI = 0.898). Also, a factor analysis was conducted on all 25 measurement items to ascertain if a single factor explained for maximum of the covariance in the relationships between the predictor and outcome variables (Bloom & Smith, 2010). Post analysis, it was discovered that 8 factors having eigenvalues equal or above one appeared and also no single factor explained above 28% of the variance. Therefore, it can be concluded that common method variance was unlikely to offer a serious consequence in the current study.

4. Results

4.1. Data Analysis

This study employed statistical analyses including T tests, correlations, and hierarchical linear regression. As for t tests, which were consonant with the initial empirical examination (Bloom & Smith, 2010), the sample was split by applying the criteria of high and low scores - based on the total score attained by each organization for each construct – attaining dichotomous variables that were made use of in the analysis (Cannatelli, 2017). Next, correlation analysis was conducted to study the relationship between variables, which examines the relationship between two of the variables and how much the two are related to

one another (Cho & Lee, 2018). Finally, hierarchical linear regression analysis was done to unveil whether independent variables explain a statistically significant amount of variance in the dependent variable after accounting for all other variables. This is generally a framework for model comparison.

5. Results and Discussion

5.1. Correlation Analysis and Descriptive Statistics

Table 1 shows the correlations and descriptive statistics for each of the variables used in this study. Results from the correlation analysis between seven individual SCALERS and scaling of social impact indicated a positive and significant correlation, thus reflecting some degree of dependence among the variables (Table-1). Also, it underpins the validity of the model in different settings. The year of establishment of the organizations was found to be positively and significantly related to alliance building ($r=0.042$, $p < 0.01$), lobbying ($r=0.072$, $p < 0.01$), and scaling of social impact ($r=0.097$, $p < 0.01$) – consistent with Bloom and Smith (2010). These revealed that the length of existence of the organization influences some of the SCALERS as well as scaling.

Table-1 : Correlation Analysis among Variables and Descriptive Statistics

Variables	1	2	3	4	5	6	7	8	9
1. Year									
2. Staffing	-.020								
3. Communicating	-.078	.113							
4. Alliance-building	.042**	.222**	0.041						
5. Lobbying	.072**	.436**	.009	0.500**					
6. Earnings generation	.135	-.171*	.359**	.260**	.135				
7. Replicating	-.013	.208**	.004	.452**	.383**	.340**			
8. Stimulating market forces	-.003	.028	.180*	.384**	.037	.532**	.356**		
9. Scaling social impact	.097**	.150**	.126	.017**	.238**	.054**	.015**	.108**	
Mean	12.24	12.48	11.71	14.22	13.33	8.78	13.87	9.13	14.98
Standard deviation	4.92	2.72	2.27	1.25	2.02	3.41	1.43	2.48	3.85

Note : N= 168 for all variables; * $p < 0.05$; ** $p < 0.01$.

Source : Computed data.

5.2. T-tests

Table-2 displays the t-test results based on median splits comparing differences between high and low SCALERS on the scaling of social impact. Besides

stimulating market forces, all six SCALERS drivers were found to have positive and significant difference between low and high SCALERS on the scaling of social impact at the 0.001 level (t values varied from 1.75 to 4.73). While comparing the differences between low and high means, staffing was found to have the least gap, whereas alliance building was found to have the highest difference – contradicting Bloom and Smith (2010), and Cannatelli (2017).

Table-2 : Comparison between Low and High SCALERS on Scaling Social Impact using T test

Variables	Low mean (s.d.)	High mean (s.d.)	t- statistic
1. Staffing (<i>n</i> = 85 for low; 83 for high)	14.47 (3.99)	15.51 (3.66)	1.75***
2. Communicating (<i>n</i> = 69 for low; 99 for high)	15.83 (4.11)	14.39 (3.57)	2.42***
3. Alliance-building (<i>n</i> = 65 for low; 103 for high)	14.71 (3.84)	15.16 (3.86)	4.73***
4. Lobbying (<i>n</i> = 67 for low; 101 for high)	14.34 (3.82)	15.41 (3.83)	2.76***
5. Earnings generation (<i>n</i> = 80 for low; 88 for high)	14.95 (4.35)	15.01 (3.36)	3.10***
6. Replicating (<i>n</i> = 52 for low; 116 for high)	14.96 (3.48)	14.99 (4.02)	2.04***
7. Stimulating market forces (<i>n</i> = 72 for low; 96 for high)	14.72 (3.88)	15.18 (3.84)	3.76

Note : N = 168; ***p < 0.001

Source : Computed data.

5.3. Hierarchical Linear Regression

The hypotheses for this study were tested using a hierarchical linear regression analysis to confirm whether each of the SCALERS (staffing, communicating, alliance-building, lobbying, earnings generation, replicating, and stimulating market forces) were positively and significantly related to the scaling of social impact (the dependent variable). Table-3 exhibits the results of the hierarchical linear regression about scaling social impact. After controlling the establishment year of the organization, an insignificant relationship emerged between the SCALERS and the scaling of social impact. The findings highlighted that when all the seven individual SCALERS were run at the same time in the model, it accounted for 34% of the variance in scaling of social impact. Based on the data, it can be further asserted that only three variables namely staffing, alliance building, and lobbying had positive and statistically significant relationships with NGOs' scaling of social impact with β fluctuating from 0.118 to 0.315. In

detail, lobbying seemed to have the highest effect on scaling of social impact followed by staffing and alliance building. These provided affirmatives responses to the hypotheses -H1, H3, and H4, and therefore accepted. So, the study findings revealed that staffing, alliance-building, and lobbying could contribute towards NGOs' achieving the scaling of social impact in Assam.

Table-3 : Hierarchical Linear Regression Results for Scaling Social Impact

Variables	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8
Control variable								
Year	-0.097	-0.100	-0.092	-0.094	-0.076	-0.075	-0.069	-0.063
Independent variables								
Staffing		0.312**	0.260**	0.251**	0.219**	0.181**	0.150**	0.136**
Communicating			0.138*	0.119	0.104	0.103	0.096	0.102
Alliance-building				0.215**	0.175*	0.176*	0.153*	0.118*
Lobbying					0.315**	0.298**	0.297**	0.283**
Earnings generation						0.064	0.067	0.052
Replicating							0.086	0.069
Stimulating market forces								0.105
ΔR^2	0.009	0.163	0.040	0.032	0.016	0.000	0.025	0.056
Total R^2	0.009**	0.172*	0.212**	0.244**	0.26**	0.26**	0.285**	0.341**

* $p < 0.05$; ** $p < 0.01$

Source : Computed data.

6. Discussion

The current study aimed to empirically examine the SCALERS model, initially presented by Bloom and Chatterjee (2009), in the context of NGOs of Assam. Although, the study revealed some findings in line with the first empirical investigation of the SCALERS model carried out by Bloom and Smith (2010) in US, many differences were also discovered. In this study, the investigation of the direct impact of the SCALERS variables on the scaling of social impact using a sample of 168 Assam NGOs delivered some interesting insights. Firstly, in line with the findings of Bloom and Smith (2010), a positive and significant difference was evident between low and high SCALERS, with stimulating market forces being the only exception. The exclusion of stimulating market forces as an important predictor of scaling can be regarded as shocking particularly when many literatures have suggested it as essential for attaining scaling. Secondly, positive and significant relationships were found between individual SCALERS

and the scaling of social impact – except communicating. These findings became partly consistent with the previous results (Bloom & Smith, 2010).

Furthermore, the findings revealed that staffing, alliance building, and lobbying were important predictors for scaling of social impact compared to other SCALERS drivers. This result may be attributed to the nature of the organizations selected as sample in this study. Overall, this study made an effort to contribute with some predictive validity to the combined influence of some of the drivers of the SCALERS (Bloom & Smith, 2010; Cannatelli, 2017), where deviation in the results may be bestowed upon many forces like geographical, political, socio-cultural differences, or organizational dynamics. Administrators of non-profit organizations need to consider these results when managing social enterprises, as the results underscored the drivers that may improve the chances of the ventures attaining scaling of social impact constructively. Furthermore, training programmes based on the study results can be configured so that the scaling skills of the leaders of social organizations in relation to the seven SCALERS drivers can be enhanced.

7. Conclusion

Unquestionably, a comprehensive framework for the scaling of social impact provides guarantees toward tackling many of the most critical and complex social issues occurring worldwide today (Bloom & Smith, 2010; Deb & panda, 2019). Notwithstanding the knowledge and understanding of the SCALERS drivers leading to the scaling of social impact is still in its early stages, the current study reinforced some of the results from Bloom and Smith (2010). Hence, the outcomes of this study successfully validated the notion that SCALERS variables drive the scaling of social impact.

One of the main limitations of this study was related to the non-inclusion of potential impact of situational contingencies on organizational capabilities and the scaling of social impact. So, further research - both quantitative and qualitative - may take into consideration the various potential interactions between SCALERS drivers, situational contingencies, and the scaling of social impact. Another limitation of the study was the empirical examination of the SCALERS model through the original number of items employed by Bloom and Smith (2010). The future research in this field should work towards further developing the model by increasing the number of measurement items of each variable. Another limitation was related to the difficulty in generalizing the study findings since the study was completely focused on relatively small set of NGOs functioning solely in Assam.

Despite the above limitations, there still exists a scope for further research in this field. The future researchers can employ a longitudinal design to validate the study results or to draw novel linkages between the factors explored. Moreover, it is also significant that the multidimensional constructs examined in this study should be assessed against samples which are both demographically diverse and undertaken in different organizational arrangements, going beyond social organizations. Lastly, more study of SCALERS along with other models can lead to a finer understanding on the way non-profit organizations usually scale their social impact.

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University-Industry Linkages Among Management Students : A Source-Application Approach

LINGAVEL G AND S.GANAPATHY

Abstract : *This study investigates the dynamics of University-Industry Linkages (UILs) in India and identifies their sources and applications within the context of collaborative efforts between academia and industry. Focusing on Alagappa University, this research draws insights from a sample of 150 master's degree students across seven academic programs. This highlights the distinct roles of higher education institutions in generating theoretical knowledge and industries in applying this knowledge to productivity and innovation. This study underscores the importance of fostering effective UILs, emphasizing the need for shared goals, bridging cultural disparities, and adopting a strategic approach encompassing short- and long-term collaboration, domain-specific partnerships, government support, and initiatives for communication, training, and trust building. These findings provide valuable insights for stakeholders aiming to enhance university-industry collaborations in India.*

Keywords : University-Industry Collaboration; Management Education; Applied Learning; Industry Engagement; Innovation Ecosystem.

1. Introduction

University-industry linkages (UILs) foster new scientific and technological research activities as their mutual bonding strengthens, playing a vital role in providing entrepreneurial and employment opportunities for potential students. Recently, policymakers in both developed and developing nations have increasingly recognized the role of UILs interaction in a nation's economic growth, considering the links essential for technological advancement and economic competitiveness.

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India, as one of the world's fastest-growing countries, is undergoing significant transformations, with the increasing number and capacity of universities being a key aspect of this process. Universities are regarded as crucial actors in the country's development efforts and are expected to contribute to various aspects, including producing quality graduates to meet the needs of the production sector, conducting R&D activities, and facilitating technology transfer. However, the current focus is primarily on producing a large number of educated workers (Lukas et al., 2024).

Many universities in India have initiated industry linkage initiatives, with consultancy services being the oldest form of industry linkage observed among numerous institutions (Ali et al., 2024). More recently, universities have established formal university-industry linkage offices to facilitate student placements, particularly for engineering students. However, a major challenge is the limited scope of these linkage initiatives, primarily focusing on student placements and consultancy and the lack of organization and control in their implementation (Alexander et al., 2024).

Identifying the key obstacles hindering strong and dynamic linkages between universities and the productive sector and proposing strategies to address these challenges are of paramount importance in advancing the current university-industry interaction (Sotirios et al., 2024; Anastasiia et al., 2023). This article seeks to assess the present landscape of collaboration between institutions and industries within Indian universities, pinpoint the main challenges in establishing effective interaction, propose measures to overcome these obstacles, and enhance collaboration.

2. Review of the Literature

Training programs that incorporate practical experimentation have been developed by Evans et al. (2023) to enhance students' academic performance, learner engagement, and employment prospects. They offered proof that interns, as a group, acquired a thorough understanding of how to apply theory in real-world situations. Students who used an entrepreneurial learning approach in their professional practice reported feeling more grounded in their sense of professional identity and employability, having a more reflective understanding of learning outcomes and the theory-practice gap, and being able to recognize opportunities.

Dr. Y.P. Auberson et al., (2023) found that organizing and delivering training sessions by universities to industries and vice versa, keeping industry persons in the meeting of the Board of Studies (BoS) of universities, industrial

participation in conferences and workshops managed by universities, inviting industry to design curricula for universities, participation of industry in teaching and evaluation, sharing of literature and other resources, offering grants to the university by industry, and creating an endowment chair of industry in universities.

Marika. K, (2023) noted that teams essentially perform two basic functions: teamwork and task work. Teamwork is essential to the associated mechanisms within teams and is often associated with the following emergent states: affective, behavioral, and cognition. As said earlier, every student discussed their one-on-one interactions with their teachers and the extra efforts their teachers made to positively influence their lives, demonstrating the steps they took to build that relationship. According to Colin G. et al. (2023), these events include frequent communication, ongoing feedback, sharing of information amongst partners, and informing partners about incidents or new initiatives.

