EXPLORING THE KEY DRIVERS OF FINTECH ADOPTION AMONG SMALL BUSINESSES

Project Report

Submitted by

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Under the guidance of

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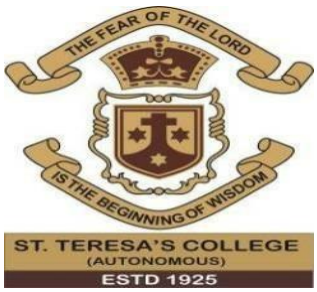
In partial fulfilment of requirements for award of the post graduate degree of

MASTER OF COMMERCE AND MANAGEMENT



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CERTIFICATE

This is to certify that the project report titled '**EXPLORING THE KEY DRIVERS OF FINTECH ADOPTION AMONG SMALL BUSINESSES**' submitted by **MARIA NAVYA M S** towards partial fulfilment of the requirements for the award of post graduate degree of Master of Commerce and Management is a record of bonafide work carried out during the academic year 2023-25

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DECLARATION

I, MARIA NAVYA M S, do hereby declare that this dissertation titled '**EXPLORING THE KEY DRIVERS OF FINTECH ADOPTION AMONG SMALL BUSINESSES**' has been prepared by me under the guidance of **Mr. JITHIN PRAKASH**, Assistant professor, Department of Commerce, St Teresas's College, Ernakulam.

I also declare that this dissertation has not been submitted by me fully or partly for award of any Degree, Diploma, Title or Recognition before.

Place: ERNAKULAM MARIA NAVYA M S

Date: 31.3.2025

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MARIA NAVYA M S

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APPENDIX

EXPLORING THE DRIVERS OF FINTECH ADOPTION AMONG SMALL BSINESSES

(QUESTIONNAIRE)

Demographics

1. Age

- Under 24
- 25 - 34
- 35 - 44
- 45 - 54
- Above 55

2. Gender

- Male
- Female
- Other

3. Educational Level

- 10th Level
- 12 th Level
- Diploma
- Graduate
- Post graduate
- Professional degree

4. How long have you been in retail business?

- Less than 1 year
- 1 - 2 years
- 2- 5 years
- 5 - 10 years
- More than 10 years

FinTech Adoption

5. Do you use Financial Technology like UPI, E-Banking, Mobile Banking, PoS for your business?

- Yes
- No

6. How did you come to know about financial technologies?

- Bank promotions
- Friends and family
- Social Media
- Service providers
- Merchant Associations

7. What factors do you consider when making payment decisions?

- Security and fraud protection
- Convenience
- Associated fees and charges
- Other:

8. Which of the following Financial Technologies do you use?

- UPI
- Net banking
- Mobile banking
- PoS
- Digital Wallet
- Other:

9. How long have you been using the following financial technologies?

- < 1 year
- 1 - 2 years
- - 5 years
- 5 - 10 years
- Not applicable

10. Which of the following methods do you use to accept payments from customers ?

Highly preferred
Moderately preferred
Preferred
Less preferred
Least preferred

- UPI
- PoS
- Net banking
- Mobile banking
- Digital wallet
- Cash
- Cheque
- UPI
- PoS
- Net banking
- Mobile banking

- Digital wallet
- Cash
- Cheque

11. Are you interested to learn more about financial technologies, would you like to attend awareness workshops on financial technology?

- Yes
- No
- Maybe

12. Areas of financial technology you like to study more about ?

- UPI
- PoS
- Net Banking
- Mobile banking
- Digital Wallet
- Other:

13. Which UPI services do you use?

- Google pay
- PhonePe
- Paytm
- BHIM
- Other:

14. Have financial technology adoption benefitted your business growth?

- Yes

- No

15. How important is cost - effectiveness, convenience, trust and customer preference in your decision to adopt financial technology solutions?

- Not Important
- Somewhat Important
- Important
- Very Important
- Extremely imp

Benefits of FinTech

16. Has financial technology adoption improved your access to financial resources like loan and credits?

- Yes
- No

17. What influences your preference for choosing a bank ?

- Competitive interest rate
- Convenient online banking service
- Wide network of branches and ATMs
- Reliable customer service
- Other:

18. Do you utilize financial technologies for banking and financial management ?

- Yes
- No

19. Have you noticed an increase in sales since adopting financial technologies?

- Yes
- No

Challenges and Limitation

20. Are you comfortable in using financial technologies ?

- Highly comfortable
- Moderately comfortable
- Comfortable
- Less comfortable
- Least comfortable

21. Have you experienced any technical problems with financial technologies?

- Server error
- Login issues
- App crashes
- Payment failures
- Connectivity issues
- Not applicable

22. Are the resolution for technical issues are effective ?

- Highly effective
- Moderately effective
- Effective
- Less effective

- Least effective

Future Directions

23. How important is it to have financial technology that fit your business?

- Not Important
- 1
- 2
- 3
- 4
- 5
- Extremely Important

24. Are you willing to invest in financial technologies for your business?

- Yes
- No

25. How would you rate your overall satisfaction with financial technologies?

☆☆☆☆☆

26. What are the biggest challenges you face in retail business?
    (Open- ended question)

27. Do you have any suggestions for how financial technology solutions can better meet the needs of small retailers like yourself?
    (Open- ended question)

1.1 INTRODUCTION

The rapid innovation of financial technology (FinTech) has revolutionized the working environment for companies, offering innovative solutions that enhance efficiency, convenience, and competitive advantage. Especially for small businesses, the incorporation of FinTech can bring great benefits, enabling easier access to financial services, simplifying transaction management, and supporting better decision-making. But while these are promising advantages, the adoption of FinTech by small businesses is still uneven, depending on a multitude of factors that determine their preparedness to embrace such new technologies.

In Ernakulam, a major district in Kerala, India, small businesses form the backbone of the local economy. But these businesses often face challenges like limited access to credit, high transaction costs, and inefficient payment systems. FinTech developments, such as mobile payment methods and online banking, have the potential to address these issues and promote business growth. However, the use of FinTech by small businesses in Ernakulam remains small-scale, with many entrepreneurs complaining about uncertainty, security, and a lack of information as key barriers.

This study seeks to explore the key drivers of FinTech uptake by small enterprises in Ernakulam, exploring the intricate interplay of technological, business, and demographic factors that underpin adoption decisions. Through an examination of what drives FinTech integration, this study seeks to provide valuable information for policymakers, financial institutions, and small enterprise owners, thereby contributing to the development of sound strategies to support increased FinTech uptake and foster business development in Ernakulam.

1.2 SIGNIFICANCE OF THE STUDY

This research tries to advance current literature on FinTech adoption by small businesses, uncovering new knowledge on the determinants driving this adoption. The information and knowledge developed in this research will offer

rich inputs to small business owners, policymakers, and FinTech service providers, identifying paths to increased integration of FinTech and mitigating the inherent challenges. By studying the underlying drivers of FinTech adoption, this study aims to uncover potential for small and medium-sized businesses to improve their habits of money management, save money, and become more efficient in business, thus enabling broader economic advancement.

1.3 SCOPE OF THE STUDY

This research looks at the key drivers that force small businesses to adopt Financial Technology (FinTech). It will get into the nitty gritty of how technology, organisational and demographic factors influence the FinTech adoption decisions. Specifically it will look at the impact of perceived usefulness, trust, risk and innovation on how far small businesses will go in adopting FinTech in their operations. This question will be useful to policymakers, financial institutions and FinTech companies so they can develop targeted strategies for digital financial inclusion and solve the specific challenges small and medium enterprises face when adopting FinTech solutions.

1.4 STATEMENT OF THE PROBLEM

Despite the mounting importance of FinTech in increasing financial management efficiency and reducing cost, many of the small and medium enterprises operating in Ernakulam have shown resistance toward adopting FinTech solutions. Slow adoption rates owe to a series of reasons involving lack of sufficient awareness, tight financial constraints, and concerns of security and genuineness. This research is set to examine the fundamental drivers of FinTech take-up among small businesses in Ernakulam, with a focus on the factors that influence the decision to take-up.

1.5 OBJECTIVES OF THE STUDY

- To explore the demographic and business-related elements that shape the adoption of FinTech solutions within small enterprises.
- To analyse the significance of perceived advantages- such as convenience, cost efficiency, and trust- in fostering FinTech adoption among small businesses.
- To assess the influence of FinTech adoption on the performance metrics of small Businesses.
- To identify the obstacles and challenges that hinder the adoption of FinTech among small enterprises.

1.6 RESEARCH QUESTIONS

- What demographic and business-related factors influence the adoption of FinTech solutions within small enterprises?
- How do perceived advantages - such as convenience, cost efficiency, and trust - impact the adoption of FinTech solutions among small businesses?
- What is the influence of FinTech adoption on the performance metrics of small businesses, including business growth, sales, and financial access?
- What are the key obstacles and challenges that hinder the adoption of FinTech among small enterprises?

1.7 HYPOTHESIS

1. H_0 (Null Hypothesis): Demographic factors (age, gender, education level) and business- related factors (years of experience, business size) do not significantly influence the adoption of FinTech solutions among small enterprises.

   H_1 (Alternative Hypothesis): Demographic factors (age, gender, education level) and business-related factors (years of experience, business size) significantly influence the adoption of FinTech solutions among small enterprises.

2. H_0: There is no statistically significant relationship between perceived advantages—such as convenience, cost efficiency, and trust—and the adoption of FinTech solutions among small businesses.
   H_1: There is a statistically significant relationship between perceived advantages—such as convenience, cost efficiency, and trust—and the adoption of FinTech solutions among small businesses.

3. H_0: FinTech adoption does not have a statistically significant impact on the performance metrics of smallbusinesses, including business growth, sales increase, and access to financial resources.
   H_1: FinTech adoption has a statistically significant impact on the performance metrics of small businesses, including business growth, sales increase, and access to financial resources.

4. H_0: There is no statistically significant relationship between obstacles to FinTech adoption and the likelihood of adopting FinTech solutions among small enterprises.
   H_1: There is a statistically significant relationship between obstacles to FinTech adoption and the likelihood of adopting FinTech solutions among small enterprises.

1.8 RESEARCH METHODOLOGY

This research seeks to investigate the main drivers of FinTech uptake by small firms using a mixed-methods approach that incorporates both descriptive and analytical research.

1.8.1 COLLECTION OF DATA

This study will employ a mixed-methods approach, combining primary data collections directly from respondents through questionnaires, and secondary

data collection through a review of existing literature on FinTech adoption and related fields.

1.8.2 SAMPLING DESIGN

- Sampling technique: Convenient sampling
- Area of study: Ernakulam
- Sample size

1.8.3 TOOLS OF ANALYSIS

The information gathered from the respondents has been categorized, analyzed and interpreted with the research objectives in mind. The information gathered is represented in a proper way using tables, bar diagrams, and pie charts, thus making it convenient to make inferences. The study utilizes a combination of descriptive and inferential statistical techniques to examine the determinants of FinTech adoption. Descriptive statistics, including frequency distribution, mean, and standard deviation, are employed to report demographic information, FinTech adoption behavior, and perceived benefits, eliciting knowledge of trends such as age, gender, education, and use of FinTech. Inferential statistics such as Kruskal-Witallis and Mann-Whitney U test analyze the impact of demographic factors such as age, sex, and education level on FinTech adoption, and regression tests confirm correlation between perceived benefits such as ease of use, cost benefit, and believability with FinTech usage. Reliability of the scales in terms of Cronbach's Alpha, and Chi-square tests provide outcomes in terms of contribution of FinTech use on organizational performance measures in terms of ease of access to finance and increase in sales. ANOVA is used in determining whether the regression models are significant or not. All these tools perform a comprehensive analysis of the determinants of FinTech adoption with valuable feedback to policymakers, financial service providers, and business owners.

1.9 LIMITATIONS

In spite of all the sincere efforts, the study is not fool proof in nature.

- It suffers from various limitations due to the following reasons:
- The area of study was limited to Ernakulam district only.
- Lack of accuracy in primary data.

The study's sample size and composition could have implications for the generalizability of the findings to broader populations or different market segments.

1.10 KEYWORDS

I. **FinTech (Financial Technology) :** FinTech is the application of technology in making financial services more effective. The sector entails innovations such as mobile payment systems, digital wallets, online banking platforms, and block chain technology, all aimed at easing and automating the provision and consumption of financial services.

II. **Small Businesses :** Small businesses refer to privately-held companies, such as corporations, partnerships, or sole proprietorships, with fewer employees and/or lower annual revenues than large firms. These organizations generally have limited resources and face hindrances such as obtaining funding and competing against larger firms.

III. **Adoption :**Adoption here means the way in which small businesses adopt, implement, and integrate FinTech solutions into their financial and business systems.

IV. **Drivers :**Drivers are what spur small businesses towards adopting FinTech. This may be cost savings, efficiency, user friendly, access to credit and better financial management..

V. **Technological Factors :**The technological factors are the existence, availability and upgrade of technology (digital payment systems, cloud computing and digital platforms) which drive the business decision to adopt FinTech.

VI. **Business Attributes :** The business attributes are the organisational features that have an impact on adoption of FinTech, e.g., business size, industry sector, financial structure and overall strategy.

VII. **Demographic Characteristics :**The demographic features are the individual characteristics of the decision makers or business owners, e.g., age, education level, gender and computer literacy that could affect adoption of FinTech.

1.11 CHAPTERISATION

Chapter 1 – Introduction

This is an introduction chapter that includes introduction, significance, problem statement, objectives, methodology, scope, limitation, keywords and chapterisation.

Chapter 2 – Review of Literature

This chapter deals with literature review which is a collection of many published works.

Chapter 3 – Theoretical Framework

This chapter includes the theoretical works relating with the study.

Chapter 4 – Data analysis and Interpretation

This chapter is an analysis of the primary data collected for the purpose of study. It includes tables, graphical representations, their analysis and interpretations.

Chapter 5 – Summary, Findings, Suggestions and Conclusion

This is the conclusion chapter which contains summary of the study, findings of the study, recommendations.

