

**FINTECH AND FINANCIAL INCLUSION AMONG HOUSEHOLDS IN KIBERA SLUMS,
KENYA**

By

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MASTER OF SCIENCE IN COMMERCE (FINANCE AND INVESTMENT)

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE IN COMMERCE
(FINANCE AND INVESTMENT) IN THE SCHOOL OF BUSINESS AT KCA UNIVERSITY**

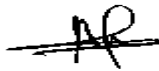
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DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

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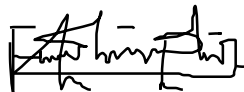
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I do hereby confirm that I have examined the master's dissertation of

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And have certified that all revisions that the dissertation panel and examiners recommended have been adequately addressed.

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Dr. FRED SPORTAR

ABSTRACT

This study investigated the influence of financial technology on financial inclusion among informal households in Kibera slums, Nairobi County. The focus was on three fintech dimensions: mobile banking, digital credit, and digital payments. The specific objectives of the study were: (i) to examine the effect of mobile banking on financial inclusion; (ii) to assess the influence of digital credit on financial inclusion; and (iii) to determine the contribution of digital payments to financial inclusion. The study was guided by Financial Intermediation Theory, Diffusion of Innovations Theory, and Social Capital Theory, which collectively provided a conceptual foundation for understanding how technology-driven financial services can bridge access gaps in marginalized urban settings. A descriptive and explanatory research design was adopted, and data were collected using structured questionnaires administered to a randomly selected sample of 400 households. Out of these, 328 responses were deemed valid and subjected to quantitative analysis. Diagnostic tests confirmed that the regression model met key assumptions, including linearity, normality, homoscedasticity, and absence of multicollinearity. Multiple regression analysis was used to determine the individual and joint effects of the fintech variables on financial inclusion. The results revealed that mobile banking had the strongest positive effect, accounting for 48 percent of the explained variance in financial inclusion ($\beta = 0.693$, $p = .000$). Digital credit showed a moderate but statistically significant contribution, explaining 22 percent of the variance ($\beta = 0.466$, $p = .000$). Digital payments had a weaker yet significant effect, accounting for 6 percent of the variance ($\beta = 0.246$, $p = .000$). The combined model explained 51.2 percent of the variation in financial inclusion ($R^2 = 0.512$, $F = 113.239$, $p = .000$), confirming that all three fintech dimensions contributed meaningfully to financial access among informal households. The study concluded that mobile banking and digital credit are the most effective fintech tools for promoting financial inclusion in informal settlements. Mobile banking was found to be widely adopted due to its accessibility, affordability, and ability to facilitate savings and transfers without requiring formal banking infrastructure. Digital credit, while impactful, was constrained by limitations in borrower profiling and financial literacy. Digital payments contributed positively but had limited standalone influence, suggesting that their effectiveness depends on integration with other financial services. Based on these findings, the study recommends that policymakers prioritize the expansion of mobile banking infrastructure and enforce regulatory safeguards to ensure responsible digital credit provision. Financial institutions should invest in adaptive credit scoring models that reflect informal income patterns and design user-friendly platforms to accommodate low-literacy populations. Efforts should also be made to increase merchant acceptance of digital payments and integrate them with broader financial products. The study further recommends targeted financial literacy programs to enhance user understanding and responsible usage of fintech services. Finally, the study calls for future research to explore the long-term effects of fintech adoption on financial resilience, savings behavior, and economic mobility. Comparative studies across different regulatory environments and mixed-methods approaches would enrich understanding and inform policy design. The findings contribute to both theory and practice by quantifying the differentiated impact of fintech modalities and offering actionable insights for inclusive financial development.

Key words: *Fintech, Financial Inclusion, Mobile Banking, Digital Credit, Digital Payments, Financial Intermediation, Diffusion of Innovations, Social Capital, Informal Households, Financial Access.*

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DEDICATION

This research proposal is lovingly dedicated to my family, your unwavering support, sacrifices, and encouragement have been the pillar of my academic journey.

To my parents, your belief in the power of education and the values you instilled in me continue to guide every step I take.

To my friends and mentors, thank you for your inspiration and motivation during moments of doubt.

Most importantly, I dedicate this work to the resilient informal households of Kibera, whose perseverance amidst adversity is a daily testament to strength and hope. May this study contribute, even in a small way, to shaping solutions that uplift and empower you.

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ACRONYMS AND ABBREVIATIONS

ATM	Automated Teller Machine
CBK	Central Bank of Kenya
DFS	Digital Financial Services
FII	Financial Inclusion Index
FinAccess	Financial Access Household Survey
FinTech	Financial Technology
FTL	FinTech Loan
FSD	Financial Sector Deepening
GSMA	Global System for Mobile Communications Association
IFC	International Finance Corporation
IMF	International Monetary Fund
KENSUP	Kenya Slum Upgrading Programme
KYC	Know Your Customer
MBL	Mobile Banking Loan
MFI	Microfinance Institution
MNO	Mobile Network Operator
M-Pesa	Mobile Money Service by Safaricom
NGO	Non-Governmental Organization
OLS	Ordinary Least Squares
SPSS	Statistical Package for the Social Sciences
UN-HABITAT	United Nations Human Settlements Programme
WHO	World Health Organization

OPERATIONAL DEFINITION OF TERMS

Financial Inclusion	The ability of individuals and businesses to access useful and affordable financial products and services (Ozili, 2020).
Fintech	A term combining “financial” and “technology,” referring to innovative financial services enabled by digital platforms and technology (Giglio, 2021).
Mobile Banking	The use of mobile devices to conduct financial transactions, such as checking balances, sending money, or paying bills (Markoska, Ivanochko & Gregus ml, 2017).
Digital Credit	Credit products accessed and managed through digital platforms, often with automated approval and disbursement (Owens et al., 2018).
Digital Payment	Electronic payment methods including mobile money, online transfers, and digital wallets used to complete financial transactions (Singh, 2019).
Informal Households	Households operating outside the formal economy, often lacking stable income, formal employment, or official documentation (Nikuze et al., 2019).
Mobile Money	A technology that allows people to receive, store, and spend money using a mobile phone, without needing a bank account (Suri, 2017).
Financial Intermediation	The process by which financial institutions channel funds from savers to borrowers (Gorton & Winton, 2003).
Digital Financial Services (DFS)	Financial services delivered through digital platforms, including mobile banking, digital lending, and e-payments (Meagher, 2017).
Financial Exclusion	The lack of access to mainstream financial services, which can hinder savings, borrowing, and economic security (Koku, 2015).
Social Capital	The networks, relationships, and norms that enable collective action and trust among individuals or communities (Stolle, 2003).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Financial inclusion is a global priority aimed at ensuring that individuals and firms have access to useful and affordable financial products and services. It plays a crucial role in poverty alleviation and economic development by enabling people to save, borrow, and manage financial risks (Sahay et al., 2015; Demirgüç-Kunt et al., 2018; World Bank, 2021). According to the World Bank's Global Findex Database (2021), 76 percent of the working-age population globally, with higher rates observed in countries such as China, India, and Brazil, had an account with a financial institution or a mobile money provider. However, disparities persist, particularly in emerging markets such as Nigeria, Pakistan, and Bangladesh, where only 71 percent of adults have such access (World Bank, 2021).

In Sub-Saharan Africa, countries like Kenya, Ghana, and Tanzania have recorded notable progress in financial inclusion, primarily driven by mobile money innovations. The region accounts for over half of the world's mobile money accounts, reflecting the transformative impact of fintech in addressing financial exclusion (Suri & Jack, 2016; GSMA, 2022). Between 2011 and 2021, the proportion of adults globally using mobile money doubled from 15 percent to 40 percent. In Sub-Saharan Africa, particularly in Kenya and Uganda, it increased from 10 percent to over 40 percent during the same period (GSMA, 2023). Despite these gains, challenges such as gender disparities and limited access to appropriate financial instruments remain prevalent in countries including Ethiopia, Malawi, and the Democratic Republic of Congo (World Bank, 2023).

In Kenya, financial inclusion has expanded significantly over the last decade, largely due to mobile money platforms like M-Pesa. The FinAccess Household Survey (2024) reports that 84.8% of adults now have access to financial services, with urban dwellers achieving 91.3% access compared to 80.2% among rural inhabitants (FinAccess, 2024). Nevertheless, 9.9% of the population remains financially excluded, lacking access to both formal and informal financial services. Addressing these barriers is essential for promoting sustainable economic growth and reducing poverty in Kenya (Mbiti & Weil, 2011; Jack & Suri, 2011).

1.1.1 Financial Inclusion

Financial inclusion is a multifaceted concept that has been defined differently by various scholars and organizations. The Reserve Bank of India (RBI, 2015) describes it as the provision of necessary and appropriate financial products and services to the entire population, particularly vulnerable groups such as low-income populations, at an affordable cost through regulated intermediaries. Similarly, the World Bank (2021) defines financial inclusion as the access to and usage of useful and affordable financial products and services, such as payments, savings, credit, and insurance, in a sustainable manner, highlighting the need for safe and broad-based financial services.

Sarma (2008) conceptualized financial inclusion through a three-dimensional framework focusing on the availability, access, and usage of financial services, proposing the Financial Inclusion Index (FII) as a comprehensive measure based on parameters like the number of banks, ATMs, and account holders. Demirgüç-Kunt and Klapper (2013) offer another perspective, defining financial inclusion as the percentage of individuals and businesses owning a formal financial account, and emphasizing that usage, not just availability, should be a critical consideration.

Globally, financial inclusion has been adopted as a strategy for promoting economic development and reducing poverty. According to the Global Findex Database (World Bank, 2021), 76 percent of adults worldwide, with higher coverage in countries such as China, India, and Brazil, had an account either with a financial institution or a mobile money provider by 2021. However, this figure drops to 71 percent in developing countries, including Nigeria, Pakistan, and Bangladesh, where structural and regulatory barriers persist. Allen et al. (2016) argue that financial sector access must align with broader development goals, enabling savings, investments, and risk management. Financial inclusion also fosters social empowerment by integrating marginalized populations into the formal economy (Zins & Weill, 2016).