Additionally, it is beneficial to communicate using a variety of channels, including emails, in-person meetings, and face-to-face interactions. According to Andre et al. (2023), single habits, incentives, and organizational obstacles in late developing countries are the reasons why single academic entrepreneur enterprises find it difficult to combine with public research institutes. The study concludes that gender and non-academic background are the two most significant factors that determine the level of engagement of academics and researchers in contributing to other organizations. These other attributes are largely disregarded.

Conversely, the network created for the development of knowledge and innovation is often assisted by funding programs, which serve as engines of leveraged innovation and its transfer to corporate environments. (Zhang Y, et al., 2023) Organizations conducting campus recruitment in a particular institute/college establish strong bonds with the concerned institute/university and its students (R). Shah. et al 2023), which reflects the perceptions of both universities and resource-extractive companies on the influence of UILs on innovation in a developing country. The industry informants considered all three groups of UILs important for enhancing innovation and bringing students closer to the industry. Faculty members considered consultancy and research arrangements as more important than participation in training and educational activities. (Ali Asker, et al., 2023) Technology Transfer Offices (TTOs) and Industrial Liaison Offices are primarily accountable for establishing university-industry partnerships. R&D contracts are indirect mechanisms through which

companies and universities combine general earnings (Felix et al. 2023). Collaborative projects with industry can enhance academic research projects and study output, because such tasks can provide new ideas and funding for instructional research (Karen et al., 2023).

3. Statement of the Problem

The current dynamic and competitive business environment demands increased partnerships that focus on innovation. Businesses must engage in innovative activities to maintain agility and pursue sustainable growth. However, many organizations struggle to enhance their operations solely through in-house R&D. Even existing R&D units within some firms may lack organization, highlighting the necessity of collaboration with external entities, particularly universities and research institutes. This underscores the concept of an innovation system that views innovation as a nonlinear, evolutionary, and interactive process. Consequently, partnerships between academia and industry, with a strong emphasis on innovation, are becoming increasingly prevalent in both developed and developing economies.

Academic institutions primarily focus on generating and advancing knowledge applicable to practical organizational needs across various sectors. Thus, universities conduct academic and research activities that provide inputs for organizations involved in the production of goods and services. Conversely, real-world organizations also contribute practical knowledge and resources to universities. This reciprocal relationship between academia and practical applications underscores the inseparable link between theory and practice. Universities are expanding their roles beyond knowledge creation and integrating community engagement into their strategic plans to address immediate local business and societal challenges. This proactive approach enables universities to contribute effectively to their long-term national development goals. Essentially, the global imperative for stronger ties between academia and the real world is evident.

4. Objectives

- Identify sources and applications of university–industry linkages (UILs) among management students.
- Examine the relationship between UIL sources and their applications among management students.
- Investigating the significant factors influencing UILs among management students.

5. Hypotheses

- H1 : There is no association between demographic factors and the use of UIL among management students.
- H2 : There is no association between management discipline and the application of UIL.
- H3 : Sources does not significantly impact the application of UIL among management students.

6. Methodology

This study was descriptive and detailed based on primary data collected using observational and survey questionnaire techniques, which are typical attributes of descriptive research. Data were gathered through structured questionnaires from 150 postgraduate students in the Management Studies Department of Alagappa University, Tamil Nadu, India. Alagappa University was the first in the state of Tamil Nadu to be funded by the RUSA Scheme under the MHRD Government of India. This study encompasses seven departments: bank management, corporate secretaryship, commerce, management, hotel management, international business, and logistics management. The collected data were subjected to descriptive analysis, weighted average rank, chi-square, correlation (r), and factor tests to derive the findings and test hypotheses. Analyses were conducted using MS Excel and SPSS 23.0. The table below presents the variables used to measure the sources and application of university–industry linkages, derived from an extensive literature survey.

Table-1 : Dependent and Independent Variables in Sources and Applications of UILs

Dependent Variables (Sources)	Independent Variables
Curriculum (S1)	Student Placement (A1)
Events (S2)	Expert Visit (A2)
Self-identification (S3)	Workshops (A3)
Incubator (S4)	Collaborative Research (A4)
Parents' Guidance (S5)	Technology Skills (A5)
Peer Group (S6)	Conferences (A6)
Awareness of Students (S7)	Industrial Visit (A7)
Counselling (S8)	Memorandum of Understanding (A8)
Information Communication Technology (ICT) facility (S9)	Teamwork (A9)
	Internship (A10)
	Environmental Facilities (A11)
	Entrepreneurial Opportunities (A12)
	Government Initiatives (A13)
	Contributing Infrastructure (A14)

Source : Primary data.

Table-2 : Descriptive Statistics of the Respondents

S.No	Variables	Distribution	Frequency	(%)
1	Age	21 to 23 years	17	11.3%
		24 to 26 years	67	44.7%
		22 to 29 years	35	23.3%
		Above 29 years	31	20.7%
2	Gender	Male	108	72%
		Female	42	42%
3	Academic Programmes	Bank Management	18	12%
		Corporate Secretaryship	20	13.3%
		Commerce	22	14.7%
		Management	27	18.2%
		Hotel Management	25	16.7%
		International Business	27	18%
		Logistics Management	11	7.3%

Source : Primary data.

Table-2 depicts the respondents' age, sex, and academic program. The age category of the students showed that the majority were in the age group of 24-26 years. 21-23 years formed the lowest percentage of respondents. The above 27-year age group contributed 44% and was assumed to have more industrial experience. The majority of the respondents were male. Most of the respondents were from the management department and a few were from the logistics department. The management department was followed by 18% from international business and 16.7% from hotel management, and the remaining 14.7%, 13.3%, 12%, and 7.3% of respondents were from Commerce, Corporate Secretaryship, Banking, and Logistics Management, respectively. Most of the respondents were related to the management program.

From table no-3 it can be observed that 'Events' is ranked as the first preference and incubator as the last preference of source, which drives industry institution linkages among the management students under study. The 'parents Guidance' is ranked as the second preference of the source, 'Curriculum' is ranked as the third preference of identity for the source, 'Self-Identification' the variable for

Table-3 : Sources of the University-Industry Linkage

S.No	Source	Weight									Total	Weighted Score	Rank
		9	8	7	6	5	4	3	2	1			
		Weighted Score											
1.	Curriculum	180	160	175	90	90	48	42	32	10	827	5.51	3
2.	Events	162	128	140	186	115	68	30	16	7	852	5.76	1
3.	Self-Identification	144	152	161	78	90	60	60	20	16	781	5.20	4
4.	Incubator	135	144	84	84	80	40	69	40	22	698	4.65	9
5.	Parents Guidance	180	184	217	102	50	52	54	16	10	865	5.68	2
6.	Peer Groups	171	144	105	120	50	64	45	34	20	753	5.02	6
7.	Awareness of students	126	128	70	102	75	88	84	30	13	716	4.77	8
8.	Counselling	144	120	140	66	115	72	51	20	20	748	4.98	7
9.	ICT Facility	153	152	84	78	90	112	36	36	13	754	5.03	5

Source : Primary data.

self-awareness, is ranked as the fourth preference, 'ICT Facility' is ranked as the fifth preference, 'Peer Groups' is ranked as the sixth preference of identity, 'Counselling' is ranked as the seventh preference of identity, 'Awareness of Students' is ranked as the eighth preference of identity and 'Incubator' is ranked as the least preference.

From the above analysis, it can be observed that attending conferences and workshops is perceived as a motivating source for inducing industry awareness and interest among the management students at the university. In this study, it was found that events were the major contributing sources, and incubator facilities were the least common source of UILs for students of educational institutions. Even though all other parameters of linkages were significant, their influence on the student's perception of linkages was downsized. Parental guidance was also a contributing factor after the event. The academic relevance of the curriculum ranks third, which might indicate a higher dependency on classroom teaching than market exposure.

Table-4 : Application of the University-Industry Linkage

S.No	Application	5	4	3	2	1	Total Avg.	Weight Avg.	Acceptance Index	Rank
1	Student placement	71	45	19	9	6	634	4.22	84.5	1
2	Expert visit	48	50	32	16	4	572	3.81	76.2	6
3	Workshop	57	39	34	14	6	577	3.84	76.9	4
4	Collaborative research	43	46	38	20	3	556	3.70	74.1	8
5	Technology skills	37	50	35	18	10	534	3.56	71.2	12
6	Conferences	36	40	34	28	12	510	3.04	68.0	14
7	Industrial visit	34	54	39	22	1	548	3.65	73.1	10
8	MOU	60	41	29	12	8	583	3.88	76.7	5
9	Teamwork	49	52	31	8	10	572	3.81	77.3	3
10	Internship	61	40	31	13	5	589	3.92	78.5	2
11	Environment Facilities	40	42	34	25	9	529	3.52	70.5	13
12	Entrepreneurial opportunities	38	50	40	17	5	549	3.66	73.2	9
13	Government initiatives	56	42	25	18	9	568	3.78	75.7	7
14	Contributing infrastructure	47	34	37	22	10	536	3.57	71.4	11

Source : Primary data.

From the above table, it was found that student placement was the most influential factor in the application of university-industrial linkages. The lowest mean score for the variables was for conferences, indicating that no source of UIL resulted in the development of conferences for awareness. This conference-related application shows low future R&D intention in the academic arena. The second highest mean score was for internship training. This source of UIL is sprouting a greater sense of industry bonds through internships, during or after the completion of relevant management courses. The third level of priority for implicating UIL was teamwork. Teamwork was found to be one of the three factors contributing to favorable UIL across the management disciplines under study. Because the Mean Score was found to be highly influenced by Student Placement (84.5), internship (78.5), and teamwork (77.3), a chi-square test was employed to investigate the statistical significance of the factors.

Table-5 : Association between Students' Personal Factors and the Application of UILs

Personal Factor	Calculated Value	Degrees of Freedom	p-value	Conclusion
Gender	35.342	30	0.230	Accepted
Age	42.579	40	0.030	Accepted
Education Stream	31.796	38	0.751	Accepted

Source : Primary data.

The chi-square calculated values were 35.342, 42.579, and 31.796 for 2, 6, and 6 degrees of freedom, respectively, at the 5% significance level. The corresponding p-values are 0.230, 0.030, and 0.751, respectively. The null hypothesis was rejected because the calculated values exceeded the critical table values. Therefore, we conclude that there is an association between personal factors and the use of UILs.

Table-6 : Correlation Analysis between the Source and Application of UILs

		A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	A-11	A-12	A-13	A-14
S1	r	.796**	.128	.013	.622**	.337**	.230**	.225**	.168*	.974**	.557**	.208*	.558**	.022	.155
	Sig.	.000	.118	.871	.000	.000	.005	.006	.040	.000	.000	.011	.000	.788	.058
S2	r	.615**	.076	.041	.874**	.203*	.322**	.254**	.172*	.576**	1.00**	.271**	.606**	.096	.205*
	Sig.	.000	.354	.619	.000	.013	.000	.002	.036	.000	.000	.001	.000	.241	.012
S3	r	.186*	.167*	.008	.269**	.206*	.314**	.932**	.070	.170*	.271**	1.00**	.186*	.030	.532**
	Sig.	.023	.041	.918	.001	.011	.000	.000	.396	.037	.001	.000	.023	.715	.000
S4	r	.827**	.257**	.013	.708**	.168*	.190*	.167*	.031	.600**	.606**	.186*	1.000**	-.073	.150
	Sig.	.000	.002	.876	.000	.039	.020	.041	.703	.000	.000	.023	.000	.374	.067
S5	r	.019	.135	.005	.096	.008	.116	.029	.091	.052	.096	.030	.073	1.000**	.030
	Sig.	.817	.100	.952	.244	.926	.159	.723	.267	.524	.241	.715	.374	.000	.712
S6	r	.101	.165*	.055	.228**	.120	.319**	.571**	.096	.131	.205*	.532**	.150	.030	1.000**
	Sig.	.217	.043	.503	.005	.144	.000	.000	.242	.110	.012	.000	.067	.712	.00
S7	r	.057	.040	.174*	.015	.056	.043	.035	.079	.056	.009	.038	.002	.055	.042
	Sig.	.487	.631	.033	.852	.497	.606	.674	.338	.499	.915	.647	.978	.504	.609
S8	r	.088	.132	.015	.035	.102	.126	.241**	.099	-.035	.095	.243**	-.110	.002	.243**
	Sig.	.282	.108	.857	.671	.214	.125	.003	.227	.667	.250	.003	.181	.984	.003
S9	r	.253**	.036	.171*	.248*	.743**	.304**	.320**	.203*	.350**	.284**	.334**	.185*	.010	.271**
	Sig.	.002	.666	.037	.002	.000	.000	.000	.013	.000	.000	.000	.023	.907	.001

Note. Significant at 0.01**, 0.0

Source : Primary data.