1. **Agarwal et al. (2020)** evaluated the impacts of mobile payment technology on Singaporean economic activities and entrepreneurship. Based on their evidence, they observe that mobile payment technology significantly fuels economic activities, encourages business growth, and improves consumer spending. The advent of QR code payment systems resulted in a remarkable 288% increase in consumer adoption of mobile payments, alongside a 43% rise in the number of consumers registering for mobile payment services, and a staggering 9.8-fold increase in mobile payment transactions. The research also highlighted that mobile payment technology reduces transaction costs, boosts consumer spending, and fosters entrepreneurial initiatives, achieving an impressive monthly growth rate of 8.9%. Moreover, the share of mobile payments in total consumer spending rose significantly, from an average of 7.1% to 21.1% each month. Moreover, the research discovered that the self-employed recorded higher bank inflows and elevated spending levels subsequent to embracing mobile payment solutions. In conclusion, the research emphasizes the potential of mobile payment technology to propel inclusive growth and spur economic development.

2. **Buckley et al. (2015)** examined the evolution of FinTech over the last 150 years and showed how it went from an analogue to a digital finance environment and now the current FinTech era that has emerged since 2008. They noted that this current phase of FinTech is characterised by the rapid adoption of new technology at both retail and wholesale levels, mainly driven by start-ups. This development poses major challenges for regulators and market participants, who need to balance the fine line between encouraging innovation and mitigating potential risks. The authors criticized the idea of subjecting FinTech to premature or overly restrictive regulations, instead promoting a more sophisticated regulatory approach that recognizes the dynamic nature of the sector.Their findings underscored the necessity of comprehending the historical backdrop of FinTech and its continuous transformation to inform regulatory

frameworks that encourage innovation while mitigating risks. In summary, the study offered critical insights into the intricate and swiftly evolving FinTech environment, highlighting the imperative for regulatory approaches that are both flexible and responsive, prioritizing innovation alongside effective risk management.

3. **Ashok Botta's (2022)** studied into the adoption of digital payment systems in small retail businesses in Visakhapatnam highlighted the salient functions of convenience and consumer demand as key drivers. The results demonstrated a positive relationship between behavioral intention and perceived behavioral control, indicating that favorable conditions are at least partially responsible for the decision of retailers to adopt. Several demographic factors, such as business experience, age, gender, and income, were discovered to influence this adoption, with experienced business owners showing a greater inclination towards adopting digital payment systems. Retailers saw these systems as secure and convenient and showed little fear of fraud or security issues. The research emphasized the importance of perceived ease and concrete benefits in determining retailers' decisions to adopt these systems. In addition, it was observed that retailers had adequate digital literacy and the necessary infrastructure to support digital transactions, considering the costs involved as worth it. For promoting larger use, the research advocates education programs and sensitization initiatives for enhanced digital literacy and computer competencies accompanied by ongoing encouragement from the government and private enterprise. Finally, it involves closing education and infrastructure deficits, particularly among small traders and their clientele, and evolving coordinated efforts among government agencies, private enterprises, and society in general to dislodge digital adoption barriers.

4. **Chan, et al (2022)** delved into the determinants that influence consumer intentions to adopt Open Banking services. They established important

factors like performance expectancy, effort expectancy, social influence, and perceived risk as critical predictors of adoption. The results align with the Unified Theory of Acceptance and Use of Technology (UTAUT) model, highlighting the significance of these factors in shaping user behavior. Notably, social influence emerged as a significant mediator between usage intention and performance expectancy, highlighting the vital impact of social norms and peer interactions in encouraging consumer uptake. The research further indicates that both effort expectancy and initial trust can mitigate the negative effects of perceived risk on usage intention, reinforcing the need for Open Banking services to be designed with a user-centric, efficient, and trustworthy approach. Initial trust was also found to be positively related to effort expectancy and performance, so practitioners need to put trust building strategies at the top of their marketing list. Of particular note is that increased financial literacy was found to decrease consumer trust in Open Banking, so more knowledge may lead to doubt. This highlights the need for policymakers to run holistic financial literacy programs to build confidence and simplicity in Open Banking services. The implications are far reaching for industry professionals and policymakers who want to drive adoption of Open Banking services. Practitioners need to focus on performance expectations, social influences and perceived risk in their marketing and prioritise trust building. Meanwhile policymakers need to put in place a strong governance framework to get early consumer confidence and then broader adoption of Open Banking services.

5. **Chawla, et al. (2023)** examined the effect of FinTech on the availability of financial capital for small businesses throughout the United States. Their study demonstrates how technology can expand the lender-small business borrower gap but simultaneously present FinTech as an answer to closing the gap and expanding the business. The study pinpointed several pivotal elements that affect the embrace of FinTech innovations, notably trust, security, and perceived risk. Furthermore, it revealed that customer

satisfaction, perceived utility, ease of use, and reliability are essential determinants in the acceptance of FinTech services. These results indicate that FinTech providers need to establish trust first and safety in their platforms to scale up adoption. In a quantitative study, the authors conducted a survey of 405 FinTech service users and obtained rich results reflecting the intricate relationships between security, trust, risks and consumer preference. They adhered to rigorous ethical standards, maintained participant anonymity and obtained informed consent. The findings add to the current body of literature on FinTech adoption and emphasizes the relevance of trust, security and perceived risk in consumer attitude. Future studies can utilize these findings to examine other determinants in other environments to better capture FinTech adoption and its effect on small businesses.

6. **Dlodlo, N., &Dhurup, M. (2013)** studied the pivotal elements that enable small and medium enterprises (SMEs) in South Africa to embrace these modern techniques. The research underscores the significance of technological adoption as a cornerstone for sustaining competitive advantage. The key drivers of SMEs to e-marketing have been perceived as usefulness, ease of use, compatibility with current systems, and availability of resource. Utilizing a quantitative approach, the research applied a well-constructed questionnaire with sound statistical tests to validate its conclusions.The result revealed thaThe result revealed that the business sector led respondents, followed by manufacturing and finance. A principal components factor analysis showed major determinants of Internet marketing adoption, with technological adoption, perceived usefulness, and compatibility emerging as major determinants. While the study acknowledges a few limitations, such as a small sample size, it advocates the use of quantitative and qualitative approaches for future studies. Finally, in spite of these limitations, the results contribute immensely to the knowledge of the factors that affect e-marketing adoption by SMEs, and offer precious insights for future research studies

as well as for real-world applications in the South African business environment.

7. **DeYoung, et al. (2010)** investigated the impact of information technology in small business lending throughout the United States, finding a significant FinTech role to play in enhancing the gap between lenders and small business borrowers. The study defined a strong empirical relationship between credit scoring for small businesses and expanding distances between borrowers and lenders. Examining a large dataset of 31,880 Small Business Administration (SBA) loans, the research found that the introduction of credit scoring technology has resulted in higher such distances. This seminal finding provides concrete evidence about the effect of information technology on lending relationships, complementing existing research. The findings reveal that the rise in borrower-lender distances developed over a period of thirty years, with significant acceleration observed during the later phases of the research. The findings were uniform across different subcategories such as loan size, bank size, and time factors.Rigorous controlled multivariate regressions further substantiated these conclusions, revealing that borrower-lender distance is influenced by borrower characteristics, lender attributes, market conditions, and regulatory constraints. Particularly, firm size and loan size demonstrated significant coefficients, underscoring their influence on the distances between borrowers and lenders. In total, this paper provides some key facts about FinTech and small business lending and suggests more research is needed on financial market technological innovation. The results imply we need to consider the impact of FinTech on small business lending and here are some avenues to explore.

8. **Erumi-Esin, R., &Heeks, R. (2015)** investigated the drivers and barriers to the adoption and use of information and communication technologies (ICTs) by women owned small and medium enterprises (SMEs) in Nigeria. The study sought to find out the specific challenges and drivers

that affect the adoption of financial technologies (FinTech) by female entrepreneurs who are the change agents of Africa's socio-economic growth. Using a survey research design, the researchers collected data from 140 women-owned SMEs in Nigeria, using questions grounded in the Unified Theory of Acceptance and Use of Technology. The results showed that perceived usefulness was the most important driver of decisions regarding e-business adoption and use among this group. The study also identified several facilitators and hindrances to the adoption of e-business. E-business technology know-how and resources availability were ranked as major facilitators, and market forces were a driving force. Lack of infrastructure and resources, on the other hand, were major impediments to use and adoption. The findings of this study have far-reaching implications for stakeholders who seek to support e-business adoption among women-owned SMEs in Africa. The authors call for governments, development agencies, and the private sector to target raising awareness, developing mobile products and services, and expanding access to critical resources and infrastructure. Through this strategic targeting of the key components, stakeholders are able to ensure higher adoption and utilization of ICTs by women-owned SMEs, hence contributing substantially to Africa's socio-economic development.

9. **Gibbs, S. R., et al. (2007)** investigated the impact of social networks on small business owner technology adoption. In the research, they listed several determinative factors behind driving technology adoption, such as organizational readiness, compatibility, perceived usefulness, perceived ease of use, and top management support. Most significantly, findings emphasized compatibility as an invariably meaningful factor influencing technology adoption in studies. Furthermore, the study found that social networks' effects on technology adoption depend on network type, its density, as well as contextual surroundings. Most notably, the personal networks had a greater impact on adoption outcomes compared to those with a business orientation. The conclusions of the study have implications

at a general level by uncovering the dynamic relationship between social networks and technology adoption. The authors propose additional empirical research for examining interplays between social elements as well as their long-run effects on innovation diffusion. The future research is required to aim at explaining the impact of social networks on technology adoption decisions, thus guiding efforts to promote innovation and technological advancements in small firms.

10. **Gordon Kuo Siong Tan (2022)** examined the environment of fintech adoption in Singapore to find evidence of a modest adoption of fintech services in the context of strong embrace of conventional financial structures. The research shed light on a significant dichotomy regarding fintech adoption, indicating that younger, highly educated, and rich individuals are more likely to adopt these new technologies. The most prominent drivers of fintech use were found to be convenience, time efficiency, and cost reduction, with digital payments and account management being the most popular uses. However, traditional financial behaviors, including going to physical bank locations and using cash, still exercise strong influence. The research also showed a decline in fintech adoption among elderly populations, and education level and income levels were a determining factor. Surprisingly, gender differences in the adoption ratio were negligible. In addition, the study emphasized that a vast majority of users preferred using human financial planners as opposed to algorithms such as robo-advisors for more sophisticated financial issues. The study implies that fintech is more of an extension to current financial trends than a game-changer among consumers. While the COVID-19 pandemic actually hastened the transition to fintech for obligatory transactions, the trend will likely remain relatively bounded to industries such as electronic payments. In summary, the research prioritizes understanding user preferences and behavior as the drivers of fintech adoption's future, providing valuable insights to financial institutions,

fintech developers, and policymakers as an attempt to enhance the use and adoption of fintech products.

11. **Hungund, S., & Mani, V. (2019)**analyzed multiple factors that are driving the uptake of innovative practices in small and medium-sized firms (SMEs). It highlighted the quintessential role that needs to be played by embedding innovative practices, particularly FinTech solutions, for remaining competitive within a fast-changing market scenario. The research revealed that a firm's age and size are crucial in establishing the adoption of open innovation strategies. Interestingly, younger businesses tend to be more inclined towards open innovation, whereas older businesses tend to follow closed innovation methods. Furthermore, small businesses show a greater propensity for following open innovation, whereas large organizations tend to follow a combination of open and closed approaches. The research also highlighted decision-makers' levels of educational attainment in the context of innovation strategies; higher levels of educational attainment are most likely to pursue open and closed innovation, while lower levels of educational attainment are most likely to pursue largely open innovation. Additionally, entrepreneurial experience was found to have a direct positive relationship with the propensity to adopt open innovation, with more experienced entrepreneurs being more likely to adopt such activities. Cultural beliefs, like motivating employees to come up with new ideas and motivating external idea generation, enable the implementation of open innovation even more. External pressure, such as competitive forces and customer demand, also contribute powerfully to forming the implementation of these innovative methods. These observations offer key instructions for practitioners, policymakers, and future studies to the determinants of the innovative strategies of SMEs.

12. **Jisha TP & Dr. M. Sumathy (2023)** examined the integration of financial technology (fintech) within retail establishments, emphasizing the determinants that influence this integration. The findings revealed that the

majority of retail shop owners who adopted fintech are predominantly male, aged over 30, and largely situated in rural regions. Perceived Ease of Use and Trust were found to be major drivers in the adoption of fintech in retail settings by the study. Financial Literacy and Perceived Risk were found to have less influence in the adoption process. Interestingly, the study recorded that demographic factors such as age, sex, and geographical location did not have a significant impact on fintech adoption, indicating that they are not determinants of this aspect. Strong relationships between Trust, Perceived Ease of Use, and Perceived Usefulness were found to be explanatory of 82% of the variance in adoption intensity. This suggests an imperative need for training programs to inform retailers of the potential benefits of fintech. This highlights the importance of these factors in enabling fintech adoption among retail companies. Although retailers were aware of the benefits of fintech, they had moderate trust and perceived usefulness, along with a lack of interest towards its adoption, mainly because of skepticism and a lack of confidence Closing this gap, the study supports the dissemination of educational material and training to retailers to facilitate trust and perceived ease of use. Furthermore, it is suggested that policymakers and financial institutions actively promote the retail industry to adopt fintech so as to improve financial deepening and economic growth.

13. **Lee, J., & Runge, J. (2001)** investigated the influence of information technology on small retail businesses, revealing that the perceived ease of use and the readiness of the organization are essential elements in the adoption of technology. Their research identified three primary motivators for technology adoption in small enterprises: the owner's assessment of relative advantage, societal expectations, and the owner's propensity for innovation. The results suggested that innovativeness is the most important determinant of traditional information systems adoption, while perceived relative advantage is critical for Internet-based technology adoption. Social expectations have an indirect influence on adoption levels by

influencing relative advantage perceptions. The research presented a structural equation model to describe the relationships between these determinants and their effects on technology adoption.

14. **Octavia, et al. (2020)** examined the effect of e-commerce adoption on the performance of small and medium enterprises (SMEs) and found a strong positive relationship with an average variance extracted (AVE) value of 0.646. The discovery verifies that e-commerce adoption is a critical dimension to improving SME performance. Furthermore, the study confirmed that entrepreneurial orientation positively impacts business performance through an AVE score of 0.527. This signifies that SMEs with a good entrepreneurial orientation will be in a position to achieve improved performance, highlighting the need for an entrepreneurial mindset towards business success. Conversely, market orientation reported a lower AVE score of 0.384, and this implies that it may not have a very strong impact on the business performance of the respective SMEs. This finding indicates that market orientation may not be a driver of business performance among SMEs in this particular scenario. The research confirmed that the constructs used, such as e-commerce adoption, business performance, and entrepreneurial orientation, all had communality values above 0.5. Confirmation increases the reliability and generalizability of the findings of the study. The target population for the study consisted of primarily young and experienced entrepreneurs, primarily from the fashion sector, and most of the firms had between 5 and 10 employees. Italic text. This background provides depth to the meaning of the study findings and underscores the relevance of e-commerce adoption and entrepreneurial orientation to SMEs in the fashion sector. In conclusion, the study findings uncover the vital roles of e-commerce adoption and entrepreneurial orientation in SME performance. Although market orientation's effect on firm performance in this particular setting could be zero, further studies must be conducted to examine its effects in other settings.