In Sub-Saharan Africa, substantial progress has been made in countries such as Kenya, Ghana, and Tanzania, largely driven by the expansion of mobile money services. The region now accounts for over 50 percent of the world's mobile money accounts (GSMA, 2022). However, challenges such as limited access for women and the need for more inclusive financial products persist, particularly in countries like Ethiopia and Malawi (Klapper & Lusardi, 2020). Mobile money adoption has risen significantly, with over 40 percent of the adult population in Kenya and Uganda holding mobile money accounts in 2021, up from just 10 percent in 2011 (Feyen, Natarajan & Saal, 2023). This growth underscores fintech's potential to advance financial inclusion (Sahay et al., 2020). Studies indicate that mobile money can reduce poverty by up to 3 percent and enhance economic welfare (Suri & Jack, 2016).

In Kenya, financial access has expanded notably over the past decade, driven primarily by mobile money platforms such as M-Pesa. The 2024 FinAccess Household Survey reports that 84.8% of the adult population is financially included, though disparities remain, with 91.3% access among urban populations compared to 80.2% in rural areas (FinAccess, 2024). Nevertheless, 9.9%

of Kenyans still lack access to both formal and informal financial systems. Addressing these gaps is critical for achieving inclusive economic growth and poverty eradication (Musembi & Chun, 2020; Mwangi & Sichei, 2011). Innovations within the fintech sector have been particularly instrumental in improving financial access for marginalized groups in Kenya (Muthengi, 2022).

In line with Sarma's (2008) Financial Inclusion Index, which emphasizes availability, access, and usage, this study adopts usage, cost-effectiveness, safety, and social capital as core dimensions. Usage reflects actual engagement with financial services, as emphasized by Demirgüç-Kunt and Klapper (2013), who argue that ownership alone is insufficient. Cost-effectiveness addresses affordability barriers that persist in informal settlements, while safety aligns with the need for secure and reliable financial systems as highlighted in FinAccess (2024). Social capital is included to account for the embedded informal financial practices such as *chamas* and table banking, which shape financial behavior in Kibera. These dimensions are therefore appropriate for assessing the depth and quality of financial inclusion in the study's conceptual framework.

1.1.2 Financial Technology

Financial technology (fintech) is an umbrella term that refers to the application of technology in the financial sector. Schueffel (2016) defines fintech as a new financial industry that utilizes technology to enhance financial processes, highlighting the transformative role of information technology in finance. Arner, Barberis, and Buckley (2015) describe fintech as the employment of technology in the advancement of financial services, raising important questions about its potential to improve the delivery, accessibility, and quality of banking services. Gomber, Koch, and Siering (2017) further define fintech as the interface between financial services and technology, covering payment systems, lending, investing, and personal finance, thus illustrating

its broad range of applications. According to Lee and Shin (2018), fintech involves the use of advanced technology to provide financial services, promoting innovative business solutions and operational efficiency.

Globally, fintech has emerged as a catalyst for financial inclusion, economic progression, and innovation. The Global Fintech Adoption Index 2019 by EY reported that 64% of the global adult population had adopted at least one fintech service, with emerging markets like China and India registering the highest rates (Swacha-Lech & Solarz, 2021). Fintech has empowered individuals who were previously excluded from formal financial services, thereby enhancing financial inclusion. Gai, Qiu, and Sun (2018) observe that fintech innovations have facilitated the development of new products and services, including peer-to-peer financing, robo-advisors, and blockchain solutions, introducing greater security, transparency, and flexibility into financial systems (Philippon, 2016). The development of fintech can be classified into three areas: technological characteristics, the formation of new financial systems, and the disruption of conventional financial structures (Arner et al., 2015).

In Sub-Saharan Africa, fintech has significantly improved access to financial services. Technological advancements such as mobile money services like M-Pesa have revolutionized the sector by reaching previously excluded populations (GSMA, 2022). According to the International Finance Corporation (IFC, 2021), fintech companies in Africa attracted over \$2 billion in funding between 2017 and 2021. Fintech growth in the region has primarily focused on affordable and accessible solutions such as mobile money, microcredit, and insurance (Cumming, Johan & Reardon, 2023). Key dimensions of fintech in Sub-Saharan Africa include the heavy reliance on mobile technologies and a focus on extending financial services to underbanked populations

(Klapper & Lusardi, 2020). However, regulatory challenges, infrastructural gaps, and low levels of financial literacy remain significant obstacles (Beck et al., 2018).

In Kenya, digital finance has significantly impacted the financial sector through innovations like M-Pesa, which pioneered mobile-based financial products. The 2024 FinAccess Household Survey shows that 82.9% of Kenyan adults had transacted using at least one mobile money service in the past year (FinAccess, 2024). The growth of fintech has made financial services more accessible, reaching millions who were previously underserved. The dynamics of fintech in Kenya include the widespread use of mobile money services, increased digital lending, and the emergence of country-specific financial products (Gubbins & Totolo, 2018). For example, mobile-based lending applications such as Tala and Branch have provided credit access to individuals previously excluded from formal financial markets (Omego, 2024). Nevertheless, challenges persist, including the need for stronger consumer protection frameworks and efforts to enhance digital literacy among users.

Mobile banking, digital credit, and digital payment are the most prominent and empirically supported dimensions of financial technology relevant to financial inclusion in Kenya. Schueffel (2016) and Arner, Barberis, and Buckley (2015) emphasize the transformative role of technology in enhancing financial processes and service delivery, which is operationalized through mobile-based platforms. Gomber, Koch, and Siering (2017) identify payment systems and lending as core fintech applications, directly aligning with digital payment and digital credit. Globally, Gai, Qiu, and Sun (2018) and Philippon (2016) highlight innovations such as peer-to-peer lending and mobile transactions as mechanisms for expanding access and flexibility. Regionally, GSMA (2022) and Klapper and Lusardi (2020) underscore mobile money and microcredit as dominant tools for reaching underbanked populations. Locally, FinAccess (2024) reports that 82.9 percent

of adults used mobile money services, while Gubbins and Totolo (2018) and Omego (2024) document the widespread uptake of mobile-based lending applications. These studies collectively justify the adoption of mobile banking, digital credit, and digital payment as the conceptual dimensions through which fintech's influence on financial inclusion in informal households was assessed.

1.1.3 Informal Households in Kibera Slums

Kibera is an informal settlement situated in Nairobi, Kenya, and occupies about 2.5 square kilometres of land. They are estimated to number between 200,000 and over one million inhabitants, thus creating a diverse community. The roots of the settlement can be traced back to the early twentieth century when Nilo-Ethiopian soldiers and their families who served in the British colonial army established themselves in the area. Years later, Kibera expanded and developed as people flocked to Nairobi in search of better jobs and living standards (Muthengi, 2022). The current living conditions in Kibera include high population density, substandard houses and many families sharing a single room, and poor access to necessities such as water, sanitation, and health care (Amnesty International, 2017).

The majority of residents reside in very simple shanty structures with walls made of mud and thatching and roofs made of tinned iron sheets, which lack proper ventilation and lighting. There is no easy access to clean water, adequate sanitation, and electricity, which is evident from the way of life of the inhabitants of the settlement. There are poor sanitation facilities such as communal pit latrines and inefficient waste disposal, hence posing health risks (UN-HABITAT, 2018). The social economic activities that are notable in Kibera include casual employment, small scale businesses, and informal trade. The unemployment rate is high, with youths and women

being the most affected, and they cannot even afford basic needs like food, healthcare, and education (World Bank, 2020).

Despite these challenges, residents of this area have proved to be strong and hardworking and fight for their survival engaging in income generating activities in various capacities to fend for their families (Vertigans & Gibson, 2020). The demography in Kibera is diverse, for instance there are various ethnic groups and cultures living in the slum. This has been seen as enriching cultural diversity but has also seen the issues of social integration and common welfare of community members as difficult to solve (Soma et al, 2022). Gender inequalities and traditional cultures encumber women as they should provide for their families by being confined to limited education and job opportunities (Mwangi, 2023).

Efforts towards enhancing the living standards in this region have been done by implementing slum upgrading projects by the governments and non-governmental organizations. These change efforts intends to enhance the availability and quality of homes, transport facilities, and other basic amenities. For instance, programmes such as the Kenya Slum Upgrading Programme (KENSUP) and the Nairobi Railway Relocation Action Plan aimed at enhancing Kibera's housing and general infrastructure (Gulyani et al., 2012). However, the challenges like the ownership of the land, political factors, and resource constraints continued to play a thorny hindrance in achievement of these projects.

Financial inclusion for informal families in Kibera is a major challenge. Many inhabitants lack access to formal financial services owing to several constraints, including lack of identity, low financial knowledge, and expensive transaction fees (Tuwei, 2018). Mobile money and digital credit are examples of such innovations within the Fintech sector, which seek to reduce the barriers for financial inclusion in Kibera. Nevertheless, penetration of fintech solutions is still low in the

informal settlements possibly requiring appropriate solutions to augment financial services outreach to such vulnerable groups.

1.2 Statement of the Problem

Financial inclusion remains a pressing global concern, with approximately 1.1 billion adults worldwide still lacking access to financial services as of 2021 (World Bank, 2021). Disparities are evident, with only 71 percent of adults in developing countries having access compared to 94 percent in developed economies. Gender gaps persist, as women in emerging economies are six percentage points less likely than men to hold a financial account. Demirgüç-Kunt et al. (2018), using data from over 150,000 adults across 144 nations, emphasized that financial inclusion promotes economic growth, reduces poverty, and empowers marginalized groups. However, these global studies tend to generalize findings and do not account for the specific financial realities of slum households. Their findings also highlighted persistent gaps, notably that nearly half of the adult population in Sub-Saharan Africa lacks a formal financial account, and stressed the need for more comprehensive and contextualized measurements of financial inclusion.