Table-6 shows the correlation coefficients between the source and application of the UIL variables. The curriculum as a Source of UIL had significant correlations with ten variables of applications (except expert visits, workshops, government initiatives, and providing infrastructure). Events as a Source of UIL were significantly correlated with 11 application variables (except expert visits, Workshops & Government Initiatives). Self-identification as a source of UIL was significantly correlated with 11 application variables (except MOU, Workshops & Government Initiatives). Incubation as a source of UIL had significant correlations with ten variables of applications (except Workshops, MOU, Government Initiatives, and distribution of infrastructure). Parents' guidance, as a source of UIL, had significant correlations only with the government. Of the 14 variables of the application, the impact of peer groups as a source of UIL had a significant impact on 50% of the variables under the application of UILs. Parents' guidance as a source of UIL had significant correlations only with the workshop out of the 14 variables of application. Counselling was found to be relevant for industrial visits, environmental facilities, and infrastructure provision. ICT was found to be a significant source of UIL, with significant correlations with 12 application variables (except for expert visits and government initiatives).

7. Factor Study

A KMO value of 0.707 indicated that the data were suitable for factor analysis. Exploratory factor analysis was conducted on the reactions of 150 respondents to 14 statements using the SPSS 23.0. The analysis examined the underlying dimensionality of the statements and identified the relevant factors. Principal component analysis (PCA) with orthogonal rotations and the varimax procedure were applied to extract factors from the 14 items. Factors with eigenvalues greater than unity were selected for analysis. The analysis revealed three underlying dimensions for the application of UILs, with these four factors explaining 32.086% of the total variance. According to the rotated component matrix, the eigenvalues for factors 1, 2, 3, and 4 were 4.492, 2.156, 1.435, and 1.114, respectively.

7.2 Naming of the Factors

The names of the factors are based on the variables represented in each case. Ten variables were extracted from a total of fourteen considered variables under the application of UILs. The names of the identified factors based on behavioral similarities are as follows: Factor 1: Engagement Evolution: The first identified dimension of the Application of university–industry linkage is labeled as

“Engagement Evolution” which includes student placement, collaborative research, teamwork, internship, and entrepreneurial opportunities. This dimension explains 32.086% of the total variance with five items. Factor 2: Advancement Phase: The second underlying dimension of the application of university–industry linkage is labeled as “Advancement Phase” which includes industrial visits, environmental facilities, and providing infrastructure. This dimension explains 15.401% of the total variance with three items. Factor 3: Technical know-how: The third identified dimension in the application of university–industry linkage is labeled as “technical know-how,” which includes only technology. This dimension accounted for 10.249% of the items. Factor 4: Government Support: The last identified dimension in the application of university–industry linkage is labeled “Government Support, which includes only Government Initiatives. This dimension accounted for 7.956% of the items.

8. Conclusion

Overall, sources significantly influence the application of university–industry linkages. Gender perceptions and academic programs showed no relevant associations with major UIL applications. The majority of correlation coefficients between sources and applications were found to be significant, indicating their impact on the beneficiaries of university–industry linkages. Greater emphasis should be placed on the four identified components relevant to the application of UILs: engagement evolution, advancement, technical knowhow, and government support. In India, university industry players collaborate closely to leverage the synergies of their partnerships. This collaboration aimed to enhance the generation of applicable knowledge and skills, improve graduate employment outcomes, boost workforce productivity, and support economic growth.

9. Scope for Further Research

This study focuses exclusively on the management departments of a prominent NIRF-ranking university in India, and suggests several potential avenues for expansion. These include conducting a detailed study of other NIRF-ranking universities under the Ministry of Human Resource Development, Government of India, and performing a comparative analysis of interstate, interuniversity, and government/deemed/private universities across India for comprehensive research. Additionally, this study can be broadened to encompass engineering disciplines to align better with industry expectations. Furthermore, collaborative research with foreign universities could facilitate incorporation of the latest industry requirements.

10. Highlights

- The purpose of this research is to identify where university-industry linkages (UILs) in India come from how they are used.
- In India, collaboration between universities and industry is strategically balanced to leverage synergies through close integration of academia and industry.
- This initiative aims to promote the acquisition of practical knowledge and skills, improve graduate employment outcomes, enhance workforce productivity, and bolster economic growth.
- The inclination towards partnerships between academia and industry, with innovation as a top priority, has become increasingly common in both developed and developing economies.

Authorship Contribution

Mr. Lingavel G contributed to the development of ideas, collecting and organizing data, conducting formal analysis, investigating the findings and methodology, creating models, confirming results, drafting the original document, and editing and reviewing the work. Dr. S. Ganapathy contributed to the development of ideas, methodology, modeling, supervision, writing the review, and editing.

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A Disquisition on Consumer Awareness of Organic Products During the Post-Second Wave Covid-19 Pandemic from the Perspective of Consumer Behaviour

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Abstract : *Consumer-level awareness of an actual product(s) is a crucial factor that influences consumers' buying behaviour. On comparing pre and contemporary situations of the COVID-19 pandemic, it can be ascertained that organic product usage has been enhanced. Due to the increased evaluation of consumer-oriented marketing, buyer behaviour has become an independent discipline. Organic products greatly impact consumers' health and the environment, leaving an ecological footprint due to the high demand and lack of sufficient supply. Cronbach's Alpha Score after an observation was about 0.84 which was reliable. The obtained chi-square value of 11.011 is larger than the table value of 5.99, showing a significant relationship between the residential area and consumer awareness. This paper focuses on consumer awareness of organic products during the post-second wave COVID-19 pandemic.*

Keywords : Consumer Awareness, Organic Products, COVID-19, Buying Behaviour.

1. Introduction

The marketing-relevant research question addressed here is, whether the consumers are aware of organic products to use and to identify the awareness of consumers organic products which exhibit lifestyle changes upon their usage. The question addresses the objectives of the study. Since the study is confined to a limited geographical area, researchers presume that this research would add value to the existing knowledge of academic marketing discipline on the topic of 'Consumer awareness of organic products.' Combining such a series of articles (published/ upcoming) in versatile geographical areas would manifest a greater

contribution since it is almost impossible for a group of researchers to cover the entire global habitat in a single study. The stakeholders of this particular study would cover almost the entire population involved in producing or consuming organic products including fellow researchers, lifestyle advisors, lifestyle consultants, health-conscious people, healthcare professionals, brand managers and decision-makers in perspective whether to start using organic products and the like. This question may help the producers/manufacturers to understand the level of awareness among consumers to identify the actual awareness. This identification of awareness among consumers helps the producers/manufacturers improve their brand loyalty by identifying the hardcore loyal customers to that particular brand, thereby enhancing customer retention. In addition, this study would also help the producers/manufacturers improve or change their marketing strategies for attracting new customers based on their awareness level. Change is a very personal choice of each individual for which none is assured. There might be a thought-provoking behaviour that accounts for multiple psychological thinking and behaviour patterns of these stakeholders after perusing the study.

2. Origination

Consumer behaviour is a substantial topic in the field of marketing. Consumer-level awareness of an actual product(s) is a crucial factor that influences consumers' buying behaviour. The success of any product or service would be reckoned with an analysis of consumer behaviour towards that particular product or service. Examining the way a consumer behaves and how the influential factors that enable the consumer to choose a particular product or service considering the internal and external factors paves a path for the knowledge of consumer behaviour. Ginormous change has been observed in the buying patterns of consumers with no exception for organic products. On comparing pre and contemporary situations of the COVID-19 pandemic, it can be ordinarily ascertained by way of observation that there is an enhancement in the usage of organic products. This exhibits health-conscious behaviour in consumers making them transpose towards organic products. Versatile organic products have been made accessible to consumers with multi-dimensional marketing product approaches by e-commerce service providers over and above the retailers.

Currently COVID-19 pandemic has changed the way of human lifestyle by imposing Covid Appropriate Behaviour (CAB) like social distancing, physical distancing (*2 gal ki doori hum sabke liye zaroori*), masking up, travel confinement,

movement of people and the like. These lifestyle changes made people find themselves alternative options in purchasing their products and services. The best alternatives preferred by consumers for their product purchasing options are e-commerce service providers with no exclusion from home delivery service providers. Organic products have been sounding to a greater extent due to their primary health-nourishing uses. The chief reason behind the swap of consumers from non-organic products to organic products is due to the increased adulteration of products, which has been generalised through the observation method.

3. Backdrop

The importance of Consumer behaviour evolved just after the Second World War (David L. Loudon and Albert J. Della Bitta, 1993). On the growth of the buyers' market, the seller's market has become un-noticeable which led to a paradigm shift of the manufacturer's attention from product to the consumer with a special focus towards consumer behaviour. Due to the increased evaluation of consumer-oriented marketing, buyer behaviour has become an independent discipline. The magnitude that is given to the consumer accentuated the emergence of consumerism and consumer legislation. The examination of people's choices about the usage of goods and services, as well as how they allocate their limited resources (time, money, and effort), or characteristics of consumption (what they purchase? When do they purchase? How do they purchase? can be termed as consumer behaviour. Consumer awareness has been raised by concerns about food safety and quality, and as a result, people are now skeptical of conventional items. Consumer behaviour is predominantly concerned with psychology, motivations, perceptions, and behaviour. Social and behavioural sciences help in finding out the causes of consumer actions, perceptions, and buying decisions in organisations (Kit Smith, 2016). Under circumstantial conditions, the focus on what the consumer could do can be called a positive approach to research. Understanding consumer behaviour is a baffling task for organisations due to heterogeneous people. This led the organisations to acquire exhaustive knowledge of consumer behaviour. This knowledge aids organisations to analyse current consumer behaviour thereby forecasting future consumer behaviour and paving a path towards customer relationships.

4. Theoretical Framework

- "Consumer awareness is described as 'the extent or alertness of individual consumers of their rights and responsibilities in the marketplace'. It manifests through five distinct factors: bargain hunting, general consumer

knowledge, product knowledge, information search and price consciousness" (Rousseau and Venter, 1993, 1995, 1996).

- "Focused that awareness plays an important role and the successful marketing of organic food. This reflects consumers' confidence in organic food usage" (Hill and Lynchehaun, 2002).
- "Note that consumer awareness is part of consumerism, which came to the fore as the discipline of consumer behaviour developed" (Du Plessis et al, 2007).
- "Another big trend in developed countries is the change in eating habits. Most societies have started to choose more healthy diets, especially balanced nutritional meals. This "health awareness" movement has boomed natural and organic foods on the shelves of supermarkets." (Peter and Olson, 2008).
- "Consumer awareness of organic foods is the first step in developing demand for organic products. Explored the views of Spanish consumers regarding awareness of organic food and found that around 46 % knew the concept of organic foods. It was also found that consumer's level of awareness was dependent on their income, age, education, and region of the country wherein education influenced the most the level of their awareness and awareness levels ranged from a low of 29% to a high near 71%" (Briz and Ward, 2009).
- "Consumer awareness and knowledge also influence consumer purchase behaviour. As a result, consumer awareness and knowledge drive growth in product markets" (Kumar and Ali, 2011).

5. Research Methodology

Problem Statement

Organic products greatly impact consumer health and the environment, leaving an ecological footprint due to the high demand and lack of sufficient supply. Current patterns of global spending are indefensible. The lifestyle of the consumer has been evolving, including how the consumer prefers and uses products. Consumer actions contribute to the impact on their health as well as on the global environment. Therefore, the present study focuses on the level of consumer awareness of organic products during the post-second wave of the COVID-19 pandemic.

Objectives of the Study

The objectives of the present study are set as follows:

1. To determine the consumer demographic profile of sample respondents selected for the study during the post-second wave of the COVID-19 pandemic.
2. To analyse the consumer awareness towards organic products of sample respondents selected for the study during the post-second wave of the COVID-19 pandemic.

Hypotheses of the Study

The present study encompasses the following hypotheses :

- H1 : There was a relationship between the gender of respondents and consumer awareness towards organic products during the post-second wave of the COVID-19 pandemic.
- H2 : There was a relationship between the residential area of respondents and consumer awareness towards organic products during the post-second wave of the COVID-19 pandemic.

Data Collection

Data was collected through a well-structured questionnaire to analyse the level of consumer awareness towards organic products from sample respondents from Chittoor District of Andhra Pradesh State as primary data from July 2023 to September 2023 during the post-second wave of the COVID-19 period. The respondents were categorised based on the demographic profile adopted for the study.

Sampling Method

The Sample size was determined in two steps, one calculates the sample for an infinite population and two adjusts the sample size to the required population of the Chittoor District of Andhra Pradesh, India for the study, which was 41,74,064 as per the census 2011. At a 95 per cent confidence level with 1.960 as a z-score value, and a 5 per cent margin of error which was 0.05, the sample size was 384 for the infinite population and adjusting the sample size to the above-said population arrived at 384. The convenience sampling method has been used with 450 as the total sample size for the study. However, 400 responses have been collected for the study in the research area.

6. Data Analysis Method

- Questionnaire was prepared using MS Word considering the demographic profile to collect respondents' basic details and the questions required to analyse consumer awareness.
- MS Excel was used for analysing the data by using statistical tools namely Cronbach's Alpha for internal consistency of the questionnaire (Reliability Test), Percentage analysis and Chi-square Test since data is dependent on categorical variables.
- The results of the study are represented through tables.