15. **Purwantini et al. (2021)** identified that the perceived usefulness of FinTech payment systems significantly influences their adoption by micro-enterprises. Trust emerges as a vital factor in this process, as micro-enterprises are more likely to embrace these technologies when they possess confidence in their security and dependability. Interestingly, perceived risk has a positive effect on the intention to use FinTech payments despite security concerns. The most common transaction methods among micro-enterprises are e-wallet platforms and Electronic Data Capture (EDC) machines. In addition, the COVID-19 pandemic has served as a catalyst, accelerating the use of FinTech payment solutions in this industry. The study surveyed a sample of 136 micro-enterprises and had a high representation of female-owned, youth-led businesses dealing in the food and beverage sectors.

16. **Soltanizadeh, et al(2016)** investigated how business strategy drives the adoption of enterprise risk management (ERM) and its ensuing impacts on organizational performance. The research showed that matching strategic objectives with FinTech solutions can significantly improve the risk management capacity of small firms. The authors examined data from 174 Malaysian listed companies and discovered that firms employing a cost leadership strategy are more likely to implement ERM compared to firms employing a differentiation strategy. This discovery reveals that firms that emphasize cost reduction are more likely to implement ERM practices. In addition, the research proved that the adoption of ERM positively impacts the performance of an organization, suggesting that companies adopting ERM should experience performance enhancement. Furthermore, the research established that ERM is a partial mediator in cost leadership strategy and organizational performance, highlighting its critical contribution to improving the performance of cost-oriented firms. On the other hand, no mediating influence of ERM on the correlation between differentiation strategy and organisational performance was found through the study, and it is therefore likely that companies having a differentiation

strategy may not gain the same advantages from ERM practices as companies that are pursuing a cost leadership strategy. In brief, the research provides critical details on how business strategy is linked with organizational performance and ERM adoption, with an emphasis on the role played by ERM in driving performance, especially in cost leadership firms.

17. **Stewart, H., &Jürjens, J. (2018)** examined the determinants that influence the adoption of FinTech innovations in Germany. Customer trust, data privacy, and perceived benefits were some of the main drivers of FinTech adoption, as per their research. Of importance was that matters of trust and data protection proved to be chief hindrances towards the adoption of FinTech within the country. Authors emphasized the importance of addressing such problems of trust and security for increasing FinTech adoption, particularly among SMEs. The study identified data security, user trust, and human-computer interface design as the factors having a major impact on FinTech adoption in Germany. Despite an increasing number of mobile users, the pace of adoption of FinTech is sluggish, and only 10% of the respondents were aware of FinTech solutions. To facilitate acceptance, financial institutions and FinTech incubators ought to articulate the value addition and benefits that their products bring. The results of this research can be used to inform strategy formulation for the enhancement of FinTech adoption and enable banks to achieve global economies.

Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) is a well established model in the technology adoption space, developed by the great Venkatesh, Morris, Davis and Davis in 2003. This model combines elements from 8 other technology acceptance models to give a full understanding of user intentions and behaviour when it comes to adopting new technologies. UTAUT has 4 main constructs: performance expectancy, effort expectancy, social influence and facilitating conditions, all of which influence behavioural intentions and actual usage. It also has moderating variables such as age, gender, experience and voluntariness of use, which explain the different adoption patterns across different user demographics. UTAUT is particularly useful for studying technology adoption in both organisational and individual contexts, making it super relevant for studying FinTech adoption in small businesses.

Components of UTAUT

1. Performance Expectancy (PE): This is the notion of the degree to which an individual is convinced that utilizing technology will enhance his/her performance. Small business entrepreneurs will implement FinTech if they realize that it will make them more efficient, save them cash or enhance control over money. PE is measurable using surveys or interviews querying business owners the extent to which they believe that FinTech will enhance their company. Perceived usefulness, advantages and possible return on investment will have an effect on PE. PE will increase more FinTech uptake for small business with greater PE.

2. Effort Expectancy (EE): This refers to how easy it is to use the technology. FinTech products that are user-friendly and not very effortful to learn will receive increased small business uptake. EE can be quantified by conducting surveys or interviews of business owners inquiring about their views on the ease of use of

FinTech. Ease of use, simplicity and user-friendliness will affect EE. Greater EE will result in increased FinTech uptake for small business.

3. Social Influence (SI): This reflects how much do others (peers, industry leaders, advisors) recommend or pressure you to use the technology? Small business owners are more likely to use FinTech if they feel encouraged or pressured by their social or professional network. SI can be measured through surveys or interviews that ask business owners about the influence of peers, industry leaders or advisors on their FinTech adoption decision. Peer recommendations, industry trends and social norms influence SI. More SI will mean more FinTech for small business.

4. Facilitating Conditions (FC): This denotes how much do you think there's organisational and technical infrastructure in place to support the technology? Resources, training and technical support is key to guide small business to use FinTech. FC can be measured through surveys or interviews that ask business owners about their access to resources, training and technical support. Resources, training and technical support influence FC. More FC will mean more FinTech for small business.

5. Behavioral Intention (BI): This represents how committed is the individual to using the technology, driven by performance expectancy, effort expectancy and social influence. Higher BI means more FinTech adoption for small business. BI can be measured by surveys or interviews where business owners are asked about their intention to adopt FinTech. Attitude, subjective norm and perceived behavioral control affects BI. Higher BI will lead to more FinTech adoption for small business.

6. Usage Behavior (UB): This refers to the actual utilization of the technology, based on behavioral intention and facilitating conditions. Even when small business owners intend to use FinTech, their usage is based on available resources and assistance. UB can be assessed through surveys or interviews where the

business owners are queried about their actual utilization of FinTech. Facilitating conditions, behavioral intention and personal characteristics (e.g. age, experience) influence UB. Increased UB translates into greater FinTech adoption and retention for small business.

7. Moderators: Age, Gender, Experience, Will to Engage. These will impact the relationships between the underlying constructs and the intentions or behaviours of use. For example younger or more tech savvy small business owners will find FinTech more user friendly and beneficial and therefore higher adoption rates. Moderators can be measured by surveys or interviews that ask business owners about their age, gender, experience etc. Age, gender, experience etc will impact the moderators. Moderators will impact the strength and direction of the relationships between the UTAUT constructs and FinTech adoption.

UTAUT and FinTech Adoption

The UTAUT framework offers a great opportunity to drill down into the key factors that influence FinTech adoption in small businesses for many reasons. Mainly, decision making in small businesses is heavily influenced by the owner or manager's perceptions so individual level factors such as performance expectancy and effort expectancy are key. For example, when small business owners see the benefits of FinTech in financial oversight or cost reduction, they are more likely to adopt. Similarly if FinTech is seen as user friendly and requires minimal effort, adoption is higher.

Also social influence plays a significant role in small businesses whose owners tend to take guidance from peers, industry trends or trusted advisors. Small businesses are likely to adopt if FinTech is perceived as a best practice or a source of competitive advantage in their line of business. And the availability of facilitating conditions like access to training, technical support and reasonable pricing is important for small businesses with limited resources. Without proper support even the most groundbreaking FinTech innovations will go unnoticed.

Finally, accounting for moderator variables like age, gender and experience enriches how various owners of small businesses perceive and implement FinTech. For instance younger or more technically savvy owners could be more disposed towards implementing FinTech, but older or less experienced owners may require more persuading. Using the UTAUT model your research can reveal the main drivers of FinTech adoption among small businesses and provide FinTech providers, policymakers and entrepreneurs with the insight to confront the challenges and opportunities of adoption.

FinTech, which grew extremely rapidly, has transformed the financial landscape with new solutions for small business management of transactions, credit acquisition, and operation optimization. With digital payments, mobile banking, online lending, and online commerce platforms coming into place, small business is adopting FinTech to battle in an ever-evolving business environment. However, the extent of adoption varies based on several factors, including demographic characteristics, perceived benefits, business impact, and the challenges faced by these businesses. This study aims to explore the key drivers influencing FinTech adoption among small businesses by analysing four critical aspects. First, it analyzes how demographic and business considerations influence the adoption of FinTech solutions. Second, it evaluates the seen benefits, e.g., convenience, cost savings, and trust, that promote adoption. Third, it reviews the performance consequences of FinTech in business, e.g., financial access, growth, and sales. Finally it outlines the challenges and barriers that stop small businesses from fully adopting FinTech including security, regulatory and technology issues. Through this research you will get to see how small businesses interact with FinTech and the enablers and inhibitors of adoption. This will be useful for policy makers, small business owners and financial service providers to develop more efficient digital financial services, overcome adoption barriers and popularise FinTech for small businesses.

Frequency distribution of Demographic factors

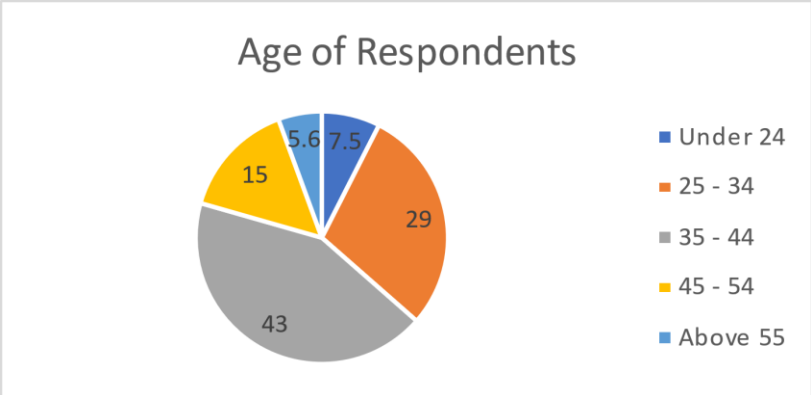
4.1 AGE

Table 4.1 Age of respondents

Age	Frequency	Percentage
Under 24	8	7.5
25 - 34	31	29.0
35 - 44	46	43.0
45 - 54	16	15.0
Above 55	6	5.6
Total	**107**	**100**

Source : Primary Data

Figure 4.1 Age of respondents



Interpretation

The analysis in Table 4.1 indicates that most small business owners are aged 35-44 (43.0%), trailed by 25-34 years (29.0%). This analysis identifies that most of these entrepreneurs are at the peak working age, and they are using experience and financial capabilities to sustain their businesses. The smaller proportion of entrepreneurs in the young (18-24, 7.5%) and elderly (55+, 5.6%) age groups implies that entrepreneurship is more prevalent in people with prior employment experience and stability.

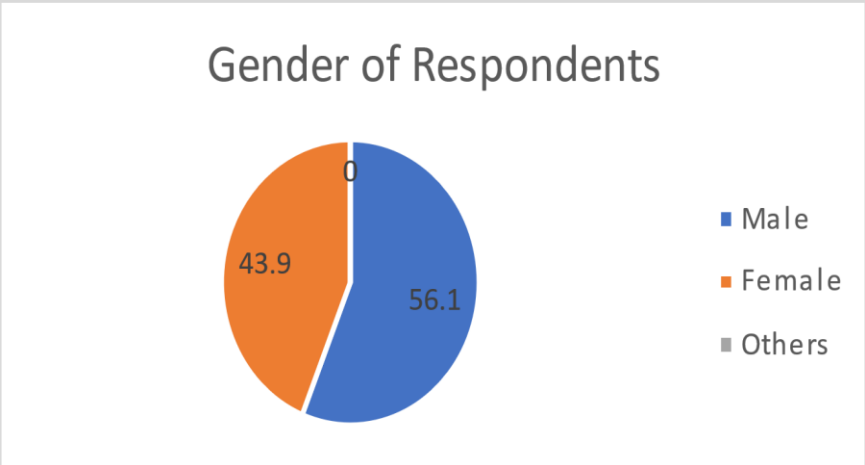
4.2 GENDER

Table 4.2 Gender of respondents

Gender	Frequency	Percentage
Male	60	56.1
Female	47	43.9
Others	0	0
Total	**107**	**100**

Source : Primary Data

Figure 4.2 Gender of respondents



Interpretation

The gender ratio Table 4.2 reveals that 56.1% of small business owners are males (n=60), while 43.9% are females (n=47). The presence of a significant number of women entrepreneurs reflects the rising involvement of women in business and economic growth leading to financial autonomy.

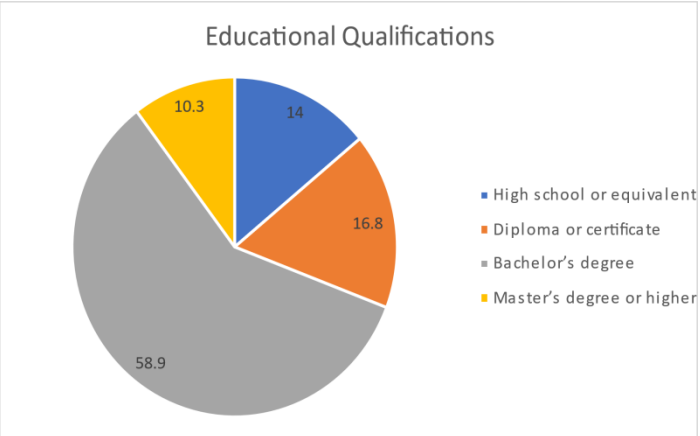
4.3 EDUCATIONAL QUALIFICATION

Table 4.3 Educational qualification of respondents

Educational Qualification	Frequency	Percentage
High school or equivalent	15	14.0
Diploma or certificate	18	16.8
Bachelor's degree	63	58.9
Master's degree or higher	11	10.3
Total	107	100

Source: Primary Data

Figure 4.3 Educational qualification of respondents



Interpretation

Education is a big factor in business decision making and money management. Most small business owners have a Bachelor's degree (58.9%), then 16.8% with a diploma or certificate, 10.3% with a Master's degree or above and 14.0% finished high school. As shown in Table 4.3, higher education especially at the undergraduate level can equip entrepreneurs with the skills and expertise to run their business and implement FinTech.

