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THE ROLE OF FINTECH IN ENHANCING FINANCIAL INCLUSION IN THE ZAMBIAN BANKING SECTOR

A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES UNIVERSITY OF LUSAKA IN PARTIAL FULFILLMENT OF THE AWARD OF THE MASTER OF BUSINESS ADMINISTRATION (FINANCE).

BY

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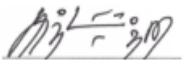
DECLARATION

I, Moses Sibongo, I hereby affirm that the content showcased in this thesis, titled "The Role of Fintech In Enhancing Financial Inclusion in The Zambian Banking Sector", I solemnly affirm that the entirety of this dissertation is composed solely of my own efforts, unless specified otherwise as supervised by Professor Bryson Mumba.

The contents reflect my understanding and interpretation of the subject matter. I have appropriately acknowledged and referenced all the external sources utilized in accordance with the prescribed academic norms and referencing style outlined in the provided guidelines by the University of Lusaka.

Any direct quotations, paraphrases, or ideas taken from other sources have been acknowledged appropriately using in-text citations and a comprehensive bibliography. The data, findings, and conclusions articulated in this thesis are precise and dependable to the utmost extent of my understanding and capabilities. The research performed for this dissertation has been conducted in strict adherence to the ethical principles and regulations established by the University of Lusaka.

Author's Signature: 

Moses Sibongo

Date: 31/12/2024

I hereby declare that the presentation and preparation of this dissertation were supervised in accordance with the guidelines on supervision set forth by the University of Lusaka.

Supervisor's Signature: 

Professor Bryson Mumba

Date: 20/01/2025

DEDICATION

To my wife and my children,

This dissertation is dedicated to the pillars of my life: My wife, Sangwani Sibongo, and my children, Munyanga and Muwemi Sibongo.

Your love, patience, and unwavering support have been the foundation of my journey. To my wife, thank you for being my anchor and my partner in every step, encouraging me through challenges and celebrating each success. To my children, your curiosity and joy inspire me to strive for a better world. This work is a testament to the strength and love of our family.

Your belief in my abilities has been my motivation to strive for excellence in all that I do. I am forever grateful for the countless sacrifices you have made to ensure my happiness and success.

Thank you for being my guiding stars, my source of strength, and my greatest cheerleaders. This accomplishment is as much yours as it is mine. May my work reflect the love and support that you have bestowed upon me.

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Above all else, I want to direct my deepest gratefulness to the LORD GOD ALMIGHTY for His boundless grace and compassion. His guidance and blessings have been the source of my strength and perseverance throughout this journey. I am humbled and thankful for His unwavering presence in my life.

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ACRONYMS & ABBREVIATIONS

ASEAN – Association of Southeast Asian Nations

BOZ - Bank of Zambia

COVID-19 – Corona Virus Diseases of 2019

CSO – Central Statistics Office

FDI – Foreign direct investment

IMF – International Monetary Fund

LDC – Less Developed Countries

ODA – Official Development Assistance

OECD – Organization for Economic Cooperation and Development

OLS – Ordinary Least Squares

PD – Public Debt

TDS – Total Debt Service

WDI – World Development Indicator

Abstract

This study investigated the role of fintech in enhancing financial inclusion within Zambia's banking sector. The research focused on four specific objectives: evaluating the impact of fintech innovations, fintech solutions, regulatory frameworks and financial literacy on financial inclusion. A mixed-methods approach was adopted, combining quantitative and qualitative techniques. The quantitative data were collected through questionnaires administered to 100 respondents, while the qualitative insights were obtained from in-depth interviews with 5 key informants. Statistical analyses, including Chi-Square tests, ANOVA, Pearson's R, and Spearman correlations, were used to examine the relationships between fintech solutions, innovations, regulatory frameworks, and financial literacy programs with financial inclusion.

The study found that fintech innovations and solutions significantly enhance financial inclusion, particularly in urban and semi-urban areas. Mobile wallets, digital loans, and peer-to-peer lending were identified as major contributors to increased access to financial services. However, challenges such as digital illiteracy, weak infrastructure, and low smartphone penetration hinder broader adoption in rural areas. Regulatory frameworks, while supportive of fintech growth, were found to impose high compliance costs and exclude marginalized populations due to strict Know Your Customer requirements. Financial literacy programs supported by fintech had a moderate positive impact but were limited in their reach and effectiveness, especially for underserved groups.

Recommendations include improving infrastructure through public-private partnerships, enhancing digital literacy programs tailored for rural and underserved populations, refining regulatory frameworks to reduce compliance burdens, and promoting inclusive financial literacy programs. Specific strategies targeting women and other disadvantaged groups are essential for ensuring equitable access to financial services. Future research should focus on the long-term impact of fintech on rural communities and explore its role in empowering women economically and socially.

Keywords: Fintech, Financial Inclusion, Zambia, Regulatory Frameworks, Digital Literacy, Financial Literacy Programs.

CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.0 Introduction

In recent years financial inclusion has turned into a key element of economic growth in developing nations like Zambia. Joshi (2013) defines financial inclusion as a condition where both individuals and enterprises receive affordable financial resources crucial for their economic involvement. In Zambia many people in rural locations and lower-income sectors continue to lack access to conventional financial systems. The World Bank (2017) reveals that only 38% of adults in Zambia had bank accounts. Economic growth gets hampered by these differences and heightened socio-economic inequalities result. In this setting financial technology has become a vital component in improving financial inclusion in Zambia. Fintech combines technology and finance and involves innovations that use digital platforms to provide financial services at low cost and with efficiency. Fintech advancements have led the effort to open up financial options for neglected communities around the world (Feyen et al., 2021). Online banking and mobile payments allow individuals and smaller companies to simplify their involvement in the organized financial industry. In Zambia as well this trend shows with the rise of mobile money services and various fintech solutions recently. From 14% in 2015 to 58.5% in 2020 mobile money use among adults in Zambia grew significantly according to the Finscope Study. While fintech shows great promise for increasing financial inclusion gaps still exist. Challenges such as corporate regulations and insufficient financial knowledge are coupled with varying access to digital systems in rural locations. This study aims to investigate the role fintech plays in enhancing financial inclusion in Zambia, with a specific focus on the impact of fintech innovations, regulatory frameworks, and financial literacy programs on financial inclusion levels.

1.1 Background

In low-income and middle-income regions around the globe fintech has pushed forward financial inclusion significantly. Mobile finance has emerged as the symbol of financial inclusion powered by fintech. By the end of 2021 globally more than 1.35 billion accounts in mobile money existed as reported by the GSMA Mobile Money Industry Report (2021)

with a surge of 18%. The expansion of mobile money services primarily results from their ability to give a variety of financial capabilities including remittances and savings to individuals not included in the formal banking sector (Awanis, et al., 2022). In Zambia, fintech innovations such as mobile money, digital payments, and online lending platforms have played a crucial role in expanding access to financial services. These platforms allow individuals to send and receive money, pay bills, and even access credit through their mobile phones, bypassing the need for traditional banking infrastructure.

Zambia's financial inclusion has greatly advanced due to mobile money growth which is a result of fintech. In the period from 2015 to 2020 mobile money grew immensely among Zambia's adults from 14% to 58.5% (Finscope Study, 2020). Dedicated to the ease and availability that mobile money provides for remote regions lacking conventional banking services. With mobile money available to them individuals can conduct financial exchanges such as making payments and collecting remittances. According to Hassan (2024), the increased use of mobile money links to entrepreneurship in Zambia and suggests that fintech can enhance economic development by arming people with necessary resources to engage in the market. Fintech has a substantial capacity to increase financial inclusion; however, its development and effects are largely shaped by regulations. In Zambia's landscape of fintech innovation the regulations continue to develop. New fintech services frequently confront established regulatory systems established for conventional banks. Regulators now face a challenge to maintain safety for consumers and financial security while promoting innovation.

According to Lukonga (2018), a positive regulatory setting is crucial for fintech development. For fintech to develop effectively in the market the need for regulations that are clear and adaptable is essential; strict standards may limit opportunities for low-income individuals. In order to promote sustainable fintech development in Zambia modifications to the regulations governing digital identity and data protection are required. Implementing regulatory sandboxes would enable regulators to oversee the evaluation of fintech innovations and protect consumers at the same time (Bank of Zambia, 2022).

The impact of regulatory systems on increasing financial inclusion via fintech is significant. To ensure proper development of fintech and the safety of consumers in disrupted financial systems regulators need to balance innovation and consumer safeguards (Igbinenikaro & Adewusi, 2024). When regulations are not correctly enforced or have excessive weight they can inhibit the advancement of fintech and decrease its capacity to reach out to the less privileged in Zambia. A functional regulatory structure is mandatory for fintech to achieve its objectives in advancing financial inclusion.

Another critical factor influencing the effectiveness of fintech in promoting financial inclusion is financial literacy. The Ministry of Technology and Science's Inclusive Digital Economy report (2022) highlights the significant gap in financial and digital literacy in Zambia. While basic digital skills stood at 30%, financial and digital literacy lagged at only 20%. This gap in financial literacy poses a challenge to the adoption and effective use of fintech solutions, as individuals who lack the necessary financial knowledge may be unable to fully utilize digital financial services.

Financial literacy is essential for individuals to make informed financial decisions, such as choosing the right financial products, managing their money effectively, and avoiding financial scams (Engels, et al., 2021). Fintech has the potential to address this challenge by offering user-friendly platforms that can raise financial awareness and improve individuals' financial behaviour. For example, fintech platforms can provide educational tools that help users understand how to manage their money, save, and invest. Better financial literacy can lead to increased savings, more informed borrowing decisions, and ultimately, greater financial inclusion.

In Zambia, financial literacy programs supported by fintech could play a pivotal role in enhancing financial inclusion. By integrating financial education into fintech platforms, service providers can help users develop the skills they need to manage their finances effectively. Furthermore, financial literacy programs can empower underserved populations, such as women, low-income earners, and rural residents, to engage with the formal financial sector. As Awanis et al. (2022) point out, women in low- and middle-income countries are less likely than men to have a mobile money account, partly due to

limited financial literacy. Addressing this gender disparity through targeted financial literacy programs could significantly enhance financial inclusion in Zambia.

Beyond financial inclusion, fintech has the potential to contribute to poverty alleviation in Zambia. Access to financial services is closely linked to economic well-being, as it enables individuals to save, invest, and manage financial risks. By providing low-cost, accessible financial services, fintech can help individuals build financial resilience and improve their livelihoods. According to the McKinsey Global Institute, digital finance, including mobile money, could add $3.7 trillion to the GDP of emerging economies by 2025, with significant benefits for underserved populations (McKinsey Global Institute, 2016). In Zambia, fintech has already begun to contribute to poverty alleviation by providing individuals with the tools they need to manage their finances and engage in economic activities.

Mobile money, for instance, has been shown to have a positive impact on poverty reduction by enabling individuals to save more, invest in small businesses, and access credit (Osabutey & Jackson, 2024). As more individuals gain access to mobile money services, they are better able to participate in the economy, improve their financial behaviour, and lift themselves out of poverty. This has a multiplier effect on the broader economy, as increased financial inclusion contributes to greater financial stability and economic growth.

Therefore, the development of fintech has a broad prospect to positively affect financial inclusivity in Zambia: safe, affordable, and convenient financial services will go a long way in bridging the chasm of financial inclusion and making active participants out of the people in the economy. In the following, a few critical challenges for fintech that are yet to be overcome so that they may realize their full potentials have been tried to highlight. These include conducive regulatory environments, increased financial literacy, and targeted efforts to reach excluded populations. Fintech has the potential, under proper policy and support conditions, to be an influential tool for the improvement of financial inclusiveness in Zambia, as well as for spurring economic growth.

It increases savings, investment in small businesses, and accessibility to credit, which have all been found to help reduce poverty. With increased access to mobile money, people will be better empowered with the capability to participate in the economy, improve financial behaviours, and lift themselves out of poverty. In essence, it has a multiplier effect on the general economy, since increased financial inclusion means higher financial stability and economic growth.

It is, therefore, supposed to be transformational in improving financial inclusion in Zambia through providing affordable, inclusive, and ground-breaking financial services that will narrow the gap in financial inclusions and give people power to participate in the economy. However, for fintech to realize complete potential, a number of challenges have to be overcome. It also requires an enabling regulatory environment that can leverage increased financial literacy and targeted efforts to reach out to the least reached. Indeed, appropriate policies and support for fintech will go a long way in ensuring this is a strong driver of economic growth through financial inclusion.

1.2 Statement of The Problem

Zambia has made significant strides in improving financial inclusion, largely driven by the rise of mobile money, digital financial solutions, and partnerships between fintech companies and traditional banks. Formal financial inclusion increased from 23% of the adult population in 2009 to 38% in 2015, and further to 61.3% by 2020 (Bank of Zambia, 2020). However, despite this progress, notable gaps persist, particularly in achieving the country's target of 70% formal financial inclusion and 80% overall financial inclusion as set by the National Financial Inclusion Strategy (Akram, 2018).

In both urban and peri-urban areas, access to digital financial services has expanded, yet challenges such as financial literacy, trust in digital platforms, and infrastructure constraints remain prevalent. In peri-urban and rural parts of Lusaka district, the availability of financial services is often limited by infrastructure gaps and lower levels of digital literacy, leading to reduced adoption of fintech solutions. Furthermore, while fintech solutions have helped reduce the gender gap in financial inclusion, women, particularly

those in lower-income communities, remain less likely to access formal financial services than men (Bank of Zambia, 2020)

The Zambian banking sector has increasingly adopted fintech innovations, but the extent to which these technologies are integrated into traditional banking services across both urban and rural contexts remains uneven. Many banks face challenges in fully leveraging fintech-driven solutions like mobile banking and digital payment platforms to reach underserved populations. Additionally, regulatory hurdles and consumer trust issues pose barriers to wider adoption of these innovations. Although over 57 fintech companies have emerged in Zambia by 2023, there are significant disparities in their impact across different socio-economic groups, particularly between urban and peri-urban populations (UNCDF, 2023).

This study seeks to address the persistent financial inclusion gaps by investigating the specific role fintech plays in enhancing access to banking services in both urban and rural areas of Lusaka district. It aims to understand how fintech, through its integration with traditional banking institutions, can bridge the digital divide and foster inclusive financial growth. The research will also explore regulatory challenges and consumer trust issues to provide actionable insights for improving financial inclusion in Zambia's banking sector.

1.3 Research Objectives

1.3.1 General Objective

To investigate the role of fintech in enhancing financial Inclusion in the Zambian Banking Sector.

1.3.2 Specific Objectives

The specific research objectives are:

i. To evaluate the impact of fintech innovations on the level of financial inclusion in Zambia.
ii. To assess the impact of fintech solutions on the level of financial inclusion in Zambia.
iii. To determine the impact of regulatory frameworks on the level of financial inclusion in Zambia.

iv. To analyze the impact of financial literacy programs supported by fintech on the level of financial inclusion in Zambia.

1.4 Research Questions

i. How do fintech innovations affect the level of financial inclusion in Zambia?
ii. What is the effect of fintech solutions on the level of financial inclusion in Zambia?
iii. How do regulatory frameworks influence the level of financial inclusion in Zambia?
iv. What is the impact of financial literacy programs supported by fintech on the level of financial inclusion in Zambia?

1.5 Significance of the Study

This study is of substantial significance as it addresses the increasing role of fintech innovations in advancing financial inclusion in Zambia. The findings will benefit a wide range of stakeholders. Policymakers and regulators can use the research insights to evaluate the effectiveness of current regulatory frameworks and identify areas for improvement, ensuring that fintech solutions are adequately supported while safeguarding consumer interests. For fintech companies and financial institutions, the study offers a data-driven understanding of how their innovations—such as mobile money and digital banking platforms—are impacting financial inclusion, enabling them to refine their services to better meet the needs of underserved populations. Moreover, the study contributes to academic literature by exploring the relationship between fintech innovations, financial literacy programs, and regulatory frameworks on financial inclusion, particularly in a developing economy context like Zambia. By doing so, it will bridge knowledge gaps regarding how fintech can sustainably foster financial inclusion in Sub-Saharan Africa. Lastly, this research will serve as a valuable resource for development agencies and NGOs involved in financial literacy and inclusion programs, providing them with evidence-based recommendations on how to scale their efforts for greater societal impact.