In Sub-Saharan Africa, technological innovations, particularly mobile money services, have driven progress in expanding financial access. Suri and Jack (2016), in their study of 1,600 households in Kenya, found that mobile money services positively impacted poverty reduction and household income. Yet, their use of cross-sectional data limits understanding of how fintech adoption evolves over time and influences household financial behavior. Beck et al. (2018), studying 44 African countries, also found that digital payment systems have improved financial access, yet integration into broader financial ecosystems remains incomplete due to infrastructural, regulatory, and literacy-related challenges. These studies focus primarily on formal financial

systems and national aggregates, leaving informal settlement contexts such as Kibera underexplored. The absence of slum-specific data creates an empirical gap in understanding how fintech functions within marginalized urban environments.

At the national level, Kenya has made notable strides in financial inclusion, largely driven by mobile money innovations like M-Pesa. The 2024 FinAccess Household Survey reports that 84.8 percent of adults have access to financial services, although 9.9 percent remain financially excluded. Studies by Gubbins and Totolo (2018) and Mwangi and Sichei (2021) have shown that mobile lending platforms such as Tala and Branch have widened credit access, and that factors like income, financial literacy, and employment status significantly influence financial inclusion levels. However, these studies also reveal methodological gaps, particularly the reliance on cross-sectional designs that fail to capture the dynamic nature of fintech usage and financial decision-making. Moreover, informal financial practices such as *chamas*, table banking, and unregulated credit systems are conceptually disconnected from formal inclusion frameworks, despite their central role in slum economies. This limits the applicability of national-level findings to localized realities.

Despite Kenya's overall progress, households in informal settlements such as Kibera continue to resist formal financial services due to structural constraints, low trust in institutions, and reliance on informal systems including *chamas* and table banking. While mobile money platforms have improved national statistics, usage remains uneven across slum contexts, limited by affordability and digital literacy. Gubbins and Totolo (2018) highlight access through digital credit, yet repayment burdens and high costs hinder financial resilience. Omega (2024) reveals gendered barriers but does not examine how these constraints affect financial access. Existing studies generalize national trends, omit informal financial dynamics, and fail to capture localized

fintech engagement. Kibera presents unique contextual challenges, including low institutional trust, affordability limitations, and gendered access patterns, which are not adequately addressed in current literature. These gaps weaken the relevance of national models and underscore the need for slum-specific inquiry.

This study addresses these gaps by examining how mobile banking, digital credit, and digital payment services influence financial inclusion among informal households in Kibera slums, Nairobi County. It applies quantitative research methods to assess the individual and combined effects of these financial technology dimensions on access, usage, and quality of financial services. By focusing on a marginalized urban context, the study contributes to a more accurate and context-specific understanding of fintech's role in promoting financial inclusion.

1.3 General Objective of the Study

The general objective of this study is to investigate the influence of financial technology (fintech) on the financial inclusion of informal households in Kibera slums, Nairobi County, Kenya.

1.3.1 Objectives of the Study

1. To determine the influence of mobile banking on the financial inclusion of informal households in Kibera Slums of Nairobi County, Kenya.
2. To establish the influence of digital credit on the financial inclusion of informal households in Kibera Slums of Nairobi County, Kenya.
3. To assess the influence of digital payment on the financial inclusion of informal households in Kibera Slums of Nairobi County, Kenya.

1.4 Research Questions

1. How does mobile banking influence the financial inclusion of informal households in Kibera Slums of Nairobi County, Kenya?
2. How does digital credit influence the financial inclusion of informal households in Kibera Slums of Nairobi County, Kenya?
3. How does digital payment influence the financial inclusion of informal households in Kibera Slums of Nairobi County, Kenya?

1.5 Justification of the Study

Fintech's explosive growth presents an opportunity to solve the long-standing problem of financial exclusion in underserved areas like the Kibera slums. Nonetheless, research has revealed that there are still some areas that have not been fully addressed regarding the issue of financial inclusion within households in Kenya. The rationale behind this study is to determine the areas that can be fitted with fintech solutions to ensure that people in the developing countries have equal access to those financial services. The fact that this study targets Kibera fills both contextual and empirical gaps in the literature in order to offer guidelines that are likely to help in coming up with sensitive and targeted policies to assist the vulnerable populations in improving their financial inclusion.

1.6 Significance of the Study

The significance of this research stems from its capacity to influence financial inclusion policy and practice. The results will be useful for policymakers, fintech providers and development organizations on how to create better, accessible and effective, financial technologies products and services to support the needs of informal house hold in Kibera. Hence, by identifying the various

barriers to financial inclusion in this study, the stake holders will be in a better position to provide an effective and efficient solution that will suit the disadvantaged groups of the society. This will help in the advancement of more effective and egalitarian financial systems that will benefit all members of the society to become economically independent.

Further, this study will assist to fill the gaps in the literature about financial inclusion and fintech to enhance knowledge about the consequences of innovations in the field of digital financial services for the targeted communities. This research will also give findings as to the effectiveness of the use of fintech solutions to accelerate financial inclusion, and in so doing, it will supplement existing research shortcomings. The knowledge that will be produced on this study will also assist in strengthening theoretical models of both financial inclusion and fintech, particularly where the latter is applied in informal settlements.

In addition, the study will be phenomenal to the existing literature in the sense it will provide the fintech providers with direction on how to best address the needs of the targeted groups. Fintech companies can only achieve this if they choose to understand informal households in Kibera in terms of their needs and behaviors when it comes to accessing financial services. It will not only improve Fintech consumers' access to financial services from those institutions, but also foster business development and innovation on the part of the industry participants.

This research is important not only for Kibera but for other slum and low-income urban areas experiencing similar issues. Therefore, the study will be of immense importance in providing a clear understanding of the factors that impact financial inclusion in Kibera, thereby providing a frame work for addressing financial exclusion when it happens elsewhere. This research will also lead to the investigation of fintech for financial inclusion and the effort towards creating a just society with an improved financial system.

1.7 Scope of the Study

This study rigorously examines the effect of financial technology (fintech) on the financial inclusion of informal households residing in the Kibera informal settlement, located within Nairobi County, Kenya. The investigation is deliberately bounded to provide a focused analysis, concentrating specifically on three pivotal fintech pillars: mobile banking, digital credit, and digital payment systems, which are the most prevalent and accessible technologies in this context. The research employs a quantitative methodological approach, utilizing structured questionnaires administered to a randomly selected sample of 400 households to gather robust, empirical data. This design is chosen to systematically measure the efficacy of these fintech solutions in bridging the financial access gap for a marginalized urban population. Crucially, all findings are methodically analyzed and interpreted within the unique socioeconomic and cultural fabric of Kibera, characterized by high poverty density, informal livelihoods, and strong communal networks. This contextual grounding is paramount, ensuring the results offer a thorough, localized, and actionable comprehension of the specific variables and barriers affecting financial inclusion, rather than presenting abstract generalizations. The scope, therefore, encompasses a precise geographical, conceptual, and methodological framework to yield highly relevant insights for policy and practice aimed at this demographic.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature related to the role of financial technology in enhancing financial inclusion, focusing on informal households in Kibera slums. It explores key theoretical frameworks, including Financial Intermediation Theory, Diffusion of Innovations Theory, and Social Capital Theory, which underpin this study. Additionally, empirical studies on mobile banking, digital credit, and digital payments are examined to identify research gaps and provide insights into the dynamics of fintech-driven inclusion. The review forms the basis for understanding how fintech solutions can address the specific needs of informal households, contributing to the broader goal of sustainable financial inclusion.

2.2 Theoretical Foundation Review

2.2.1 Financial Intermediation Theory

Financial Intermediation Theory was introduced by Gurley and Shaw (1960), who argued that financial institutions facilitate the movement of funds between savers and borrowers by reducing transaction costs and resolving information asymmetries. The theory emphasizes the role of intermediaries in mobilizing savings and allocating credit efficiently. Levine (1997) expanded this proposition by highlighting how institutional and technological evolution has enabled new forms of intermediation, including mobile money platforms and peer-to-peer lending. These innovations have extended financial services to populations excluded from formal banking systems and directly align with the study's objective of examining how mobile banking and digital credit influence financial inclusion. A positive critique of the theory is its adaptability to emerging financial ecosystems, especially in informal economies. However, scholars such as Allen,

Demirgüç-Kunt, Klapper, and Peria (2016) have criticized its assumptions of rational market behavior and its limited attention to user-level constraints such as low financial literacy, irregular income flows, and limited digital infrastructure.

This theory forms a robust foundation for the present study, as it provides a lens through which to analyze the role of financial technology in enhancing financial inclusion in Kibera slums. Mobile money platforms such as M-Pesa exemplify the principles of financial intermediation by enabling informal households to access financial services that were previously unattainable, reducing barriers such as high costs and lack of formal banking infrastructure (FinAccess, 2024). Studies have consistently demonstrated the impact of mobile money in promoting financial inclusion and bridging the gap for underserved populations (Suri & Jack, 2016). The theory informs the conceptualization of the study's independent variables by clarifying how mobile banking reduces transaction costs, digital credit addresses liquidity constraints, and digital payments facilitate secure transactions. It was selected for its relevance to the Kibera context, where formal banking systems are limited and fintech platforms serve as the dominant financial access points.

2.2.2 Diffusion of Innovations Theory

Diffusion of Innovations Theory, developed by Rogers (1962), explains how new ideas, technologies, and practices spread across populations over time. The theory postulates that adoption depends on five key attributes: relative advantage, compatibility, complexity, trialability, and observability. It also categorizes adopters into innovators, early adopters, early majority, late majority, and laggards, and emphasizes the role of communication channels in facilitating diffusion. These dimensions are directly relevant to the study's objectives, which examine how mobile banking, digital credit, and digital payments are adopted by informal households in Kibera.

A positive critique of the theory is its ability to explain adoption patterns across diverse socioeconomic groups. However, Dearing and Cox (2018) argue that the model underrepresents structural constraints such as affordability, institutional trust, and digital literacy, while Zins and Weill (2016) highlight that informal financial behaviors are often excluded from formal diffusion models.