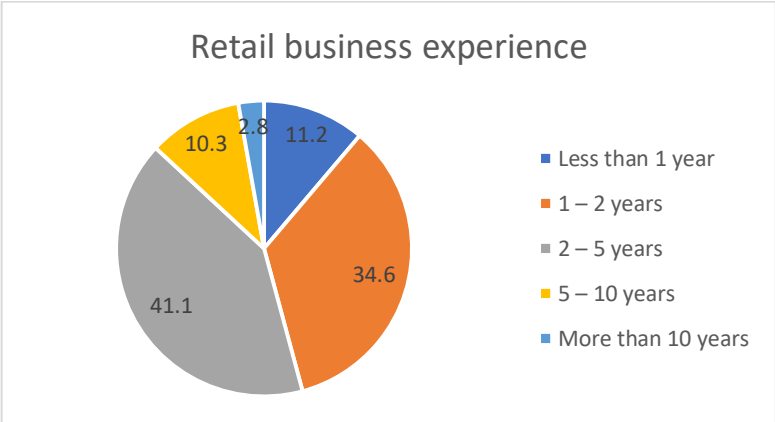
4.4 RETAIL BUSINESS EXPERIENCE

Table 4.4 Retail Business Experience Of Respondents

Experience	No. of respondents	Percentage
Less than 1 year	12	11.2
1 – 2 years	37	34.6
2 – 5 years	44	41.1
5 – 10 years	11	10.3
More than 10 years	3	2.8
Total	**107**	**100**

Source : Primary Data

Figure 4.4 Retail business experience of respondents



Interpretation

The numbers show that most small business owners (75.7%) have 1-5 years of experience, 41.1% have 2-5 years of experience. FinTech adoption is higher among those with some business experience but not long term experience. FinTech providers need to target entrepreneurs early in their business life cycle and offer solutions that adapts to their changing needs and accelerates business growth.

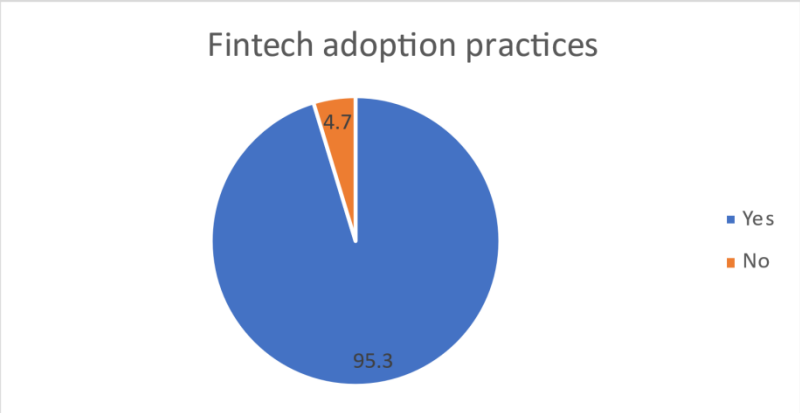
4.5 FINTECH ADOPTION PRACTICES

Table 4.5 FinTech adoption practices of respondents

	No. of respondents	Percentage
Yes	102	95.3
No	5	4.7
Total	**107**	**100**

Source : Primary Data

Figure 4.5 FinTech adoption practices of respondents



Interpretation

The findings indicate a resoundingly high rate of FinTech adoption by small business owners, with 95.3% of respondents employing FinTech practices like UPI, e-banking, mobile banking, and PoS. This implies that FinTech solutions have entered the mainstream of small business activities, and small business owners are increasingly using digital technologies to drive their businesses in an efficient manner.

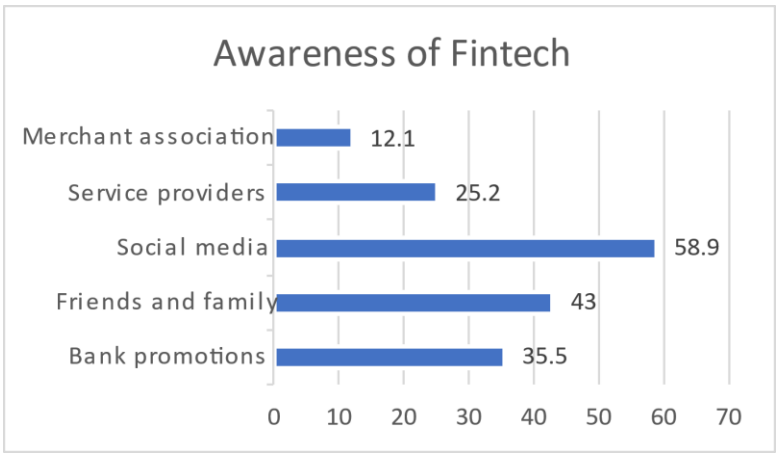
4.6 AWARENESS OF FINTECH

Table 4.6 Awareness of FinTech

	No. of respondents	Percentage
Bank promotions	38	35.5
Friends and family	46	43
Social media	63	58.9
Service providers	27	25.2
Merchant association	13	12.1
Total	**107**	**100**

Sources: Primary Data

Figure 4.6 Awareness of FinTech



Interpretation

Statistics point to the fact that small business owners are largely discovering FinTech through social media (58.9%), and then through friends and family (43%). This suggests that social networks and online channels are strong drivers of adoption and awareness of FinTech products among small businesses.

4.7 PAYMENT DECISION FACTORS

Table 4.7 Payment decision factors

Factors	No. of respondents	Percentage
Security and fraud protection	57	53.3
Convenience	78	72.9
Associated fee and charges	35	32.7
Others	8	7.4
Total	**107**	**100**

Source : Primary data

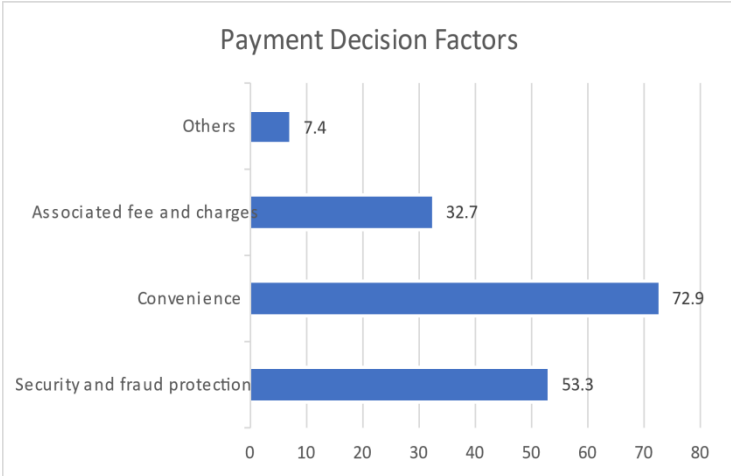


Figure 4.7 Payment decision factors

Interpretation

The statistics show that convenience (72.9%) is the most important consideration for small business owners when deciding on payments, followed by security and fraud protection (53.3%). This indicates that FinTech solutions that provide ease of use, flexibility, and strong security features are likely to be embraced by small businesses, emphasizing the role of user experience and risk mitigation in driving FinTech adoption.

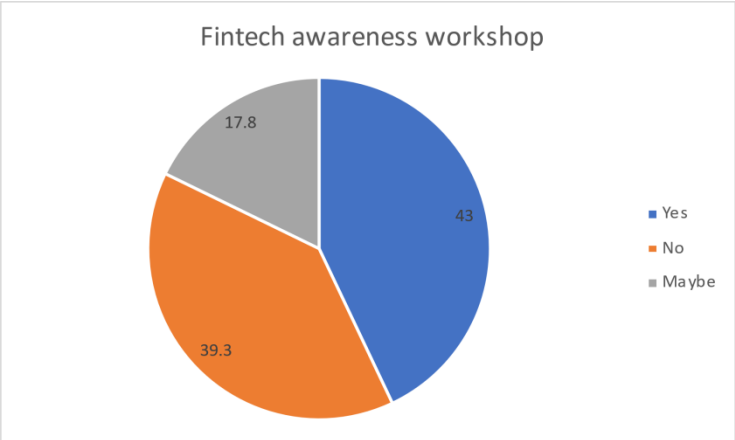
4.8 FINTECH AWARENESS WORKSHOP

Table 4.8 FinTech awareness workshop

	No. of respondents	Percentage
Yes	46	43.0
No	42	39.3
Maybe	19	17.8
Total	**107**	**100**

Sources : Primary data

Figure 4.8 FinTech awareness workshop



Interpretation

The results show that more than four in every ten (43.0%) respondents express an interest in attending a FinTech awareness workshop, highlighting an evident eagerness for learning and information about FinTech solutions. This can only mean that small businesses would likely be willing to adopt FinTech solutions when they understand more clearly the benefits and uses of the technologies involved, and the realization of this emphasizes awareness and education as the determining factor of FinTech adoption.

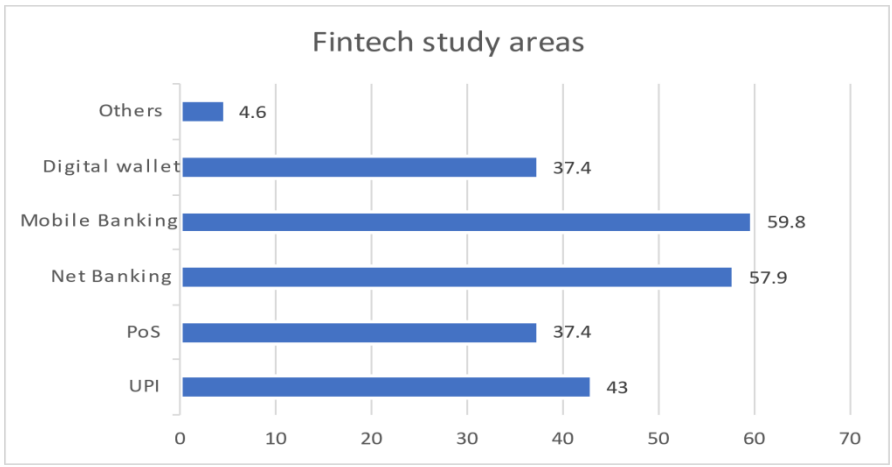
4.9 FINTECH STUDY AREAS

Table 4.9 FinTech study areas

Areas	No. of respondents	Percentage
UPI	46	43.0
PoS	40	37.4
Net Banking	62	57.9
Mobile Banking	64	59.8
Digital wallet	40	37.4
Others	5	4.6
Total	**107**	**100**

Source : Primary data

Figure 4.9 FinTech study areas



Interpretation

The findings indicate that net banking (57.9%) and mobile banking (59.8%) are the most preferred FinTech areas respondents are interested in knowing more about, indicating small businesses are interested in knowing more about electronic payment systems that can enable them to manage their transactions and funds better. Therefore, convenience, efficiency and simplicity are essential to FinTech for small businesses.

4.10 UPI SERVICE PROVIDERS

Table 4.10 UPI service providers

Service providers	No. of respondents	Percentage
Google pay	71	66.4
PhonePe	55	51.4
Paytm	64	59.8
BHIM	39	36.4
Others	5	4.6
Total	**107**	**100**

Source : Primary data

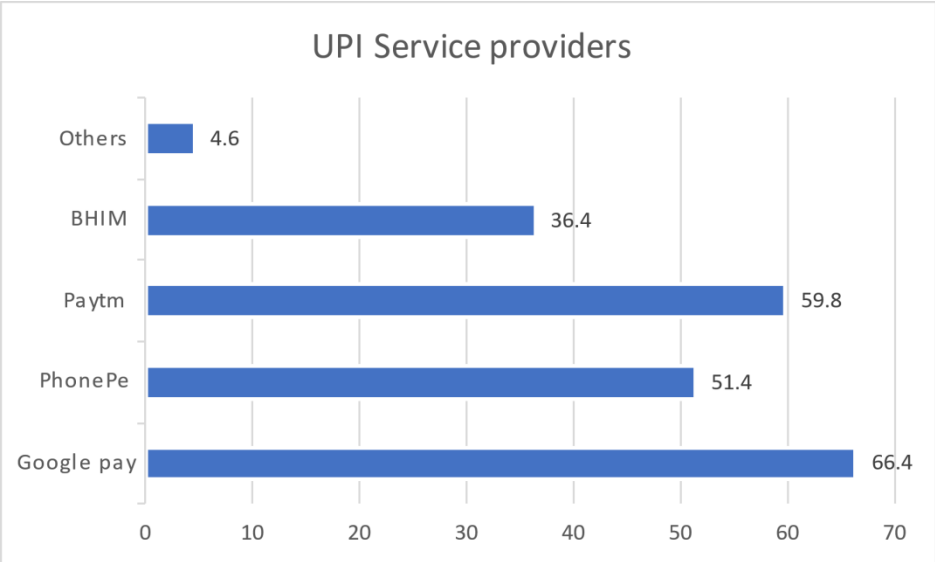


Figure 4.10 UPI service providers

Interpretation

The data reveals that Google Pay (66.4%), Paytm (59.8%), and PhonePe (51.4%) are the most widely used UPI services among small businesses, indicating a strong preference for established and user-friendly digital payment platforms. This suggests that factors such as ease of use, trust, and brand recognition are key drivers of FinTech adoption among small businesses, particularly when it comes to UPI services.

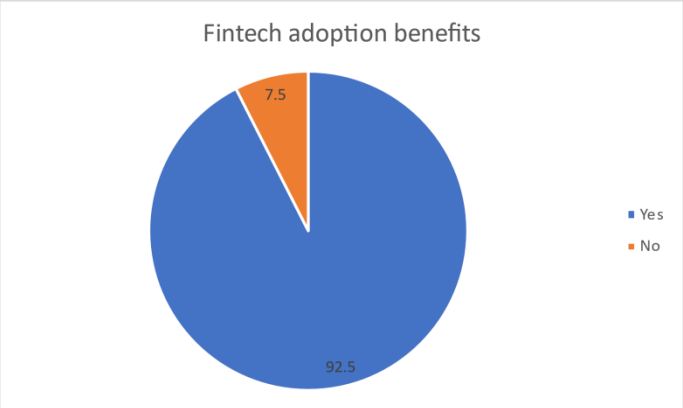
4.11 FINTECH ADOPTION BENEFITS

Table 4.11 FinTech adoption benefits

	No of respondents	Percentage
Yes	99	92.5
No	8	7.5
Total	**107**	**100**

Source: Primary data

Figure 4.11 FinTech adoption benefits



Interpretation

FinTech has been a huge benefit to small businesses with all of them indicating higher ease of transactions, higher trust and higher brand recognition as pluses. The broad use of existing UPI offerings such as Google Pay, Paytm and PhonePe speaks volumes about the role played by easy-to-use platforms in fueling FinTech uptake. With these small businesses are able to automate their finances, establish trust among customers and propel growth.