1.6 Scope of the Study

The study will focus on the role of fintech in enhancing financial inclusion within the Zambian banking sector, with a specific emphasis on Lusaka district. Lusaka was chosen

due to its economic diversity, which encompasses both formal banking services and informal financial activities. This setting allows for an analysis of how fintech innovations are being integrated into traditional banking services and how they contribute to increased access to financial services across different demographic groups. The study will examine how fintech-driven solutions such as mobile banking, digital payment platforms, and fintech-supported financial literacy programs are improving access to banking services for both individuals and small businesses in Lusaka. Particular attention will be given to how these innovations are expanding financial inclusion in previously underserved segments, such as the unbanked population. Additionally, the regulatory frameworks governing the integration of fintech into banking services will be analyzed to understand their role in facilitating or hindering financial inclusion. The timeframe under investigation will cover the period from 2015 to 2022, a period marked by rapid fintech growth in Zambia. However, the study will specifically focus on the intersection of fintech and the banking sector, excluding non-banking financial services to maintain a focused scope.

1.8 Key Terms and Concepts:

- Financial Technology (Fintech): This refers to the innovative use of technology in the design and delivery of financial services. It is essentially the intersection of financial services and technology, resulting in more efficient and customer-oriented financial processes (Feyen, et al., 2021).
- Banking Industry: This encompasses banks and other financial institutions that provide financial services, including loans, deposits, payment services, and investment products (Mishkin & Eakins, 2015).
- Financial Inclusion: The availability and equality of opportunity to obtain financial services are the subjects of this notion. It aims to provide all people and businesses, regardless of their financial condition or personal circumstances, with inexpensive access to financial products and services (World Bank, 2022).
- Regulatory Frameworks: These are systems of regulations and the means used to enforce them. They are often established by governmental bodies to provide guidelines for operation within specific industries (NRGI, 2015).

- Mobile Banking: This is a service provided by a bank or other financial institution that allows its customers to conduct financial transactions remotely using a mobile device such as a smartphone or tablet (CFI, 2022).
- Digital Wallets: These are electronic devices or online services that allow individuals to make electronic transactions. They can be used for transactions involving digital currency, such as online purchases and payments for goods and services (Kagan, 2024).

1.9 Organization of the Study

The report is organized into six chapters, the first being an introductory chapter that provides the background on the importance of fintech in relation to promoting financial inclusion in the Zambian banking sector. It contains a problem statement, objectives of research, research questions, scope, and significance of the study, providing the outline that clearly sets the framework to understand the context in which the research was undertaken. The literature review on financial inclusion and fintech adoption at the global, regional, and particularly in Zambia is done through the next chapter. This assesses some of the key theoretical frameworks, such as Diffusion of Innovation Theory and Technology Acceptance Model-TAM that can explain the effect caused by fintech adoption on financial inclusion. The identified literature gaps and areas that will be critical for further research are presented in this chapter.

The methodology chapter summarizes the research design, target population, sampling techniques used, and the instruments through which data collection was done. This also indicates the statistical tools applied in the analysis of data to test the extent to which fintech innovations, regulatory frameworks, and financial literacies influence financial inclusions in Zambia. Chapter four presents the findings through the analysis of data collected using descriptive and inferential statistics. This analysis focuses on the impact that fintech had on financial inclusion metrics, including access to banking services, mobile money use, and basic digital financial literacy. Results are represented in tables, charts, and graphs to make the findings clear.

Results are discussed by going into an analysis that relates findings to the research objectives and existing literature about how fintech solutions influence financial inclusion

in Zambia. The chapters look into the role of regulatory frameworks, how effective financial literacy programs are, and contextualize the findings within the banking and FinTech landscape in Zambia. The report summarizes key findings on implications for policymakers, fintech companies, and the banking sector, and recommendations on how fintech's role in improving financial inclusion could be further developed. Additionally, it shows limitations of the studies conducted and areas where more research in the field of fintech and financial inclusion may be conducted.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

Chapter Two serves as a comprehensive literature review that examines existing theoretical frameworks and empirical studies pertinent to the intersection of financial technology (fintech) and financial inclusion. This chapter is divided into several key sections, starting with an empirical review that encompasses both global and regional contexts, followed by a focus on the local context of Zambia. Each section synthesizes relevant studies, offering insights into the challenges and opportunities presented by fintech in enhancing financial access for underserved populations. Furthermore, this chapter also introduces a conceptual framework that outlines the key variables and their interrelationships, thereby guiding the research design and hypotheses of the current study. By analyzing the literature in this manner, the chapter establishes a robust foundation for understanding the dynamics at play in the realm of fintech and financial inclusion, highlighting the importance of both theoretical literature and empirical evidence in addressing gaps in the existing body of knowledge.

2.1 Empirical Review

The empirical review segment is structured to provide insights into how fintech influences financial inclusion across various contexts. It begins with an examination of global studies that explore the dynamics of fintech in different countries, followed by a regional analysis that focuses on Sub-Saharan Africa, particularly highlighting the gender disparities and socio-economic factors at play. The section concludes with a local context review, emphasizing studies conducted within Zambia that assess the effectiveness of mobile money services and the evolution of fintech in the banking sector. This structured approach allows for an understanding of the empirical evidence surrounding fintech's role in financial inclusion, revealing patterns, challenges, and best practices that can inform policy and practice in Zambia.

2.1.1 Global Context

Several studies have explored the role of financial technology (fintech) in promoting financial inclusion across different regions. This literature review discusses three key studies from India and Indonesia, analyzing their context, methods, and findings, followed by a critical discussion in relation to the current study.

In 2019 Kandpal and Mehrotra studied the impact of fintech and digital financial services on enhancing financial inclusion in India. This research explored India's significant effort to promote a cashless economy post the introduction of demonetization in 2016. While individual bank account access skyrocketed thanks to policy reforms the actual utilization of those accounts for broader financial services like investments was still inadequate. The analysis revealed important issues regarding the deficiency of trust in digital platforms and worries over security that slowed down the uptake of fintech services in rural India (Kandpal & Mehrotra, 2019).

A primary focus of this research utilized qualitative techniques combined with secondary information and critical literature to examine the fintech landscape. The results indicate that strong government policies play a key part in increasing financial inclusion and reveal the critical need for greater investments in digital literacy and cybersecurity to gain community trust (Kandpal & Mehrotra, 2019). The insight reveals that despite the importance of fintech developments their ability to boost financial inclusion relies heavily on established education and cybersecurity support. To achieve significant impact in Zambia through fintech requirements to face analogous challenges of trust and literacy must be met.

In Indonesia Aminah et al. (2020) examined the relationship between fintech and Sharia banking by looking into how fintech can boost economic inclusion rooted in Islamic financial principles. The research was conducted within Indonesia's fast-expanding fintech industry and its ability to challenge conventional financial services like those offered by Sharia banks. The researchers utilized a descriptive technique grounded in additional data and previous studies. Their findings indicated that while fintech presents opportunities for expanding Sharia banking’s market share, significant challenges remain, particularly around legal and regulatory issues related to compliance with Islamic law

(Sharia). They argued that collaboration between fintech companies and Sharia banks could enhance financial inclusion by increasing access to digital financial services for Indonesia's predominantly Muslim population. However, the study also emphasized the need for clearer regulatory frameworks to ensure the legitimacy of fintech services in the context of Islamic finance (Aminah, et al., 2020). This study highlights the importance of regulatory clarity in the integration of fintech within traditional financial sectors, a factor that is equally relevant in Zambia. As Zambia's fintech landscape grows, the alignment of fintech services with local regulatory requirements will be critical to their success.

Kurniasari et al. (2021) analyzed the factors influencing customer decisions in choosing fintech services in Indonesia. The study focused on micro-segment customers in Java, Indonesia's most populous island, where a significant portion of the population remains unbanked despite the rapid growth of digital financial services. The study used Partial Least Squares (PLS) to statistically analyze the relationship between customer knowledge, social networks, government regulation, and financial service facilities.

The findings revealed that customer knowledge, formed primarily through social networks and formal assurances from the government, played a critical role in influencing the adoption of fintech services. The study emphasized the need for fintech companies to promote digital financial literacy to increase customer engagement and build trust in digital financial products. Furthermore, it highlighted the importance of government regulation in safeguarding customer interests and promoting trust in the fintech ecosystem (Kurniasari, et al., 2021). This research offers valuable insights into how customer knowledge and regulatory frameworks interact to influence fintech adoption, which is particularly relevant for Zambia. Given Zambia's relatively low digital literacy rates, there is a need to focus on educational initiatives that raise awareness about the benefits and security of fintech services.

2.1.2 Regional Context

Investigations into the effects of fintech on inclusive finance have surged in interest within SSA as financial access continues to be an important problem. Yeyouomo et al. (2023) did an important analysis that explores how fintech can close the gender disparity in financial access across the region between 2011 and 2017. With a multilevel tobit

regression model to analyze panel data the authors investigated how fintech usage connects to women's financial access. The authors' analysis shows that fintech solutions play a major role in minimizing the difference in financial access between men and women. The authors stress that while technology can help some women access financial services it won't erase deep-rooted societal issues that hinder their access. While fintech offers great promise for change the impact is reliant on the implementation of related policies that improve gender opportunities (Yeyouomo, et al., 2023).

The study suggests that for fintech to help women gain financial inclusion sustainably governments and stakeholders need to create specific programs that enhance women's financial literacy and strengthen socio-economic factors influencing their financial choices. In Zambia's landscape cultural expectations have a significant impact on women's financial involvement. This study highlights the significance of fintech as well as points out the requirement for coordinated methods that leverage cultural awareness and educational initiatives for optimizing technology benefits (Yeyouomo et al. 2023).

Using doctrinal and sociological methods focused on Nigeria's fintech role for financial inclusion in Ediagbonya and Tioluwani's (2023) study. Their research shows that while multiple digital platforms have emerged to improve access to financial services the financial inclusion gap remains and, in some instances, expanded. The authors attribute this phenomenon to systemic challenges such as inadequate infrastructure, high illiteracy rates, and frequent network failures that prevent the effective deployment of fintech solutions. This critical perspective illuminates the inherent complexities involved in implementing fintech innovations in real-world contexts, where ideal scenarios do not always materialize due to underlying socio-economic issues (Ediagbonya & Tioluwani, 2023).

The authors call for a re-evaluation of existing fintech strategies, emphasizing that stakeholders must not only focus on technological advancements but also address foundational issues such as literacy and infrastructure development (Ediagbonya & Tioluwani, 2023). The findings of this study resonate with the Zambian context, where similar infrastructural challenges exist. For Zambia to realize the full potential of fintech in promoting financial inclusion, it is essential to create a robust ecosystem that supports

both technological and infrastructural advancements. This necessitates collaborative efforts among stakeholders, including government, private sector players, and civil society, to develop a comprehensive approach that tackles these barriers holistically.

Ashenafi and Dong (2022) broaden the discourse by examining the implications of fintech and financial inclusion on income inequality across 39 African countries. The investigation shows that while fintech can advance financial access it could unintentionally increase income gaps if handled incorrectly. By conducting extensive econometric studies they reveal that key institutional factors such as political stability and government efficacy heavily affect fintech use as well as the outcomes of financial inclusion. This analysis points out that in order for technology-driven solutions to be successful they need to operate within a favorable regulatory and political context (Ashenafi & Dong, 2022). According to the authors affordances for the unbanked and underbanked can be overshadowed by the fact that affluent users often receive greater advantages from fintech systems.nment effectiveness, play crucial roles in influencing both fintech adoption and the resultant financial inclusion outcomes. The study draws attention to the idea that technology-driven solutions, while promising, require a conducive regulatory and political environment to be effective (Ashenafi & Dong, 2022).

Moreover, the authors emphasize the dual nature of fintech's impact—while it offers opportunities for the unbanked and underbanked populations, it can also entrench existing inequalities if affluent users disproportionately benefit from these services (Ashenafi & Dong, 2022). In Zambia facing high levels of income inequality these insights prove essential. To address the needs of the underserved groups present in society the government and banks should create fintech programs with a commitment to equity. The goal includes providing easy access to technology while also making certain that the support services are affordable and useful for the financially disadvantaged.

Olaoye et al. (2024) concentrated on the Southern African Development Community (SADC) member states to study the effect of fintech on financial inclusion between 2011 and 2021. Through the application of effective econometric measures in their study they revealed that fintech effectively boosts financial access by enabling digital services and lessening dependence on standard banking setups. Regions including Zambia see this

as important because rural areas frequently struggle with accessing traditional banking services because of distance. While finding that fintech may be beneficial its success relies on tackling vital infrastructure issues according to the authors who investigate mobile penetration and energy access. The implications of this study are profound for Zambia, where the government's efforts to enhance financial inclusion through fintech must be coupled with initiatives to improve the necessary infrastructural foundations. For instance, increasing mobile network coverage and ensuring stable electricity supply in rural areas can facilitate broader access to fintech solutions. Additionally, educational programs aimed at improving digital literacy will empower users to navigate these new technologies effectively. Thus, the study advocates for a multi-pronged strategy that combines fintech innovation with infrastructural investment to truly enhance financial inclusion in Zambia.

Chinoda and Mingiri Kapingura (2024) delve into the regulatory dimensions of fintech, exploring its relationship with banks' risk-taking behaviour in SSA. Their findings suggest that while fintech can initially lead to increased risk-taking by banks due to the competitive pressures it introduces, effective regulatory frameworks can stabilize the sector over time. The authors highlight the need to manage risk and promote innovation through favorable regulations for fintech growth (Chinoda & Mingiri Kapingura, 2024).

This research carries major consequences for Zambia's banking industry as it tries to adopt fintech solutions. Leaders in policy need to emphasize laying out extensive guidelines that support progress in technology and minimize the risks linked to increased rivalry and electronic exchanges. Developing an effective regulatory system will raise consumer trust in fintech offerings which will cause greater acceptance and adoption. The findings underline that regulatory factor are critical for the broader conversation around fintech's influence on financial inclusion and advocate for a method that supports growth and maintains steadiness.

Emuron et al. (2024) analyze how traditional financial institutions collaborate with fintech in the SADC area. This research uncovers a two-way link between conventional banks and fintech firms where both develop fintech innovations and evolve to maintain their

competitiveness. This discovery indicates that a partnership between conventional banks and fintech companies is essential for advancing financial growth and improving inclusion.

The Zambian financial landscape may greatly gain from this alliance. While traditional banks handle infrastructure and client relationships fintech firms deliver creative solutions and responsiveness. In partnership these organizations can provide comprehensive financial solutions that target a more extensive audience particularly the unbanked and underbanked segments. The authors predict that common resources and knowledge sharing can emerge from these collaborations to build a more inclusive financial system. This analysis illustrates that cooperative partnerships in the banking sector can boost the influence of fintech on financial inclusion and create a consolidated strategy for banking in Zambia.

2.1.3 Local Context

In the study by Chikalipah (2020), the author investigates the impact of mobile money services, a vital component of fintech, on achieving the Sustainable Development Goals (SDGs) in rural Zambia, specifically in the Chongwe district. Utilizing field data collected in 2019, the research provides valuable insights into the challenges and limitations of mobile money as a standalone solution for financial inclusion. The study's findings reveal that while mobile money services have gained popularity and facilitated money transfers among users, they have not significantly addressed the underlying barriers that prevent the poor from accessing credit and savings. This observation suggests that mobile money is often perceived as a tool rather than a comprehensive solution to financial exclusion (Chikalipah, 2020).

While mobile money services offer benefits, they fall short of being a total cure for financial barriers according to Chikalipah (2020). However, despite the clear benefits of mobile money such as simplicity and accessibility its success is constrained by the lack of cooperating financial services and encouraging regulations that tackle larger socioeconomic issues affecting access to finance. This analysis stresses the requirement for an inclusive approach that incorporates mobile money into a more extensive financial inclusion framework that focuses on improving financial understanding clearance of regulations and creating environments that support microfinance organizations. The

results show that mobile money services enhance financial transactions considerably but they are just one element of a comprehensive plan to address financial exclusion in Zambia.

Through their work in 2021 Iluba and Phiri investigate the changes in fintech in Zambia and their impact on traditional banking. The introduction of fintech has sparked new fierce competition in the finance sector and calls into question the standard banking model. Using a quantitative method, the study investigates how factors relate to the adoption of fintech services and evaluates their influence on traditional banks' significance and market position. The team uses self-answered questionnaires to obtain data and leverage the diffusion of innovation theory to inform their analysis (Iluba & Phiri, 2021).

This study reveals a significant link between user perception of advantage and the acceptance of fintech services. In the analysis it is also highlighted that there is a significant impact of compatibility on adoption as users are likely to utilize fintech products when they reflect their values and practices. This insight is particularly relevant for traditional banks as they navigate an increasingly digital financial landscape. The authors propose a revised model that delineates the factors affecting innovation adoption, providing a roadmap for banks to remain competitive in the face of fintech disruptions (Iluba & Phiri, 2021).