This theory provides a strong foundation for the present study by offering a framework to analyze how financial technology innovations penetrate informal households in Kibera. Fintech services such as mobile banking, digital payments, and credit solutions align with Rogers' attributes, as their simplicity and observable benefits drive adoption. For instance, mobile money platforms like M-Pesa achieve diffusion by addressing key barriers such as trust and accessibility, making financial services usable for even the most marginalized populations (GSMA, 2023). Studies have shown that fintech innovations reduce poverty and foster economic growth by enhancing financial inclusion (Suri & Jack, 2016). The theory informs the conceptualization of adoption behavior by clarifying how perceived utility, social influence, and contextual fit shape uptake of financial technology. It was selected for its relevance to the Kibera context, where informal households adopt fintech tools based on practical needs, peer validation, and visible community benefits.

2.2.3 Social Capital Theory

Social Capital Theory, as articulated by Putnam (1995), focuses on the value created through social networks, trust, and norms of reciprocity within a community. It posits that these elements enable individuals and groups to collaborate more effectively to achieve shared goals. The theory is commonly categorized into bonding capital, which strengthens relationships within homogeneous groups, and bridging capital, which connects diverse social networks. These

dimensions are directly relevant to the study's objective of examining how mobile banking, digital credit, and digital payments function within informal community structures. A positive critique of the theory is its ability to explain how trust and collective norms shape financial behavior. However, scholars such as Lin (1999) and Grootaert and van Bastelaer (2002) caution that social capital may reinforce exclusionary practices, limit access to external resources, and fail to account for institutional weaknesses in low-income urban settings.

This theory anchors the present study by providing insights into how financial technology solutions leverage existing social networks to enhance financial inclusion among informal households in Kibera. Peer-to-peer lending platforms and mobile money services rely on trust and community ties to encourage adoption and usage. In contexts like Kibera, where formal financial systems are scarce, social capital facilitates the acceptance and diffusion of fintech innovations, creating new opportunities for economic participation. The theory informs the conceptualization of the study's variables by clarifying how mobile banking builds on trust-based networks, digital credit depends on peer validation, and digital payments gain traction through shared norms of reciprocity. It was selected for its relevance to Kibera's informal financial landscape, where social relationships often substitute for institutional infrastructure and shape the uptake of financial services.

2.3 Empirical Review

2.3.1 Mobile Banking and Financial Inclusion of Informal Households

Globally, the increasing penetration of mobile banking services has been positioned as a catalyst for improving financial inclusion, particularly in low- and middle-income countries. Esquivias et al. (2021) examined this dynamic across three Southeast Asian countries, Vietnam, Indonesia, and the Philippines employing a probit regression analysis on data drawn from the

World Bank's Global Findex 2017. Their study revealed that while mobile banking services had expanded significantly, access remained unevenly distributed, with low-income, less-educated, and younger populations disproportionately excluded from formal financial services. Although mobile services were in place, they remained underutilized by the less privileged, suggesting that the availability of technology alone does not guarantee inclusive access. The authors highlighted that financial exclusion persisted due to structural factors such as income disparities, educational attainment, and employment status. Despite these insights, the study was largely quantitative and generalized in scope, lacking a specific focus on informal households. Furthermore, the reliance on secondary data without in-depth engagement with end-user behavioural factors presents a notable conceptual and empirical gap, especially regarding the nuanced role of mobile banking within informal household contexts.

Expanding on this global perspective, Esquivias et al. (2020) further investigated the intersection of mobile technologies, financial inclusion, and income generation in East Indonesia. By applying a seemingly unrelated probit model alongside an ordinary least squares (OLS) regression, they demonstrated that access to mobile and smart technologies significantly improved both access to formal finance and individual income levels. Notably, the impact of smart mobile devices and formal financial tools was more pronounced than that of basic technologies or informal finance mechanisms. However, structural inequalities, particularly those related to gender, education, and geographic location, continued to hinder equitable financial access. While the study offers important empirical contributions, its focus remained at a macro level and was not disaggregated by household type or informal sector engagement. The absence of primary data and lack of micro-level behavioural measurement methods, such as attitudinal scales or perception

indicators, introduces a methodological and evidence gap, particularly when considering the experience of informal households in similar socio-economic settings.

Within the African context, Ezzahid and Elouaourti (2021) developed a financial inclusion index for Morocco and conducted a micro-level analysis of mobile banking adoption using probit regression on survey data from over 5,000 Moroccan adults. Their findings underscored that higher education and labour market participation significantly influenced both formal financial inclusion and the adoption of mobile banking. Interestingly, the study revealed that mobile banking was instrumental in mitigating involuntary exclusion caused by barriers such as distance and cost, although it was less effective in addressing voluntary exclusion linked to religious beliefs or distrust in formal institutions. Importantly, the study highlighted that informal finance remained prevalent among older, less educated women, reaffirming socio-demographic divides in financial access. Despite its robust quantitative design, the study's analytical framework did not focus specifically on informal households and omitted the use of behavioural indicators such as trust or perceived ease of use variables often critical in technology acceptance studies. Moreover, the reliance on index construction, while useful at the macro level, offers limited insight into the lived financial realities of informal household units, suggesting a conceptual and methodological gap relevant to the Kenyan context.

At the local level, empirical inquiries have begun to examine the role of mobile banking in shaping financial inclusion outcomes, particularly within Kenya's informal settlements. Musa (2022) assessed the effect of financial innovations including mobile banking on the financial inclusion of small and medium enterprises (SMEs) in Nairobi's urban informal settlements. The study employed a descriptive design and conducted regression analysis on primary data collected from 112 SMEs. Results indicated a significant positive correlation between mobile banking usage

and financial inclusion, with mobile banking accounting for a notable proportion of the variance in financial access ($\beta = 0.316$, $p = 0.000$). However, this analysis was focused exclusively on SMEs and did not extend to informal households, thereby introducing an empirical gap in understanding how mobile banking interfaces with household-level financial behaviours. Additionally, the research design, though quantitative, did not incorporate perceptual or attitudinal constructs that could help explain behavioural intentions or barriers to mobile banking adoption within informal domestic settings.

Similarly, Kim (2020) examined the impact of mobile money on the financial inclusion of Nairobi's urban poor. Using primary survey data, the study found that mobile money platforms had significantly enhanced the ability of low-income individuals to save and manage money, particularly in contexts where traditional banking services were inaccessible. The study confirmed that mobile money had narrowed the financial exclusion gap by providing flexible savings mechanisms suited to the needs of the urban poor. However, despite these encouraging findings, the research lacked inferential statistical depth and did not apply multivariate regression techniques to examine causal relationships. These omissions signal both a methodological and evidence gap in the Kenyan literature, particularly in terms of rigorously quantifying the drivers and inhibitors of mobile banking adoption among informal households.

2.3.2 Digital Credit and Financial Inclusion of Informal Households

Globally, Baker (2021) conducted a study on digital financial inclusion among micro-entrepreneurs in India, focusing on the role of digital credit and alternative credit scoring in paratransit services. Through qualitative methods, the study highlighted how digital credit increased access to financial services but often heightened financial precarity due to high costs and unstable repayment structures. While the research provided valuable insights into the experiences

of informal entrepreneurs, it presented both methodological and conceptual gaps. It failed to explore the impact of digital credit on non-entrepreneurial informal households and their unique financial behaviors, making it less relevant to household-focused studies like this one on Kibera slums.

Peng and Mao (2023) examined the effects of digital financial inclusion on poverty reduction among urban households in China. Using data from the China Family Panel Studies and the Peking University Digital Financial Inclusion Index, the study applied a probit model and mediating effect analysis. Findings showed that digital credit significantly increased financial market participation and wealth accumulation, reducing the probability of households falling into poverty. However, the focus on relatively affluent urban households with higher digital literacy presents contextual gaps in understanding how digital credit addresses financial inclusion barriers for informal households with limited digital skills, a central concern of this research.

In Africa, Kelikume (2021) investigated the relationship between digital credit, financial inclusion, and poverty reduction across 42 African countries. Using panel data and the system generalized method of moments approach, the study found that digital credit positively impacted informal sector development and poverty alleviation. However, the analysis did not delve into the specific financial behaviors and challenges faced by informal households, such as their borrowing patterns and repayment capabilities. This presents an empirical gap that aligns with this study's aim to explore how digital credit serves the unique needs of informal households in Kibera slums.

Chibesa and Mwangi (2025) focused on the role of digital financial literacy in enhancing financial inclusion among informal entrepreneurs in Lusaka, Zambia. Their mixed-methods study involving 350 informal traders demonstrated that digital literacy was a key determinant of digital credit adoption and effective utilization. Despite its contributions, the research primarily centered

on entrepreneurial contexts, leaving population gaps in understanding how digital credit adoption impacts non-entrepreneurial informal households. This aligns with the need for this study to examine the broader experiences of informal households with digital credit in Kibera slums.

Locally, Kim (2022) explored the role of digital credit in expanding financial inclusion for Kenyan households, particularly in Nairobi's informal urban settlements. The study revealed that while fintech loans expanded access for low-income groups, they also led to issues such as over-borrowing, high default rates, and consumer protection risks. These findings expose practical gaps in affordability and regulatory oversight, which are crucial to this study's focus on leveraging digital credit to enhance financial inclusion for informal households in Kibera.

Lastly, Kim and Duvendack (2024) analyzed the impact of mobile loans, including fintech loans (FTLs) and mobile banking loans (MBLs), on financial inclusion in Kenya. While the study found that FTLs were more accessible to low-income groups and women compared to MBLs, it also revealed significant challenges such as short repayment periods and high interest rates. These findings highlight empirical and practical gaps in tailoring digital credit services to meet the specific financial needs of informal households. This study aims to address these gaps by investigating how digital credit can improve financial inclusion for households in Kibera's informal settlements.

2.3.3 Digital Payment and Financial Inclusion of Informal Households

Globally, Petrikova (2024) investigated the relationship between digital payments and financial inclusion across Euro Area countries using cross-sectional data from the World Bank Global Findex (2021). The study employed a probit regression model to examine how income, education, gender, age, and national digital infrastructure influenced digital payment adoption. The findings indicated that digital payments were more prevalent among individuals with higher

income and education, particularly women and younger users, though usage declined after age forty. Furthermore, countries with stronger digital infrastructure and populations already familiar with non-cash payments before COVID-19 saw higher digital payment usage. Despite its methodological robustness, the study presents a contextual and conceptual gap as it focuses on advanced economies, thereby offering limited insights for informal, low-income communities in settings like Kibera, where infrastructural and behavioral dynamics differ sharply.