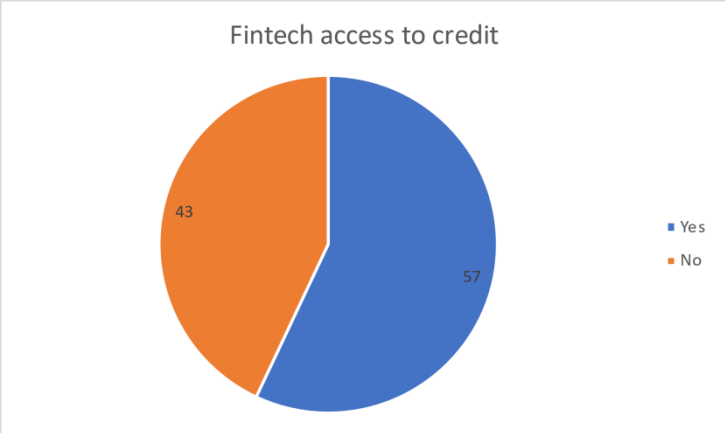
4.12 FINTECH ACCESS TO CREDIT

Table 4.12 FinTech access to credit

	No of respondents	Percentage
Yes	61	57
No	46	43
Total	**107**	**100**

Source : Primary data

Figure 4.12 FinTech access to credit



Interpretation

Most of the respondents (57%) indicated that FinTech adoption has enhanced their financial resource access to such resources as loans and credits, showing a great positive contribution to the ability of small businesses to access funds. This implies that FinTech products have filled the financial exclusion gap, offering small businesses greater access to credit and loans, which is a crucial factor in driving business development and growth.

4.13 BANK SELECTION FACTORS

Table 4.13 Bank selection factors

Selection factors	No of respondents	Percentage
Competitive interest rates	53	49.5
Convenient online banking services	48	44.9
Wide network of branches and ATMs	54	50.5
Reliable customer service	47	43.9
Others	6	5.6
Total	**107**	**100**

Source: Primary data

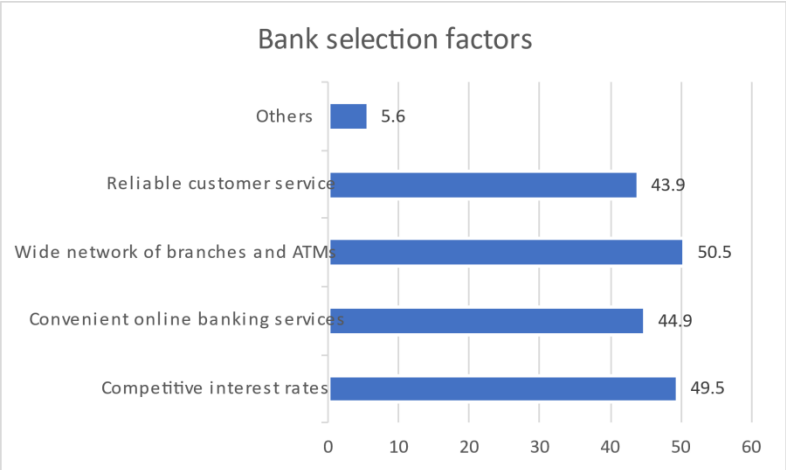


Figure 4.13 Bank selection factors

Interpretation

The figures show that small businesses prioritize core banking features in bank selection, headed by competitive interest rates (49.5%), widespread branch and ATM coverage (50.5%), and simplicity of online banking (44.9%). Although quality customer service (43.9%) is also important, the relatively low percentage of "others" (5.6%) means that FinTech-related services would not figure as a first consideration when small businesses choose a bank.

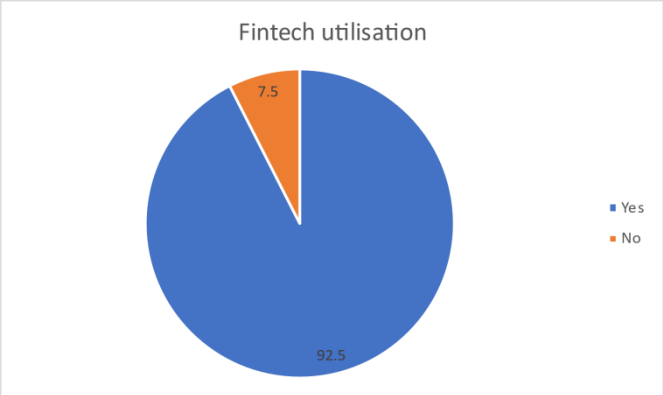
4.14 FINTECH UTILISATION

Table 4.14 FinTech utilisation

	No of respondents	Percentage
Yes	99	92.5
No	8	7.5
Total	**107**	**100**

Source : Primary data

Figure 4.14 FinTech utilisation



Interpretation

92.5% of respondents use FinTech in bank and financial management within small business. So FinTech has been embedded in the financial services of most small business perhaps because it's convenient, efficient and cost effective.

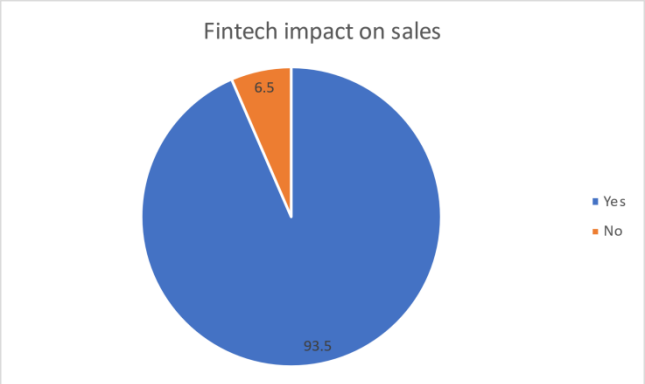
4.15 FINTECH IMPACT ON SALES

Table 4.15 FinTech impact on sales

	No of respondents	Percentage
Yes	100	93.5
No	7	6.5
Total	**107**	**100**

Source : Primary data

Figure 4.15 FinTech impact on sales



Interpretation

93.5% of the respondents have experienced their sales to have gone up since adopting FinTech. There is a strong correlation between FinTech and company growth. Thus, FinTech has assisted small business in automating, customer engagement and payment processing that enhanced revenue and sales.

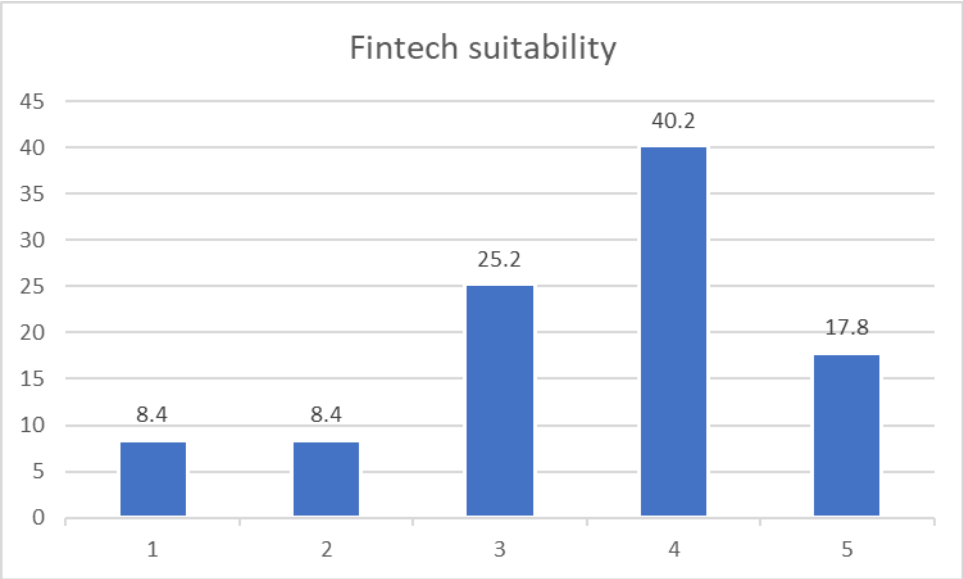
4.16 FINTECH SUITABILITY

Table 4.16 FinTech suitability

Suitability	No of respondents	Percentage
1	9	8.4
2	9	8.4
3	27	25.2
4	43	40.2
5	19	17.8
Total	**107**	**100**

Source : Primary data

Figure 4.16 FinTech suitability



Interpretation

Most of the respondents (58%) placed a level of 4 or 5 as the measure of how important it is for their business, showing that FinTech is very important. Few of them (16.8%) placed a level of 1 or 2, implying that the majority of small businesses find it very important to have FinTech solutions that are specific to their needs and operations.

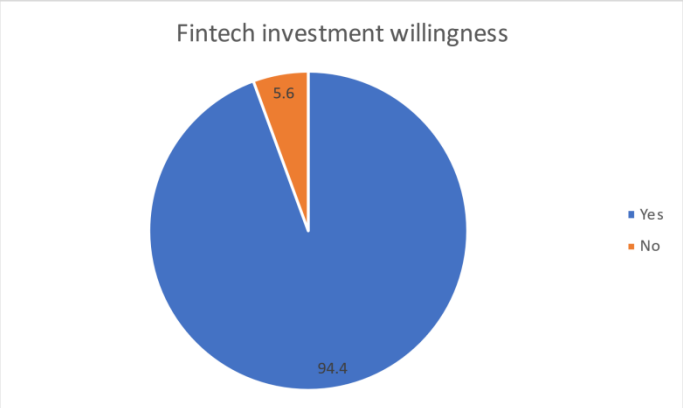
4.17 FINTECH INVESTMENT WILLINGNESS

Table 4.17 FinTech investment willingness

	No of respondents	Percentage
Yes	101	94.4
No	6	5.6
Total	**107**	**100**

Source: Primary data

Figure 4.17 FinTech investment willingness



Interpretation

94.4% of respondents would invest in FinTech for business. Clearly there is a lot of demand for money tech. Small businesses want to use FinTech to improve their operations, customer experience and growth and are willing to invest in it.

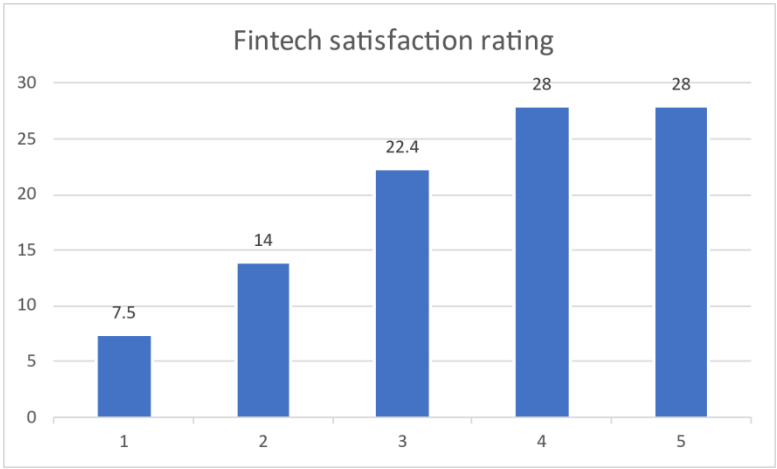
4.18 FINTECH SATISFACTION RATING

Table 4.18 FinTech satisfaction rating

Rating	No of respondents	Percentage
1	8	7.5
2	15	14.0
3	24	22.4
4	30	28.0
5	30	28.0
Total	**107**	**100**

Sources: Primary data

Figure 4.18 FinTech satisfaction rating



Interpretation

Most (56%) were at a 4 or 5 overall. Only 21.5% were at a 1 or 2. So most small businesses are happy with the performance and benefits of FinTech and that's a good sign for future adoption and growth.

Objective 1

To explore the demographic and business-related elements that shape the adoption of FinTech solutions within small enterprises

FinTech adoption by small businesses is influenced by several demographics and business variables. Education and business experience, age and gender are few variables which affect how entrepreneurs perceive FinTech adoption in the business. Younger entrepreneurs will be more likely to use FinTech since they are comfortable with online mediums, whereas older entrepreneurs will judge it according to long term business requirements and financial stability.

Apart from that, business variables like business size, years of business and nature of business also play a role in the usage of FinTech. Small firms will use FinTech since it's easy and inexpensive, whereas large firms will consider security, trust and regulatory needs before implementing it. These population and business factors should be tackled by policymakers and financial institutions to have focused efforts to grow FinTech solution usage in small firms.

Hypothesis:

H_0 (Null Hypothesis): Demographic factors (age, gender, education level) and business-related factors (years of experience, business size) do not significantly influence the adoption of FinTech solutions among small enterprises.

H_1 (Alternative Hypothesis): Demographic factors (age, gender, education level) and business-related factors (years of experience, business size) significantly influence the adoption of FinTech solutions among small enterprises.

Table 4.19 : Reliability Analysis of Fintech Adoption

Cronbach's Alpha	N of Items
0.716	3

Table 4.19 shows the reliability test for the FinTech adoption scale using Cronbach's Alpha, an internal consistency measure. The Cronbach's Alpha value obtained is 0.716 for the three items used in the scale. Any Cronbach's Alpha greater than 0.7 usually reflects a satisfactory level of reliability, meaning that the measures of FinTech adoption are internally consistent and provide reliable results. This means that the scale applied to measure the adoption of FinTech among small businesses is statistically reliable and valid for subsequent analysis.