The findings from Iluba and Phiri's (2021) study highlight the urgency for traditional banks in Zambia to adapt their strategies in response to the rise of fintech. By understanding the factors that drive fintech adoption, banks can develop targeted strategies to enhance their service offerings and improve customer satisfaction. Additionally, the study underscores the importance of collaboration between traditional banks and fintech firms, as leveraging technological innovations can help banks streamline operations, reduce costs, and better serve their customers. In the local context, these insights can inform policymakers and banking stakeholders about the need for a supportive regulatory framework that encourages innovation while protecting consumer interests, ultimately fostering a more inclusive financial environment in Zambia.

The studies by Chikalipah and Iluba & Phiri provide a comprehensive examination of the local fintech landscape in Zambia, offering valuable insights into the challenges and

opportunities associated with mobile money services and traditional banking. Together, these studies underscore the importance of adopting a multifaceted approach to financial inclusion, one that leverages fintech innovations while addressing the socio-economic barriers that continue to hinder access to financial services. As Zambia seeks to enhance financial inclusion through fintech, it is essential to consider both the technological advancements and the broader contextual factors that influence their effectiveness.

2.1.4 **Gaps in Literature**

While significant strides have been made in understanding the role of fintech in enhancing financial inclusion, existing studies reveal critical gaps that the current research seeks to address, particularly in the Zambian context.

1. **Context-Specific Insights**: Most studies, such as those by Kandpal and Mehrotra (2019) and Aminah et al. (2020), focus on specific regional contexts (India and Indonesia) and the general themes of trust, regulatory frameworks, and digital literacy. These insights, while valuable, do not directly translate to the unique socio-economic and regulatory environment of Zambia. The current study aims to provide localized insights that reflect the specific challenges and opportunities within Zambia's banking sector, acknowledging that factors influencing financial inclusion may vary significantly from one region to another.
2. **Lack of Comprehensive Frameworks**: Previous research tends to analyze fintech's impact on financial inclusion in isolation, without integrating the multi-dimensional nature of the financial ecosystem. For example, while studies by Kurniasari et al. (2021) emphasize the role of regulatory frameworks and customer knowledge, they do not consider how these elements interact within the broader context of economic development and financial stability. The present study seeks to build a comprehensive framework that encompasses the interplay between fintech innovations, regulatory structures, and financial literacy programs, thereby filling this analytical gap.
3. **Underexplored Regulatory Challenges**: The regulatory landscape's role in facilitating fintech growth is highlighted in the studies from Indonesia and Nigeria, but these analyses often lack a detailed examination of how specific regulatory practices

can either inhibit or promote fintech adoption in Zambia. The current research will analyze the existing regulatory frameworks in Zambia, identifying gaps and proposing actionable recommendations for improvement based on best practices observed in other regions.

4. **Insufficient Focus on Gender Dynamics**: While Yeyouomo et al. (2023) underscore fintech's potential to bridge gender gaps in financial inclusion, the existing literature often overlooks the specific socio-cultural factors that influence women's access to financial services in Zambia. The current study will address this gap by exploring the role of fintech in enhancing financial inclusion for marginalized groups, particularly women, thus providing an understanding of the socio-cultural barriers that persist.
5. **Integration of Financial Literacy Initiatives**: Although the studies from India and Indonesia recognize the importance of financial literacy in fostering fintech adoption, they do not delve deeply into the specific financial literacy programs that fintech companies and banks can implement in Zambia. This research will investigate existing programs and suggest tailored interventions that can enhance digital financial literacy among the Zambian population, focusing on rural and underserved communities.

While existing studies provide a global and regional perspective on the role of fintech in financial inclusion, there is limited research tailored to the Zambian banking sector, particularly focusing on the interplay between fintech innovations, regulatory frameworks, and financial literacy initiatives. This study narrows its focus to address the insufficient exploration of how fintech solutions and innovations, coupled with existing regulatory frameworks, influence financial inclusion in Zambia**.** Although the broader literature touches on regulatory challenges and financial literacy's role, the specific dynamics within Zambia's socio-economic and regulatory context remain underexplored. The research will also exclude areas like gender dynamics and broader socio-economic integration to concentrate on evaluating fintech's direct impact on financial inclusion and the regulatory and literacy-related factors that mediate this impact. This focus provides a localized and actionable understanding of fintech’s role in Zambia, filling a gap in both academic and practical discourse.

2.2 Theoretical Review

The role of fintech in promoting financial inclusion can be examined through several theoretical frameworks that provide insights into how financial technology impacts access to financial services. This study draws on three relevant theories: Innovation Diffusion Theory (IDT), Financial Intermediation Theory, and Regulation Theory. These theories provide the foundation for understanding how fintech innovations, solutions, and regulatory frameworks affect financial inclusion in Zambia.

2.2.1 Innovation Diffusion Theory (IDT)

Innovation Diffusion Theory by Everett Rogers helps explain how new ideas or technologies flow within a society. It was in this work that the author identified five main factors that influence the adoption of innovations: relative advantage, compatibility, complexity, trialability, and observability (Rogers, et al., 2014). The relative advantage occurs in the way a person perceives certain advantages of the fintech solutions, for instance, mobile banking, in comparison with conventional approaches. For instance, mobile money services are highly beneficial in Zambia, especially for users in areas not well covered by bank branches (Bank of Zambia, 2020). Compatibility is the degree at which the fintech solutions respond to users' needs and social practices. In the case of Zambia, fintech must be harmonious and adaptable with the technological capabilities and levels of financial literacy among its citizens. Complexity means that the fintech solutions should not be complicated and, as such, should be simple to use; the simpler a system is, the more likely users are to adopt it. Trialability and observability involve the ability of potential adopters to be allowed to experiment with fintech products and observe the benefits derived from them before they can fully adopt these innovations (Wani & Ali, 2015).

Innovation Diffusion Theory has its relevance to understanding how the adoption of fintech innovations in districts, especially rural areas in Zambia, is affected. Fintech innovations that have obvious advantages, are easy to use, and compatible with the general socio-economic conditions of the country are likely to diffuse quicker, hence enhancing financial inclusion. Theoretically, the diffusion of innovation supports the study

in its objective to assess the impact of fintech innovations and solutions on financial inclusion by focusing on drivers for their adoption.

2.2.2 Financial Intermediation Theory

Based on the Financial Intermediation Theory, Gurley and Shaw (1960) developed what was described as a reduction in transaction costs, dispersion of risk, and filling of information gaps between savers and borrowers (Hester, 1994). In the modern sense, under the fintech context, financial intermediaries like mobile money operators, digital lenders, and fintech platforms operate in the same functions of providing efficient and affordable financial services to the unserved and underserved segments. In Zambia, these firms act as an intermediary by offering users access to various services such as paying bills, savings, and loans using mobile handsets due to the fact that traditional banking infrastructure has not reached most countryside areas (Kabala, 2023).

The theory is applied in understanding how fintech firms act as an intermediary between the unbanked or underbanked population and formal financial institutions in ensuring that there is a contribution toward financial inclusion. It is these innovations that make the process of traditional banking less costly and complicated, hence increasing access to financial services. Electronic and Mobile money platforms have become indispensable in intermediating finances through the services provided by First National Bank Zambia (FNB), ZANACO, MTN Mobile Money and Airtel Money. In the case of Zambia, it has provided access to and increased participation in the formal financial system. The Theory of Financial Intermediation provides an appropriate conceptual framework through which the improvement in financial inclusions by fintech solutions can be analyzed for how they lower high transaction costs and limited access to physical banking infrastructures.

2.2.3 Regulation Theory

Regulation Theory, in the words of Goodhart et al. (1998), examines how regulatory frameworks determine the shaping of market behaviours, ensuring that the rules of fair competition are met and the interests of the consumers are protected (Sheng & Looi, 2003). In this respect, regulations of fintech are relevant in the balancing of innovation

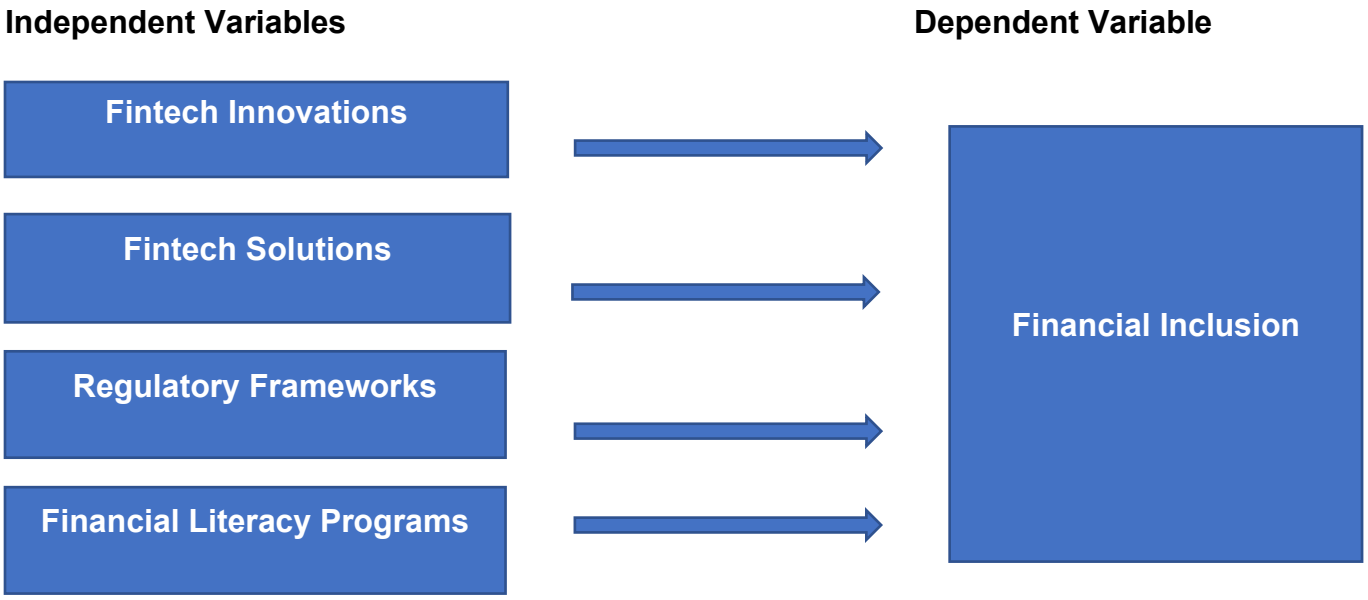
with consumer protection against elements of fraud, data breaches, and identity theft. The regulatory framework also determines to what level fin-tech can operate and expand. In the case of Zambia, for example, mobile money services have rapidly grown because of supportive regulations from the Bank of Zambia, which allow for innovation in fin-tech yet also ensure that operators follow basic financial regulations such as as Know Your Customer (KYC) and anti-money laundering (AML) laws (Bank of Zambia, 2020)..

This study is important because the Regulation Theory leads to a demonstration of how regulatory frameworks facilitate or hinder the expansion of fintech, and consequently that of financial inclusion. Whereas proper regulation may spur the development of fintech by creating an enabling environment for innovation, overregulation may hamstring such progress and lead to fintech failing in reaching out to the underserved. It helps in explaining the effect regulatory frameworks have on financial inclusion in Zambia and also re-echoes an important aspect of developing policies that are balanced to ensure innovation is achieved but still maintain financial stability and consumer protection.

2.3 Conceptual Framework

The section on the conceptual framework places theoretical standpoints into perspective, informing this study while making less mysterious how fintech influenced financial inclusion in concert with socio-economic parameters. It integrates insights from previous studies while presenting a model illustrating how fintech innovations can enhance financial access, in particular to underserved populations. This framework aids in the fundamentals of key concepts and their associations, hence providing a basis on which the mechanisms of fintech to drive financial inclusion in Zambia shall be analyzed. It is essential for framing the research questions and objectives, hence ensuring that the study remains focused on the salient elements which characterize the aspects of adoption and effect created by Fintech solutions within the Zambian context.

Figure 1: Conceptual framework



Dependent Variable: Financial Inclusion

It is the process towards achieving access to and the usage of relevant, affordable financial services such as banking, credit insurance, and digital payments means for all citizens, especially the underprivileged. The different measuring metrics of financial inclusion in Zambia include the number of people using formal banking services, mobile money services, credit, and access to financial services by underserved groups (rural populations, women, etc.). Improved financial inclusion is manifested by an increase in these metrics, as more and more people would come into the fold of the formal financial system.

Independent Variables

1. **Fintech Innovations:** Fintech innovations are new and emerging financial technologies that disrupt conventional banking systems. Examples include mobile phone banking applications, digital wallets, peer-to-peer lending platforms, and blockchain technology. Most of the expected gains arise from better access to financial services-faster, cheaper, and more accessible solutions. We therefore, hypothesize that fintech innovations will have positive consequences on financial inclusions through a reduction

in the effective frictions represented by geographical constraints, transaction costs, and bank account requirements. We expect the sign for this relationship to be positive; the higher the fintech innovations, the higher will be the degree of financial inclusion.

2. Fintech Solutions: The fintech solutions are the specific financial services and products offered by the fintech companies, which include mobile payments, savings apps, online investment platforms, and remittance services. These solutions are meant to enhance user experience, increase convenience, and reduce prices. Besides, the fintech solution is likely to increase the usage of financial services on account of its better-matched products with the needs of underdeveloped sections. It is expected that the relationship between the fintech solution and financial inclusion will be positive; in other words, the higher the variety of solutions tailored for different user needs, the higher the level of financial inclusion.

3. Regulatory Frameworks: These are policies, guidelines, and laws through which fintech and financial inclusion are governed in Zambia. This will involve regulations on licensing for fintech companies, protectionist legislation for consumers, anti-money laundering legislation, and framework regulations that balance innovation with the safety of the financial system. Efficient and supportive regulatory frameworks are likely to promote fintech development since such frameworks will encourage innovation while at the same time protecting consumers. A positive relationship where the well-designed regulatory frameworks lead to the higher levels of financial inclusions due to creating an enabling environment for fintech growth and protecting of the users instill trust in the system.

4. Financial Literacy Programs Supported by Fintech:

Among financial literacy programs supported by the fin-tech platforms, there is a need to take people through how to use the digital financial services. For example, it could involve trainings in mobile money applications, online banking, and the management of various accounts on digital platforms. Increased financial literacy can encourage more people to participate in the formal financial system by gaining trust in fintech solutions. There is a likelihood that the relationship between the financial literacy programs and financial inclusion will be positive. It is assumed that the financially more literate the individuals

are, the more likely they will use the services of Fintech, thus increasing financial inclusion.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

The methodology provides a comprehensive overview of the research framework guiding the current study. It begins with an introduction to the research philosophy, primarily rooted in pragmatism, which justifies the use of mixed methods to explore both quantitative impacts and qualitative experiences related to fintech adoption. The chapter elaborates on ontological, epistemological, phenomenological, and axiological assumptions that underpin the research design, emphasizing a critical realist perspective that balances objective measures with subjective insights. A mixed-methods approach is further detailed, incorporating a Sequential Explanatory Mixed Methods Design that includes both structured surveys and semi-structured interviews to capture diverse perspectives from fintech users, banking officials, and regulators. The population and sampling techniques are discussed, highlighting a representative sample drawn from Lusaka District's residents and targeted commercial banks. Data collection methods, including questionnaires and interviews, are outlined, followed by a description of the data analysis techniques for both quantitative and qualitative data.

3.1 Research Philosophy

The research philosophy guiding this study is pragmatism, which is considered suitable for mixed-methods research. Pragmatism emphasizes the use of multiple research approaches to understand a phenomenon, favoring solutions that best address the research problem rather than adhering strictly to either a positivist or interpretivist view. Pragmatism allows the combination of quantitative methods to examine measurable impacts (such as fintech adoption and financial inclusion rates) and qualitative methods to explore the social and contextual factors influencing those outcomes (Morgan, 2007).

3.1.1 Ontological Assumptions

The ontological stance of this research is rooted in critical realism, which posits that reality exists independently of our perceptions but can be understood through a combination of subjective and objective measures. Critical realism acknowledges the existence of social structures (e.g., financial systems, fintech adoption) that can be objectively measured, while also recognizing that individual experiences (e.g., the lived experiences of bank

users) contribute to a fuller understanding of financial inclusion (Bhaskar, 2008). This ontology is appropriate for a study exploring fintech's role, as it balances objective, measurable realities with the social and contextual factors influencing those realities.

3.1.2 Epistemological Assumptions

The epistemology of this study aligns with a pragmatic epistemological approach, where knowledge is seen as a tool for solving practical problems, and the choice of method is guided by what works best for understanding the research question. In this context, the researcher acknowledges that both quantitative data (e.g., fintech usage rates) and qualitative insights (e.g., users' perceptions of fintech's role in financial inclusion) are valuable in producing a comprehensive understanding of the issue. Pragmatic epistemology allows the researcher to use both deductive reasoning in the quantitative phase and inductive reasoning in the qualitative phase (Saunders et al., 2019).