Still globally, Kandpal and Mehrotra (2019) examined how fintech innovations and digital payment systems impacted financial inclusion in India. Adopting an explanatory research design based on secondary data and policy documentation, they explored the aftermath of India's demonetization policy and the role of regulatory shifts in driving digital transactions. Although formal account ownership increased, the actual use of digital financial services remained low, particularly in rural and low-income segments, due to digital illiteracy, trust issues, and infrastructural gaps. This study provides relevant insights into emerging economy contexts but exhibits both empirical and evidence gaps, as it does not employ primary data nor quantitatively analyze individual-level digital payment usage. These limitations justify the current study's use of cross-sectional, primary data collected through a structured Likert-scaled questionnaire to understand informal household behavior in Kenya.

In the African context, Dzogbenuku, Amoako, Kumi, and Bonsu (2022) conducted a quantitative study in Ghana to evaluate the influence of digital payment systems on the financial wellbeing of the rural poor. Survey data were collected from mobile money users and agents across two rural districts and analyzed to assess satisfaction with digital payments based on trust, convenience, security, and ease of use. Results showed these factors significantly influenced satisfaction, with gender and age moderating the strength of these relationships. Female users were

more concerned with security, while younger users valued convenience. Although the study offers behavioral insights into digital financial inclusion, it reveals a methodological gap due to its absence of inferential statistical analysis, such as regression, and an evidence gap for not including informal urban populations. These weaknesses are addressed in the current study through the application of regression techniques on primary, urban household data.

Also in the African context, Siwela and Njaya (2021) examined how mobile technology enables digital financial inclusion for women in Zimbabwe's informal sector. Using a secondary data approach, the study evaluated mobile money's potential to reduce financial exclusion. It found that while mobile platforms increased accessibility and convenience, barriers such as smartphone affordability and high data costs hindered wider adoption. Furthermore, the study suggested integrating additional tools like inventory management into digital payment platforms. However, it presents a methodological gap for relying solely on desk review without empirical testing and a knowledge gap in not exploring behavioral data from actual users. These shortcomings are resolved in the current research through a quantitative approach involving structured household surveys among informal urban residents, allowing for statistical testing of behavioral drivers of digital payment use.

In the Kenyan context, Kiptoo (2022) assessed the impact of digital finance on financial inclusion among vulnerable populations, such as youth, women, and individuals living in poverty or remote regions. Utilizing a mixed-methods design, the study explored how digital finance affected formal and informal savings and borrowing. Results showed that while digital finance enhanced access to formal channels, informal systems remained dominant due to trust and cost-related barriers. Though the study provides relevant insights, it presents a conceptual and empirical gap, as it fails to isolate digital payments from broader digital finance and does not focus on

informal urban households. It also differs methodologically by adopting a mixed-methods approach, unlike the current study's purely quantitative strategy, which uses regression and descriptive statistics on cross-sectional primary data.

Still in the Kenyan context, Melubo and Musau (2020) analyzed the effect of digital banking on financial inclusion among women-owned businesses in Narok County. Using a census approach involving 184 enterprises and applying both descriptive and regression statistics, the study found that digital banking services especially mobile and agency banking positively influenced access to financial services. However, the impact was constrained by poor digital literacy, limited smartphone access, and weak internet infrastructure. While informative, the study exposes both a population gap, as it targets businesses rather than households, and a conceptual gap, as it treats digital banking holistically rather than isolating digital payment behavior.

2.4 Summary of the Literature Review

Article (APA Style)	Key Variables/Concepts	Methodology	Key Findings	Implications for Future Research (Knowledge Gap)
Esquivias, M. A., Sethi, N., Ramandha, M. D., & Jayanti, A. D. (2021).	Financial inclusion determinants (gender, income, education), mobile banking adoption.	Probit model analysis using World Bank's Global Findex Dataset 2017.	Mobile banking shows potential in financial inclusion but excludes low-income and less-educated groups.	Methodological gap in addressing the specific ways mobile banking serves informal households.
Esquivias, M. A., Sugiharti, L., Jayanti, A. D., Purwono, R., & Sethi, N. (2020).	Mobile technologies, income, formal/informal finance access.	Seemingly unrelated probit model using 2017 SOFIA data.	Mobile technologies enhance incomes but have limited impact on informal households.	Conceptual and empirical gaps in understanding barriers for informal households.

Ezzahid, E., & Elouaourti, Z. (2021).	Mobile banking, barriers to financial inclusion, informal finance.	Financial inclusion index and probit models on a sample of 5,110 Moroccan adults.	Mobile banking reduces involuntary exclusion, but barriers like high costs persist.	Contextual gap in exploring informal household dynamics.
Kelikume, I. (2021).	Mobile penetration, internet usage, informal economy, poverty reduction.	System GMM approach with panel data from 42 African countries (1995–2017).	Digital financial inclusion promotes poverty reduction but lacks focus on informal households.	Empirical gap in examining digital financial behaviors of informal households.
Musa, B. O. (2022).	Mobile banking, agency banking, fintech innovations.	Descriptive design; regression analysis of data from 112 SMEs.	Financial innovations positively correlate with financial inclusion but lack consumer trust.	Practical gap in addressing trust and usability for informal households.
Kim, K. H. (2020).	Mobile money, financial exclusion, urban poor.	Survey research on urban poor populations in Nairobi.	Mobile money decreases exclusion but issues like limited savings access persist.	Practical gap in affordability and usability for informal households.
Baker, L. (2021).	Digital credit, micro-entrepreneurship, financial precarity.	Qualitative analysis of paratransit service operators.	Digital credit increases financial access but heightens precarity.	Conceptual gap in addressing household-focused impacts of digital credit.
Peng, P., & Mao, H. (2023).	Digital credit, relative poverty, financial literacy.	Probit model and mediating effect analysis using China Family Panel Studies data.	Digital credit reduces poverty but favors literate urban households.	Contextual gap in understanding informal households' challenges with digital credit.
Chibesa, K., & Mwange, A. (2025).	Digital literacy, mobile banking, digital confidence.	Mixed-methods research; data from 350	Digital literacy enhances financial inclusion but focuses on	Population gap in studying digital credit adoption by non-

		informal traders.	entrepreneurial contexts.	entrepreneurial households.
Kim, M. (2022).	Digital credit, financial inclusion risks, consumer protection.	Mixed methods combining OLS regression and qualitative interviews.	Digital credit expands access but increases default rates and raises consumer risks.	Practical gap in consumer protection and tailoring credit solutions for informal households.
Kim, M., & Duvendack, M. (2024).	Digital credit, mobile loans (MBLs, FTLs), financial inclusion disparities.	Multinomial logistic regression analysis on mobile loan usage.	FTLs are more accessible to low-income groups, but high interest rates create risks.	Empirical gap in understanding affordability and sustainability for informal households.
Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2021).	Digital payments, financial resilience, mobility restrictions.	Global Findex analysis with data from over 120 economies.	Digital payments enhance resilience but exclude informal households with poor digital access.	Contextual gap in tailoring digital payment systems for marginalized informal groups.
Kandpal, V., & Mehrotra, R. (2019).	Digital payments, cashless transactions, trust.	Explanatory research on India's cashless economy initiatives.	Digital payments increase inclusion but face trust and cyber-security challenges.	Conceptual gap in overcoming barriers for informal household adoption of digital payments.
Dzogbenuku, R. K., Amoako, G. K., Kumi, D. K., & Bonsu, G. A. (2022).	Digital payment satisfaction, demographic factors (age, gender).	Quantitative study of mobile money users in rural Ghana.	Digital payments enhance inclusion but differ by demographic factors.	Empirical gap in tailoring digital payment systems for informal households.
Siwela, G., & Njaya, T. (2021).	Mobile banking, female inclusion, affordability challenges.	Explanatory desk research and literature review.	Mobile payments improve inclusion but affordability remains a barrier.	Contextual gap in addressing affordability for informal female populations.