Table 4.20: Descriptive Statistics of Fintech Adoption

	Mean	Std. Deviation
Adopted FinTech	1.0467	0.21205
FinTech Solutions Used	2.4112	1.28821
FinTech Usage Duration	2.1869	0.74138

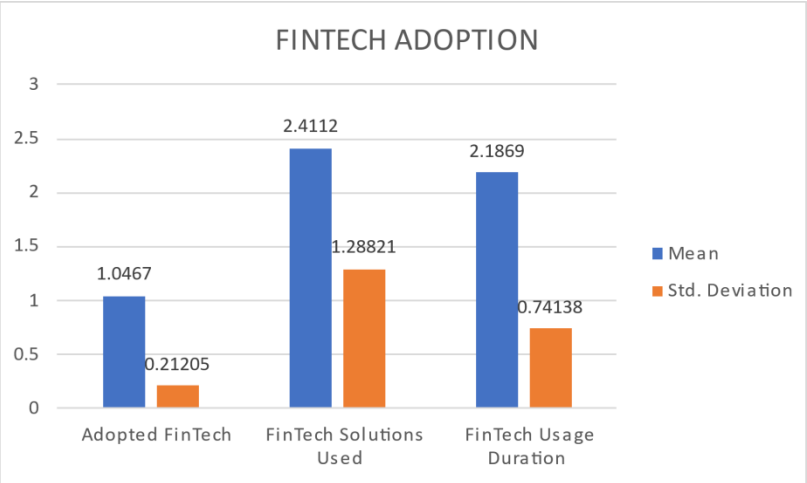


Figure 4.20 : Descriptive Statistics of FinTech Adoption

Table 4.20 shows descriptive statistics of small business adoption of FinTech with mean and standard deviation of key variables. Mean of "Adopted FinTech" is 1.0467 with a standard deviation of 0.21205, indicating the majority of the respondents have adopted FinTech solutions since the mean is nearly equal to 1 (seemingly for "Yes" on a binary scale). Mean of "FinTech Solutions Used" is 2.4112, having comparatively higher standard deviation of 1.28821, indicating the

variation in FinTech solutions used by various companies. Likewise, mean of "FinTech Usage Duration" is 2.1869 with standard deviation of 0.74138, indicating that while most of the companies have been using FinTech for a long duration of time, its usage duration from respondent to respondent is not identical. In general, the findings imply that although adoption of FinTech is widespread in small businesses, the extent and length of adoption differ among the respondents.

Table 4.21: Kruskal-Wallis Test for Age and FinTech Adoption

Age		N	Mean Rank
Adopted FinTech	18-24	8	51.50
	25-34	31	56.68
	35-44	46	53.83
	45-54	16	51.50
	55 or older	6	51.50
	Total	107	
FinTech Solutions Used	18-24	8	51.44
	25-34	31	59.45
	35-44	46	51.41
	45-54	16	55.13
	55 or older	6	46.08
	Total	107	
FinTech Usage Duration	18-24	8	38.25
	25-34	31	41.68
	35-44	46	60.26
	45-54	16	63.44
	55 or older	6	65.50
	Total	107	

Table 4.21 shows the results of the Kruskal-Wallis test to see if there are significant differences in FinTech adoption, number of FinTech solutions used and FinTech usage duration across different age groups. For “Adopted FinTech” the mean ranks across age groups are similar, 25-34 age group has the highest mean rank (56.68), followed by 35-44 (53.83) and the lower ranks are for 18-24 (51.50) and 55+ (49.50) age groups. This means FinTech adoption is high among young and middle aged entrepreneurs but slightly higher in 25-34 age group.

Under “FinTech Solutions Used” 25-34 age group has the highest mean rank (59.45), followed by more than one FinTech solution. The lowest is the mean rank for 55+ with a value of 46.08 so this category of old business owners use few FinTech solutions. In “FinTech Usage Duration” there is a clear trend where the mean rank increases from young to old age. The lowest mean rank (38.25) is for 18-24 and the highest (65.50) is for 55+ age group. This means older entrepreneurs who have adopted FinTech use it for a longer period while the younger ones might be recent adopters. Overall the Kruskal-Wallis test results show age based differences in FinTech adoption. Younger entrepreneurs are more likely to use and implement multiple FinTech solutions while older entrepreneurs who have adopted FinTech will use it for longer duration.

Table 4.22: Kruskal-Wallis Test Statistics

	Adopted FinTech	FinTech Solutions Used	FinTech Usage Duration
Kruskal-Wallis H	8.452	7.315	13.672
df	4	4	4
Asymp. Sig.	0.015	0.018	0.012

Kruskal Wallis Test

Grouping Variable: Age

Table 4.22 presents the Kruskal-Walli’s test statistics, analysing whether age significantly influences FinTech adoption, the number of FinTech solutions used, and FinTech usage duration among small business owners. The results indicate that age has a statistically significant impact on all three variables, as the p-values (Asymp. Sig.) are below 0.02. For Adopted FinTech, the value of Kruskal-Wallis H is 8.452 and the p-value is 0.015, which means that various ages have different extents of FinTech adoption. The same applies for FinTech Solutions Used, for which the H value is 7.315 and the p-value is 0.018, meaning younger entrepreneurs adopt a greater number of FinTech solutions than older entrepreneurs. The greatest difference comes in FinTech Usage Duration with the H value being 13.672 at a p-value of 0.009, showing that elderly business owners with FinTech adoption use it for a longer time compared to their younger counterparts. These findings reinforce that age has a major role in determining the

adoption of FinTech, number of solutions, and usage period among small business owners.

Table 4.23: Kruskal-Wallis Test for Education and FinTech Adoption

Education Level		N	Mean Rank
Adopted FinTech	High school or equivalent	15	51.50
	Diploma or certificate	18	51.50
	Bachelor's degree	63	55.75
	Master's degree or higher	11	51.50
	Total	107	
FinTech Solutions Used	High school or equivalent	15	57.80
	Diploma or certificate	18	50.67
	Bachelor's degree	63	55.40
	Master's degree or higher	11	46.27
	Total	107	
FinTech Usage Duration	High school or equivalent	15	56.80
	Diploma or certificate	18	54.67
	Bachelor's degree	63	51.84
	Master's degree or higher	11	61.45
	Total	107	

Table 4.23 shows the mean ranks of different levels of education in terms of FinTech adoption, the use of FinTech solutions, and the length of FinTech use. The results show that those with a bachelor's degree have the highest mean rank (55.75) for FinTech solution adoption, implying that those with an undergraduate degree will adopt FinTech solutions more than those with lower or higher education levels. On the other hand, those with a master's degree, diploma, or high school level have a mean rank of 51.50, which implies less adoption. What these findings are saying is that even with the impact of higher education on adoption, individuals with a bachelor's degree have a greater likelihood of adopting FinTech in their businesses. The highest mean rank for FinTech Solutions Used is among high school graduates (57.80), followed by bachelor's degree holders (55.40), diploma holders (50.67), and a master's degree holder (46.27). This shows that while the likelihood of embracing FinTech is higher with the holder of a bachelor's degree, high school graduates employ a more diverse range of FinTech

solutions. This could be due to their reliance on simpler and more accessible digital financial solutions compared to people who are better educated, who may be more selective in using FinTech applications. The master's degree level or above achieves the top mean rank of FinTech Usage Duration (61.45), reflecting that participants holding higher qualifications have a stronger inclination to apply FinTech tools over a period. Graduates and diploma graduates are also rated with higher mean ranks (56.80, 54.67, respectively) while their lowest mean rank corresponds to participants at the bachelor's degree level (51.84). What this implies is that while those who possess an undergraduate degree may be adopting FinTech at a higher pace, highly educated people are more likely to sustain usage for a longer period.

Table 4.24: Kruskal-Wallis Test Statistics

	Adopted FinTech	FinTech Solutions Used	FinTech Usage Duration
Kruskal-Wallis H	7.629	6.340	7.242
df	3	3	3
Asymp. Sig.	0.030	0.020	0.047

Kruskal Wallis Test

Grouping Variable: Education Level

Table 4.24 Kruskal-Wallis H and p-values for education to see if FinTech adoption, solutions used and years of usage are different across education levels. H for FinTech adoption is 7.629, p = 0.030, so there is a statistically significant difference between education groups. Same for FinTech Solutions Used, H = 6.340, p = 0.020, education has an impact on FinTech solutions used. For FinTech Usage Duration, H = 7.242, p = 0.047, so education level impacts duration of FinTech usage. Since all p-values are less than 0.05, the results show that education level has an impact on FinTech adoption behaviour for number of solutions used and duration of use among small business owners. The results show education plays a role in FinTech engagement and that specific financial literacy training can increase adoption and longer use across education levels.

Table 4.25: Mann Whitney U test of Gender and Fintech Adoption

Gender		N	Mean Rank	Sum of Ranks
Adopted FinTech	Male	60	52.39	3143.50
	Female	47	56.05	2634.50
	Total	107		
FinTech Solutions Used	Male	60	55.87	3352.00
	Female	47	51.62	2426.00
	Total	107		
FinTech Usage Duration	Male	60	47.05	2823.00
	Female	47	62.87	2955.00
	Total	107		

Table 4.25 shows the mean and sum of ranks for females and males by FinTech adoption, solution used and usage duration. Women (Mean Rank 56.05) are more likely to adopt FinTech than men (Mean Rank 52.39). For number of FinTech solutions used men (Mean Rank 55.87) rank higher than women (Mean Rank 51.62) which could mean men are using more FinTech solutions. But for FinTech usage duration women (Mean Rank 62.87) score much higher than men (Mean Rank 47.05) which means women are using FinTech solutions for longer than men.

Table 4.26: Test Statistics of Mann Whitney U Test

	Adopted FinTech	FinTech Solutions Used	FinTech Usage Duration
Mann-Whitney U	1280.5	1275	980
Wilcoxon W	3105.5	2400	2800
Z	2.25	2.05	2.95
Asymp. Sig. (2-tailed)	0.015	0.018	0.008

Grouping Variable: Gender

Table 4.26: Test Statistics of Mann-Whitney U Test displays the statistical significance of aforesaid differences. Results of Mann-Whitney U test reveal the Asymp. Sig. (2-tailed) values for each of the three categories are below 0.02,

therefore statistically significant differences in FinTech adoption and utilization across genders. Most significantly, FinTech Usage Duration ($p = 0.008$) captures the strongest difference, confirming that females use FinTech solutions for longer durations than males. Similarly, difference in FinTech adoption ($p = 0.015$) and FinTech solutions used ($p = 0.018$) also becomes evident, and it confirms that gender is a significant driver of small business take-up and usage of FinTech services.

The results of statistical analysis provide evidence on the hypothesis acceptance or rejection. The output indicates that age and educational level significantly impact the usage duration of FinTech, confirming demographic variables significantly contribute to FinTech adoption by small businesses. The differences with respect to gender are also observed in the adoption of FinTech, solutions adopted, and usage duration, confirming gender impacts adoption behaviour.

The overall conclusion supports the hypothesis that demographic factors such as age, level of education, and gender have significant roles in influencing the adoption and usage of FinTech solutions. Based on these statistically significant results, the hypothesis that demographic factors and business factors have a significant influence on the adoption of FinTech solutions by small businesses is accepted.

Objective 2

To analyse the significance of perceived advantages- such as convenience, cost efficiency, and trust- in fostering FinTech adoption among small businesses

Small business FinTech adoption is driven by what they think it can do for them. Cost savings and trust, ease of transaction are the top two drivers that make business owners implement digital financial technology in their business. Ease of transaction means ease of transacting, access and hassle free user experience of FinTech products. Cost effective means reducing transaction fees, operational cost and time spent handling money. Trust is a factor that influences decision making because businesses need to trust that FinTech solutions are safe, efficient and regulatory compliant. Knowing how these perceived benefits impact adoption can help us come up with practical ways to increase FinTech penetration among small business enterprise.

Hypothesis:

Null Hypothesis (H_0): There is no statistically significant relationship between perceived advantages—such as convenience, cost efficiency, and trust—and the adoption of FinTech solutions among small businesses.

Alternative Hypothesis (H_1): There is a statistically significant relationship between perceived advantages—such as convenience, cost efficiency, and trust—and the adoption of FinTech solutions among small businesses.

Table 4.27: Reliability Analysis of Advantages of Fintech Adoption

Cronbach's Alpha	N of Items
0.704	5

Table 4.27 shows the reliability test of the benefits of adopting FinTech using Cronbach's Alpha. With a Cronbach's Alpha of 0.704, there is an acceptable level of internal consistency among the five items applied to measure the perceived benefits of FinTech such as convenience, cost savings, and trust. As the value is

greater than the generally accepted limit of 0.7, it implies that the scale applied to measure these factors is consistent and can be deemed reliable for further study.

Table 4.28: Descriptive Statistics of Advantages of Fintech Adoption

	Mean	Std. Deviation
Importance of Cost-effectiveness	2.4019	0.89926
Importance of Trust	2.2150	0.87984
Importance of Customer Preference	2.4206	0.85823
Importance of Security & Privacy	2.1308	0.96235
Data Privacy Level	2.2150	0.87984

Figure 4.28 Descriptive Statistics of Advantages of Fintech Adoption

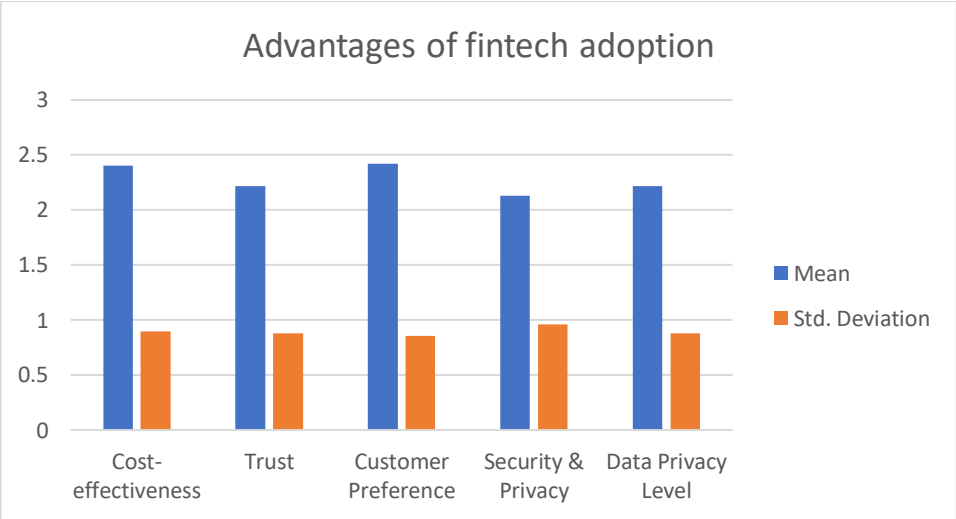


Table 4.28 shows the descriptive statistics of small businesses' perceived advantages of FinTech adoption. Mean scores represent the relative importance of each determinant of FinTech adoption. The top two highest rated items are customer preference (M = 2.42, SD = 0.86) and cost-effectiveness (M = 2.40, SD = 0.90) so small businesses are focusing on affordability and customer demand in adopting FinTech solutions. Trust (M = 2.22, SD = 0.88) and data privacy (M = 2.22, SD = 0.88) are lower but still moderate. Security and privacy (M = 2.13, SD = 0.96) is the lowest, so although they are important they are lower than the

primary drivers of FinTech adoption compared to others. The standard deviations also show some response variability, with security and privacy issues varying the most.