3.1.3 Phenomenological Assumptions

Phenomenological assumptions in this study pertain to understanding the lived experiences of individuals interacting with fintech solutions. While the research does not adopt a purely phenomenological approach, it incorporates phenomenological elements during the qualitative phase, where participants' experiences with fintech platforms (such as mobile banking and digital payments) are explored to understand their perspectives on how these innovations affect financial inclusion. This phenomenological aspect is important in capturing the subjective experiences of users, especially in areas where fintech adoption may be limited by factors such as digital literacy or trust (Creswell, 2014).

3.1.4 Axiological Assumptions

The axiological assumptions of this study recognize the influence of the researcher's values on the research process. In line with pragmatic philosophy, the research acknowledges that both the researcher's values and the values of the participants influence the outcomes. For instance, the researcher values financial inclusion as a critical factor for economic development and believes that fintech has the potential to drive positive change in this area. Additionally, the study recognizes the value-laden nature of financial inclusion policies and fintech adoption, where regulators, banks, and users may

have different interests and value priorities (Creswell & Creswell, 2017). The researcher strives for objectivity in the quantitative phase while being mindful of biases and ethical considerations during the qualitative phase.

3.2 Research Approach

This study adopted a mixed-methods approach, which combines both quantitative and qualitative research strategies to investigate the role of fintech in enhancing financial inclusion in Zambia's banking sector. A mixed-methods approach is advantageous for this type of study because it allows for the collection of both numerical data and in-depth insights. Quantitative data was used to measure the extent of fintech adoption, regulatory influence, and financial literacy improvements on financial inclusion, while qualitative data provided rich contextual understanding from various stakeholders such as fintech users, bank officials, and regulators. This approach facilitates triangulation, enhancing the validity and reliability of the findings by corroborating results from different data types (Creswell & Plano Clark, 2018). The quantitative component included structured questionnaires aimed at fintech users to obtain measurable data on the impact of fintech solutions on financial inclusion. On the other hand, the qualitative component involved semi-structured interviews to capture the lived experiences, perceptions, and opinions of fintech providers and regulators.

3.3 Research Design

This study adopted a Sequential Explanatory Mixed Methods Design, which involves the collection and analysis of quantitative data followed by qualitative data to further explain and interpret the initial findings. This approach is particularly appropriate for investigating the role of fintech in enhancing financial inclusion because it allows the researcher to identify patterns and relationships quantitatively, and then explore the underlying reasons and contextual factors qualitatively (Creswell & Plano Clark, 2017). The quantitative phase involved gathering data from a sample of Lusaka District residents and commercial banks to measure the impact of fintech innovations, solutions, regulatory frameworks, and financial literacy programs on financial inclusion. This phase used surveys to quantify the extent of fintech adoption and its impact on financial inclusion.

The qualitative phase followed the quantitative data analysis. It involved semi-structured interviews with key bank officials and fintech service providers to understand the insights into how these technological solutions are driving financial inclusion. The qualitative phase helps in providing a richer and greater understanding of the statistical relationships found in the quantitative phase, aligning well with the study's objective of exploring the contextual factors that drive or hinder fintech adoption in Zambia. The sequential explanatory design allows the study to build on quantitative findings and enhance them with qualitative insights (Tashakkori & Teddlie, 2010).

3.4 Population

The population for this study consists of two key groups: the general population of Lusaka District, where fintech solutions are being adopted, and the 15 registered commercial banks operating in Zambia, as of May 2024, according to the Bank of Zambia (2024). The total population of registered voters in Lusaka District is 928,130 (ECZ, 2022). This number was identified because it is the best proxy for adults who can participate in research as respondents by virtual of being adults. According to Zamstats (2022) report, making it the most densely populated region in Zambia. This large and diverse population presents an opportunity to assess how fintech solutions are impacting financial inclusion across a range of socioeconomic backgrounds, from highly urbanized areas to more peri-urban zones. The second part of the population consists of the commercial banks that play a pivotal role in driving financial inclusion through the adoption and integration of fintech innovations. These banks are critical in assessing how fintech solutions are influencing access to banking services and the overall financial inclusion agenda. The selected banks also represent the key players in Zambia's formal financial sector, providing services across both urban and rural parts of Lusaka District.

3.5 Sample Size

Given the large population of 928,130 in Lusaka District, it is impractical to survey the entire population. To determine a representative sample of the general population, the Yamane (1967) formula will be applied, with a 95% confidence level and a 5% margin of error:

$$n = \frac{N}{(1 + Ne^2)}$$

Where:

- *n* represents the sample size,
- *N* denotes the total number of employees (928,130),
- *e* stands for the margin of error (10% or 0.1).

$$n = \frac{928{,}130}{(1 + 928{,}130 \times 0.1^2)} = 99.9$$

The sample size was 100 respondents, drawn from the general population through simple random sampling. This technique ensured that every individual within Lusaka District has an equal opportunity of being selected, thus making the sample representative in a broader perspective.

A purposeful sample of 15 commercial banks was selected in the case of the banking sector. Instead of including all banks in a census, a sample size of 5 banks was selected based on their level of fintech adoption and involvement in promoting financial inclusion. Such a targeted approach guaranteed that the most relevant banks, in relation to the study's objectives, are captured and provide more focused insight into the relationship between fintech and financial inclusion. Selection criteria included aspects such as a bank's fintech product portfolio, its reach within Lusaka, and regulatory compliance in the fintech space. It strikes a balance between the size of the sample to be manageable and the representativeness of the data collected, ensuring its concentration on institutions and individuals with relevant experiences in fintech and financial inclusion.

3.6 Sampling Techniques

The study used purposive sampling for key informants such as fintech providers, banking officials, and policymakers, as these individuals possess specialized knowledge pertinent to the research objectives. Purposive sampling is justified because it ensures that participants with the most relevant expertise and experience in fintech innovations, regulatory frameworks, and financial literacy programs are included in the study (Palinkas

et al., 2015). This method allows the researcher to target specific individuals or groups who are likely to provide in-depth information about fintech's role in enhancing financial inclusion.

For fintech users and other general stakeholders, simple random sampling was applied. This technique ensured that every individual in the target population had an equal chance of being selected, thereby reducing selection bias and increasing the generalizability of the findings (Creswell, 2014). Simple random sampling is particularly useful in the quantitative phase of the study, where it is important to generate representative data that can be generalized to a broader population. By combining purposive sampling for expert participants with random sampling for general stakeholders, the study achieves a balance between depth and breadth in data collection, allowing for a comprehensive understanding of the fintech-financial inclusion nexus in Zambia.

3.7 Data Collection

The study employed a mixed-methods approach, utilizing both questionnaires and interviews as the primary data collection instruments. The use of these two methods aligns with the Sequential Explanatory Design, where the initial quantitative data collection (via questionnaires) is followed by qualitative data collection (through interviews) to provide insights and explanations for the quantitative findings (Creswell & Plano Clark, 2017).

3.6.1 Questionnaires

For the quantitative phase of this study a sample of individuals in Lusaka District received a structured questionnaire. Distributed to users and prospective users of fintech services are the questionnaires. In the survey format closed answers and Likert scales were implemented to evaluate parameters including fintech integration and confidence in digital financial services. Collecting data through structured questionnaires is reasonable because they provide standardized information that can be analyzed statistically to reveal links and structures between fintech progress and financial inclusion.

The small sample was tested beforehand to validate the reliability and validity of the questionnaire. Prior examination of the questions will make them both simple and free of

ambiguity so that they grasp the significant elements effectively. Quantitative analysis of collected data will showcase usage patterns and challenges in fintech alongside impact on financial inclusion.

3.6.2 Interviews

During the qualitative stage of the study experts from banks and fintech service providers were interviewed to understand the quantitative results further. Thematic discussions highlighted aspects concerning the implementation hurdles for fintech services as well as the regulatory environment and economic inclusion perceptions in Lusaka. Given the ability to investigate important themes further and uphold the central topics of the study these interviews seem appropriate. The qualitative data collected through interviews was analyzed thematically, using coding techniques to identify common themes and insights that can explain the quantitative results (Creswell, 2014).

3.6.3 Testing Validity and Reliability of Research Instruments

Validity and reliability of research instruments are crucial for the production of credible and replicable results. The questionnaire and interview guide were very rigorously evaluated as to how effectively they are able to measure the intended constructs and how consistent the results are.

For Questionnaires: The expert review was used to establish content validity of the questionnaire. To ensure that these questions capture all the key constructs including fintech integration, confidence in digital financial services, and financial inclusion, they were assessed by academicians and professionals from fintech and financial inclusion. The questionnaire was refined by expert feedback to reduce ambiguity and enhance clarity (Creswell, 2014).

A small subset within the target population in Lusaka District were pilot tested. This pilot study identified potential problems with questions and their clarity and appropriateness and permitted revisions before full deployment.

For Interviews: Contents of the interview guide were evaluated for content validity by experts to match the objectives of the study. Key themes, such as regulatory challenges,

implementation hurdles, and economic inclusion perceptions were addressed in the guide. The interviews with a small sample of fintech experts and banking professionals will provide a preliminary round of pilot interviews to further refine the phrasing of questions and the interview structure.

Consistency in the questions asked of all participants provided reliability in interviews. It also used standardized follow up prompts to better standardize clarity and focus. Furthermore, to increase the reliability of the data analysis, multiple researchers independently reviewed the interview transcripts to inspect for consistency in the ways themes are coded (Silverman, 2013).

3.8 Data Analysis

This is a mixed method study hence data analysis involved quantitative and qualitative data analysis techniques. Statistical Package for the Social Sciences (SPSS) version 27 was used to analyze data collected from surveys based on quantitative data. The data was described by means, frequencies and percentages. Chi square, Pearson correlation and one way ANOVA were used to analyse of relationship between independent variables, fintech innovations, fintech solutions, regulatory framework and financial literacy programs, to the dependent variable, financial inclusion. Financial inclusion was be measured through indicators, such as the number of people using formal banking services, mobile money accounts, credit services and financial access for underserved populations (such as rural people or women).

The independent variables were measured as follows:

Fintech Innovations: Survey items that assessed the adoption and use of technologies like mobile banking, digital wallets, and blockchain solutions were used to assess.

Fintech Solutions: Based on the number of fintech services available, and on user satisfaction with fintech services like mobile payments, savings apps and remittance platforms.

Regulatory Frameworks: Measuring based on respondents' perceptions of how Zambia's fintech regulations enabled or restricted.

Financial Literacy Programs: Survey items measuring exposure to and participation in financial literacy initiatives offered via fintech platforms were used to measure.

Pearson correlation tested the associations between the independent variables and the dependent variable. Furthermore, Chi square tests was used to test the significance of the relationship between categorical variables (demographic factors) and financial inclusion metrics. Qualitative data, collected through expert interviews, was analyzed using thematic analysis. This involves coding the interview transcripts and organizing the data in line with key themes derived from the conceptual framework. This approach ensures that the study explores the multifaceted nature of financial inclusion, integrating perspectives from stakeholders in the banking and fintech sectors.

3.8 Ethical Considerations

Ethical considerations form the basis of conducting such research, especially when human subjects are involved. Ethical clearance was sought from the University of Lusaka Ethics Committee before the actual collection of data is undertaken. Full informed consent with knowledge of the purpose of the research was provided to all the respondents for the questionnaires and interviews, which shall be strictly voluntary in nature. Fully informed consent forms were provided to all the participants, ensuring that they understand what the study is about, how they were part of it, and that they may withdraw from the study at any time without receiving any negative consequences. The study was free of conflict of interest and bias. In that fintech innovations may sometimes relate to specific organizations or vested interests, care was taken to ensure the research is objective, non-partisan, and uninfluenced by any influence that could be seen as compromising the integrity of its findings. The results were also be presented transparently, to contribute knowledge in an ethical manner and academically sound.

CHAPTER FOUR: ANALYSIS AND PRESENTATION OF FINDINGS

4.0 Introduction

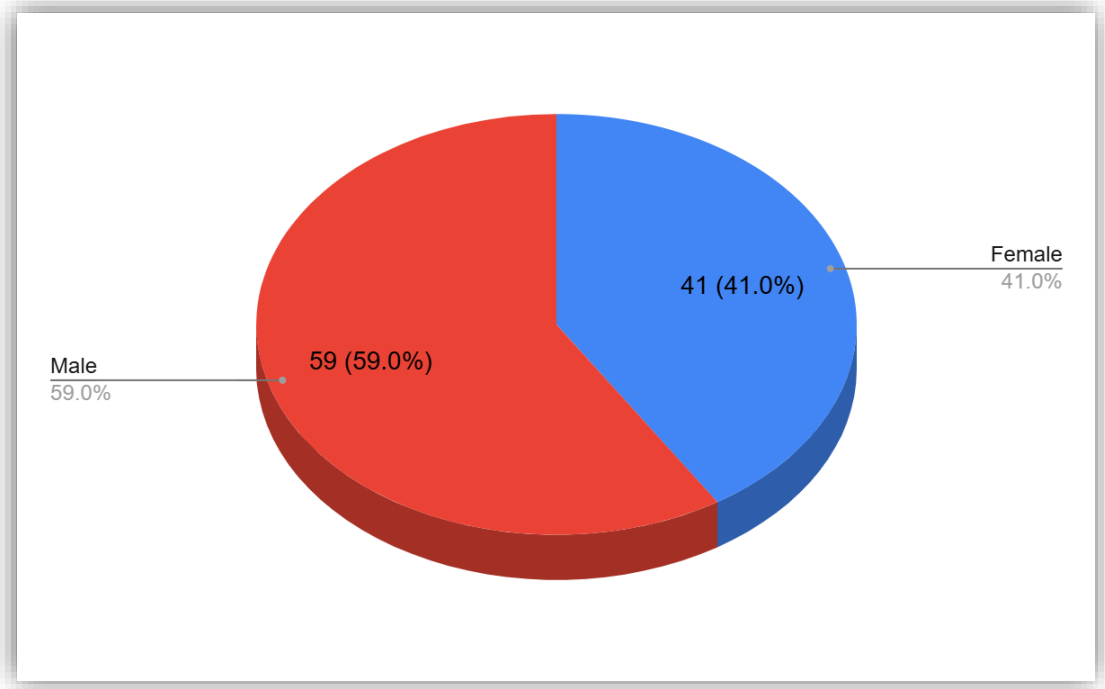
This chapter presents the findings of the study. The segments start by presenting the findings from the demographic characteristics. The findings related to the four objectives are presented next. The findings presented in the chapter were analysed using Chi-Square tests, ANOVA, Pearson's R, Spearman correlations and thematic analysis.

4.1 Demographic Characteristics

4.1.1 Gender Distribution

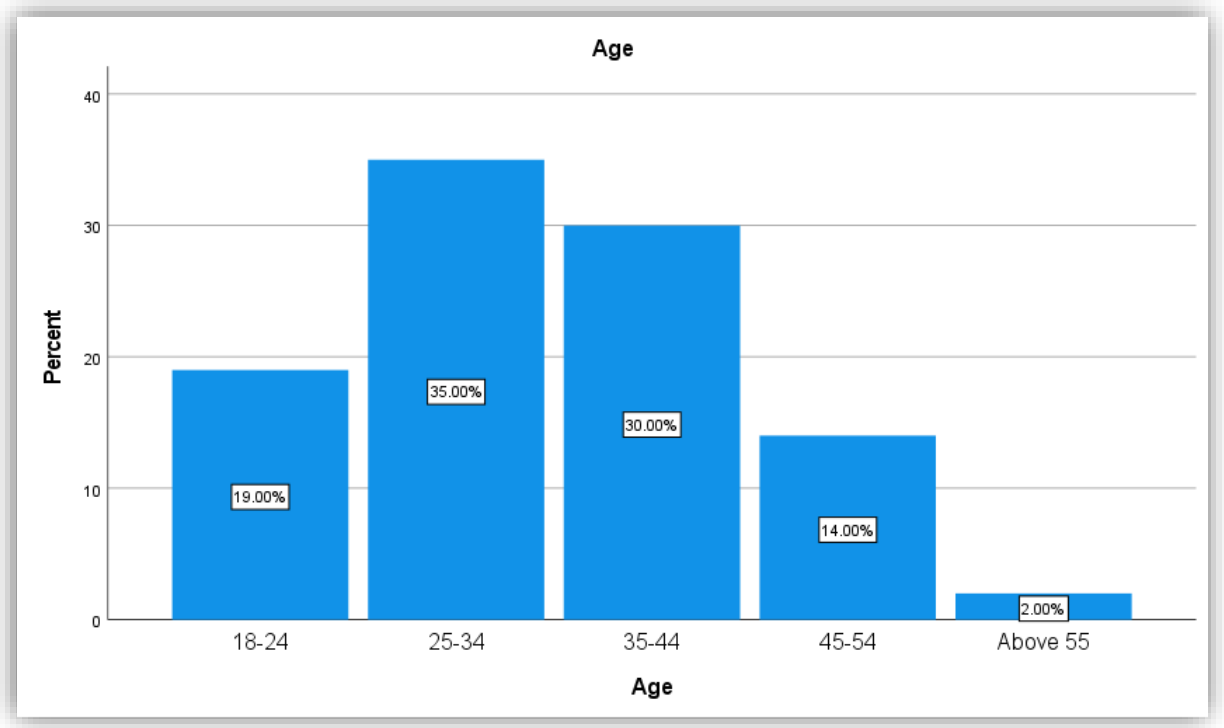
The respondents revealed a gender disparity as they had 59% as male and 41% as female (Figure 2). This means that financial inclusion using fintech services is experienced by both men and women, but men tend to get a slightly higher level of participation. These findings imply an urgent need to come up with targeted strategies, aimed at building a fintech adoption among women, who presumably face a barrier of broaching digital financial services.