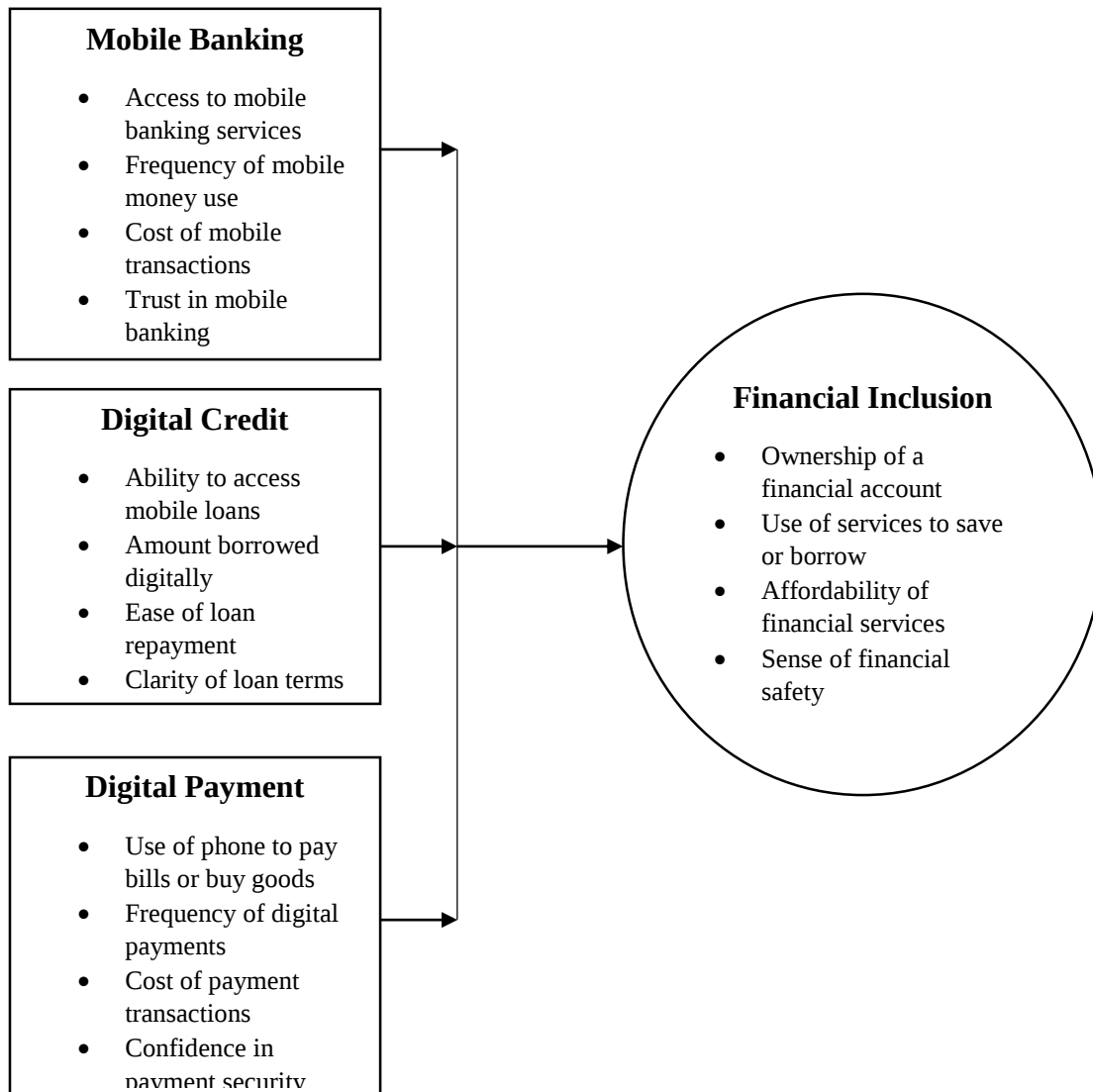
Kiptoo, C. J. (2022).	Digital finance, formal/informal savings and borrowings.	Mixed methods; study on vulnerable populations in Kenya.	Digital finance increases formal usage but informal channels remain dominant.	Practical and population gaps in affordability and usability for informal households.
Melubo, K. D., & Musau, S. (2020).	Digital banking, women-owned enterprises, financial literacy.	Descriptive research design with semi-structured interviews.	Digital banking improves access but limited literacy and internet hinder adoption.	Empirical gap in exploring digital payments for informal households.

2.5 Conceptual Framework

Figure 2.1 Conceptual Framework

Independent Variables

Dependent Variable



Source: Author (2025)

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology guiding the study on the influence of financial technology on financial inclusion among informal households in Kibera slums, Nairobi County. It describes the research design, target population, sampling techniques, data collection methods, and analysis procedures. By employing structured questionnaires and statistical modeling, the study ensures reliable and valid findings, contributing to a deeper understanding of fintech adoption and financial access in marginalized urban communities.

3.2 Research Design

A research design provides the foundation for systematically investigating a study's objectives while ensuring coherence in data collection, measurement, and analysis. Creswell (2014) defines research design as the framework that will direct the inquiry process to maintain methodological rigor and alignment with the research purpose. This study employed a descriptive and explanatory research design to examine the influence of financial technology on financial inclusion among informal households in Kibera slums, Nairobi County. Descriptive research facilitated a structured examination of fintech adoption, financial access levels, and usage patterns without manipulating the study variables. Kothari (2004) highlights that descriptive research enables the identification and explanation of relationships, making it ideal for analyzing fintech components such as mobile banking, digital credit, and digital payments.

The explanatory aspect of the research design enabled for an analysis of causal relationships between fintech solutions and financial inclusion among informal households.

Saunders, Lewis, and Thornhill (2019) assert that explanatory research is useful for identifying cause-and-effect relationships, particularly when regression models are applied to analyze variable interactions. This study utilized primary data collection methods, specifically structured questionnaires with Likert-scale items, to systematically quantify fintech adoption and financial inclusion outcomes. Regression modeling was integrated into the analysis, as Gujarati and Porter (2009) recommend regression techniques as robust tools for determining the significance of relationships between predictor variables and financial access.

3.3 Target Population

A target population refers to the entire group of individuals or entities relevant to a research study, from which a sample is drawn for analysis. According to Mugenda and Mugenda (2003), the target population comprises subjects who possess the characteristics necessary to provide accurate insights into a study's objectives. In this research, the target population consisted of informal households residing in Kibera slums, Nairobi County, Kenya. Kibera is one of the largest informal settlements in Africa, with an estimated population of approximately 1.5 million people (BEA Adventurous, 2025). This figure underscores the extreme population density and the socioeconomic challenges faced by residents, including high unemployment rates, poverty, and limited access to essential services.

Given the study's focus on financial inclusion, the target population included households that engage in informal financial activities and digital financial services, particularly mobile banking, digital credit, and digital payments. The study sought to capture financial behaviors, barriers, and adoption trends within Kibera, ensuring a comprehensive understanding of fintech's impact on financial inclusion among marginalized groups. The target population is justified as it

aligns with the study's objective of examining financial access challenges and the potential of fintech solutions in a low-income urban setting.

3.4 Sample Size and Sampling Technique

A sample size represents a subset of a population selected for study, ensuring manageable data collection while maintaining representativeness. According to Kothari (2004), an optimal sample size should be large enough to provide reliable estimates while remaining practical for data collection. Determining an appropriate sample size required a statistical approach that accounts for population size, confidence level, and margin of error.

This study employed Yamane's (1967) formula to scale down the target population of 1.5 million Kibera residents to a feasible sample size. The formula is expressed as:

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

Where

n is the required sample size,

N represents the total population (1,500,000), and

e is the margin of error set at 0.05 for a 95% confidence level.

Substituting these values results in:

$$n = \frac{1,500,000}{1 + 1,500,000(0.05^2)}$$

$$n = \frac{1,500,000}{3,751}$$

$$n \approx 400$$

To ensure representativeness, the study employed random sampling, allowing every informal household in Kibera an equal chance of being selected. Random sampling minimizes selection bias and strengthens the validity of the findings by reflecting financial behaviors across different demographics. Given the diversity of fintech adoption within Kibera, this approach

ensured a fair distribution of respondents engaged in mobile banking, digital credit, and digital payments while also capturing those who are financially excluded. By incorporating this sampling technique, the study enhances its methodological reliability, ensuring that the results are generalizable to Kibera's broader population.

3.5 Data Collection Instruments

Data collection instruments refer to the tools and methods used to gather relevant information for analysis in a research study. According to Creswell (2014), selecting appropriate instruments ensures data accuracy, reliability, and validity while aligning with the study's objectives. This research employed structured questionnaires as the primary data collection instrument, designed to capture fintech adoption levels, financial behaviors, and barriers to financial inclusion among informal households in Kibera slums.

The questionnaire consisted of Likert-scaled items, allowing respondents to express the degree to which they engage with mobile banking, digital credit, and digital payment services. The Likert scale enhanced quantitative analysis by standardizing responses into measurable categories, ensuring consistency and comparability across different households. As Saunders, Lewis, and Thornhill (2019) note, Likert scales are particularly effective in behavioral research, as they provide insights into attitudes, perceptions, and adoption trends.

The justification for using structured questionnaires lies in their efficiency, ease of administration, and ability to systematically capture responses. Given Kibera's population size and socioeconomic diversity, questionnaires enabled data collection from a large sample within a relatively short period while ensuring uniformity in question interpretation. Additionally, the standardized format allowed for seamless integration with regression modeling, ensuring statistical accuracy in assessing fintech's impact on financial inclusion.

3.6 Data Collection Procedure

Data collection procedure outlines the systematic steps taken to gather primary data for analysis in a research study. According to Creswell (2014), a well-structured data collection approach ensures consistency, accuracy, and reliability, contributing to the validity of the findings. This study adopts a structured approach to collecting data from informal households in Kibera slums, Nairobi County, focusing on fintech adoption and financial inclusion.

The process began with preliminary preparations, including obtaining necessary approvals from relevant authorities and ensuring ethical compliance in research involving human subjects. Respondents were then randomly selected from different sections of Kibera to ensure a fair representation of financial behaviors and fintech engagement. Trained data collectors administered structured questionnaires through face-to-face interviews, ensuring that respondents understand the questions while minimizing non-response bias.

The questionnaires was Likert-scaled, designed to measure the extent of fintech adoption and financial inclusion patterns among informal households. Responses were be recorded in digital formats for accuracy and ease of analysis. Upon completion, collected data underwent verification and cleaning, ensuring consistency before statistical modeling. This structured procedure will enhance data reliability, aligning with best practices recommended by Saunders et al. (2019).

3.7 Diagnostic Tests

Prior to conducting regression analysis, it is imperative to test whether the collected data violates the key assumptions of Classical Linear Regression Models (CLRM). Violations of these assumptions can lead to biased, inefficient, or inconsistent coefficient estimates, thereby compromising the validity of the findings (Gujarati & Porter, 2009). This study conducted four critical diagnostic tests: multicollinearity, heteroscedasticity, normality, and autocorrelation.

3.7.1 Multicollinearity

Multicollinearity refers to a situation where two or more independent variables in a regression model are highly correlated, potentially inflating standard errors and distorting coefficient estimates (Gujarati & Porter, 2009). To detect multicollinearity, this study calculated the Variance Inflation Factor (VIF). A VIF value below 5 will indicate tolerable levels of collinearity (Bryman, 2015). Where the VIFs exceed acceptable thresholds, model adjustments was considered to preserve statistical validity.

3.7.2 Heteroscedasticity

Heteroscedasticity refers to the condition where the variance of the error terms is not constant across levels of the independent variables, thereby violating a key assumption of classical linear regression and potentially leading to inefficient estimators (Kothari, 2004). To assess this, the study conducted a visual inspection of a scatterplot of standardized residuals against standardized predicted values, as recommended by Gujarati and Porter (2009). The residuals appeared randomly dispersed around the horizontal axis, with no discernible pattern or funnel shape, indicating that the assumption of homoscedasticity was satisfied. This confirmed that the variance of residuals remained constant across predicted values, thereby validating the reliability of the regression estimates. This study used the Shapiro-Wilk test.