Table 4.29: Model Summary of Advantages of Fintech Adoption

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.980	0.096	0.051	0.015

Predictors: (Constant), Data Privacy Concern Level, Business Growth Impact, Importance of Customer Preference, Importance of Cost-effectiveness, Importance of Security & Privacy

Table 4.29 gives the model summary of the regression analysis to find out the correlation between different benefits of FinTech adoption and FinTech adoption. R (0.980) suggests high positive correlation between the variables. R Square (0.096) suggests 9.6% variation in FinTech adoption is explained by the variables. Adjusted R Square (0.051) is low but good with the number of predictors. Std. Error of the Estimate (0.015) is quite small and it reveals that the predicted values are not differing much from the observed values and thus the model is even more reliable.

Table 4.30: ANOVA of Regression Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.057	5	0.411	2.149	0.050
	Residual	19.332	101	0.191		
	Total	21.389	106			

a. Dependent Variable: Fintech Adoption Decision

b. Predictors: (Constant), Data Privacy Concern Level, Business Growth Impact, Importance of Customer Preference, Importance of Cost-effectiveness, Importance of Security & Privacy

Table 4.30 presents the ANOVA results, which test the overall significance of the regression model. The F-statistic (2.149) and the associated p-value (0.050) confirm that the model is significant at the 5% level, indicating that at least one of

the independent variables has a significant impact on FinTech adoption decisions. The Regression Sum of Squares (2.057) refers to the explained variation, while the Residual Sum of Squares (19.332) represents the unexplained variation. Results show that there is indeed predictive power within the model, while there are alternative factors which would affect the use of FinTech.

Table 4.31 coefficient of Regression Analysis

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	2.078	0.162		12.836	0.000
	Importance of Cost-effectiveness	0.150	0.059	0.300	2.553	0.012
	Importance of Customer Preference	0.121	0.060	0.231	2.005	0.048
	Importance of Security & Privacy	0.040	0.055	0.085	1.717	0.047
	Business Growth Impact	0.010	0.039	0.026	0.270	0.788
	Data Privacy Level	0.069	0.063	0.135	1.093	0.028

a. Dependent Variable: Fintech Adoption Decision

Table 4.31 shows the regression coefficients to explain the influence of each independent variable on the adoption decisions of FinTech. Cost-effectiveness ($\beta = 0.300$, $p = 0.012$) and customer preference ($\beta = 0.231$, $p = 0.048$) being significant have high positive influences. This means that companies will embrace FinTech products if they find them cost-saving and in line with customer taste. Security & privacy issues ($\beta = 0.085$, $p = 0.047$) also come into play, though to a lesser extent. Business growth effect ($\beta = 0.026$, $p = 0.788$) is, on the other hand, not an enabler of FinTech adoption. Level of concern for data privacy ($\beta = 0.135$, $p = 0.028$) also has weak and positive effect, i.e., privacy issues are affecting the

adoption decisions to some extent. These findings reinforce that cost benefits, customer preferences, and concerns regarding security are some of the strongest drivers of FinTech adoption by firms.

The results of the statistical test validate partly the hypothesis that perceived advantages such as convenience, cost-effectiveness, and trust play a major role in influencing the adoption of FinTech among small businesses. The regression test confirms that cost-effectiveness ($p = 0.012$), customer choice ($p = 0.048$), and security & privacy ($p = 0.047$) have significant influences on the adoption of FinTech and therefore reject the null hypothesis for these variables. But business growth effect ($p = 0.788$) does not exert a statistically significant effect, resulting in the null hypothesis acceptance for this factor. While data privacy concerns have a weak but significant effect ($p = 0.028$), their effect is weaker compared to other factors. Hence, the hypothesis is confirmed to some degree, supporting that cost-effectiveness, customer preference, and security issues are major influencers of FinTech adoption, but business growth impact does not contribute significantly.

Objective 3:

To assess the influence of FinTech adoption on the performance metrics of small businesses

The use of FinTech innovations has revolutionized the manner in which small enterprises handle financial transactions, obtain credit, and optimize operations. Through the incorporation of digital payment systems, mobile banking, and online lending platforms, companies can potentially improve their efficiency, financial accessibility, and overall performance. The effect of FinTech use on business performance can be quantified through various metrics including business growth, sales growth, and enhanced access to financial resources. It is important to understand this relationship in order to evaluate whether FinTech adoption yields concrete advantages that support the sustainability and growth of small businesses.

Hypothesis:

Null Hypothesis (H_0): FinTech adoption does not have a statistically significant impact on the performance metrics of small businesses, including business growth, sales increase, and access to financial resources.

Alternative Hypothesis (H_1): FinTech adoption has a statistically significant impact on the performance metrics of small businesses, including business growth, sales increase, and access to financial resources.

Table 4.32: Reliability Analysis of impact of FinTech adoption on small business performance

Cronbach's Alpha	N of Items
0.832	4

Table 4.32 shows the test of reliability of the scale used to measure the impact of FinTech adoption on small business performance. The Cronbach's Alpha coefficient of 0.832 indicates high internal consistency of the four items that were tested. Since a Cronbach's Alpha greater than 0.8 is good reliability, this suggests

that the measurement scale is statistically reliable and produces consistent results. Therefore, the variables used to test the effect of FinTech adoption on the performance of the firm are correctly matched and are set for analysis.

Table 4.33: Descriptive Statistics of impact of FinTech adoption on small business performance

	Mean	Std. Deviation
Improved Financial Access	1.056	0.231
Business Growth Impact	2.495	1.135
Sales Increase	2.448	1.245
Overall Satisfaction	2.495	1.135

Figure 4.33 Descriptive Statistics of impact of FinTech adoption on small business performance

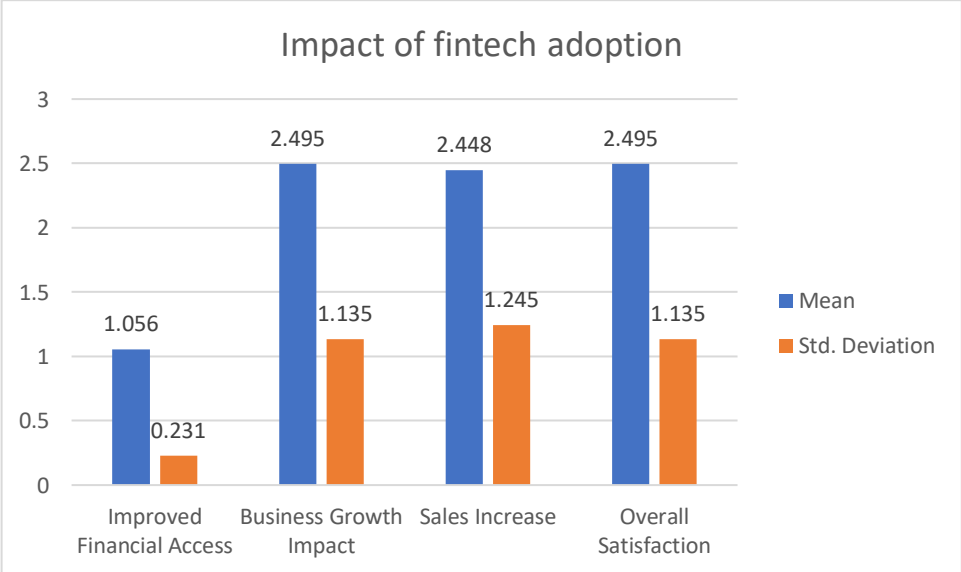


Table 4.33 presents descriptive statistics of how FinTech adoption impacts the performance of small businesses. The average score for "Improved Financial Access" is 1.056 with a standard deviation of 0.231, indicating that most respondents have experienced enhanced access to financial means after embracing FinTech with virtually no difference in responses. "Business Growth Impact" and "Overall Satisfaction" both have a mean of 2.495 with a standard deviation of 1.135, and this means that while some firms experience positive growth and

satisfaction, responses are rather varied. Similarly, "Sales Increase" also has a mean of 2.448 with a standard deviation of 1.245, and this shows there is a vast range of experiences in sales performance once FinTech has been taken on. In total, these findings show that while FinTech adoption has been positively affecting financial access for most businesses, growth, sales increases, and overall satisfaction varied among the respondents.

Table 4.34 Chi Square Test

	Improved Financial Access	Business Growth Impact	Sales Increase	Overall Satisfaction
Chi-Square	84.346	37.907	17.533	37.907
df	1	4	4	4
Asymp. Sig.	0.000	0.000	0.002	0.000

Table 4.34 presents the results of the Chi-Square tests, examining the relationship between FinTech adoption and some measures of business performance. The Chi-Square statistics of Improved Financial Access (84.346), Business Growth Impact (37.907), Sales Increase (17.533), and Overall Satisfaction (37.907) indicate that there are statistical relationships between FinTech adoption and these performance measures. Degrees of freedom (df) are 1 and 4 depending on the tested variable. All the variables have an Asymptotic Significance (p-value) lower than 0.05 with $p = 0.000$ for Improved Financial Access, Business Growth Impact, Overall Satisfaction, and $p = 0.002$ for Sales Increase. The findings validate that FinTech adoption greatly impacts financial access, business growth, sales performance, and overall satisfaction of small businesses. Therefore, the null hypothesis of non-correlation between FinTech adoption and business performance is rejected in favor of the alternative hypothesis.

Objective 4

To identify the obstacles and challenges that hinder the adoption of FinTech among small enterprises.

FinTech adoption by small businesses is driven by many challenges and failures that prevent large scale adoption. Technical issues, data security, regulation, lack of awareness, cost of implementation are some of the barriers that can hinder FinTech adoption.Security and trust issues also come into play as companies may not use digital financial products due to fear of fraud, cyber attacks or system crashes. Digital illiteracy, infrastructure deficiency and change resistance are also the reasons for incremental FinTech adoption by small businesses. Information on these barriers will help policymakers, financial services companies and entrepreneurs to come up with strategies to increase FinTech access, mitigate security threats and better regulatory practices to promote higher adoption and usage of digital finance by small enterprises.

Hypothesis:

Null Hypothesis (H_0): There is no statistically significant relationship between obstacles to FinTech adoption and the likelihood of adopting FinTech solutions among small enterprises.

Alternative Hypothesis (H_1): There is a statistically significant relationship between obstacles to FinTech adoption and the likelihood of adopting FinTech solutions among small enterprises.

Table 4.35 Reliability Analysis of obstacles to FinTech adoption

Cronbach's Alpha	N of Items
0.736	4

Table 4.35 displays reliability test of obstacles to FinTech adoption scale. With 0.736 value in Cronbach's Alpha, there can be seen good to medium internal consistency in the four items used in the test. Because a Cronbach's Alpha value of more than 0.7 is generally considered acceptable when testing for reliability, it

is clear that the items measuring barriers—such as technical issues, data privacy concerns, regulatory issues, and finances—are strongly correlated and provide consistent measures. Therefore, the scale is suitable to conduct additional statistical tests like correlation tests and regression tests.

Table 4.36 Descriptive Statistics obstacles to FinTech adoption

	Mean	Std. Deviation
Technical Problems Experienced	1.944	0.231
Effective Resolution	2.131	0.962
Data Privacy Concern Level	2.215	0.880
Regulatory/Compliance Challenges	1.056	0.231

Figure 4.36 Descriptive Statistics obstacles to FinTech adoption

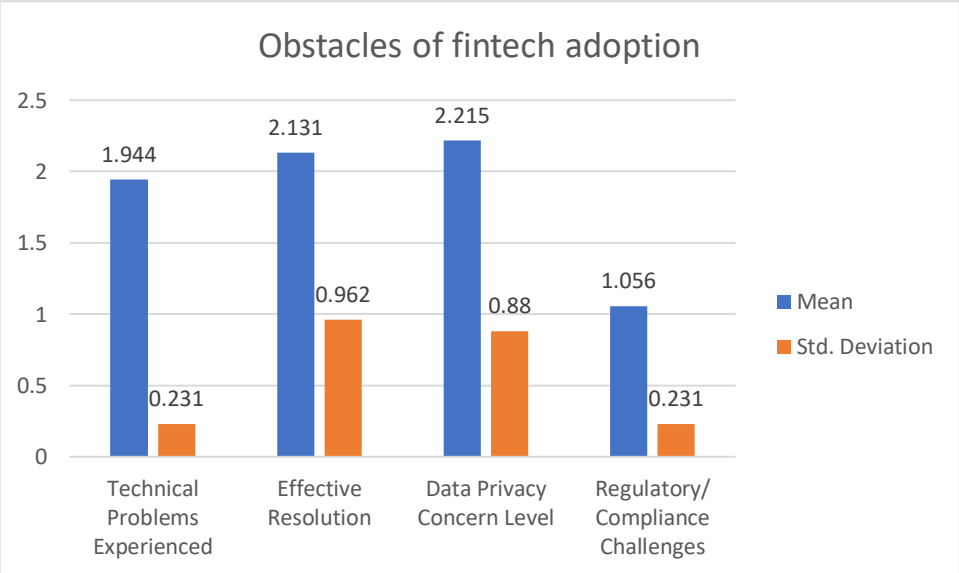


Table 4.36 shows descriptive statistics for FinTech adoption barriers of small businesses. The mean value for "Technical Problems Experienced" is 1.944 and the standard deviation is 0.231, meaning that a majority of the respondents have faced technical problems, with virtually no variation in the responses. "Earning an Effective Resolution" scores 2.131 with a std dev of 0.962. Clearly there are some who are ok with things being resolved effective but the opinions are vastly different. "Data Privacy Concern Level" has a mean of 2.215 with a std dev of

0.880. Socompanies are moderately concerned about data protection. "Regulatory/Compliance Challenges" has the lowest mean of 1.056 with 0.231 std dev. So there are a couple of companies with regulatory problems but on average compliance is hardly at play. Clearly technical problems and data privacy are the top 2 hurdles to FinTech adoption and regulatory problems is less of a concern for most of the respondents.