Figure 2: Gender Distribution



4.1.2 Age Distribution

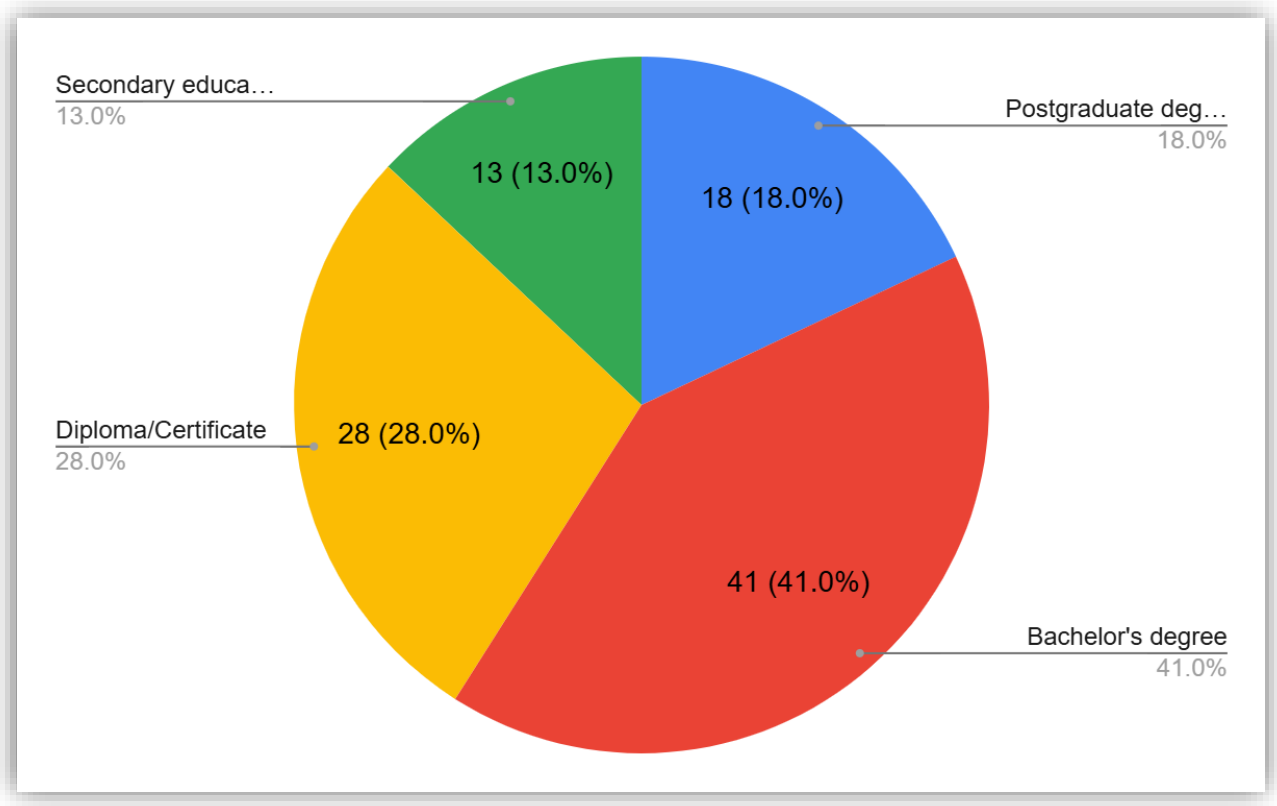
Respondents age distribution is very strong and represents economically active population as characterized by a vast majority of young people. In particular, 35% correspond to the 25–34 age bracket and 30% to the 35–44 age bracket (Figure 2). Taken together, what these two categories represent is 65 percent of respondents who are engaged with the fintech services. At the same time, 19 percent of respondents are in the 18–24 age group indicating that younger people are also early adopters of digital financial solutions. Responses are only from people aged between 18 and 44, accounting for 14 per cent respondents aged 45 to 54 years and 2 per cent respondents above 55 years. This leaves a good deal to suggest that fintech adoption rate among older populations is actually lower, often because of low digital literacy and little exposure to technology. For the cumulative percentage distribution, the level of participation decreases steadily with increase in age, reflecting the fact that there is a need to undertake specially designed efforts to increase the inclusion of older users.



4.1.3 Level of Education

Respondent's level of education is strongly represented by highly educated people, which is 41% of respondents with a bachelor's degree and 18% with post graduate degree (Figure 3). About 28% of people have a college diploma or certificate and 13% have completed secondary school. This suggests that individuals with higher education attainment have a higher chance of adopting fin tech services, an indication of the role education plays in enhancing digital literacy and digital inclusion.

Figure 3: Level of Education

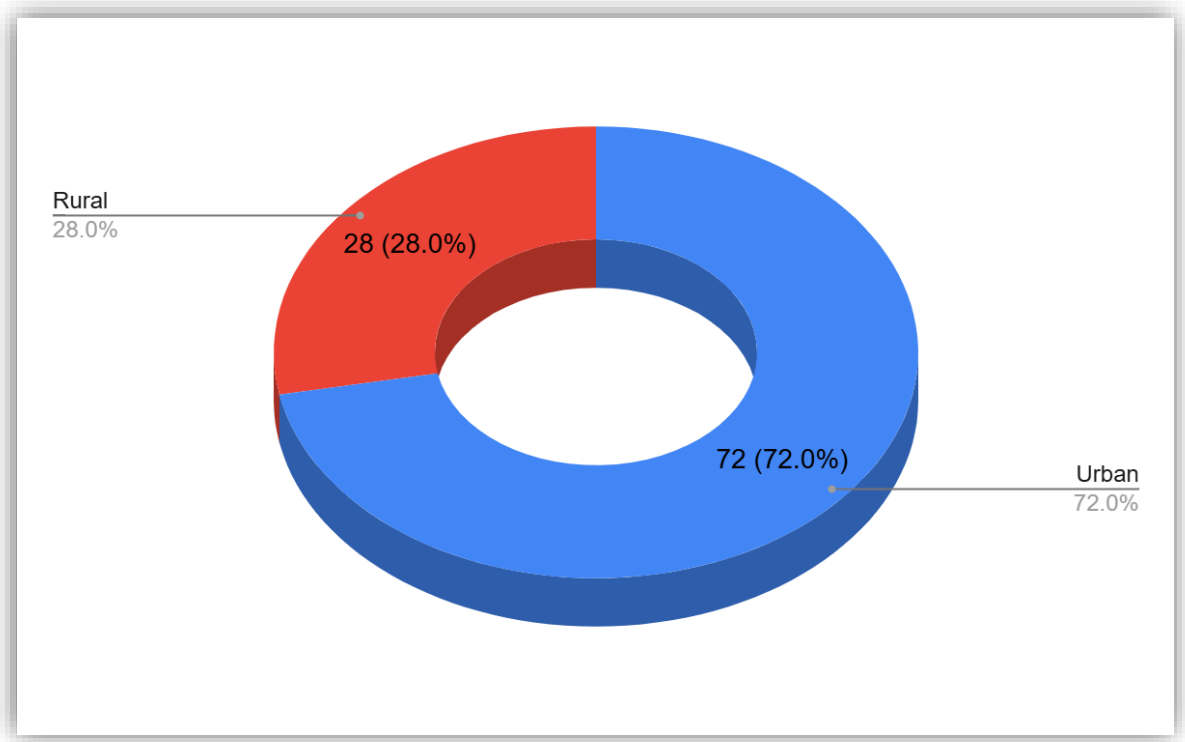


4.1.4 Location of Residence

A full 72% of respondents reported living in urban areas, while 28% came from rural areas (Figure 4). This discrepancy indicates a skew in the reach of fintech services toward urban populations, who have better access and exposure to such services. These findings imply

that fintech providers and policymakers should turn their attention to the extension of services into rural areas, where traditional financial services are usually scarce.

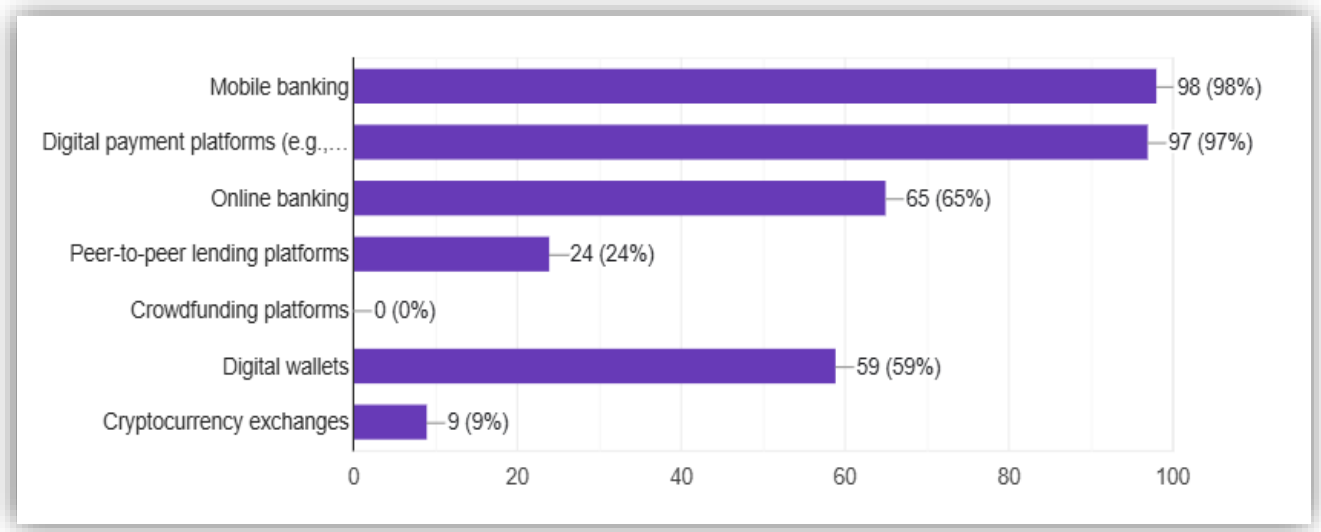
Figure 4: Location of Residence



4.1.5 Fintech Services Used

The study established that mobile banking, at 98%, and digital payment platforms at 97% (Figure 5) were the most utilized fintech services. The other well-adopted fintech services include online banking at 65% and digital wallets at 59%. On the contrary, cryptocurrency exchanges at 9% and crowdfunding platforms at 0% are not well utilized. These patterns reflect the broad-based uptake of available and practical fintech solutions, while cryptocurrencies and crowdfunding, among emerging technologies, have not taken off in the Zambian market.

Figure 5: Fintech Services Used



4.2 The impact of fintech innovations on the level of financial inclusion

The cross-tabulation in table 1 shows a strong positive correlation between formal banking service access and the perception that fintech innovations have helped improve financial service accessibility. Among respondents with "High" and "Very High" levels of access, a significant proportion agreed (27) or strongly agreed (35) that fintech innovations have improved financial services. Conversely, respondents with "Very Low" access were more likely to disagree or remain neutral. Simply, this suggests that fintech innovations are impactful for individuals already within the formal financial system, but it doesn't imply yet that they have been reached by those who have the least amount, or none at all access. The shortage might be owing to barriers including absence of digital literacy, low smartphone penetration or low Internet connectivity in underserved regions.

4.2.1 Crosstabulation of Access to Formal Banking Services and Perception of Fintech Innovations Improving Financial Services Access

Table 1: Crosstabulation of Access to Formal Banking Services and Perception of Fintech Innovations Improving Financial Services Access

		Fintech improved Financial services Access			
		Strongly Disagree	Agree	Strongly Agree	Total
Access To Formal Banking Services	Very Low	1	0	1	2
	Neutral	0	1	0	1
	High	0	27	26	53
	Very High	0	9	35	44
Total		1	37	62	100

4.2.2 Chi-Square Test of Association Between Access to Banking Services and Perception of Fintech Improvements

The findings in Table 2 imply that fintech innovations have a statistically significant relationship to access to banking services, indexed by the Chi-Square test value (p = 0.000). The results suggests that fintech can help improve financial inclusion and it offers a transformative impact to increase the unbanked and underbanked population. The results are confirmed to be robust by the likelihood ratio (p = 0.002), including the observed association is not random. Which underscores the need for continuous spend on fintech solutions to drive inclusion even further, in particular, excluding populations with little or no banking access.

Table 2: Chi-Square Test of Association Between Access to Banking Services and Perception of Fintech Improvements

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	61.136[a]	6	.000
Likelihood Ratio	21.250	6	.002
Linear-by-Linear Association	20.387	1	.000
N of Valid Cases	100		

a. 8 cells (66.7%) have expected count less than 5. The minimum expected count is .01.

4.2.3 Symmetric Measures of the Association Between Fintech and Access

The moderate positive correlation between fintech innovations and financial inclusion, according to Pearson's R value of 0.454, suggests that fintech innovations are a major motor of access to formal financial services. This result is corroborated by Spearman Correlation (0.335) for the common impact of fintech on better banking access. The results indicate that fintech innovations, including mobile banking platforms, digital payment systems and peer to peer lending, are indispensable to closing the gap in financial inclusion. However, to reach individuals in "Very Low" access categories, targeted strategies such as community outreach and localized services may be necessary.

Table 3: Symmetric Measures of the Association Between Fintech and Access

Symmetric Measures

		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Interval by Interval	Pearson's R	.454	.184	5.041	.000[c]
Ordinal by Ordinal	Spearman Correlation	.335	.093	3.526	.001[c]
N of Valid Cases		100			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

4.3 The impact of fintech solutions on the level of financial inclusion

4.3.1 Crosstabulation of Access to Formal Banking Services and Perception of Fintech Solutions Improving Services for the Underserved Population

Table 4 illustrates how fintech solutions are actively regarded as a vehicle to meet the needs of unserved populations. Respondents with "High" banking access predominantly agreed (33) or strongly agreed (15) that these solutions have improved services, while those with "Very High" access showed similar agreement levels (27 agreed and 14 strongly agreed). The pattern suggests that fintech solutions have been addressing bank accessibility challenges for people with higher bank access. However, the limited representation of "Very Low" and "Neutral" access respondents who agreed with this perception (2 in total) suggests that these groups may still face significant barriers. This

highlights the need for fintech providers to design solutions for people without access to, or low levels of access to, formal banking.

Table 4: Crosstabulation of Access to Formal Banking Services and Perception of Fintech Solutions Improving Services for the Underserved Population

		Fintech solutions improve Financial Services of Underserved Population				
		Strongly Disagree	Neutral	Agree	Strongly Agree	Total
Access To Formal Banking Services	Very Low	1	0	1	0	2
	Neutral	0	0	0	1	1
	High	0	5	33	15	53
	Very High	0	3	27	14	44
Total		1	8	61	30	100

4.3.2 Chi-Square Test of Association Between Access and Perception of Fintech Solutions

The result of the Chi Square test (p = 0.000) confirms a significant relationship between the fintech solutions and the financial inclusion. Implying that fintech solutions like digital financial platforms and mobile money services have important roles in driving financial access. Nevertheless, the p value (p = 0.208) indicates that the relationship is not statistically significant, and may be affected by factors such as regulatory environments or step in technological infrastructure. It indicates the need for continued policy and continued digital infrastructure financing in order to propagate fintech solutions that are as inclusive as possible.

Table 5: Chi-Square Test of Association Between Access and Perception of Fintech Solutions

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	52.450[a]	9	.000
Likelihood Ratio	12.098	9	.208
Linear-by-Linear Association	6.630	1	.010
N of Valid Cases	100		

a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .01.