Data Analysis

The Canvass of the consumer demographic profile of sample respondents

- "Demographics is especially interesting for marketers as it is important to see how the population is changing in numbers, the distribution of genders, age, economic situation, birth rates, etc. For example, the recent increase in women's economic activity put them in the first place for companies as women purchase much more than men" (Blackwell, 2001). "Furthermore, the distribution of wealth is in focus as it is important in determining the buying power and market potential of the targeted consumers" (Solomon, 2006).
- "The countries' rates of marriage, divorce, and family structure have an impact on consumers' purchasing patterns. Compared to singles who enjoy junk food, couples with children purchase a lot more food that is health-conscious. Children also influence their parents' decisions on what to buy when they go grocery shopping. Consequently, in certain nations where the population is young, advertisements are more pertinent to children" (Solomon et al., 2002).
- "The individuality that distinguishes a single customer from the entire society is another crucial element. Consistent reactions to stimuli are what are known as personality traits. In many respects, having a particular personal value may be used as a marketing strategy to link certain consumers with particular brands and products (Chisnall, 1995). Strong coffee drinkers appear more gregarious and assertive than light or milky coffee drinkers, per marketing studies. Some coffee firms modified their cafes as a result of this" (Solomon, 2006).

- “A person’s lifestyle is another major factor in determining their purchasing patterns. It is crucial to assess this factor in order to understand how customers spend their time and money and how they demonstrate their values and preferences through their consumption (Solomon, 2006). Compared to personality, lifestyle might be more flexible to changing conditions. A person’s purchasing power and shopping habits are also impacted by changing jobs.” (Armstrong and Kotler, 2007).

The demographic profile of sample respondents was considered under the following eight factors for the study represented in Table 1.

Factor 1. Age of Sample Respondents for the Study

For the study of age, the researchers categorised the sample respondents varying from 21 years to 60 years into four age groups. The average age of sample respondents arrived at 41 years by taking the mean of 21 and 60. There were also sample respondents below 21 years and above 60 years respectively. The figures of the same are represented in Table 1. Responses were received from all age groups showcasing the gusto amongst sample respondents regardless of their age-related perceptions and awareness towards organic products. The researchers received 30 responses from under 21 years constituting 8 per cent, 212 responses between the age group of 22 to 40 years constituting 53 per cent, 101 responses between the age group of 41 to 60 years constituting 25 per cent and 57 responses from over 60 years constituting 14 per cent.

Factor 2. Gender of Sample Respondents for the Study

For the study of gender, males and females were taken into account. The percentage analysis of the same is represented in Table 1. A total of 158 male respondents accounting for 40 per cent and 242 female respondents accounting for 60 per cent responded to the questionnaire provided.

Factor 3. Marital Status of Sample Respondents for the Study

For the study of marital status, researchers classified marital status into four types un-married, married, annulled (divorced) and widowed. 88 responses constituting 22 per cent were collected from un-married respondents, 251 responses constituting 63 per cent were collected from married respondents, 43 responses constituting 11 per cent were collected from widowed respondents (either gender) and 18 responses constituting 4 per cent were collected from annulled respondents. The figures of the same are represented in Table 1. It can

Table-1 : Demographic Factors of Sample Respondents

Demographic Factor	Categorisation	Frequency	Percentage %
Age	Below 21	30	8
	22 - 40	212	53
	41 - 60	101	25
	Above 60	57	14
Gender	Female	242	61
	Male	158	40
Marital Status	Married	251	63
	Un-married	88	22
	Widowed	43	11
	Annulled (Divorced)	18	5
Educational Qualification	10th/ SSC	27	7
	Intermediate/ ITI/ Diploma	65	16
	UG	188	47
	PG	63	16
	PhD.	27	7
	Others	30	8
Occupation	Student	30	8
	Business	88	22
	Employed	155	39
	Homemaker	61	15
	Self-employed	27	7
	Other	39	10
Type of Family	Nuclear family	322	81
	Joint-family	78	20
Family Income	Below 5 lacs	70	18
	5 - 10 lacs	232	58
	Above 10 lacs	98	25
Residential Area	Urban	252	63
	Semi-urban	106	27
	Rural	42	11

Source : Primary data accumulated through field study

be observed that responses with regard to marital status were received to a greater extent.

Factor 4. Educational Qualification of Sample Respondents for the Study

The study of educational qualification has been divided into six groups starting from the basic qualification of 10th standard to the higher education of PhD considering even more factors. All the miscellaneous studies relating to education are grouped under the others section. The figures of the same are represented in Table 1. 27 respondents from the category of 10th standard accounted for 7 per cent, 65 respondents from the category of 12th standard accounted for 16 per cent, 188 respondents from the category of bachelor's degree accounted for 47 per cent, 63 respondents from the category of master's degree accounted for 16 per cent, 27 respondents from the category of doctoral degree accounted for 7 per cent and 30 respondents from the category of others accounting to almost 7 per cent. The same has been noted in responses. It can be observed that a higher number of responses were given by respondents (47 per cent) having a bachelor's degree as their educational qualification.

Factor 5. Occupation of Sample Respondents for the Study

For the study of occupation, the researchers have considered the common categories of employability. Greater responses were received from employed people accounting for a high response rate. The same is represented in Table 1. 155 responses from employed people accounting for 39 per cent, 88 responses from business people, accounting for 22 per cent, 61 responses from homemakers, accounting for 15 per cent, 30 responses from students, accounting for 7 per cent, 27 responses from self-employed people accounting for 7 per cent, and 39 responses from others were received accounting for 10 per cent.

Factor 6. Type of Family of Sample Respondents for the Study

For the study of the type of family, two major family types were considered. It can be noticed that nuclear families were more responsive to organic products when compared to joint families. The same is shown in Table 1. 322 responses were received from people with nuclear families constituting 80 per cent and 78 responses were received from people with joint families constituting 20 per cent.

Factor 7. Family Income of Sample Respondents for the Study

For the study of family income, the researchers have considered Indian individual income tax slab rates based on their tax payment percentages for

easy understanding of the individual respondents regarding their family income. The researchers found that a higher number of 232 responses were received from people with an income range of 5 to 10 lakhs as their family income which is shown in Table 1. A total of 70 responses were received from income range below 5 lakhs with 18 per cent as the response rate. 232 responses were received from the income range of 5 lakhs to 10 lakhs with 58 per cent as the response rate. 98 responses were received from income range above 10 lacs with 25 per cent as the response rate.

Factor 8. Residential Area of Sample Respondents for the Study

For the study of the residential area, the researchers made a general classification of the residential areas into three categories. It can be depicted from the pie chart that more responses were received from the urban area population. This is shown in Table 1. 252 responses from the urban area population with 63 per cent, 106 responses from the semi-urban area population with 26 per cent and 42 responses from the rural area population with 11 per cent were recorded.

7. Reliability Measure

“Patton (2001) referring to the researcher’s ability and skill in any qualitative research also stated that reliability is a consequence of the validity of a study”. An instrument shall be considered reliable if it gives the same numeric value when the measurement is repeated on the same object. For this study, ten statements were used to measure the level of awareness of organic products through the Rensis Likert five-point scale on 400 respondents. Cronbach’s Alpha was calculated using MS Excel which is reported as 0.84 by performing ANOVA without two-factor replication with Alpha 0.05 as shown in Table-2.

Table-2 : ANOVA Without Two-Factor Replication

Source of Variation	Sum-of-Squares (SS)	Degrees of Freedom (df)	Mean Squares (MS)	F ratio	P-value	F crit
Rows	974.624	399	2.442666667	6.173168765	2.51E-206	1.126796143
Columns	349.874	9	38.87488889	98.245599	1.65E-164	1.882483986
Error	1420.926	3591	0.395690894			
Total	2745.424	3999				

Source : Calculations made using MS Excel based on responses accumulated from the field study.

Hypotheses

H1 : Relationship Between Gender of Respondents and Consumer Awareness Towards Organic Products during the post-second wave of the COVID-19 Pandemic.

To examine the relationship between the gender of respondents and consumer awareness towards organic products, the frequency data obtained are summarized in Table-3.

Table-3 : Observed Frequencies of Gender

Gender	Yes	No	Total
Female	151	91	242
Male	102	56	158
Total	253	147	400

Source : Primary data accumulated from the field study.

Null Hypothesis (H_{01}) : There was no relationship between the gender of respondents and consumer awareness towards organic products during the post-second wave of the COVID-19 pandemic. (i.e., male and female respondents are expected to have the same proportion of awareness).

Research Hypothesis (H_{a1}) : There was a relationship between the gender of respondents and consumer awareness towards organic products during the post-second wave of the COVID-19 pandemic. The researchers could compute the expected frequencies with the observed ones. The greater the differences between them, the value of χ^2 will be larger. The expected frequencies computed from Table-3 are shown in Table-4.

Table-4 : Expected Frequencies of Gender

Gender	Yes	No	Total
Female	153	89	242
Male	100	58	158
Total	253	147	400

Source : Calculations made using MS Excel based on responses accumulated from the field study.

To evaluate the obtained χ^2 value (0.55), the researchers compared it to the critical value of sampling distribution of χ^2 so as to find the value of 0.55 was large enough to reject the null hypothesis. "A level of significance of 0.05, means that only if the calculated χ^2 is larger than what would be expected in not more than 5 out of 100 samples, then the null hypothesis is considered to be rejected. The number of degrees of freedom of the χ^2 distribution is set by the number of cells for which the expected frequencies can be selected freely. For any bivariate table, the cells that can be determined freely are limited by the marginal total of

both variables.” Thus, in a 2×2 table, there was only one cell that was free to vary, the three others being predetermined by the marginal total. The formula used was $df = (r - 1) \times (c - 1)$, where r = the number of rows and c = the number of columns. Therefore, $df = (2 - 1) \times (2 - 1) = 1$. “With 1 degree of freedom and 0.05 level of significance, the table value of χ^2 was 3.84. The obtained χ^2 value (0.55) was much lower than the table value. Hence, the null hypothesis has been accepted, and the research hypothesis rejected” i.e., the researchers could conclude that there was no significant relationship between the gender of respondents and consumer awareness towards organic products during the post-second wave of the COVID-19 pandemic.

H2 : There was a relationship Between the Residential Area of Respondents and Consumer Awareness Towards Organic Products during the post-second wave of the COVID-19 Pandemic.

To examine the relationship between the residential area of respondents and consumer awareness towards organic products, the frequency data obtained are summarized in Table-5.

Table-5 : Observed Frequencies of Residential Areas

Residential Area	Yes	No	Total
Urban	160	92	252
Semi-Urban	75	31	106
Rural	18	24	42
Total	253	147	400

Source : Primary data accumulated from the field study.

Null Hypothesis (H_{02}) : There was no relationship between the residential area of respondents and consumer awareness towards organic products during the post-second wave of the COVID-19 pandemic. (i.e., urban respondents, semi-urban respondents and rural respondents were expected to have the same proportion of awareness).

Research Hypothesis (H_{a2}) : There was a relationship between the residential area of respondents and consumer awareness towards organic products during the post-second wave of the COVID-19 pandemic. The researchers computed the expected frequencies with the observed ones. The greater the differences between them, the larger would be the value of χ^2 . The expected frequencies computed from Table 5 are shown in Table-6.

Table-6 : Expected Frequencies of Residential Areas

Residential Area	Yes	No	Total
Urban	159	93	252
Semi-Urban	67	39	106
Rural	27	15	42
Total	253	147	400

Source : Calculations made using MS Excel based on responses accumulated from the field study.

To evaluate the obtained χ^2 value (11.011), researchers have to compare it to the critical value of sampling distribution of χ^2 and to find whether the value of 11.011 was large enough to reject the null hypothesis. The sampling distribution of χ^2 is determined by the level of significance and the number of degrees of freedom. Therefore, $df = (3 - 1) \times (2 - 1) = 2$. With 2 degrees of freedom and a 0.05 level of significance, the table value of χ^2 was 5.99. The obtained χ^2 value (11.011) was much larger than the table value. Hence, the null hypothesis has been rejected, and the research hypothesis is accepted i.e., the researchers could conclude that there was a significant relationship between the residential area of respondents and consumer awareness towards organic products during the post-second wave of the COVID-19 pandemic.

8. Limitations of the Study

1. The study has been conducted from the perspective of consumers based on the above-mentioned demographic factors making it limited to the categories of gender and residential area.
2. Due to limited consideration of demographic factors, there might be variations in consumer level of awareness for organic products.
3. The study results have been inferred based on the sample of 400 respondents, collected from various outlets in Chittoor District, Andhra Pradesh, India relating to organic products.

9. Conclusion

This study aimed to shed light on the consumer demographic profile and awareness towards organic products among the respondents in Chittoor district, Andhra Pradesh, during the post-second wave of the COVID-19 pandemic. Through a careful examination of the data, valuable insights into the demographic characteristics of consumers in the region were obtained, providing

a comprehensive understanding of their background. Additionally, the study explored the level of consumer awareness regarding organic products during the specified period, offering crucial information for stakeholders in the organic products industry. As the researchers have navigated the challenges posed by the pandemic, these findings contribute to the broader discourse on consumer behaviour. The outcomes of this research not only enrich the existing body of knowledge but also serve as a foundation for future studies aimed at fostering sustainable practices and consumer well-being in the ever-evolving landscape of post-pandemic societies.