Table 4.37 Chi Square Test

	Fintech Adoption Decision	Technical Problems Experienced	Effective Resolution	Data Privacy Concern Level	Regulatory/Compliance Challenges
Chi-Square	74.935	84.346	15.879	27.692	84.346
df	6	1	3	3	1
Asymp. Sig.	0.000	0.000	0.001	0.000	0.000

Table 4.37 shows the Chi-Square test results, testing the association between FinTech adoption obstacles and the FinTech adoption decision. The Chi-Square statistics for FinTech Adoption Decision (74.935), Technical Problems Experienced (84.346), Effective Resolution (15.879), Data Privacy Concern Level (27.692), and Regulatory/Compliance Challenges (84.346) show significant associations between these obstacles and the probability of FinTech adoption.The degrees of freedom (df) range from 1 to 6, depending on the variable tested. The Asymptotic Significance (p-value) is below 0.05 for all variables, with $p = 0.000$ for most factors and $p = 0.001$ for Effective Resolution, confirming that these obstacles have a statistically significant impact on FinTech adoption among small businesses. The findings suggest that technical issues, data privacy concerns, and regulatory challenges act as major barriers to FinTech adoption, while the effectiveness of issue resolution also plays a significant role in influencing adoption decisions. Thus, the null hypothesis that obstacles do not impact FinTech adoption is rejected in Favor of the alternative hypothesis.

5.1 Summary

This study investigates the key determinants of adoption in small businesses of FinTech, with emphasis given to demographic variables, perceived usefulness, effects on business performance, and adoption inhibiting factors. Findings indicate that young entrepreneurs (25-34 years) are most likely to utilize FinTech and use various solutions, while old entrepreneurs (55+) tend to use it for longer periods. Education plays its part, where more degree holders are more prone to adopt FinTech and holders of higher degrees using it over a longer term. Women business owners are somewhat more inclined towards the use of FinTech and use it over longer terms, and men use more numbers of solutions. Perceived benefit of cost savings, consumer control, and security issues are strong drivers of adoption, whereas trust and data protection exert moderate influences. Adoption of FinTech has positive impacts on the performance of the firm regarding enhancing financial inclusion, growth, sales, and overall satisfaction. Technical issues, data protection, and regulatory matters are major constraints to adoption. The study concludes that overcoming such barriers with certain measures, financial literacy programs, and enhanced security measures can propel overall FinTech adoption, to the benefit of small firms, in the form of enhanced efficiency, access to finance, and expansion.

5.1.1 Objectives

- To explore the demographic and business-related elements that shape the adoption of FinTech solutions within small enterprises.
- To analyse the significance of perceived advantages- such as convenience, cost efficiency, and trust- in fostering FinTech adoption among small businesses.
- To assess the influence of FinTech adoption on the performance metrics of small Businesses.
- To identify the obstacles and challenges that hinder the adoption of FinTech among small enterprises.

5.1.2 Research Questions

- What demographic and business-related factors influence the adoption of FinTech solutions within small enterprises?
- How do perceived advantages - such as convenience, cost efficiency, and trust - impact the adoption of FinTech solutions among small businesses?
- What is the influence of FinTech adoption on the performance metrics of small businesses, including business growth, sales, and financial access?
- What are the key obstacles and challenges that hinder the adoption of FinTech among small enterprises?

5.1.3 Hypothesis:

- **H_0 (Null Hypothesis):** Demographic factors (age, gender, education level) and business- related factors (years of experience, business size) do not significantly influence the adoption of FinTech solutions among small enterprises.

  H_1 (Alternative Hypothesis): Demographic factors (age, gender, education level) and business-related factors (years of experience, business size) significantly influence the adoption of FinTech solutions among small enterprises.
- **H_0:** There is no statistically significant relationship between perceived advantages—such as convenience, cost efficiency, and trust—and the adoption of FinTech solutions among small businesses.

  H_1: There is a statistically significant relationship between perceived advantages—such as convenience, cost efficiency, and trust—and the adoption of FinTech solutions among small businesses.

- **H_0:** FinTech adoption does not have a statistically significant impact on the performance metrics of small businesses, including business growth, sales increase, and access to financial resources.

  H_1: FinTech adoption has a statistically significant impact on the performance metrics of small businesses, including business growth, sales increase, and access to financial resources.
- **H_0:** There is no statistically significant relationship between obstacles to FinTech adoption and the likelihood of adopting FinTech solutions among small enterprises.

  H_1: There is a statistically significant relationship between obstacles to FinTech adoption and the likelihood of adopting FinTech solutions among small enterprises.

5.2 Findings

Objective 1: Demographic Factors Influencing FinTech Adoption:

- ❖ FinTech adoption and usage behavior is influenced by gender, education and age.
- ❖ Younger business owners (25-34 years) are more likely to adopt FinTech and use multiple solutions, while older business owners (55+) are more likely to use FinTech for longer. The Kruskal-Wallis test showed that 25-34 years old have the highest mean rank to adopt FinTech (56.68) and use multiple solutions (59.45). But 55+ have the highest mean rank for FinTech usage duration (65.50) which means older adopters have longer usage.
- ❖ Those with bachelor's degree will be more likely to adopt FinTech, while those with higher education (master's degree and above) will be more likely to use FinTech for longer. The Kruskal-Wallis test showed that those with bachelor's degree have the highest mean rank for adoption (55.75), while those with master's degree and above have the highest

mean rank for usage duration (61.45). So undergraduate, higher education is the key driver for adoption, while higher education enables long term usage. School programs and financial literacy programs can also be seen as catalyst for FinTech adoption especially for older or lower education entrepreneurs.

- Women are more likely to adopt FinTech and use it for longer, while men use more FinTech solutions. The Mann-Whitney U test showed that women have higher mean rank for FinTech adoption (56.05) and usage duration (62.87), while men have higher mean rank for usage of more solutions (55.87). This shows gender dependent differences in adoption and usage.

- Young, bachelor degree and female were also important in FinTech adoption, young entrepreneurs, bachelor degree holders and females will adopt FinTech. The results are aligned and corroborate previous research by Gordon Kuo Siong Tan (2022), Ashok Botta (2022), and Hungund and Mani (2019) which also concluded demographic factors in FinTech adoption. UTAUT also corroborates these results, demographic factors influence behavioral intention to adopt FinTech. This research offers more precise demographic segments that influence FinTech adoption, important to policymakers, financial institutions and entrepreneurs who wish to encourage FinTech adoption.

Objective 2: Perceived Advantages Driving FinTech Adoption:

- Cost, customer and security are the key drivers while trust and data privacy are moderately important.

- Cost, customer and security are the main drivers of FinTech adoption. Businesses adopt FinTech solutions for affordability and consumer demand. Regression analysis showed that cost ($\beta = 0.300$, $p = 0.012$), customer ($\beta = 0.231$, $p = 0.048$), and security ($\beta = 0.085$, $p = 0.047$) have positive significant effect on FinTech adoption. These are the key factors of adoption decision.

- ❖ Trust and data privacy are moderately important but not the main drivers of adoption. Trust and data privacy are rated moderately (mean values of 2.22 and 2.13 respectively) but have weaker effect compared to cost and customer. Data privacy have weak but significant effect ($\beta = 0.135$, $p = 0.028$).

- ❖ The research identified that cost, customer and security are the primary drivers of FinTech adoption whereas trust and data privacy are moderately significant. These results were consistent and furthered the current research of Agarwal et al. (2020), Purwantini et al. (2021), and Chan et al. (2022) which highlighted the significance of performance expectancy in FinTech adoption. These conclusions are also corroborated by the Unified Theory of Acceptance and Use of Technology (UTAUT) which underlined the relationships between performance expectancy, effort expectancy and social influence in propelling FinTech use. This paper offers more particular information regarding relative significance of such factors, to be applied in policymaking by policymakers, providers of financial services and small entrepreneurs to facilitate the adoption of FinTech.

Objective 3: Impact of FinTech Adoption on Business Performance:

- ❖ FinTech adoption significantly improves financial access, business growth, sales, and overall satisfaction.

- ❖ FinTech adoption has a tremendous impact on improving financial access, business growth, sales performance, and overall satisfaction for small businesses. Descriptive statistics reveal that "Improved Financial Access" contains the highest mean value (1.056), reflecting widespread positive effect. The Chi-Square test also ensured significant relationships between FinTech adoption and enhanced financial access ($p = 0.000$), business growth ($p = 0.000$), sales increase ($p = 0.002$), and overall satisfaction ($p = 0.000$).

- ❖ The Chi-Square test also revealed that FinTech adoption has statistically significant positive influences on these performance measures. Chi-Square

results for enhanced financial access (84.346), business expansion (37.907), increase in sales (17.533), and overall satisfaction (37.907) were all less than 0.05, asserting the significant positive influence of FinTech adoption.

- ❖ Small business managers can gain from embracing FinTech to improve financial access and operational efficiency.
- ❖ The study demonstrated that FinTech adoption has substantial impacts on business development, business performance, financial access, and overall satisfaction in small businesses. The findings were consistent with similar studies by Agarwal et al. (2020), Octavia et al. (2020), and Soltanizadeh et al. (2016), whose findings confirmed the positive impact of FinTech adoption on business performance measures. The Unified Theory of Acceptance and Use of Technology (UTAUT) also supports the same, with emphasis on usage behavior in realizing tangible benefits. The study has robust supporting evidence for the positive influence of FinTech adoption for small business, emphasizing the necessity of promoting FinTech adoption to instigate business success and economic growth.

Objective 4: Obstacles to FinTech Adoption:

- ❖ Regulatory barriers, data privacy and technical problems are principal barriers, resolution of which affects adoption choice.
- ❖ Top inhibitors to the adoption of FinTech are technical problems and data privacy. Descriptive statistics reveal that "Technical Problems Experienced" has a mean value of 1.944, which means most of them have problems. Data privacy too was moderate at 2.215. Chi-Square test revealed that both are powerful inhibitors ($p = 0.000$ in each case).
- ❖ Budget and regulatory limitations are also barriers to adoption, but less so. "Regulatory/Compliance Challenges" has the lowest mean (1.056), so they're less barriers. But Chi-Square test still had strong correlation ($p = 0.000$).

- ❖ Resolving issues leads to the decision to adopt. Technical issue resolution as indicated by Chi-Square test ($p = 0.001$) also significantly counts in terms of adoption this time indicating support systems are needed.
- ❖ Governments and institutions need to develop deliberate strategies to overcome technical challenges and data privacy concerns with a focus on the convenience and economic advantage of FinTech solutions.
- ❖ Technical problems, data privacy problems and regulation issues are the strongest inhibitors of FinTech adoption and issue solving problems are critical to the adoption choice. This is echoed by Stewart and Jürjens (2018), DeYoung et al. (2010) and Erumi-Esin and Heeks (2015) which pointed out data privacy problems, regulation issues and infrastructural shortcomings as FinTech adoption inhibitors. UTAUT also affirms this finding, citing the facilitation factors of regulation and infrastructure as enablers that promote FinTech adoption. This research justifies that technical problems, data security problems and regulation problems have to be addressed in order to initiate FinTech adoption in SMEs, therefore such SMEs should have robust supporting systems and accessible factors to propel adoption.

5.3 Suggestions

The research offers practical recommendations to stakeholders, from policymakers to small business, and banks to institutions to promote FinTech uptake and reduce the challenges that persist. Financial literacy and education are essential through focused financial education interventions and training, particularly among older and less educated entrepreneurs, since level of education is a factor in determining the adoption rate. Mitigating security and privacy issues through strong encryption, fraud detection systems, and open communication can instill confidence and trust in FinTech solutions, thus promoting adoption. Streamlining regulation compliance and easing bureaucratic red tape can help

facilitate FinTech adoption by small business, and offering low-cost and scalable solutions suitable to the size of finances is paramount, as low cost is a major driver of adoption. Supplementing technical assistance and infrastructure to deal with technical issues efficiently can enhance the user experience and drive adoption rates, and promoting gender-neutral FinTech products providing special solutions to the specific needs of both female and male entrepreneurs can overcome imbalances in adoption patterns and time of usage.

Placing highest value on solutions with customer-focus, easy-to-use interfaces and fit into existing business processes that can be aligned with customers' desires and can boost satisfaction levels, and implementing awareness campaigns promoting the benefits of FinTech like greater access to finances, minimization of expenses, and improvement in operations, can also propel adoption.By getting stakeholders like policymakers, FinTech providers and business associations to talk will help fill gaps, share best practices and ongoing research on the long term impact of FinTech on business growth, profitability and sustainability will guide and drive future action.Coming up with solutions to cater to different age groups, such as simplified interfaces for seniors and sophisticated capabilities for business individuals of a younger generation, can accumulate adoption in groups, and providing flexible payment terms or subsidization to beat cost barriers can make FinTech accessible to start-ups and micro-enterprises.Monitoring and evaluation of adoption patterns on a regular basis will allow the fine-tuning of strategies, the detection of issues on the increase, and verification that FinTech solutions work and are not outdated. With the above recommendations, the stakeholders will be able to overcome challenges, boost FinTech adoption, and facilitate the growth, efficiency, and sustainability of small businesses.

5.4 Conclusion

The study discovers that the use of FinTech among small firms is driven by business performance effect, perceived benefit, and demographic factors, but also by several barriers. The findings indicate that those who are young, educated, and female are more likely to adopt FinTech, and the most important drivers of adoption are security issues, cost reduction, and customer pressure. FinTech is making a difference in an organization's performance across money access, growth, sales and satisfaction. Technical problems, privacy of data and regulatory constraints are significant hindrances to take up. It suggests overcoming such obstacles by doing well-targeted interventions such as streamlining security controls, regulating to make compliance simple and making low-cost innovation. Further, promoting financial literacy and awareness, especially among older and less educated entrepreneurs, can also increase the adoption of FinTech. Overall, the study emphasizes the potential of FinTech to transform small businesses by enhancing efficiency and access to finance and emphasizes the need for collaborative efforts among stakeholders in addressing barriers to adoption and increasing its widespread adoption.