4.3.3: Symmetric Measures of Association Between Fintech Solutions and Financial Inclusion

A weak to moderate positive correlation between fintech solutions and financial inclusion is revealed by Pearson's R value of 0.259: While fintech solutions help to facilitate financial access, other factors (e.g., awareness and affordability) may also be important. The Spearman Correlation value (0.067, p = 0.506) suggests a weaker ordinal relationship: consequently, the effectiveness of fintech solutions may vary with financial access level. This serves as a lesson of how fintech solutions coupled with efforts from education and infrastructure development options can make these benefited chiarled to the least reached population bases.

Table 6: Symmetric Measures of Association Between Fintech Solutions and Financial Inclusion

Symmetric Measures

		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Interval by Interval	Pearson's R	.259	.187	2.652	.009[c]
Ordinal by Ordinal	Spearman Correlation	.067	.103	.667	.506[c]
N of Valid Cases		100			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

4.4 The impact of regulatory frameworks on the level of financial inclusion

4.4.1: Crosstabulation of Access to Formal Banking Services and Perception of Regulatory Frameworks Supporting Fintech and Financial Inclusion

Table 7 presents that, out of those who strongly agree that regulatory frameworks support the growth of fintech to further financial inclusion, come from the access categories "High" and "Very High" with 69 and 44, respectively. The sets of responses that are strongly agreed and agreed fall within these access levels, which again stipulates that effective regulatory support is positively related to financial inclusion. However, for the "Very Low" or "Neutral" categories, the perceived regulatory support is minimal, implying that the regulatory benefits have not yet reached these groups effectively. These results highlight the need for inclusive policies and those which tackle systemic barriers to the access of underserved populations.

Table 7: Crosstabulation of Access to Formal Banking Services and Perception of Regulatory Frameworks Supporting Fintech and Financial Inclusion

		Regulatory Frameworks Support Fintech and Financial Inclusion					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Access To Formal Banking Services	Very Low	1	0	1	0	0	2
	Neutral	0	0	0	0	1	1
	High	0	3	6	37	7	53
	Very High	0	3	5	32	4	44
Total		1	6	12	69	12	100

4.4.2: Chi-Square Test of Association Between Access and Regulatory Frameworks

In table 8, a statistically significant relationship (p = 0.000) between regulatory support for fintech and financial inclusion is indicated by the Chi-Square value. While this association does not exclude the possibility of a differential relationship, (p = 0.134) the likelihood ratio indicates some variability in this link, likely a result of uneven policy implementation or awareness gaps. The findings suggest that regulatory frameworks engender a favourable environment for fintech to thrive on, but also highlight a potential for limited effectiveness and suggest the importance of careful monitoring and inclusive implementation strategies.

Table 8: Table 4.4.2: Chi-Square Test of Association Between Access and Regulatory Frameworks

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	61.033[a]	12	.000
Likelihood Ratio	17.445	12	.134
Linear-by-Linear Association	3.344	1	.067
N of Valid Cases	100		

a. 14 cells (70.0%) have expected count less than 5. The minimum expected count is .01.

4.4.3: Symmetric Measures of Association Between Regulatory Frameworks and Financial Inclusion

Spearman Correlation (-.007) in table 9 indicates there is very little or virtually no relationship between regulatory support and financial service access while Pearson's R value (0.184) indicates a weak correlation. These results suggest that financial inclusion can be influenced by factors other than regulatory frameworks; fintech adoption and infrastructure development in particular. Regulators should aim to lessen entry barriers on underserved communities and foster awareness campaigns on regulatory benefits for them to most effectively, as possible, to make an impact

Table 9: Symmetric Measures of Association Between Regulatory Frameworks and Financial Inclusion

Symmetric Measures

		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Interval by Interval	Pearson's R	.184	.173	1.851	.067[c]
Ordinal by Ordinal	Spearman Correlation	-.007	.110	-.070	.944[c]
N of Valid Cases		100			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

4.5 The impact of financial literacy programs supported by fintech on the level of financial inclusion

4.5.1: Crosstabulation of Access to Formal Banking Services and Perception of Financial Literacy Programs Improving Understanding

In table 10, the cross-tabulation results reveal that respondents with "High" and "Very High" access to banking services are more likely to agree or strongly agree that financial literacy programs improve understanding of financial services (28 and 14 respondents, respectively). In contrast, those with "Very Low" or "Neutral" access show limited

agreement, indicating that financial literacy initiatives may not effectively reach these groups. This finding indicates there is yet to be a sufficient degree of fintech supported literacy program outreach or accessibility to effectively provide that service. Filling these gaps could not only help improve financial inclusion for the least served but also ultimately enhance the performance of the financial sector.

Table 10: Crosstabulation of Access to Formal Banking Services and Perception of Financial Literacy Programs Improving Understanding

		Financial Literacy Programs Provided improve Financial Services Understanding					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Access To Formal Banking Services	Very Low	1	1	0	0	0	2
	Neutral	0	0	1	0	0	1
	High	0	5	17	28	3	53
	Very High	1	10	15	14	4	44
Total		2	16	33	42	7	100

4.5.2: Chi-Square Test of Association Between Access and Financial Literacy Programs

The value of Chi-Square test (p = 0.000) in Table 11 is statistically significant between financial literacy programs and financial inclusion. Nevertheless, there is a likelihood ratio (p = 0.093) suggesting some variation possibly in the implementation of the program, or in the accessibility. The implications of these findings are that literacy programs can and should be scaled up to better serve rural and under served communities.

Table 11: Chi-Square Test of Association Between Access and Financial Literacy Programs

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	34.911[a]	12	.000
Likelihood Ratio	18.826	12	.093
Linear-by-Linear Association	.799	1	.371
N of Valid Cases	100		

a. 14 cells (70.0%) have expected count less than 5. The minimum expected count is .02.

4.5.3: Symmetric Measures of Association Between Financial Literacy Programs and Financial Inclusion

Financial literacy programs and financial inclusion have a very weak positive correlation (0.090, according to Pearson's R value (-0.089) in Table 12 and a slight negative relationship , according to Spearman correlation). This implies that while these programs have a positive impact, they may in fact require additional factors like technology access or acceptance within their cultures of digital financial tools. Fintech providers should partner with local stakeholders to write modules that can be scaled so that these content are relevant and culturally aligned.

Table 12: Symmetric Measures of Association Between Financial Literacy Programs and Financial Inclusion

Symmetric Measures

		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Interval by Interval	Pearson's R	.090	.149	.893	.374[c]
Ordinal by Ordinal	Spearman Correlation	-.089	.108	-.889	.376[c]
N of Valid Cases		100			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

4.6 One-Way Analysis of Variance (ANOVA)

In this section, a one-way ANOVA is used to assess the impact of fintech innovations, solutions, financial literacy and regulatory frameworks on financial inclusion in Zambia. Below, results of the descriptive statistics and ANOVA tests are analyzed.

4.6.1 Descriptive Statistics

The descriptive statistics are very useful to observe the distribution for each independent variable. This means that the mean score rate for fintech innovations is 4.59, showing that respondents believe that most fintech innovations would significantly enhance financial inclusion. Its low standard deviation (0.605) shows a high level of agreement among respondents as to the impact of fintech innovations being positive. Additionally, -2.313 is a negative skewness value which further shows that most participants stronly agreed with fintech innovations improving financial services. Additionally, fintech innovations receive a mean score of 4.19, a score that is somewhat lower than that observed for fintech solutions. The standard deviation of 0.662 and skewness of -1.081 suggest moderate consensus among participants, with a notable concentration of responses in the "agree" category.

Regulatory frameworks, on the other hand, scored an average of 3.37 for their effect on financial inclusion, on the one hand. However, the skewness of -0.479 and the standard deviation of 0.981 indicate that there is often some disagreement and, indeed, a tendency towards agreement about whether regulations support financial inclusion. Finally, fintech supported financial literacy programs were assigned a mean score of 3.36, which is the same as regulatory frameworks meaning respondents have a moderate affirmative opinion about the usefulness of these programs in promoting financial inclusion. The fact that the standard 0.905 and the skewness of -0.364 imply that opinions were diverse but there is a tendency towards agreement, explains this result.

Table 13: Descriptive Statistics

Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Fintech Improved Financial Service Access	100	1	5	4.59	.605	-2.313	.241
Fintech Solutions Improve Financial Services of Underserved Population	100	1	5	4.19	.662	-1.081	.241
Fintech services are well regulated	100	1	5	3.37	.981	-.479	.241
Financial Literacy Programs Provided Improve Financial Services Understanding	100	1	5	3.36	.905	-.364	.241
Valid N (listwise)	100						

4.6.2 ANOVA Results

The results from the ANOVA tests reveal significant findings for most of the independent variables. For fintech innovations, the F-statistic of 8.771 ($p = 0.000$) indicates a highly significant effect on financial inclusion. This suggests that fintech innovations are a major driver of financial inclusion in Zambia, and their impact is well recognized by the respondents. Similarly, fintech solutions also show a significant impact on financial inclusion, with an F-statistic of 5.666 ($p = 0.001$). This result underscores the importance of tailored fintech solutions that specifically target underserved populations, further enhancing financial inclusion efforts.

The results for regulatory frameworks, with an F-statistic of 2.684 ($p = 0.051$), are marginally above the 0.05 threshold, indicating that the effect of regulatory frameworks on financial inclusion is approaching significance. This suggests that while regulations play a role, their direct impact on financial inclusion may not be as pronounced as that of fintech innovations and solutions. However, strengthening regulatory frameworks could help amplify their effect on financial inclusion. Lastly, the financial literacy programs show a significant impact with an F-statistic of 4.341 ($p = 0.006$). This finding emphasizes the

crucial role of financial education in enhancing the understanding and usage of financial services, especially for those from underserved populations.

Table 14: ANOVA Results

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Fintech Improved Financial Service Access	Between Groups	7.786	3	2.595	8.771	.000
	Within Groups	28.404	96	.296		
	Total	36.190	99			
Fintech Solutions Improve Financial Services of Underserved Population	Between Groups	6.527	3	2.176	5.666	.001
	Within Groups	36.863	96	.384		
	Total	43.390	99			
Fintech services are well regulated	Between Groups	7.375	3	2.458	2.684	.051
	Within Groups	87.935	96	.916		
	Total	95.310	99			
Financial Literacy Programs Provided Improve Financial Services Understanding	Between Groups	9.681	3	3.227	4.341	.006
	Within Groups	71.359	96	.743		
	Total	81.040	99			

4.7 Thematic Analysis

This section presents the findings that were collected using interview guides which were qualitative in nature. The segment highlights the major themes that arose from the interviews in line with each of the four objectives.

Table: Thematic Analysis of Responses

Theme	***Description***	***Quote(s)***
1. Impact of Fintech Innovations on Financial Inclusion	Fintech innovations, especially mobile banking, have significantly improved access to financial services, particularly for rural populations, women, and youth.	"Fintech innovations like mobile banking have significantly improved access for rural and underserved populations." (Response 5)

2. Impact of Fintech Solutions on Financial Inclusion	Solutions such as mobile wallets, mobile loans, and remittances services have expanded financial services access, especially for low-income individuals and small businesses.	"Digital wallets have enabled previously unbanked people to access and store money securely." (Response 2)
3. Impact of Regulatory Frameworks on Financial Inclusion	Regulatory frameworks are generally supportive of fintech but face challenges such as high compliance costs and barriers to access in rural areas.	"Certain regulations still hinder the growth of new fintech services, especially in terms of compliance costs for startups." (Response 3)
4. Impact of Financial Literacy Programs on Financial Inclusion	Financial literacy programs supported by fintech have increased understanding and trust, but there's a need for more targeted efforts for less digitally literate groups.	"Fintech-supported financial literacy programs have been particularly effective in teaching young people how to use digital wallets." (Response 1)

4.7.1 Impact of Fintech Innovations on Financial Inclusion

Mobile banking is one of the biggest fintech innovations that have helped significantly in financial access to the underserved. One respondent, a female bank manager aged 35, mentioned, *"Fintech innovations like mobile banking have significantly improved access for rural and underserved populations."* It shows how mobile banking enables people in remote areas to get access to banking services without the need to move long distances so as to get financial services. Additionally, women in rural areas have been particularly empowered by services like mobile money, as noted by the same respondent: *"Mobile money services cater to women who do not have access to traditional banking."* The fact that they are more tech savvy has also led to increased participation among young people, especially because they are more familiar with digital platforms. The pandemic

further accelerated the adoption of digital payments, as indicated by one respondent, a bank representative, who observed, *"Fintech innovations have led to a significant increase in the use of digital payments, especially during the pandemic."*

4.7.2 Impact of Fintech Solutions on Financial Inclusion

Mobile wallets, digital loans and remittance services have dramatically opened up access to financial services with fintech solutions. One small business owner aged 42 shared, *"Digital wallets have enabled previously unbanked people to access and store money securely."* This solution enabled people who have not had the opportunity to enter the financial system to participate in e-commerce and other online financial activities. The entry of mobile loans has also enabled low income people to access credit without the need for excessive paperwork. One small business owner noted, *"Mobile loans allow small business owners like myself to access funds without the traditional banking documentation."* Additionally, fintech's ability to facilitate remittances has benefited migrant workers, enhancing financial inclusion for this group, as pointed out by one respondent from a remittance company who stated, *"Fintech has allowed migrant workers to send remittances home quickly and affordably."*

4.7.3 Impact of Regulatory Frameworks on Financial Inclusion

Although Zambia has regulatory frameworks supporting the fintech, the challenges exist. A regulatory specialist working in a bank mentioned, *"Certain regulations still hinder the growth of new fintech services, especially in terms of compliance costs for startups."* This suggests an encouraging regulatory environment, but high cost of compliance can kill innovation, especially for new fintech startups. In addition, rural customers are not able to conveniently access financial services on account of stringent Know Your Customer (KYC) norms. One bank representative aged 38 emphasized the need for regulatory reforms to reduce such barriers, stating, *"The regulatory environment needs to be more flexible to ensure that rural populations can access financial services."*

4.7.4 Impact of Financial Literacy Programs on Financial Inclusion

The digital financial service adoption, especially with the support of fintech, has been augmented by the financial literacy programs. A bank representative aged 30, overseeing financial education initiatives, shared, *"Fintech-supported financial literacy programs*

have been particularly effective in teaching young people how to use digital wallets." The programs had been directed at the younger generations who are more likely to use digital tools. Moreover, the need for more targeted initiatives targeting older, or less digitally literate population was recognized. Another respondent, a financial educator, stressed that *"there is still a significant need for more targeted financial literacy programs to address groups like older generations who may struggle with digital platforms."* Said another, financial education should be seamlessly integrated into the fintech platform so as to increase engagement. This would enable financial services users to learn whilst using financial services, thereby making it easier to be more comfortable with their financial decisions.

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.0 Introduction

This chapter presents the interpretation and discussion of the findings presented in chapter four. The four specific objectives of the study are the main themes of this chapter. The discussion incudes a corroboration of the findings in light of existing theoretical and empirical literature. This section is vital as it details how each of the specific objectives is measured and attained.

5.1 The Impact of Fintech Innovations on the Level of Financial Inclusion

The study findings suggest that fintech innovations do have a statistically significant relationship with formal banking services access, using Chi Square test ($p = 0.000$) and moderate positive correlations by Pearson's R (0.454) and Spearman correlation (0.335). Also, these results underline the revolutionary potential of fintech solutions in increasing financial inclusion, and especially among those already formalized in the financial system. However, the findings also highlight challenges in reaching the "Very Low" access category, where barriers such as digital illiteracy, low smartphone penetration, and limited internet connectivity persist.

Results from the one way ANOVA indicates that fintech innovations are related to access to formal financial services statistically significantly. ANOVA results indicate a significant difference between fintech perceptions in the impact on financial access ($F = 8.771$, $p = 0.000$). The mean score ($M = 4.59$) is strong agreement among respondents that fintech improves access to financial service. The perceptions here are consistent, with low standard deviation ($\sigma = 0.605$), while there is a positive bias given negative skewness (-2.313).

This corresponds with Kandpal and Mehrotra (2019) findings that fintech innovations are capable of being transformative in India as well. Specifically, fintech has filled in the gaps of financial services for urban and semi urban populations. Yet, digital illiteracy and infrastructural constraints continue to exist, especially in underserved rural communities. These dynamics are explained by the Integration of Innovation Diffusion Theory (IDT), that is, why the relative advantage and compatibility of the fintech with the user needs

promote adoption. However, the foundation work and user literacy still matter. Fintech's full potential can only be unlocked when there are investments in network expansion and in initiatives to improve digital literacy.

These results are consistent with the existing body of empirical studies focused on how fintech can enable financial inclusion. For example, the study by Kandpal and Mehrotra (2019) on the fintech landscape of India showed that while policy reforms and fintech initiatives enhanced account ownership, the actual use of broader financial services was limited by trust issues as well as low digital literacy. Results from Zambia corroborate that despite increased access, there is an ongoing need to deepen digital inclusion of underserved populations, similar to the need for strengthened digital literacy programs.