3.7.3 Normality Test

The normality assumption pertains to the distribution of regression residuals, which should approximate a normal curve to allow for valid hypothesis testing and construction of confidence intervals (Creswell, 2014). This study used the Shapiro-Wilk test to statistically evaluate normality, alongside visual inspections via histograms and Q-Q plots. A p-value greater than 0.05 will suggest that residuals are normally distributed, satisfying the regression requirement.

3.8 Pilot Testing

Pilot testing is a crucial step in research methodology aimed at assessing the reliability, validity, and effectiveness of the research instruments before full-scale data collection. Creswell (2014) emphasizes that pilot studies help identify potential issues in questionnaire design, enabling necessary refinements to enhance clarity, accuracy, and consistency. This study conducted pilot testing among informal households in Kibera to validate the structured questionnaire and ensure its ability to capture fintech adoption and financial inclusion trends effectively.

A sample of 40 respondents were selected for pilot testing using random sampling, ensuring representation across diverse financial behaviors within Kibera's informal settlements. This sample size is justified based on standard methodological recommendations, where pilot studies typically involve 10% of the final sample size (Kothari, 2004). Given that the main study engaged 400 respondents, the selection of 40 participants aligned with established research practices, offering a sufficient basis for instrument evaluation while maintaining feasibility.

The pilot study involved administering Likert-scaled questionnaires and assessing respondent comprehension, response consistency, and potential ambiguities in question phrasing. Feedback obtained during this phase were systematically analyzed to refine the wording, format, and structure of the questionnaire, ensuring seamless data collection and reducing the likelihood of misinterpretation. Reliability was tested using Cronbach's alpha, a widely recognized statistical measure for internal consistency, as recommended by Saunders et al. (2019).

This pilot testing process is essential for enhancing data quality and methodological rigor. Identifying and addressing errors at this stage mitigates biases and inaccuracies, ensuring that the responses accurately reflect fintech adoption and financial inclusion trends within Kibera's

informal households. The approach aligns with best practices in behavioral and financial research, reinforcing the credibility and reliability of the study's findings.

3.8.1 Validity of the Research Instruments

Validity refers to the extent to which a research instrument accurately measures what it is intended to measure, ensuring that the findings reflect the reality of the study population. According to Kothari (2004), validity ensures that the data collected aligns with the research objectives, producing meaningful and interpretable results. Bryman (2015) further emphasizes that validity is a fundamental criterion in research, ensuring that the measurement tools effectively capture the intended constructs. This study assessed validity through content validity, construct validity, and criterion validity to ensure that the structured questionnaire accurately measures fintech adoption and financial inclusion among informal households in Kibera.

Content validity was established by reviewing existing literature and consulting subject matter experts to confirm that the questionnaire comprehensively covers mobile banking, digital credit, and digital payments as key fintech variables. Saunders et al. (2019) highlight that content validity ensured all aspects of the study variables are appropriately represented in the research instrument. Construct validity was ensured by designing Likert-scaled items that appropriately measure fintech adoption and financial behavior, aligning with established frameworks in financial inclusion research. According to Creswell (2014), construct validity assessed whether the questionnaire adequately captures abstract concepts and relationships between study variables. Criterion validity was tested through pilot testing, where respondent feedback and response consistency was analyzed to ensure that the questionnaire effectively measures the intended concepts. This aligned with Kothari's (2004) recommendations for validating research instruments through empirical testing.

3.8.2 Reliability of the Research Instruments

Reliability refers to the consistency and dependability of a research instrument in measuring variables over repeated trials. According to Kothari (2004), a reliable instrument produces stable and reproducible results, ensuring that variations in data collection do not lead to inconsistent findings. Bryman (2015) further asserts that reliability is crucial for ensuring the credibility of quantitative research, particularly when structured questionnaires are used for data collection. This study evaluated the reliability of its Likert-scaled questionnaire using Cronbach's alpha, a widely recognized statistical method for assessing internal consistency.

Cronbach's alpha was applied during pilot testing, where responses from 40 randomly selected households in Kibera was analyzed to determine the coherence of Likert-scale items measuring fintech adoption and financial inclusion. According to Saunders et al. (2019), a Cronbach's alpha value above 0.7 indicates acceptable reliability, ensuring that items within a questionnaire are measuring the same underlying constructs. If the analysis reveals any weaknesses in internal consistency, necessary adjustments were made to refine question wording, format, or structure before full-scale data collection.

3.9 Data Analysis and Presentation

Data analysis and presentation involve the systematic examination, interpretation, and reporting of collected data to generate meaningful insights. According to Kothari (2004), data analysis entails applying statistical methods to organize and examine research findings, ensuring that they address the study's objectives. This research employed quantitative data analysis, using descriptive statistics and inferential techniques, including regression modeling, to evaluate fintech adoption and its influence on financial inclusion among informal households in Kibera.

The collected data first underwent cleaning and verification to eliminate inconsistencies and ensure accuracy. Descriptive statistics, such as frequencies, means, and percentages, will be applied to summarize fintech usage patterns. Regression analysis was then conducted to establish causal relationships between fintech adoption (mobile banking, digital credit, and digital payments) and financial inclusion levels. Gujarati and Porter (2009) recommend regression models for financial research, as they provide robust statistical insights into variable interactions. The results were presented in the form of tables, graphs, and charts, facilitating clarity and ease of interpretation.

3.9.1 Empirical Model

To quantitatively assess the relationship between financial technology dimensions and financial inclusion, the study applies a multiple linear regression model. This model estimates the contribution of mobile banking, digital credit, and digital payment to financial inclusion using aggregated composite scores for each variable derived from Likert-scale responses.

The empirical model is specified as follows:

$$FI_i = \beta_0 + \beta_1 MB_i + \beta_2 DC_i + \beta_3 DP_i + \varepsilon_i$$

Where

- FI_i = Financial Inclusion score for household ii (dependent variable)
- MB_i = Mobile Banking score for household ii
- DC_i = Digital Credit score for household ii
- DP_i = Digital Payment score for household ii
- β_0 = Intercept term

- $\beta_1, \beta_2, \beta_3$ = Regression coefficients representing the effect size of each fintech dimension
- ε_i = Error term capturing random disturbances

3.10 Ethical Consideration

Ethical compliance is central to the integrity of academic research, particularly when working with human participants in informal and vulnerable settings. This study strictly adhered to the ethical guidelines set forth by KCA University and national regulatory authorities, ensuring informed consent, privacy protection, and responsible data use (Creswell, 2014; Bryman, 2015).

Prior to fieldwork, the researcher obtained formal authorization from KCA University through the School of Business, confirming academic legitimacy and supervision oversight. In accordance with Kenyan law and national research standards, the study also sought clearance from the National Commission for Science, Technology and Innovation (NACOSTI). This approval validated the research purpose, data collection tools, and geographic scope, authorizing engagement with participants in Kibera slums.

Informed consent was secured from all respondents, clearly outlining the study's objectives, voluntary participation, and the right to withdraw without consequence. No participant was exposed to physical, psychological, or social harm. Confidentiality was maintained through anonymization of all responses, and data was securely stored for academic use only. The researcher also respected cultural sensitivities and linguistic diversity in the administration of questionnaires. These ethical safeguards were ensured that the study upheld professional integrity, respects respondent autonomy, and complies fully with institutional and national ethical research frameworks (Saunders et al., 2019; Kothari, 2004).

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter provides the output from the data analysis that was conducted to assess how financial technology, comprised of mobile banking, digital credit, and digital payment systems, impacts financial inclusion among informal households in Kibera slums, Nairobi County. The data analysis follows the study's conceptual framework and empirical model and addresses the study's objectives by utilizing descriptive statistics, diagnostic tests and regression analysis.

The study targeted a sample of 400 informal households. Out of this number, 328 respondents successfully completed the questionnaire, yielding a response rate of 82 percent. This rate is methodologically sound and exceeds the minimum threshold commonly accepted in social science research. Response rates above 70 percent are considered robust and representative, particularly in field-based studies involving vulnerable populations (Holtom, Edmondson, & Rego, 2022; Fincham, 2008). Creswell (2014) and Kothari (2004) further affirm that response rates exceeding 75 percent enhance the reliability and generalizability of findings in survey-based research.

The remaining 72 responses, representing 18 percent of the sample, were not captured due to several factors. Some respondents were unavailable during the data collection period, particularly in high-mobility zones within Kibera. Others submitted incomplete questionnaires, leaving critical sections blank or inconsistent, which rendered the data unusable. A few participants withdrew before completing the survey, and some responses were lost due to technical challenges during digital entry and syncing. These limitations are common in informal urban settings, where

socioeconomic constraints, literacy levels, and infrastructural challenges can affect participation (Mugenda & Mugenda, 2003; Bryman, 2015).

4.2 Demographic

This section presents the socio-demographic profile of the 328 respondents who successfully completed the questionnaire. Understanding these characteristics is crucial for contextualizing the study's findings, as factors such as gender, age, education, and income are known to significantly influence financial behavior and technology adoption.

4.2.1 Gender

Table 4.1
Gender

		Frequency	Percent
Valid	Male	138	34.5
	Female	190	47.5
	Total	328	82.0
Missing	System	72	18.0
Total		400	100.0

Table 4.1 presents the gender distribution of the respondents. Out of the 328 valid responses, 138 were male, representing 34.5 percent of the sample, while 190 were female, accounting for 47.5 percent. The remaining 72 cases, constituting 18 percent of the total sample, were classified as system-missing due to non-response or incomplete entries. The higher proportion of female respondents is attributed to the timing and context of data collection. During the survey period, many male household members were engaged in informal or casual labor outside the settlement, limiting their availability. In contrast, a significant number of women were present at home, often managing small-scale businesses such as food vending, tailoring, or retail kiosks, while simultaneously fulfilling domestic responsibilities. This dual role increased their

accessibility to enumerators and contributed to the higher response rate among female participants. This pattern is consistent with urban informal settlement dynamics, where women frequently serve as financial stewards within households and are more likely to be available during daytime hours (Moser, 2009; Chant, 2013).