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Dominant Factors Influencing Consumers Visiting Rythu Bazaars – An Application of Henry Garrett Ranking Method

M. ANURADHA REDDY, RAVI AKULA AND PONNA SRILATHA

Abstract : *Rythu Bazaars are the initiative of the then Andhra Pradesh government with an objective of providing remunerative prices to farmers by arranging direct contact with consumers. In fact, Rythu Bazaars can be considered as direct marketing model for selling vegetables and fruits directly to consumers. These bazaars are playing vital role in providing fresh vegetables to the consumers at reasonable prices. With an objective of studying the performance of Rythu bazaars in Telangana a modest attempt has been made in this study. 380 responses from the consumers have been collected by administering a well -structured questionnaire. The study revealed that very few consumers are visiting rythu bazaars every day. Majority of them are visiting weekly once or twice only. Based on the Henry Garret's ranking method, fresh produce, affordable prices, large number of varieties, near to residence, fair scaling practice, convenient location and quality produce are assigned first to seventh ranks in order. These may be considered as motivating factors. Long working hours which is assigned eighth rank may be considered as neutral factor. Further, Courteous behaviour of farmers, layout of stalls, frozen vegetables disliking, neatness and hygiene, intension to help farmers, ambience and agricultural family background are assigned ranks ninth to fifteenth. These maybe understood as distracting factors.*

Keywords : Value Chain, Transportation, Supply Chain, Biodiversity, Nutrients, Location.

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1. Introduction

Identifying the importance of fruits and vegetables the year 2021 has been named as the International year of fruits and vegetables by the United Nations Organization (UNO). The main purpose of this announcement is to create awareness and to sensitize the people regarding inclusion of fruits and vegetables in the regular diet menu.

For everybody the very first food items that often come to thoughts when they think of healthy eating are the fruits and vegetables. These are colourful, vitamin comprised, includes body pro minerals- as well as rich in fiber, moreover they are very much imperative for the proper functioning of the body. There are number of advantages one can gain by consuming fresh fruits and vegetables. In fact, fresh fruits and vegetables are not only advantageous to eaters, but they also benefit the entire food system. The fruit and vegetable sector adds to increased biodiversity which contributes to environmental sustainability, and results in the improved livelihoods of farmers, labours and employees who are involved across the value chains/ supply chains.

In the present era, fruits and vegetables are not accessible to many people throughout the globe in general and developing countries in particular. The prominent reasons for inaccessibility are: low availability; problems in production; poor infrastructure related to transportation such as roads, railways and trade infrastructure; and unaffordable prices. Fruits and vegetables are the perishable products in nature, and this results in huge wastage at each step of the value chain, starting at the farm fields till reaching the hands of the final consumer. Most of the fruits and few vegetables are eaten uncooked or raw. Different factors are contributing and making fruits and vegetables more accessible, affordable and available. Further, improving the life span of produce by investing in the cold chain, focusing on research and development, and leveraging the technology such as digital innovation will surely help and improve the sector substantially in the time to come.

The “Rythu Bazaars” scheme of the Andhra Pradesh Government was launched in the month of November, 1999 to correct the lacuna in the marketing of agricultural products. In simple sense, Rythu Bazaars have provided an institutional framework for a “direct inter-face between farmers and consumers which facilitated the transition of Agri-produce directly from farm to fork”, in urban areas, abolishing the long chain of brokers in the marketing process. In a nut shell, Rythu Bazaars are organized markets for direct marketing of agricultural products in urban areas. The basic purpose of establishing these

markets is very noble. One of the prominent purposes of Rythu Bazaars is to provide fresh and quality vegetables and fruits to consumers at cheaper price by eliminating the middlemen. Providing market facilities and ensuring remunerative prices to farmers by eliminating the middlemen (direct marketing) is also the other notable purpose.

Development is not possible just by adopting the best methods of production but it is possible by the best methods of both production and distribution. As we know the green revolution, which made it possible to achieve remarkable growth in agricultural production by following new farming techniques and mechanization. To make a nation self-reliant and to provide food security, which is the basis for economic security and which leads to national security and social security such as education, employment and health security.

The “Rythu Bazaars” scheme of the Andhra Pradesh Government was launched in the month of November, 1999 to correct the lacuna in the marketing of agricultural products. In simple sense, Rythu Bazaars have provided an institutional framework for a “direct inter-face between farmers and consumers which facilitated the transition of Agri produce directly from farm to fork”, in urban areas, abolishing the long chain of brokers in the marketing process. In a nut shell, Rythu Bazaars are organized markets for direct marketing of agricultural products in urban areas. Uzhavar Sandhai had originated from the Russian concept called Kal Ghaj. M S Gill, the former Union agriculture secretary, on his visit to Russia was impressed by the concept of Farmers’ Market and he initiated steps to replicate the same concept by establishing Apna Mandis in the year 1987 in the states Punjab and Haryana. Tamil Nadu State applied this concept in 1999 in the name of Uzhavar Sandhais. Rythu Bazaars are also similar to Uzhavar Sandhais where direct marketing is the core.

2. Review of Literature

The Rythu Bazaars are operating successfully in Telangana and capturing more than 20 percent of the total production of vegetables. Though, the concept has shown its potential to encourage the local economy, it requires an understanding of local as perceived by the consumers in addition to other attributes that influence their purchasing behaviour in the local context (MANAGE Research Report, 2022). Red, Green, purple, orange, yellow or white: vegetables and fruits keep us physically fit and add diversity, taste and texture to our menus. In our day-to-day routine, whether we eat rice or bread daily, we probably vary the types of vegetables and fruits consumed. As a matter of fact, eating same food is

not only boring but also unhealthy; it is also unhealthy for the globe because it leads to monocultures, a loss of biodiversity and deficit of certain nutrients which are vital. Even today, most of us do not eat adequate vegetables and fruits. As per World Health Organization (WHO) recommendations, on an average each individual should consume at least 400 grams a day to keep healthy and strong. In the year 2017, some 3.9 million deaths throughout the world were due to not consuming enough fruit and vegetables (WHO, 2019).

There is a need to augment the grocery store interferences in addition to increasing awareness. In particular, Point of Purchase (POP) interventions will definitely impact the changes in the purchasing preferences (Sutton K et al, (2019). The fruit and vegetables sector role is significant in providing fresh and nutritious food to people across the nations, particularly in growing and expanding towns and cities. The fruits and vegetables segment generates income not only for farmers (producers), but also for all the players across the value chain that links farms to plates. This value chain includes input companies (seeds, fertilizers and pesticides), farmers, intermediaries and food processing entities, all of whom should finally satisfy the ever-changing demands in a sustainable manner. The agribusiness environment is becoming increasingly volatile in the recent past as this volatility comes from different sources such as structural changes in society, climate change and political action. The climatic conditions such as droughts, floods are of the prime factors responsible for fluctuating yields and a supply shortfall/excess supply which fluctuates the prices. In addition, there has been a notable shift in food consumption from fresh to processed produce and from home made to ready-made. This is due to increased incomes and changes in lifestyles of consumers.

At the same time, demand and consumption of fruit and vegetables tends to grow very fast due to urbanization (migration from rural areas), increased awareness and employment which results in increased income of the people. In the recent years there has been an increase in Exports of fruit and vegetables from Ethiopia (Bekele et al., 2016).

Nowadays, increased demand for fresh fruits and vegetables made this segment profitable due to which many farmers started diverting into this segment across the globe. Global production of fruit and vegetables grown faster when compared to other crops such as cereals. Between 1960 and 2000, the cultivated area under fruits and vegetable crops worldwide has become two hundred percent. Several factors are responsible for increase in the area of horticulture crops (Lumpkin et al. 2005).

There is a need to initiate steps to condense the influence of the middlemen. also, creating awareness about the importance of value addition and value capturing, and explaining different players in the value chain is emphasized for building a strong relationship (Chengappa 2017). Market-initiated fruits and vegetable farming not only just creates earnings for smallholder farmers but consistently helps to make their flexibility to face external threats without much pain. Diversity of crops, short life cycles, and effective use of irrigation can reduce cultivators, vulnerability to climate change (Smitha Sah et al., 2022). Though Apples are produced in most of the countries throughout the globe, they vary in colour, size, shape, flavour, and different baking properties. The varieties produced in any given country is affected by weather conditions and because consumers enjoy variety. (Larue and Ker, 2024).

3. Objectives of the Study

The present study is intended to examine the functioning of Rythu Bazaars in Telangana State. The objectives are:

1. To study the frequency of visiting Rythu Bazaars and consumer satisfaction towards Rythu bazaars.
2. To identify the determinant factors based on the consumers' preferences.

4. Hypotheses

Hypothesis-1:

Null Hypothesis (H_0) : There is no significant difference in the consumers' satisfaction towards Rythu bazaars with regard to place of residence.

Alternate Hypothesis (H_1) : There is a significant difference in the consumers' satisfaction towards Rythu bazaars with regard to place of residence.

Hypothesis-2 :

Null Hypothesis (H_0) : There is no significant difference in the consumers' satisfaction towards Rythu bazaars with regard to age.

Alternate Hypothesis (H_1) : There is a significant difference in the consumers' satisfaction towards Rythu bazaars with regard to age.

5. Methodology

Both Primary and Secondary data has been used in the study. Secondary data has been gathered from the records of Agriculture department, Rythu Bazaars' reports, Journals, and other Government reports. Primary data has been collected from 380 consumers across 19 select Rythu Bazaars across Telangana State by administering a questionnaire. Primary data has been collected during the period of May, 2022 to March, 2023. From each Rythu Bazaar 20 Consumers were selected based on the convenience for data collection purpose. The collected data has been processed and analysed with the help of suitable statistical tools.

Table-1 : List of Rythu Bazaars

1	Mahabubnagar	8	Bhongir	15	Alwal
2	Nagarkurnool	9	Miryalaguda	16	Erragadda
3	Khammam	10	Suryapet	17	Kukatpally
4	Karimnagar	11	Mehidipatnam	18	Ramakrishnapuram
5	Nizamabad	12	Vanasthalipuram	19	Medipally
6	Nalgonda	13	Saroornagar		
7	Warangal	14	Falaknuma		

Source : Primary Data.

Above table (Table-1) indicates the list of Rythu Bazaars selected for the study. To get the representation of entire state, Rythu Bazaars from each region were covered in the study.

6. Profile of the Respondents

Based on the responses, it can be seen that 20.5% of the consumers (78) are from rural area; 73.4% (279) are from urban area and another 6.1% (23) are from semi urban area. From tabular data it is understood that majority of the respondents are living in the urban area. Based on the age, 12 respondents are aged less than 20 years which is equal to 3.2% of the total. 118 respondent farmers are in the age group of 21 to 30 years which is equal to 31.1%. 143 respondents age is between 31 and 40 years which constitutes 37.6% of the total. 56 consumer respondents age is between 41 and 50 years and another 51 respondents age is above 50 years. From the point of view of age, 68.7% of the respondents are in the age group of 20 to 40 years. Gender wise 243 are male which is equal to 63.9% and 136 are female which constitutes 35.8% of the total. It can be understood that a greater number of male consumers are visiting Rythu bazaars. The data pertaining to educational qualification of the respondents reveals that

83 respondents are with PG and above qualification; 145 respondents have done their education up to under graduation. 105 respondents revealed that they have studied up to 10th standard and another 44 respondents are illiterates (Table-2).

Table-2 : Profile of the Respondents

	Particulars		No. of Respondents	%
1	Place of Residence	Rural	78	20.5
		Urban	279	73.4
		Semi urban	23	6.1
		Total	380	100
2	Age (in Years)	Below 20	12	3.2
		21 to 30	118	31.1
		31 to 40	143	37.6
		41 to 50	56	14.7
		Above 50	51	13.4
		Total	380	100
3	Gender	Male	243	63.9
		Female	136	35.8
		Others	1	.3
		Total	380	100
4	Educational Qualification	Illiterate	47	12.4
		School up to 10 th	105	27.6
		College up to UG	145	38.2
		PG and above	83	21.8
		Total	380	100

Source : Primary data.

Table-3 : Frequency of visiting Rythu Bazaar

Frequency of visiting	No. of respondents	%
Daily	14	3.7
Alternative Days	68	17.9
Twice in a Week	175	46.1
Once in a Week	123	32.4
Total	380	100

Source: Primary data.

The purpose of establishing Rythu bazaars is two folded one side to help the farmers in realising the fair and remunerative prices to their produce and the other side providing fresh vegetables at reasonable price without approaching the middlemen. Consuming the fresh vegetables is essential to gain the nutrients and energy. Above table (table-3) reveals the frequency of visiting Rythu bazaars by the consumers. Out of 380 respondents, only 14 respondents revealed that they go to Rythu bazaar every day, 68 respondents opined that they visit Rythu bazaars on alternate days. 175 respondents responded that they visit twice in a week and remaining 123 respondents expressed that they visit Rythu bazaars once in a week. From the study it is clear that very less percentage (3.7%) of consumers are visiting Rythu bazaars daily. Majority of the respondents (i.e. 298) which is equal to 78.5% of the respondents are visiting the rythu bazaars weekly once or twice only (Table-3).