Additionally, the results resonate with insights in Aminah et al. (2020) on the influence of regulatory clarity on fintech adoption. Similarly, to Indonesia, Zambia's fintech ecosystem needs alignment with local regulatory frameworks to build trust and legitimacy among populations yet skeptical of digital financial services. This is important for policymakers and stakeholders to encourage an inclusive financial environment. Yeyouomo et al. (2023) also add to the support, they show that fintech solutions can help narrow gender disparities in financial access, however, deeply rooted socio-cultural factors usually mitigate its impact. This is particularly so in Zambia where cultural expectations constrain women participation in financial activities. Socio-economic factors related to these factors are the targets for the targeted strategies that could significantly expand the reach and efficacy of fintech innovations.

The findings of the study are solidly based upon the IDT which argues that the perceived relative advantage, compatibility and complexity of an innovation affect its adoption (Wani & Ali, 2015). The strong correlation between access to banking services and the perception of fintech improvements helps to reinforce the importance of user centric innovations that reflect the societal value and practices. The thematic analysis shows that innovations like mobile banking have been adopted because they are compatible with users' needs such as rural access and empowering women through mobile money.

Financial Intermediation Theory also provides a relevant lens, underscoring the role of fintech in bridging the gap between unbanked populations and formal financial

institutions. The findings demonstrate that fintech innovations such as mobile banking, digital payments, and peer-to-peer lending are instrumental in closing this gap, enabling broader financial inclusion (Hester, 1994). However, as highlighted by the findings of this study, the lack of foundational infrastructure mirroring the findings of Ediagbonya and Tioluwani (2023) in Nigeria remains a critical barrier that fintech alone cannot overcome.

Lastly, Regulation Theory emphasizes the necessity of a strong regulatory framework to foster innovation while mitigating risks. This is corroborated by the insights from Chinoda and Mingiri Kapingura (2024) showing that the fintech sector can be stabilized by effective regulations and boost consumer trust. This is the case for Zambia who will need to develop comprehensive guidelines that ensure technological advancements and the welfare of users during the process of building a sustainable financial inclusion.

Thematic analysis showed that mobile banking has improved access significantly to those who have been underserved, especially women in rural areas. This also aligns with Olaoye et al., (2024) who reported that mobile and digital services are important in reducing dependence on traditional banking. However, the findings also highlight the need for targeted strategies to reach populations with "Very Low" access levels. Suggestions include: Fintech has the potential to improve the social life of the poorest, but initiatives that aim to improve their digital literacy, especially for those in the margins, so they can better use fintech solutions, are needed. There is need to improve the mobile network coverage and reliable electricity supply to remote areas, as promoted by Ashenafi and Dong (2022). As per Emuron et al. (2024), partnerships between traditional banks and fintech firms to exploit technological innovations while keeping the trust and reliability.

This study confirms that fintech innovations are critical in financial inclusion in Zambia, especially for people with moderate to high coverage of formal banking services. However, most underserved populations still face persistent barriers, and can only be addressed using a complex approach, one that combines fintech advances with educational, infrastructural and regulatory reforms. Through this, Zambia can use fintech to the fullest extent to achieve inclusive financial growth by harnessing the full potential of fintech.

5.2 The Impact of Fintech Solutions on the Level of Financial Inclusion

The findings confirm that fintech solutions have a statistically significant impact on improving financial inclusion for underserved populations, with ANOVA results ($F = 5.666$, $p = 0.001$) supporting this relationship. The mean score of 4.19 indicates a high level of agreement that fintech solutions enhance financial services for underserved groups, albeit with a wider standard deviation ($\sigma = 0.662$), suggesting some variability in respondent perceptions. These findings confirm the findings of Yeyouomo et al. (2023) on the ability of fintech to reduce gender and socio-economic gaps. Mobile wallets, peer-to-peer lending, and digital payments have increased access, especially in Zambia, to women and workers in the informal sector. However, generally, infrastructure deficits and problems of affordability are skewed toward rural populations. According to Ashenafi and Dong (2022), fintech has a duality: it increases access but only serves to perpetuate systemic inequalities. In order to facilitate inclusive growth, a holistic strategy that balances technological innovativeness with infrastructural investments and affordable pricing models becomes of essence.

The results point to Zambia as being part of a pattern in line with global and regional results from previous empirical studies, and also to the importance of the role of fintech in financial inclusion in Zambia. Mobile wallets, digital loans, and remittances services have made underserved populations more accessible to financial services using Fintech solutions. The results indicate that these tools have led to a great expansion of financial services reach to heretofore excluded groups. Yet these solutions have varying effectiveness depending on their interaction with the infrastructure, the level of digital literacy of their users, and the prevailing regulatory frameworks.

The study's results align with Kandpal and Mehrotra's (2019) analysis of India's fintech landscape, which underscores the necessity of government policy, cybersecurity, and digital literacy to enhance trust in digital platforms. Such trends exist in Zambia in the sense that fintech adoption has encountered user trust challenge and technological familiarity challenge. The fact that fintech services are not taken up by some sections of

the population who have less formal banking access, demonstrates the importance of focussing on easing those barriers. The findings underline the need for efforts to improve digital literacy and resolution of security concerns for wider acceptability and take-up of Fintech solutions.

The findings are in agreement with Yeyouomo et al. (2023), who highlight the potential of fintech to reduce gender gaps in financial inclusion, even as the barriers continue to exist within society. The Zambian context reflects these dynamics, with cultural and socio-economic factors influencing access. The results indicate that while fintech has increased accessibility for women in particular, challenges still remain. Interventions will have maximum impact if they are targeted to integrate fintech solutions with educational initiatives and cultural awareness programs.

The findings also support observations by Ashenafi and Dong (2022) of the dual nature of fintech on income inequality in Africa, whereby it opens up services to many people but then presents a risk that benefits would be inclined to better-off consumers, given that the basic challenge of infrastructure and affordability is solved. These findings therefore simply reiterate the argument for a holistic approach towards the implementation of fintech in Zambia, covering investments in the expansion of the mobile network, energy infrastructure, and service affordability for equal benefit.

These findings are further validated by the study's theoretical foundation. Innovation Diffusion Theory (IDT) indicates that the acceptance of fintech solutions is related to perceived advantages, compatibility and complexity (Wani & Ali, 2015). This finding is echoed by the Zambian findings in which users, those that have higher perceived benefits, and who are aligned with their financial needs, demonstrate higher adoption rates. Results also confirm the role of fintech in serving as a bridge to access financial systems by unbanked populations, in line with Financial Intermediation Theory. Particularly, mobile wallets and digital loans have proved to be particularly effective in this area. This is further complemented by Regulation Theory, which underlines that only strong regulatory frameworks are able to allow innovation and limit risks, a point also emphasized in the empirical result and the literature.

It therefore concludes that although Fintech solutions have brought significant improvements in facilitating financial inclusion, there are still gaps, most especially among those little or not represented at all in formal banking channels. Because of infrastructural limitations and socio-economic barriers, these gaps persist, the results indicate. Such gaps in financial inclusion will need to be addressed with multi-faceted approaches combining technological innovation with supportive policies, infrastructure investment, and educational programmes. As shown in the research by Olaoye et al. (2024), such strategies are crucial for amplifying fintech's impact in regions like Zambia, where traditional banking infrastructures are limited. Collaboration among stakeholders, including fintech providers, traditional banks, and policymakers, is key to creating an inclusive financial ecosystem that benefits all segments of society.

5.3 The Impact of Regulatory Frameworks on the Level of Financial Inclusion

Regulatory frameworks were perceived to moderately support fintech services, as evidenced by an ANOVA p-value approaching significance ($p = 0.051$). The mean score ($M = 3.37$) and higher standard deviation ($\sigma = 0.981$) indicate mixed perceptions about the adequacy of regulation. The negative skewness (-0.479) shows slight optimism, but qualitative data highlight gaps in implementation, particularly for compliance costs and rural outreach.

This agrees with the study by Chinoda and Mingiri Kapingura (2024), which noted that balanced regulations are important in fostering trust and innovation. The relatively strict Know Your Customer requirements and high cost of compliance have made it difficult for small fintech firms and rural accessibility in Zambia. This is similar to what was evidenced in Nigeria by Ediagbonya and Tioluwani in 2023, and it reiterates the importance of adaptive policies. Regulation Theory puts forth that the regulatory support must be in tune with infrastructural, economic, and social realities. In fact, this combination of fintech firms, regulators working with banks in increasing access while protecting consumers, creating trust, should allow collaboration.

This study finds that regulatory frameworks have a very important role in shaping the effectiveness of fintech solutions in improving financial inclusion in Zambia. Section 4.4 shows that there is a significant relationship between perceptions of regulatory support and the degree of access to formal banking services, using the Chi-Square test (χ^2 = 61.033, p = 0.000). Despite that, Pearson's R (0.184) and Spearman correlation (-0.007) both have weak correlation and no significant relationship, this might suggest that financial inclusion cannot be driven just by regulatory frameworks, and other complementary factors, like digital literacy, infrastructure development, and equitable implementation strategies, are really needed to foster financial inclusion.

Consistent with global studies, these results indicate that barriers to persuasive technology are related to the potential for moral hazard, the lack of a direct relationship between effort and outcome, and a system of rewards that has its own perverse incentives for use. For instance, Kandpal and Mehrotra (2019) focus on how essential robust regulatory policies are to engendering trust in digital platforms, but the effects of such policies are affected by systemic variables such as cybersecurity and digital literacy. In the Zambian case study, lack of perceived access to regulatory benefits among underserved populations also supports a need for targeted outreach and reforms to reduce the compliance barriers, especially for rural communities. According to Kandpal and Mehrotra (2019), both trust building and filling in literacy gaps are key to making fintech solutions inclusive.

From a regional perspective, Ashenafi and Dong (2022) provide insights into the dual role of regulatory frameworks in Africa, highlighting how they can either mitigate or exacerbate income inequalities depending on their design and implementation. This aligns with the study's findings, which suggest that while Zambia's regulatory environment supports fintech growth, the high compliance costs for startups and stringent Know Your Customer (KYC) norms hinder its broader impact. Such challenges parallel those identified in Nigeria by Ediagbonya and Tioluwani (2023), who attribute limited fintech effectiveness to infrastructural and regulatory deficiencies. To address these barriers, Zambia's

policymakers must consider reforms that balance regulatory compliance with innovation, particularly in underserved regions.

Moreover, the findings resonate with Olaoye et al.'s (2024) emphasis on infrastructure as a critical enabler of fintech's success. While regulatory frameworks provide a foundational support system, their effectiveness is contingent upon complementary investments in mobile network expansion and energy infrastructure—areas that remain critical in Zambia. This aligns with the weak associations observed in the study's symmetric measures, suggesting that infrastructural improvements and regulatory awareness campaigns are essential for amplifying the impact of fintech on financial inclusion.

These findings are corroborated further by the study's theoretical foundation. According to Innovation Diffusion Theory (IDT) the benefits perceived as advantages and compatibility are key to adoption of new technologies. Focusing on regulatory frameworks that minimize compliance costs and decrease the complexity of processes can help build perceived benefits of fintech solutions, and thus promote the implementation. Financial Intermediation Theory focuses on the roles of the intermediaries to fill the gap between the unbanked and the formal financial systems. This intermediary role can be strengthened by effective regulations that are in place to guarantee fintech services are available, affordable and reliable. In Zambia there are currently KYC norms and high compliance cost that are a barrier while the regulatory environment is generally supportive, indicating this dynamic of regulation theory of balancing between fostering innovation and managing risks.

These dynamics are further illustrated by qualitative insights from the study. For instance, a regulatory specialist said compliance costs are a setback for fintech startups, while a bank representative stressed the need to make things easy for rural access. Chinoda and Mingiri Kapingura (2024) provide similar perspective, that adaptive regulatory framework is key in managing risks and promoting innovation. In Zambia, as is the case with Emuron et al. (2024), there is also a need for collaboration among stakeholders and particularly the need for partnership between the fintech providers, the traditional banks and regulators to create an inclusive financial ecosystem.

Finally, Zambia's regulatory frameworks have put fintech on the path to increasing financial inclusion, but gaps remain. These gaps need to be addressed through a multifaceted approach that involves regulatory reforms, infrastructural investments, and targeted educational initiatives. This study draws on experiences across the globe and regionally, as well as theoretical insights to argue that there is a necessity to adopt inclusive and adaptive policies to maximize the potentials of fintech for transforming the financial space in Zambia.

5.4 The Impact of Financial Literacy Programs Supported by Fintech on the Level of Financial Inclusion

The findings of this study highlight the significant yet underutilized potential of fintech-supported financial literacy programs in enhancing financial inclusion in Zambia. The analysis from the crosstabulation, Chi-Square tests, and qualitative responses suggests that while these programs show promise, their reach and effectiveness remain limited, particularly for underserved populations. The study revealed significant yet underutilized potential of financial literacy programs in improving financial inclusion. ANOVA results show a significant effect ($F = 4.341$, $p = 0.006$), with a mean score of 3.36 reflecting moderate agreement on the efficacy of these programs. The standard deviation ($\sigma = 0.905$) and slight negative skewness (-0.364) indicate variability in perceptions.

These results echo with Kurniasari et al. (2021), who found that targeted literacy initiatives increase fintech adoption in Indonesia. In Zambia financial literacy programs that are integrated with mobile platforms have increased awareness among already engaged populations. Yet it's still cumbersome, and works only for those with no need for assistance. Our findings indicate that IDT's methodological approach is fundamentally critical to the emphasis on complexity and compatibility; the programs need to be culturally relevant and accessible. These programs can be maximized by investments in community education, real time learning platforms, and collaborative outreach.

Results corroborate prior literature on the role of financial literacy on fintech adoption and financial inclusion. Kurniasari et al. (2021) pointed out that the adoption of digital financial services is driven by customer knowledge, which has been made possible by financial literacy programs. From their study in Indonesia, they found that targeted education

initiatives to enhance digital literacy increased trust and engagement with fintech platforms. Like in this study, the results of this study also suggest similar that the more the access to formal banking services, the more likely respondents were to agree that financial literacy programs helped improve their understanding of financial services. Thus, these programs work well for those already using the financial system, but not for the underserved, as Chikalipah (2020) also shows in the Zambian context.

A clear association between financial literacy programs and financial inclusion has been observed in the Chi-Square test with statistical significance ($p = 0.000$). Yet, due to the likelihood ratio ($p = 0.093$) variability in program implementation and accessibility. This is consistent with findings of Yeyouomo et al. (2023) that the lack of targeted interventions to overcome socio-economic and cultural barriers to financial access remain a problem. This study's qualitative responses echoed this: financial literacy programs must be culturally relevant and accessible to marginalized groups, they argued.

The findings align with the IDT, which posits that the adoption of new technologies depends on factors such as perceived relative advantage, compatibility, and complexity. Despite promoting awareness and understanding of financial issues, the weak positive correlation (Pearson's $R = 0.090$) between financial literacy program adoption and financial inclusion indicates that many perceive these programs as too complex or incompatible with the cultural, or socio-economic context of certain groups. Consistent with Iluba and Phiri (2021) who showed that adoption of fintech services in Zambia is significantly influenced by compatibility.

These findings are further supported by the Financial Intermediation Theory, which points to the role of financial literacy in closing that gap between financial institutions and underserved populations. Results of the study indicate that fintech-supported financial literacy programs, as intermediaries, can help people to understand and take up financial services. Nevertheless, as Ediagbonya and Tioluwani (2023) have suggested, these programs can take on a foundational nature if these programs are to be the most effective.

The Regulation Theory further shows the central role of a supportive regulatory framework in translating the impact of financial literacy programs. This led Chinoda and Mingi Kapingura (2024) to note that it is through regulations that can allow for the innovation while the management of risk and thereby strengthening trust in fintech solutions. This study illustrates the importance of developing policies that encourage fintech providers to work with local stakeholders and scale culturally relevant literacy initiatives

Results from this study suggest that financially inclusive program results are dependent on access and implementation challenges of fintech-supported financial literacy programs. Importantly, this study gives credence to the important role that financial literacy programs play in extending financial inclusion and when associated with fintech innovation. But this also paints the need for a multi pronged approach addressing socio economic, infrastructure, and regulatory barriers. Drawing from empirical literature and theoretical frameworks, stakeholders will be able to develop and implement strategies to maximize the fintech’s potential to advance financial inclusion in Zambia.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

The chapter summarizes the study findings, draws conclusions in light of the data analysis, and makes policy and fintech firm related recommendations. The last part of the chapter also provides suggestions for future research based on what we learned from this study.