**Table-4 : Consumers' Satisfaction towards Rythu Bazaars
According to Place of Residence**

Residence	N	Mean	Std. Dev.	Std. Er	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
Rural	78	3.2247	.48354	.05475	3.1157	3.3337	1.63	4.26
Urban	279	3.3279	.57039	.03415	3.2606	3.3951	1.63	4.63
Semi Urban	23	3.6156	.47140	.09829	3.4117	3.8194	2.63	4.32
Total	380	3.3241	.55340	.02839	3.2683	3.3799	1.63	4.63

Source : Primary data.

The above table (Table-4) depicts the results related to the satisfaction of the consumers towards Rythu bazaars. The mean satisfaction of the 78 rural consumers is 3.22 whereas the urban consumers' mean satisfaction is 3.32 and the semi-urban consumers' mean satisfaction is 3.62. The overall mean satisfaction of the consumers is 3.32.

7. Hypothesis Result

With an objective of knowing the impact of place of residence on the consumers satisfaction, the following hypothesis has been framed and tested with one-way Analysis of Variance (ANOVA).

Null Hypothesis (H_0) : There is no significant difference in the consumers' satisfaction towards Rythu bazaars with regard to place of residence.

Alternate Hypothesis (H_1) : There is a significant difference in the consumers' satisfaction towards Rythu bazaars with regard to place of residence.

Table-5 : Consumer Satisfaction based on Residence (ANOVA)

	Sum of Squares	d.f.	Mean Square	F.	Sig.
Between the groups	2.729	2	1.364	4.538	.011
Within the groups	113.339	377	.301		
Total	116.068	379			

Source : Primary data.

From the Table-5, it is found that the computed value ($p=0.011$) is less than 0.05. Hence, the null hypothesis is rejected. It means there is a significant difference in consumers' satisfaction with regard to place of residence.

The mean satisfaction of the consumers below 20 years age is 3.34; the same is 3.4 with regard to the consumers in the age group of 21 and 30 years. The mean satisfaction is 3.3 in case of the consumers whose age is in between 31 and 40 years, and 3.19 in case of the consumers in the age group of 41 and 50 years. The mean satisfaction of the 51 consumers who are aged above 50 years is 3.34 (Table-6).

Table-6 : Consumers' Satisfaction towards Rythu Bazaars According to Age (years)

	N	Mean	Std. Dev.	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
Below 20	12	3.342	.38053	.1098	3.1003	3.5839	2.68	4.05
21-30	118	3.400	.53599	.0493	3.3024	3.4978	2.05	4.53
31-40	143	3.306	.54926	.0459	3.2154	3.3970	2.16	4.63
41-50	56	3.190	.52021	.0695	3.0515	3.3301	1.63	4.26
Above 50	51	3.340	.65419	.0916	3.1566	3.5246	1.63	4.58
Total	380	3.324	.55340	.0283	3.2683	3.3799	1.63	4.63

Source : Primary data.

Table-7 : Consumer Satisfaction based on Age of the Respondents (ANOVA)

	Sum of Squares	d.f.	Mean Square	F.	Sig.
Between the groups	1.740	4	.435	1.427	.224
Within the groups	114.328	375	.305		
Total	116.068	379			

Source : Primary data.

From the Table-7, it can be found that the computed value ($p=0.224$) is more than 0.05. Hence, the null hypothesis is accepted. It is concluded that there is no significant difference in consumers' satisfaction with regard to age.

Priorities of Consumers Visiting Rythu Bazaars (Ranking in order of preference)

With an objective of exploring the attractive factors, the respondents were asked to give ranking on preference basis to the fifteen (15) identified factors. The listed factors are as follows: Fresh produce, Affordable (cheap price), Large varieties, Near to residence, Quality produce, Long working hours, Layout of stalls, Convenient location, Fair practices in scaling weights, Courteous behaviour of farmers, To help farmers by purchasing, Dislike to eat frozen veggies, Being from agriculture family, Neatness and hygiene and Ambience.

Table-8 : Descriptive Statistics of Priorities (Ranking Order)

Ranks Factors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fresh	122	51	57	10	19	15	16	6	12	12	27	13	4	7	9
Affordable	38	52	44	35	28	30	34	18	13	12	22	27	13	7	7
Varieties	42	44	42	38	25	22	25	25	35	11	9	13	28	6	15
Near	26	27	48	43	36	27	21	23	8	12	32	18	19	27	13
Quality	19	22	22	31	31	21	44	25	32	26	31	18	28	19	11
Timings	17	24	21	19	30	29	32	27	37	31	21	21	19	18	34
Layout	13	10	11	12	26	41	27	33	32	19	27	34	34	36	25
Location	15	42	18	47	27	33	33	36	20	16	16	14	20	25	18
Fairness	21	23	24	36	36	37	22	22	48	32	15	17	18	21	8
Behaviour	8	10	9	23	43	33	34	30	14	35	19	43	29	30	20
Help	7	17	14	16	15	18	17	28	24	36	39	56	31	35	27
Dislike	12	12	14	22	17	20	24	25	29	58	35	32	30	19	31
Family	6	7	30	12	10	15	20	26	15	25	32	27	40	52	63
Hygiene	20	9	11	10	24	24	19	43	38	25	19	28	37	40	33
Ambience	14	30	15	26	13	15	12	13	23	30	36	19	30	38	66

Source : Primary data.

Above table depicts the responses of the consumers regarding the ranking priorities to the listed factors.

Garrett's Ranking Method

Garrett's ranking method is used in this study to rank the preference as responded by the respondents on different factors. In this process, respondents have been requested to assign the ranks for all factors based on the preferences and the outcomes of such ranking have been converted in to score value by using the help of the following formula:

$$\text{Percent position} = 100 (R_{ij} - 0.5)/N_j$$

Where

R_{ij} = Rank given for the i th variable by j th respondents; N_j = Number of variable ranked by j th respondents.

The percent position estimated is converted into scores as per the Garret's table. Afterwards, for each factor, the scores of each respondent are added and then total value of scores and mean values of score is computed. The calculated values are as follows:

Table-9 : Henry Garret's Ranking Score

Particulars (Factors)	Total score	Avg. score	Rank
Fresh produce	24966	65.70	1
Affordable (cheap price)	22153	58.30	2
Large varieties	21712	57.14	3
Near to residence	20513	53.98	4
Quality produce	19405	51.07	7
Long working hours	18608	48.97	8
Layout of stalls	17278	45.47	10
Convenient location	19987	52.60	6
Fair practices of scaling	20031	52.71	5
Courteous behaviour	17676	46.52	9
Helping farmers	16545	43.54	13
Dislike to eat frozen veggies	17236	45.36	11
Being from agriculture family	15153	39.88	15
Neatness and hygiene	16970	44.66	12
Ambience	16387	43.12	14

Source : Primary data.

From the Table-9, it can be seen that the respondents who are visiting Rythu bazaars have opted fresh produce for first rank; cheap prices compared to other platforms is given second rank. The third rank has been given to large number of varieties availability at Rythu bazaars, fourth rank is assigned to the factor near to residence. Fifth rank is attributed to fair scaling practices and convenient location of the rythu bazaar is in the sixth rank. Seventh rank is assigned to quality produce whereas eight rank is assigned to long working hours. Behaviour of the farmers is placed in ninth rank; layout of stalls is in tenth rank. Disliking to consume frozen vegetables is given eleventh rank, neatness and hygiene is in twelfth place, Intension to help farmers is in thirteenth rank. Ambience is assigned fourteenth rank and finally being from agriculture family is assigned fifteenth rank.

8. Conclusion

Based on the finding of the study, it can be concluded that the rythu bazaars are not able to attract the consumers on daily basis. From the table -3 it is found that

out of 380 respondents surveyed, only 14 respondents (i. e. 3.7%) are visiting rythu bazaars every day. Another 68 respondents (17.9%) are visiting alternate days. About 78.5% of the respondents (298 number) are visiting rythu bazaars either once or twice in a week. To increase the business, it is inevitable to attract a greater number of consumers to rythu bazaars on every day. Based on the satisfaction, semi urban consumers are highly satisfied with a mean satisfaction score of 3.61 compared to 3.32 in case of urban consumers and 3.22 in case of rural consumers. The reasons for less mean satisfaction of rural consumers maybe they are able to get satisfactory more quality vegetables in their native villages rather than rythu bazaars. As per the results of Analysis of Variance (ANOVA), that there is significant difference in consumers satisfaction with regard to place of residence (for details please refer table-6). With regard to consumer satisfaction across the different age groups, the null hypothesis is accepted which means that there is no significant difference in consumers satisfaction with regard to age (Table -8).

Based on the priorities of the consumers according to Henry Garret's ranking method, fresh produce, affordable prices, large number of varieties, near to residence, fair scaling practice, convenient location and quality produce are assigned first to seventh ranks in order. These may be considered as motivating factors. Long working hours which is assigned eight rank may be considered as neutral factor. Further, Courteous behaviour of farmers, layout of stalls, Frozen vegetables disliking, neatness and hygiene, intension to help farmers, ambience and agricultural family background are assigned ranks ninth to fifteenth. These maybe understood as distracting factors.

Based on the above findings and discussion, it is clear that the rythu bazaars need to improve a lot to be successful in attracting consumers frequently. The average satisfaction is also less (3.324 out of 5) and needs to be improved. Based on the Garret's ranking method, there is a need to improve the factors which have been assigned ranks from eight to fifteenth to convert the distracting factors to motivational (attracting) factors. The government also need to take several steps such as allotting more space, parking facility, canteen facility, drinking water, public transport system, electricity, security, seeds at subsidy prices, advisory services to farmers which will definitely attract the farmers and consumers to Rythu Bazars.

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Corporate Reporting Practices in Indian Small and Medium Enterprises

SUMAN KOLPULA AND KAMATAM SRINIVAS

Abstract : *The present study is undertaken to explore Corporate Reporting Practices in Listed Indian Small and Medium Enterprises. 70 Small and Medium Enterprises are selected from BSE SME Platform based the availability of Corporate Reports information for 10 years. Hence the period of study is 10 years from 2010-11 to 2019-20. The select companies are categorized into sectors. Corporate Reporting practices are defined with Annual Financial Reports, Audit Report, Related Party Disclosure and Directors Remuneration. These reports give most of the information about the performance and transparency of the Corporate Board. Each report of a company has weighted with 1. Hence the maximum average score in a particular sector is 4 and minimum average score is 0. Mean is used to explore average Corporate Reporting practices among listed SMEs. The study revealed that the Corporate Reporting practices are highly appreciable in Indian listed SMEs. The study has also revealed that the practices of corporate reporting in select SMEs are improving every year.*

Keywords : Small and Medium Enterprises, Corporate Reporting, Corporate Governance, Audit Committee, Directors Remuneration and Related Party Disclosure.

1. Introduction

Stock exchanges mandate listed companies to disclose financial information annually through Listing Agreements. The Companies Act and the Institute of Chartered Accountants of India (ICAI) further govern these reporting practices with Accounting Standards (AS) and Indian Accounting Standards (IND AS). This study analyzes transparency in corporate governance by examining four

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key reports: Annual Financial Reports, Audit Reports, Related Party Disclosures, and Directors' Remuneration. These reports offer valuable insights for stakeholders, particularly shareholders, to assess the company's performance and the effectiveness of its board. A scoring system is proposed where each report holds equal weight, resulting in a maximum average score of 4 and a minimum of 0 within a specific industry.

2. Review of Literature

Fries et al. (2021) address a critical gap by investigating leadership styles in family businesses. Their framework can be a valuable tool for understanding how leadership behavior impacts these unique firms. Building on this, further research could explore how different leadership styles interact with family dynamics and ownership structures. The studies by María-José et al. (2019) and Süsi and Lukason (2019) highlight the need for a nuanced understanding of board composition in SMEs. While larger boards with more non-executive directors might be a common trend, their effectiveness for decision-making and risk mitigation requires further investigation. It would be interesting to see if these board characteristics influence strategic decision-making or responses to external challenges.

The research by La Rosa and Bernini (2018) and Di Berardino (2016) explores the link between CG and financial performance, with contrasting findings. La Rosa et al. (2018) reveal no significant impact of the financial crisis on gambling SMEs with concentrated ownership, suggesting industry-specific dynamics at play. Di Berardino (2016), however, finds a positive correlation between strong CG and performance in new technology ventures. More research is needed to understand these contrasting results and identify potential moderators, such as industry type, firm age, and growth stage. The studies by Briozzo et al. (2017) and Shehata et al. (2017) present intriguing yet conflicting findings on gender diversity and CG. Briozzo et al. (2017) find a positive association between female participation and access to financing, but not necessarily with other CG aspects. Shehata et al. (2017) discover a negative association between board diversity (gender and age) and performance. These findings call for further investigation into the specific roles played by women on boards and how diversity interacts with other board characteristics and firm strategy.

Martin et al. (2016) highlight the difference in decision-making structures between family and non-family SMEs. Understanding these differences can be crucial for effective leadership and governance practices tailored to each firm type. Future research could explore how these decision-making structures evolve

over time and how they influence long-term strategic planning. Ruiz-Jiménez and Fuentes-Fuentes (2016) showcase the importance of considering context by demonstrating that gender diversity in top management has a positive moderating effect on performance in Spanish technology-based SMEs. This suggests that the effectiveness of CG practices might be influenced by factors like industry, national culture, and technological environment. Further research that explores these contextual factors would provide a more holistic understanding of CG in SMEs.