6.1 Conclusions

6.1.1 To evaluate the impact of fintech innovations on the level of financial inclusion in Zambia

Results of the study showed that fintech innovations statistically significantly positively impact on financial inclusion in Zambia. The Chi Square test, Pearson's R and Spearman Correlation results confirm that fintech innovations contribute to improve access to formal banking services, especially for urban and semi-urban populations. This conclusion is also supported by the strong agreement among respondents that fintech has a positive effect on financial access. Although these barriers persist of digital illiteracy, low smartphone penetration and weak connectivity, it remains challenging to reach underserved populations, especially in rural areas.

Null Hypothesis: There is no significant impact of fintech innovations on financial inclusion in Zambia.

Conclusion: The null hypothesis is rejected based on the statistical significance of the findings, indicating a positive impact of fintech innovations on financial inclusion.

6.1.2 To assess the impact of fintech solutions on the level of financial inclusion in Zambia

Fintech solutions such as mobile wallets, digital loans and peer to peer lending are transforming the landscape of financial inclusion, the study finds. The result of ANOVA reveals that fintech solutions have contributed greatly to accessing underserved populations. Although these solutions have expanded access, the study shows that these solutions are bounded by infrastructure deficits, affordability, and digital literacy,

especially for rural populations. The findings also reflect regional studies highlighting the importance of targeted strategies to overcome these barriers.

Null Hypothesis: There is no significant impact of fintech solutions on financial inclusion in Zambia.

Conclusion: The null hypothesis is rejected, confirming that fintech solutions have a significant impact on financial inclusion, though challenges remain in achieving equitable access.

6.1.3 To determine the impact of regulatory frameworks on the level of financial inclusion in Zambia

The findings indicate that regulatory frameworks have a moderate effect on financial inclusion and that these are perceived with mixed views on the effectiveness of regulatory frameworks (ANOVA, $p = 0.051$). Whereas regulations have created an enabling environment for the growth of Fintech, key challenges include high compliance costs, strict Know Your Customer requirements, and especially the deleterious lack of rural outreach. Moreover, the weak correlation witnessed from both Pearson's R and Spearman reiterates once again that the regulatory frameworks alone are inadequate to help the achievement of financial inclusion while their presence is important; the former, per se, without other investments in infrastructure, digital literacy programs, and cultural awareness shall remain very deficient in attainment.

Null Hypothesis: Regulatory frameworks do not have a significant impact on financial inclusion in Zambia.

Conclusion: The null hypothesis is not accepted, as regulatory frameworks have an impact but it is not statistically significant at 5% level of significance. Therefore, there is need to be more aligned with the specific challenges of underserved populations for broader effectiveness.

6.1.4 To analyze the impact of financial literacy programs supported by fintech on the level of financial inclusion in Zambia

The analysis suggests that while fintech-supported financial literacy programs have a positive impact on financial inclusion, their reach and effectiveness remain limited, particularly among underserved groups. The ANOVA result ($F = 4.341$, $p = 0.006$) and the Chi-Square test, show that financial literacy programs positively influence those already engaged with the financial system. However, the programs fail to adequately reach marginalized groups, and further efforts are needed to make these programs culturally relevant and accessible.

Null Hypothesis: Financial literacy programs supported by fintech do not have a significant impact on financial inclusion in Zambia.

Conclusion: The null hypothesis is rejected, as the findings show a moderate positive impact of financial literacy programs on financial inclusion, though their reach is limited.

6.2 Recommendations

Based on the study's findings and conclusions, the following recommendations are made:

6.2.1 Enhance Digital Literacy

To bridge the gap in fintech adoption, we need to increase investment in digital literacy, especially in underserved and rural areas. Digital skills, mobile banking, and basic financial literacy should be the targeted training programs and educational initiatives.

6.2.1 Improve Infrastructure

Fintech solutions won't reach remote areas without investments in mobile network expansion, reliable electricity supply and internet connectivity. Infrastructure could be improved through public private partnerships.

6.2.3. Regulatory Reforms

Fintech solutions should also be implemented without excessive costs in regulatory framework, because compliance costs are a burden. For example, KYC should be flexible for rural and informal sector populations. The regulatory policies need to be made more accessible and more inclusive.

6.2.4 Promote inclusive financial literacy programs

Cultural, socioeconomic, and linguistic diversities shall undergird all financial literacy programs targeting underserved communities; they are to be coupled with cell phone-related technologies for added access and efficiency.

6.2.5 Targeted Interventions for Women and Disadvantaged Groups

Strategies should be carved out, keeping in view the gender as well as the socio-economic disparities, so that fintech solutions directed at enabling women with the facility of mobile money service are advanced, and the cultural barriers that deter women from accessing financial services can be overcome.

6.3 Areas of Future Research

Future research could focus on the following areas:

6.3.1 Exploring the Role of Fintech in Rural Financial Inclusion

While this study highlights barriers faced by rural populations, further research could focus specifically on the impact of fintech solutions in rural communities and identify strategies to overcome infrastructure and accessibility challenges.

6.3.2 Impact of Fintech on Women's Financial Empowerment

Further research could examine how fintech solutions specifically empower women in Zambia and other African countries, taking into account cultural and socio-economic factors that influence women's access to financial services.

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Appendices:

Research Questionnaire

Introduction:

Thank you for participating in this study.

My name is Moses Sibongo, and I am a student pursuing a Masters Business Administration at the University of Lusaka. The purpose of this research is to investigate the role of fintech in enhancing financial inclusion in the Zambian banking sector. Your responses will help us understand how fintech innovations, solutions, regulatory frameworks, and financial literacy programs impact financial inclusion. This questionnaire will take approximately 10-15 minutes to complete, and your responses will be kept confidential. Please answer all questions to the best of your ability.

Do you agree to participate in this research?

Yes

No

If yes,

Thank you for agreeing to participate.

Section A: Demographic Information

Gender:

Male

Female

Age:

18-24

25-34

35-44

45-54

55 and above

Highest Level of Education:

No formal education

Primary education

Secondary education

Diploma/Certificate

Bachelor's degree

Postgraduate degree

Occupation:

Student

Employed

Self-employed

Unemployed

Location of residence (Urban/Rural):

Urban

Rural

Monthly Income (ZMW):

Less than 1,000

1,000 - 5,000

5,001 - 10,000

Above 10,000

Which Fintech services have you used? (Select all that apply):

Mobile banking

Digital payment platforms (e.g., mobile money)

Online banking

Peer-to-peer lending platforms

Crowdfunding platforms

Digital wallets

Cryptocurrency exchanges

Others (please specify): _____

Section B: The Impact of Fintech Innovations on Financial Inclusion

Fintech innovations have improved my access to financial services (e.g., banking, mobile money).

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

Mobile applications and digital wallets have made financial transactions more convenient.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

Fintech innovations have reduced the cost of accessing financial services for me.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

I find fintech innovations helpful in overcoming geographical barriers to financial services.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

On a scale from 1 to 5, how would you rate the overall impact of fintech innovations on your financial inclusion experience?

1 (Very Low) | 2 (Low) | 3 (Moderate) | 4 (High) | 5 (Very High)

Section C: The Impact of Fintech Solutions on Financial Inclusion

The variety of fintech solutions (e.g., savings apps, online investments, remittances) meets my financial needs.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

I frequently use fintech solutions to manage my financial transactions (e.g., payments, savings, or investments).

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

The ease of use of fintech solutions has encouraged me to use more financial services.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

I believe that fintech solutions provide better access to financial services for underserved populations (e.g., rural communities, women).

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

On a scale from 1 to 5, how would you rate the overall impact of fintech solutions on your financial inclusion experience?

1 (Very Low) | 2 (Low) | 3 (Moderate) | 4 (High) | 5 (Very High)

Section D: The Impact of Regulatory Frameworks on Financial Inclusion

I trust fintech services because I believe they are well-regulated.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

Regulations that protect consumers (e.g., data privacy, anti-fraud laws) encourage me to use fintech services.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

I believe that Zambia's regulatory frameworks support the growth of fintech and financial inclusion.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

Regulations regarding fintech have made financial services more accessible to the general public.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

On a scale from 1 to 5, how would you rate the overall impact of regulatory frameworks on your financial inclusion experience?

1 (Very Low) | 2 (Low) | 3 (Moderate) | 4 (High) | 5 (Very High)

Section E: The Impact of Financial Literacy Programs on Financial Inclusion

I have received training or support on how to use digital financial services (e.g., mobile money, online banking).

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

Financial literacy programs provided by fintech companies have improved my understanding of financial services.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

I am confident in using fintech platforms after attending financial literacy programs.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

Financial literacy programs have increased my trust in using digital financial services.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

On a scale from 1 to 5, how would you rate the overall impact of financial literacy programs on your financial inclusion experience?

1 (Very Low) | 2 (Low) | 3 (Moderate) | 4 (High) | 5 (Very High)

Section F: General information on Financial Inclusion

I have access to formal banking services (e.g., a bank account, mobile money).

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

I feel financially included through the use of digital financial services.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

Fintech has made it easier for me to access financial services that were previously unavailable.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

Do you have any additional comments?

Interview Guide for Bank Representatives

Introduction: Thank you for agreeing to participate in this interview. The purpose of this study is to investigate the role of fintech in enhancing financial inclusion in the Zambian banking sector. This interview aims to gather your perspectives and experiences on how fintech innovations, solutions, regulatory frameworks, and financial literacy programs have impacted financial inclusion. Your insights will contribute to an understanding of the topic. The interview will last approximately 45-60 minutes, and your responses will remain confidential.

I kindly ask for your consent to participate in this interview.

Do you agree to participate in this interview?

If yes,

Thank you for agreeing to participate.

Section A: General Information

Can you please tell me about your role and responsibilities in the bank?

Probe: How long have you been in this role? What is your involvement with fintech initiatives?

How would you describe your bank's general strategy in adopting fintech solutions?

Probe: What has motivated your bank to engage with fintech solutions? How do fintech services align with your overall business goals?

Section B: Fintech Innovations and Financial Inclusion

How do you think fintech innovations have impacted financial inclusion in Zambia?

Probe: Have you noticed specific groups (e.g., rural populations, women) that have benefited the most from these innovations? Can you give examples?

What specific fintech innovations or services have your bank introduced to enhance financial inclusion?

Probe: Can you describe the technology used? How have customers responded to these innovations?

What challenges have you encountered in implementing fintech innovations aimed at financial inclusion?

Probe: Are there technological, financial, or regulatory obstacles that you face?

How do fintech innovations help overcome the barriers that underserved populations (e.g., rural or low-income groups) face in accessing financial services?

Probe: What role does mobile banking, digital wallets, or blockchain technology play in this?

Section C: Fintech Solutions and Financial Inclusion

What fintech solutions does your bank offer that specifically target financial inclusion?

Probe: What are some of the most popular fintech products or services? Are these solutions tailored to underserved groups?

In your experience, how do these fintech solutions impact the usage of financial services by customers?

Probe: Have you noticed an increase in the adoption of financial services as a result of these solutions?

What do you think differentiates fintech solutions from traditional banking services in enhancing financial inclusion?

Probe: What advantages do fintech solutions have in reaching unbanked or underbanked populations?

Section D: Regulatory Frameworks and Financial Inclusion

How do Zambia's current regulatory frameworks support or hinder fintech innovations in your bank?

Probe: Are there specific regulations that facilitate or create barriers to fintech implementation?

What changes, if any, would you suggest to regulatory frameworks to better support fintech and financial inclusion in Zambia?

Probe: Do you think regulatory reforms could increase customer trust or fintech growth?

How does your bank ensure compliance with regulatory requirements when adopting fintech solutions?

Probe: How do you balance innovation with customer protection and security?

Section E: Financial Literacy and Financial Inclusion

Does your bank offer financial literacy programs supported by fintech platforms? If so, what do these programs entail?

Probe: How are these programs delivered (e.g., workshops, mobile apps)? Who is the target audience?

In your opinion, how important is financial literacy in encouraging customers to adopt fintech solutions?

Probe: Can you share any success stories or challenges from your financial literacy programs?

How effective are fintech-supported financial literacy programs in increasing trust and usage of digital financial services?

Probe: Do you see a correlation between these programs and the adoption of fintech solutions?

Section F: Conclusion

In your opinion, what is the future of fintech and financial inclusion in Zambia?

Probe: Do you think fintech will continue to play a key role in expanding financial access? What trends do you foresee?

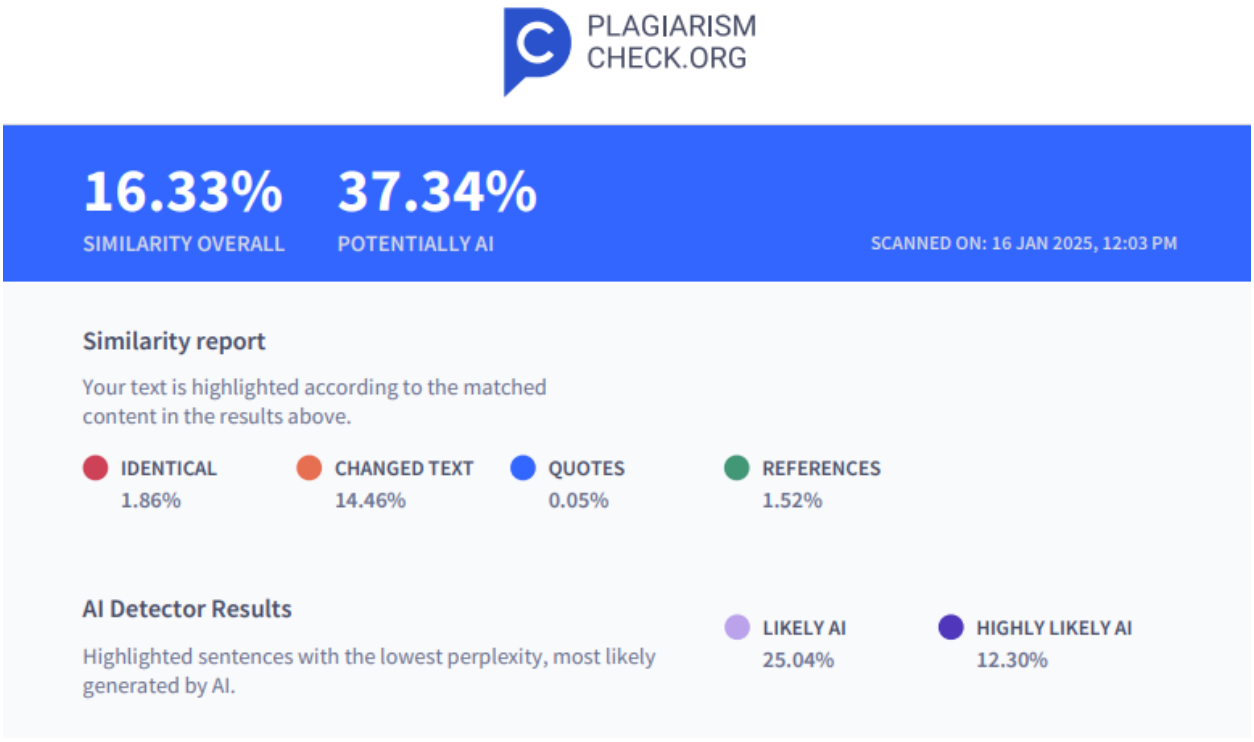
What additional measures do you think banks, fintech companies, and the government can take to further enhance financial inclusion in Zambia?

Probe: Are there specific policies, technologies, or partnerships that you believe could accelerate progress?

Is there anything else you would like to add regarding the role of fintech in enhancing financial inclusion?

Probe: Any closing thoughts or recommendations?

Closing: Thank you for your time and valuable insights. Your responses will greatly contribute to our understanding of how fintech can drive financial inclusion in Zambia. I will ensure that your responses are anonymized and handled with the utmost confidentiality. Should you wish to receive a summary of the findings, I would be happy to share it with you once the study is complete.



Report #24444639

1 DECLARATION I, Moses Sibongo, I hereby affirm that the content showcased in this thesis, titled 1 "The Role of Fintech In Enhancing Financial Inclusion in The Zambian Banking Sector" 1 , I solemnly affirm that the entirety of this dissertation is composed solely of my own efforts, unless specified otherwise as supervised by Professor Bryson Mumba. 1 The contents reflect my understanding and interpretation of the subject matter. I have appropriately acknowledged and referenced all the external sources utilized in accordance with the prescribed academic norms and referencing style outlined in the provided guidelines by the University of Lusaka. Any direct quotations, paraphrases, or ideas taken from other sources have been acknowledged appropriately using in-text citations and a comprehensive bibliography. The data, findings, and conclusions articulated in this thesis are precise and dependable to the utmost extent of my understanding and capabilities. The research performed for this dissertation has been conducted in strict adherence to the ethical principles and