This body of research offers valuable insights but also highlights the complexity of CG in SMEs. Future research should delve deeper into the themes identified here, considering industry specifics, firm context, and the evolving nature of both SMEs and the business landscape. By taking the gap as a motivation the present study has been undertaken.

3. Research Gap

From the existing literature review it is observed that there are no studies found that are focused on Corporate Reporting Practices in Indian SMEs.

4. Objective of the Study

The Research gap is addressed with the help of following objective.

The objective of the study is to evaluate the Corporate Reporting Practices of Indian Small and Medium Enterprises.

5. Research Methodology

The study utilizes secondary data, focusing on 229 SMEs listed on the BSE SME platform. From this population, 70 SMEs were selected based on the availability of complete data for the entire study period, which spans 10 years, from 2010-11 to 2019-20. The data was sourced from CMIE Prowess IQ. An explorative research approach was employed to assess corporate reporting practices among Indian SMEs.

6. Findings of the Study

The parameter corporate reporting is the combination of 4 statutory reports which are published annually. Those reports are Financial Report, Audit Report, Related Party Disclosure report and Director Remuneration Report.

The statistical results of the Corporate Reporting Practices are presented in Table-1.

Table-1 : Corporate Reporting Practices

YEAR	2010 -11	2011 -12	2012 -13	2013 -14	2014 -15	2015 -16	2016 -17	2017 -18	2018 -19	2019 -20
STD★	4	4	4	4	4	4	4	4	4	4
WT★	3.5	3.5	3.71	3.64	4	3.79	3.93	4	3.93	4
SW★	3.67	4	4	4	4	4	4	4	4	4
OS★	3.8	3.8	3.8	3.8	3.8	4	4	4	4	4
MS★	3.15	3.38	3.77	3.92	3.85	3.85	4	4	4	4
FF★	3	3.4	3.6	3.7	3.8	3.8	4	3.9	3.9	4
FB★	3.4	3.4	3.4	3.8	3.4	3.6	4	4	4	4
FS★	3	4	4	4	4	4	4	4	4	4
ES★	3	3	3	3.67	3.67	4	4	4	4	4
PS★	3.5	4	3.75	3.75	4	3.75	4	4	4	4
CS★	3.38	3.38	3.38	3.5	3.63	3.5	4	3.75	4	4
AS★	3	3	3.5	3.5	3.5	3.5	4	3.5	4	4

Source : Compiled from CMIE Prowess IQ.

★ : See the Annexure-1.

The above Table-1 describes the status of Corporate Reporting Practices in selected Sectors. The Software Sector and Financial Services Sector are following the Corporate Reporting Practices more significantly. Though the corporate reporting norms are varied among different company years, all the Sectors are significantly following the Corporate Reporting Practices throughout the study period of 10 years. From the year 2016-17 many companies have started following corporate reporting. During the year 2019-20, all the Sectors are practicing the corporate reporting norms to the fullest.

The data reveals a significant improvement in the consistency of corporate reporting practices among Indian SMEs over the past decade (2010-11 to 2019-20). The substantial decrease in the mean standard coefficient of variation, from a high of 19.59 in 2010-11 to zero in 2019-20, suggests a remarkable convergence towards standardized reporting. This could be attributed to factors like stricter regulatory enforcements, increased adoption of accounting software, or even industry-wide best practice initiatives.

Table-2 : Year-wise Corporate Reporting Practices

Year	Mean	Standard	Standard Deviation	Coefficient of Variation
2010-11	3.31	4.00	0.65	19.59
2011-12	3.50	4.00	0.53	15.19
2012-13	3.64	4.00	0.51	14.05
2013-14	3.74	4.00	0.47	12.61
2014-15	3.81	4.00	0.43	11.20
2015-16	3.79	4.00	0.41	10.92
2016-17	3.99	4.00	0.12	3.00
2017-18	3.94	4.00	0.29	7.34
2018-19	3.97	4.00	0.17	4.23
2019-20	4.00	4.00	0.00	0.00

Source : Compiled from CMIE Prowess IQ.

7. Conclusion

This study reveals a noteworthy decade-long trend of improvement in corporate reporting practices among Indian SMEs. The substantial convergence towards standardized reporting, potentially driven by stricter regulations, accounting software adoption, or industry initiatives, highlights a growing commitment to transparency and accountability. Notably, sectors like Software and Financial Services are leading the charge. This bodes well for the future of responsible business practices within the Indian SME landscape.

From the study it can be concluded that the Corporate Reporting Practices among the Indian Small and Medium Enterprises are significant and they are continuously trying to reach the set criteria over the period of time.

8. Implications of the Study

The improved corporate reporting practices by Indian SMEs hold significant implications. This trend signifies a growing focus on transparency and accountability, potentially attracting more investors and fostering trust. Standardization across reporting allows for easier comparison between companies, further improving market efficiency. These advancements,

particularly prominent in Software and Financial Services, position SMEs as more responsible players, paving the way for a stronger and more reliable Indian business landscape.

9. Scope for Further Research

This study on improved reporting by Indian SMEs opens doors for interesting future research avenues. Firstly, it would be valuable to delve deeper into the specific reasons behind this improvement. Are stricter regulations the main driver, or is there a growing internal push for transparency? Secondly, future research could explore the impact of improved reporting on various stakeholders. How has it affected access to credit for SMEs? Has investor confidence risen? Finally, with Software and Financial Services leading the charge, it would be interesting to see if this trend spreads to other sectors, and if industry-specific factors play a role. By investigating these questions, researchers can gain a richer understanding of this positive development and its future trajectory within the Indian SME landscape

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ANNEXURE-1

List of Abbreviations

STD = Standard measure
AS = Agriculture & allied products
CS = Construction and Allied Sector
ES = Entertainment Sector
FB = Food and Beverages Sector
FF = Fund based Financial Services
FS = Financial Services
MS = Manufacturing Sector
OS = Other services
PF = Pharmaceutical Sector
SW = Software activities
WT = Wholesale Trading

Source : compiled from CMIE Prowess IQ.

Analysis the Behavior of Millets Consumption among Indian Households in Delhi NCR

KALPANA KATARIA AND ABHISHEK KUMAR SINGH

Abstract : *The present research paper purposes to explore the degree of knowledge about millets and its “nutritional benefits” of millets amongst Indian Households in Delhi NCR. The quantitative data for this research study has been taken into consideration from sample of 687 respondents using Snow-ball Sampling Technique and data was gathered through self-prepared questionnaire. The data analysis of this research paper reported that the most of the respondents consume millet for it “nutritional benefits” and “due to family eats”. On the other hand, the study found that despite people’s awareness of millets, they continue to express reluctance to consume them because of various obstacles like “not easy to cook” and “not easily available” and “tasteless”. Extend research to examine “long-term health effects of millet consumption” among the target group. Explore millet consumption patterns in diverse Indian regions for varied audiences. Investigate media interventions to boost millet awareness and consumption.*

Keywords : Millets, Awareness, Consumption, Delhi NCR and Nutritional Benefits.

1. Introduction

India’s 75th Azadi ka Amrit Mahotsav coincides with the International Year of Millets 2023 spotlighting Millets Nationwide events promote ancient grains. Globally, millets feature in G-20 meetings bring into line with the “Sustainable Development Goals (SDGs)”. “The United Nations designates 2023 as the International Year of Millets” focusing on enhancing productivity, promoting consumption, boosting exports, strengthening value chains, creating impactful branding, promoting consumption, boosting exports, strengthening the value

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chains, creating impactful branding and raising awareness about health benefits (Kargwal, Yadvika, Singh, & Kumar, 2023). Notable the millet resurgence transcends traditionally favorable agricultural regions and reaching states like "Rajasthan", "Andhra Pradesh", "Karnataka", "Tamil Nadu", "Maharashtra" & "Haryana", comprehensive strategies consisting of farmers training and awareness campaigns contributing in nationwide millet movement. The state Millet Missions amplify production and consumption covering 17 million hectares constituting 10% of India's food grain basket. Government initiatives like the Sub-Mission on Nutri-Cereals, Production Linked Incentive and Pradhan Mantri Formalization of Micro Food Processing Enterprises support millet agriculture and Processing. Higher Minimum Support Prices and financial incentives reinforce this transformative journey (Asrani, Ali, & Tiwari, 2023).

Millets are ancient grains and have been grown-up and expended in several parts of the world consisting of (Saleh, , Zhang, Chen, & Shen, 2013) "India", "Africa", "China", "Southeast Asia" and "the United States". They were especially suitable for semi-arid and arid areas, where other staple crops like rice and wheat might not be able to flourish. Millets are highly nutritious grains such as "fiber", "protein", "vitamins" expressly "Vitamin B" and "minerals (iron, calcium and magnesium)" (Asrani, Ali, & Tiwari, 2023; Sabuz, et al., 2023; Nag, et al., 2015; Michaelraj, & Shanmugam, 2013; Senthamarai & Malathi, 2019). Along with this, the millets are scientifically proven that they are gluten-free and are suitable for people those have high sensitivity with gluten and weight conscious people (Kam, et al., 2016) and also provide crucial micro and macro nutrients for the body's development and absorption (Asrani, Ali, & Tiwari, 2023; Kalaiselvi, Fathima, & Parameswari, 2016) and regular consumption leads to attainment of better health even in old age (Saleh, , Zhang, Chen, & Shen, 2013) and managing chronic disease (Kalaiselvi, Fathima, & Parameswari, 2016).

Millets are hardy crops with high nutritional value grain-based convenience foods markets has grown rapidly (Karuppasamy, Kanchana, Hemalatha, & Muthukrishnan, 2011). Millets are known for their resilience to drought, heat and poor soil. The sustainable aspects of millet farming comprised its low water requirement and independence from synthetic fertilizers and pesticides (Kalaiselvi, Fathima, & Parameswari, 2016). While millets were once staple crops in many parts of the world, their cultivation declined due to favor of wheat and rice in the 20th century. However, because of their "nutritional value", "resilience to climate change" and "sustainability for organic farming", millets have gained popularity again. Efforts are underway to promote millet cultivation and consumption as part of sustainable and healthy diets (Asrani, Ali, & Tiwari, 2023;

Malavika, et al., 2020). Millets have been used in a wide range of culinary applications as they were used to make traditional dishes such as flat breads, porridges and fermented beverages. In recent years, millets had gained popularity as a healthy and gluten free alternative (Malavika, et al., 2020) to wheat and rice in countless dishes.

Factors Influencing Millet Consumption

The millet consumption in India has been influenced by various factors including health concerns, weight management and taste preference (Kane-Potaka, et al., 2021; Barratry & Rajapushpam, 2018). This multifaceted nature of consumer behavior underscores the necessity for targeted interventions. Millet cultivation faces challenges such as lack of community-level processing facilities resulted in higher prices compared to “wheat and rice”. In this way, cost of millets also acts as a barrier to consumption (Umanath, Balasubramaniam, & Paramasivam, 2018; Michaelraj, & Shanmugam, 2013). Processing techniques like decortication, soaking, malting, milling and fermentation can impact millet’s bioactive compounds and nutrients (Sabuz, et al., 2023). A study focusing on young females aged 18-23 found that while respondents exhibited good knowledge and attitude towards millets, their consumption practices were suboptimal (Sireesha, Rajani, & Bindu, 2017). Gender disparities in millet awareness and consumption were evident and sometimes showed higher awareness level of functional foods including millets (Rizwana, Singh, Ahalya, & Mohanasundaram, 2023; Barratry & Rajapushpam, 2018). A study conducted using emotional tests and investigational auctions to assess consumer interest and inclination to pay for different millet product traits (Büyükkaragöz, Bas, Sađlam, & Cengiz, 2014). The study highlighted the familiarity and practices of millet consumption in urban India revealing that early adopters often had health concerns or aimed for weight loss specially emphasis on the significant gap between health-conscious individuals and those unfamiliar with millets. The study aligns with the “Government of India” focused on millets as evident in the declaration of “2018 as the National Year of Millets”.

Consumer Awareness and Knowledge

The previous researches have been conducted in different states of India reveals varying levels of consumer awareness about millets. The findings of the existing studies reported that lack of awareness among certain demographic groups like education (Barratry & Rajapushpam, 2018), Income and age (Rizwana, Singh, Ahalya, & Mohanasundaram, 2023) have been identifies as significant

determinants with higher income levels and older individuals showing a greater propensity for millet consumption (George, Mohan, & George, 2021; Jayawardana,, Samarawickrama, Samarasekera, Hettiarachchi, & Gooneratne, 2020) while others emphasize the need to educate the public about the nutritious advantages and healthiness benefits of millets through effective advertising and promotion of “finger-millet based food product” as a considerable percentage of respondents were not aware of these aspects (Jayawardana,, Samarawickrama, Samarasekera, Hettiarachchi, & Gooneratne, 2020). Some of the studies also realizing the importance of rising consciousness about low consumer acceptability of millets and calls for researchers and farmers to popularize millets and their associated products (Asrani, Ali, & Tiwari, 2023; Kalaiselvi, Fathima, & Parameswari, 2016). The study also identified the encouraging and discouraging factors important to millet consumption and non-consumption behavior (Rizwana, Singh, Ahalya, & Mohanasundaram, 2023).

The purposes of this empirical research papers are (i) to examine the consumption patterns of the various millet varieties in relation to the frequency of consumption, (ii) to explore Indian household’s awareness, attitudes and preferences regarding various millets, (iii) to suggest policy measures to bring about an increase in consumption of millets in Delhi NCR.

2. Research Methodology

2.1. Collection of Data

The data for the current research gathered from Delhi NCR through a self-prepare google forms questionnaire covering socio-demographics, preferences, health issues, attitudes toward millet varieties and preferences for millet-based foods. Using a “5 point-Likert scale”, the survey assessed nutritional awareness, millet preferences, market awareness, and obstacles to consumption. Data was collected from 1025 respondents between September to November 2023, employing a non-probability Snow-Ball sampling technique with 687 participants informed of the survey’s purpose and participated willingly.

2.2. Research Design

By employing a descriptive research design, the study focuses on explaining millet awareness and consumption within a specific population—households in Delhi NCR. The researchers advocate for the suitability of a descriptive approach to capture nuanced insights into the targeted demographic’s millet-related behaviors.

2.3. Analysis of Data:

The SPSS-26th version was utilized for data analysis in this investigation incorporating statistical instruments are “Analysis of Variance (ANOVA)” and “Chi-square”.

3. Findings and Discussion

3.1. Demographic Profile of the Respondents:

Out of 687 respondents, 395 females whereas 291 males and 1 belongs to others. As per data analysis, the majority of respondents were between the age of 19 to 37 trailed by 38-56 years (Table-1), the range of the average income was Rs.1,00,000 to Rs.5,00,000 (Table-2). The majority of the respondents having secondary education (12th) (Table-3). The large number of respondents are self-employer or having business and homemaker (Table-4). The respondents were facing health issues like “Iron Deficiency”, “High Blood Pressure”, “Low Blood Pressure” and “Disease related to bones” (Table-5). Out of 687 respondents, 27.9% belongs to rural area whereas 72.1% belongs to urban areas.

Table-1 : Respondents Age Group

Particulars	Frequency	In Percentage (%)
under 18	83	12.1
19-37	478	69.6
38-56	101	14.7
57-75	20	2.9
above 75	5	0.7
Total	687	100

Source : Primary data.

Table-2 : Respondents Income Group

Particulars	Frequency	In Percentage (%)
> Rs 50,000	143	20.8
Rs 50,001-Rs 1,00,000	191	27.8
Rs 1,00,001-Rs 5,00,000	225	32.8
Rs 5,00,001-Rs 10,00,000	89	13
< Rs 10,00,001	39	5.7
Total	687	100

Source : Primary data.

Table-3 : Respondents Education Level

Particulars	Frequency	In Percentage (%)
Illiterate	20	2.9
High School	88	12.8
Secondary	460	67
Graduation	119	17.3
Total	687	100

Source : Primary data.

Table-4 : Respondents Occupation

Particulars	Frequency	In Percentage (%)
Self-Employed/ Businessmen	198	28.8
Homemaker	188	27.4
Shop owner	21	3.1
skilled Labor	147	21.4
Government officer	51	7.4
Unskilled Labor	82	11.9
Total	687	100

Source : Primary data.

Table-5 : Health Issues Among Respondents

Health Issues	Frequency	Percentage
“Diabetes”	94	5.6
“Heart Disease”	57	3.4
“High Blood Pressure”	140	8.4
“Low Blood Pressure”	139	8.3
“Iron Deficiency”	176	10.5
“Disease related to bones”	134	8

Source : Primary data.

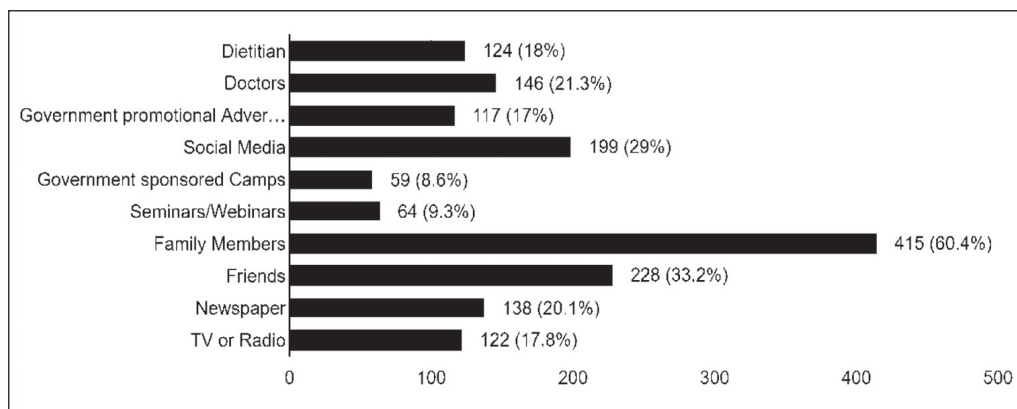
3.2. Awareness of Millet :

The data analysis confirmed that more than 80 % respondents were aware of the millets (Table-6) before taking up this survey and they mentioned that the major source of awareness provided by family members and followed by the friends, social media influencers and doctors, newspaper and dietitian (Figure-1) and frequency of consumption is once or twice in a month or rarely.

Table-6 : No. of Respondents were you Aware of Millets before Taking up this Survey

Particulars	Frequency	In Percentage (%)
Yes	552	80.3
No	135	19.7
Total	687	100

Source : Primary data.

Figure-1 : Source of Awareness

Source : Primary Data.

Table-7 : Frequency of Consumption

Particulars	Frequency	Percent
Daily	30	1.8
one or two time in a month	520	31.1
one or two time in a week	226	13.5
Very Rarely	502	30
Never consume	391	23.4
Total	1671	100

Source : Primary data.

This study highlights varied awareness levels about millets, validated by (Kalaiselvi, Fathima, & Parameswari, 2016; Rizwana, Singh, Ahalya, & Mohanasundaram, 2023). They found the majority recognizes millets and appreciates their health benefits, emphasizing nutritional advantages.

3.3. Consumption Pattern of Millet :

The data analyses of the present study reported that among the sample, most of the respondents had heard about only pearl millet (Bajra) (42.5%), Sorghum (Jowar) and Pseudo Millets (Buck-wheat (Kuttu) (Table: 8), there occurs an absence of awareness regarding few other varieties of millets particularly “Finger millet (Ragi/Mandua)”, “Little millet (kutki)”, “Barnyard millet (Sawa/Sanwa)”, “Foxtail millet (Kangani/Kakun)” & “Amaranthus (Chaulai)”. Even those are consuming millets that is because of “Nutritional value” and “Family like to eat”, “Easy to digest”, “Delicious taste”, “Due to season”, “Due to traditional staple food” and “On Doctor Recommendation” (Table- 9). In spite of awareness regarding millets nutritional benefits still respondents are consuming less because of “Not easy to cook” and “Not easily available” and “Tasteless” (Table-10).

Table-8 : Degree of Awareness Regarding Millet Varieties

Particulars	Frequency	Percent
“Finger millet (Ragi/Mandua)”	217	13
“Sorghum (jowar)”	225	13.5
“Pearl millet (bajra)”	711	42.5
“Little millet (kutki)”	72	4.3
“Proso millet (cheena)”	81	4.8
“Kodo millet (kodo)”	18	1.1
“Barnyard millet (Sawa/Sanwa)”	28	1.7
“Pseudo millets (kuttu)”	227	13.6
“Amaranthus (chaulai)”	92	5.5
Total	1671	100

Source : Primary data.

Table-9 : Factors for Consumption of Millets among Respondents

Factors for consumption of millets	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Weighted Score	Weighted Average
On Doctor Recommendation	7760	14006	18008	7510	5456	169324	7.1287
On Dietitian Recommendation	4378	16610	17648	8626	5478	155004	6.5258
Traditional staple food	7048	16002	19852	6118	3720	174760	7.3575
Own Production Food	5072	13346	19212	10018	5092	161508	6.7996
Easily availability	4336	17232	19422	7112	4638	167736	7.0618
Reasonable price of Millet	3988	15516	20046	8576	4614	163908	6.9007
Social media influencer	2888	12602	18756	10298	8196	149908	6.3112
Nutritional Value	9588	16826	18662	4180	3484	183074	7.7076
Delicious taste	6548	17216	20734	4606	3636	176654	7.4373
Easy to Digest	7046	17608	19674	4562	3850	177658	7.4795
Family like to eat	7524	18500	17656	5180	3880	177828	7.4867
Habitual to eat since childhood	6538	15090	18290	7632	5190	168374	7.0887
Easy to cook	5196	16994	18820	6524	5206	168370	7.0885
Due to Season	7306	17282	18318	5628	4206	176074	7.4129
Influenced by gov. advertisement	102	421	613	364	252	5073	0.2136
Total						2375253	100

Source : Primary data.

Table-10 : Reasons as Obstacles in Consumption of Millets among Respondents

Reasons as obstacles	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Weighted Score	Weighted Average
Tasteless	147	392	627	357	148	5046	25.5106
Not easy to cook	106	441	643	363	118	5067	25.6168
Not easily available	148	392	620	380	131	5059	25.5763
Family Members don't prefer	150	351	524	441	205	4608	23.2963
Total						19780	100

Source : Primary data.

3.4. Hypotheses Testing

H₀₁ : the frequency of millet consumption is constant regardless of the reason behind the millet consumption.

The null H₀₁ framed and tested using ANOVA to determine the significance difference between the frequency of consumption and reasons for consumption of millet. As a result in Table-11, P-value is <0.05 resulted in the rejection of null hypothesis and can be concluded that frequency of consumption of millet is not constant regardless of the reason behind the millet consumption.

Table-11 : Frequency of Millet Consumption and Reasons behind the Consumption

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	216.693	5	43.339	79.068	.000
Within Groups	912.618	1665	0.548		
Total	1129.311	1670			

Source : Primary data.

H₀₂ : The frequency of millet consumption and current health issues are unrelated.

To examine the relationship between millet consumption frequency and ongoing health issues, Null Hypothesis H_0 2 was formulated and assessed using the “Chi-square test”. Those respondents had no health issues were excluded for the test.

Table-12 : Cross Tab between the Frequency of Consumption of Millets and Health Issues Facing by Respondents

Particulars	Frequency of consumption					
	Daily	one or two time in a month	one or two time in a week	Rarely	Never Consume	Row Total
“Diabetes”	1	29	25	23	16	94
“Diseases related to bones”	0	43	32	45	14	134
“Iron Deficiency”	1	40	29	65	41	176
“Low Blood Pressure”	0	53	14	40	32	139
“High Blood Pressure”	3	39	36	34	28	140
“Heart Disease”	0	17	26	7	7	57
Column Total	5	221	162	214	138	740
Pearson Chi-square Value						2.07803

Source : Primary data.

The H_0 2 null hypothesis framed and tested using Chi-square, the chi-square statistic was 2.07803 as in contingency Table-12, P-value was 0.999986 higher than 0.05 leads to the rejection of null hypothesis. As per analysis, it can be concluded that there is significant relationship between health problems and frequency of millet consumption (Padmalini, Rizwana, Mohanasundaram, Mustafizul, & Vetrivel S.C, 2023).

Conclusion

The purpose of the study was to However, consumer awareness and consumption behavior regarding millets are influenced by a range of factors, including income, age, gender, and health concerns. Targeted awareness campaigns, supported by government policies and initiatives, can play a pivotal role in increasing millet consumption and promoting their nutritional benefits. Future research should

continue to explore the dynamics of millet awareness and consumption to develop effective strategies for maximizing their potential in Indian diets and improving public health. Communication gaps hinder the millet industry, impacting both producers and consumers. Farmer cutbacks in millet production, driven by low market demand, are reported (Raj and Shanmugam, 2013). Conversely, consumer indifference arises from inadequate awareness and motivation to embrace millets as a staple. Leveraging social media as a potent information source can enhance millet awareness. Identifying suitable platforms, crafting tailored messages, and engaging influencers like opinion leaders, celebrities, chefs, and peers are crucial. Additionally, subsidizing prices for farmers can stimulate production, ensuring affordability for consumers. The involvement of influencers such as bloggers, chefs, doctors and fitness instructors can promote millet consumption by highlighting its health benefits and sharing innovative recipes.

The study was conducted only in the Delhi NCR and the sample is limited up to 687 respondents for the study. The results of the study could be different if it is conducted in other state where production of millet also takes place and large sample size could make the results different.

Manufacturers have a lucrative opportunity in the finger millet-based ready-to-eat (RTE) food market, driven by consumer demand to boost finger millet intake. Recommendations include diversifying millet-based snacks, developing promotional policies, and emphasizing effective advertising. Strategies involve technology propagation, awareness drives and inclusion in the Public Distribution System (PDS) to raise awareness and consumption, along with Extended research is suggested to understand millet's long-term health impacts and consumption patterns among diverse Indian demographics.

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