4.2.2 Age Group

Table 4.2
Age Group (in years)

		Frequency	Percent
Valid	18–25	55	13.8
	26–35	86	21.5
	36–45	103	25.8
	46–55	68	17.0
	56 and above	16	4.0
	Total	328	82.0
Missing	System	72	18.0
Total		400	100.0

Table 4.2 presents the age distribution of the respondents. Among the 328 valid responses, the largest proportion (25.8 percent) fell within the 36–45 age bracket, followed by 21.5 percent in the 26–35 category and 17.0 percent in the 46–55 group. Respondents aged 18–25 accounted for 13.8 percent, while those aged 56 and above comprised only 4.0 percent of the sample. A total of 72 cases (18.0 percent) were system-missing due to non-response or incomplete entries. The predominance of respondents aged 36–45 reflects the demographic structure of informal settlements such as Kibera, where middle-aged adults are actively engaged in income-generating activities and household financial management. This age group is also more likely to interact with financial technology platforms, including mobile banking and digital credit systems. The lower representation of older respondents (56 and above) may be attributed to limited digital literacy and reduced engagement with fintech services.

4.2.3 Education Level

Table 4.3
Highest Education Level Attained?

		Frequency	Percent
Valid	No formal education	29	7.2
	Primary	150	37.5
	Secondary	130	32.5
	Tertiary	19	4.8
	Total	328	82.0
Missing	System	72	18.0
Total		400	100.0

Table 4.3 presents the distribution of respondents by highest level of education attained. Among the 328 valid responses, 37.5 percent had completed primary education, followed by 32.5 percent with secondary education. Respondents with no formal education accounted for 7.2 percent, while only 4.8 percent had attained tertiary education. A total of 72 cases (18.0 percent) were system-missing due to non-response or incomplete entries. The predominance of respondents with primary and secondary education reflects the educational realities of informal settlements such as Kibera, where access to basic education is relatively common, but progression to tertiary levels remains constrained by financial hardship and systemic barriers. The low representation of tertiary-educated respondents (4.8 percent) and those with no formal education (7.2 percent) underscores the dual challenge of digital literacy and financial exclusion.

4.2.4 Employment Status

Table 4.4
Employment Status

		Frequency	Percent
Valid	Self-employed	95	23.8
	Informal casual worker	157	39.6

	Unemployed	75	18.8
	Total	328	82.0
Missing	System	72	18.0
Total		400	100.0

Table 4.4 presents the employment status of the respondents. Among the 328 valid responses, 39.6 percent identified as informal casual workers, 23.8 percent were self-employed, and 18.8 percent reported being unemployed. A total of 72 cases (18.0 percent) were system-missing due to incomplete or unreturned questionnaires. The dominance of informal casual workers reflects the economic structure of Kibera, where most residents rely on irregular, low-wage activities such as construction, domestic work, vending, and transport services. The presence of self-employed respondents (23.8 percent) highlights the role of micro-enterprise and household-level entrepreneurship in sustaining livelihoods. Unemployed respondents made up 18.8 percent of the valid sample. This segment reflects the financial vulnerability present in informal settlements.

4.2.5 Monthly Household Income (KES)

Table 4.5
Monthly Household Income (KES)

		Frequency	Percent
	Below 5,000	61	15.3
	5,001–10,000	140	35.0
Valid	10,001–20,000	88	22.0
	Above 20,000	38	9.8
	Total	328	82.0
Missing	System	72	18.0
Total		400	100.0

Table 4.5 presents the monthly household income levels of respondents. Among the 328 valid cases, 35.0 percent reported earning between 5,001 and 10,000 Kenyan shillings per month. This income bracket represents the largest segment and reflects the modest earnings typical of informal urban households. Respondents earning between 10,001 and 20,000 shillings accounted for 22.0 percent of the sample. These households may have slightly more financial stability and are more likely to engage with digital payment platforms for business transactions and savings. Households earning below 5,000 shillings made up 15.3 percent of the sample. This group is likely to experience significant financial vulnerability and may rely heavily on informal borrowing or digital credit to meet basic needs. Only 9.8 percent of respondents reported earnings above 20,000 shillings. These households may have more consistent income sources and greater capacity to engage with a wider range of financial products.

4.2.6 Duration of Residence in Kibera

Table 4.6
Duration of Residence in Kibera

		Frequency	Percent
Valid	Less than 1 year	3	.8
	1–5 years	65	16.3
	6–10 years	145	36.3
	Over 10 years	115	28.7
	Total	328	82.0
Missing	System	72	18.0
Total		400	100.0

Table 4.6 shows the length of residency among respondents living in Kibera. Of the 328 valid responses, the largest share (36.3 percent) had lived in the community for six to ten years. It appears there is a relatively stable level of residency among respondents with moderate exposure to financial systems and technology in general. Of the respondents living in Kibera for over ten years, 28.7 percent of the sample were part of this group. Given their ten years or more in Kibera,

respondents in this group likely have solid social ties and most likely have accumulated experience with formal/informal financial systems as a result. Respondents who had lived in Kibera for one to five years were a share of 16.3 percent. This group is still likely getting used to their local financial environment and may still be using informal borrowing or basic mobile money services. Only 0.8 percent of respondents had lived in Kibera for less than one year.

4.3 Descriptive Statistics

Table 4.7
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
OVERALL FINANCIAL INCLUSION	328	1	5	2.95	.642
MOBILE BANKING AND FINANCIAL INCLUSION	328	2	4	3.05	.524
DIGITAL CREDIT AND FINANCIAL INCLUSION	328	1	4	3.10	.552
DIGITAL PAYMENTS AND FINANCIAL INCLUSION	328	2	4	3.22	.490
Valid N (listwise)	328				

Table 4.7 shows the descriptive statistics for the four main dimensions of financial inclusion, including mobile banking, digital credit, digital payments, and the overall financial inclusion index. Each of these dimensions was measured on a five-point Likert scale, in which higher scores indicated greater use and access to digital financial services. For the overall financial inclusion index, the summary statistics show a mean score of 2.95 and a standard deviation of 0.642. This suggests that respondents demonstrated moderate engagement with digital financial tools, although the relatively high standard deviation points to noticeable variation in usage

patterns. Some households appear to be actively integrated into the digital financial ecosystem, while others remain less engaged. This variation may reflect differences in income levels, exposure to financial technologies, or barriers such as limited documentation and digital literacy. The overall index serves as a composite measure, offering a general overview of how informal households in Kibera interact with mobile-based financial services.

Mobile banking obtained a mean score of 3.05 with a standard deviation of 0.524, indicating a slightly above average level of usage and fairly similar acceptances across the sample. This implies that mobile banking services including balance inquiries, airtime purchases and peer-to-peer transfers can easily be accessed and are commonly used. The lower standard deviation compared to the overall index implies less dispersion in responses, pointing to a more uniform experience among users. Digital credit had a mean score of 3.10 and a standard deviation of 0.552, making it the highest among the four dimensions. This reflects the popularity of short-term mobile loans, which are often used to manage urgent household expenses. However, the moderate variability suggests that while many respondents rely on digital credit, others may avoid it due to concerns about repayment terms, interest rates, or financial risk. These patterns were further examined in the inferential analysis.

Digital payments surfaced as the most frequently used financial service with a mean score of 3.22 and a standard deviation of only 0.490. This suggests strong and relatively consistent usage behavior of mobile payment platforms especially for everyday transactions including; acquiring goods, bill payments, and school fee payments. The high mean coupled with low variability suggests that digital payments have achieved broad acceptance and integration into daily financial behavior. Compared to other dimensions, digital payments appear to be the most stable and universally adopted service among informal households.

4.4 Diagnostic Tests Results

Prior to interpreting the regression results, it is essential to verify that the underlying assumptions of the Ordinary Least Squares (OLS) regression were not violated. The presence of violations such as non-normal residuals, multicollinearity, heteroscedasticity, or autocorrelation can render the regression coefficients biased, inefficient, or inconsistent, leading to unreliable inferences (Gujarati & Porter, 2009). This section presents the results of the diagnostic tests conducted to ensure the robustness and validity of the regression model.

4.4.1 Tests for Normality

Table 4.8
Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
MOBILE BANKING AND FINANCIAL INCLUSION	.094	328	.070	.980	328	.076
DIGITAL CREDIT AND FINANCIAL INCLUSION	.093	328	.107	.983	328	.901
DIGITAL PAYMENTS AND FINANCIAL INCLUSION	.091	328	.961	.978	328	.800
OVERALL FINANCIAL INCLUSION	.099	328	.098	.978	328	.072

a. Lilliefors Significance Correction

Table 4.8 provides the outcomes of Kolmogorov-Smirnov tests and Shapiro-Wilk tests for normality on the four financial inclusion variables. The total significance values exceeded 0.05 (e.g. Shapiro-Wilk values ranged 0.076 - 0.802), therefore the null hypothesis of normality is not rejected for each construct. This confirms that the data for mobile banking, digital credit, digital payments and financial inclusion for all respondents are reasonably normally distributed. The

results support the use of parametric methods such as correlation and regression in further analysis, with no requirements for data transformation or non-parametric alternatives.

4.4.2 Tests for Multicollinearity

Table 4.9
Multicollinearity

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
1 MOBILE BANKING	.963	1.038
DIGITAL CREDIT	.968	1.033
DIGITAL PAYMENTS	.968	1.033

a. Dependent Variable: OVERALL FINANCIAL INCLUSION

Table 4.9 illustrates the outcome of multicollinearity diagnostics for the predictors of overall financial inclusion. For the predictors mobile banking (.963), digital credit (.968), and digital payments (.968) all of the tolerance values are well above the conventional cutoff of .10, as the respective VIF values are closely clustered together on a range from 1.033 to 1.038, which is much lower than the cutoff of 10. This means that there is no indication of multicollinearity in the model because none of the independent variables were unduly linearly dependent on each other. Each construct contributes distinct explanatory value to the regression equation, thereby preserving the stability and interpretability of the estimated coefficients.

4.4.3 Heteroscedastic Test

Figure 4.1

Heteroscedastic Test

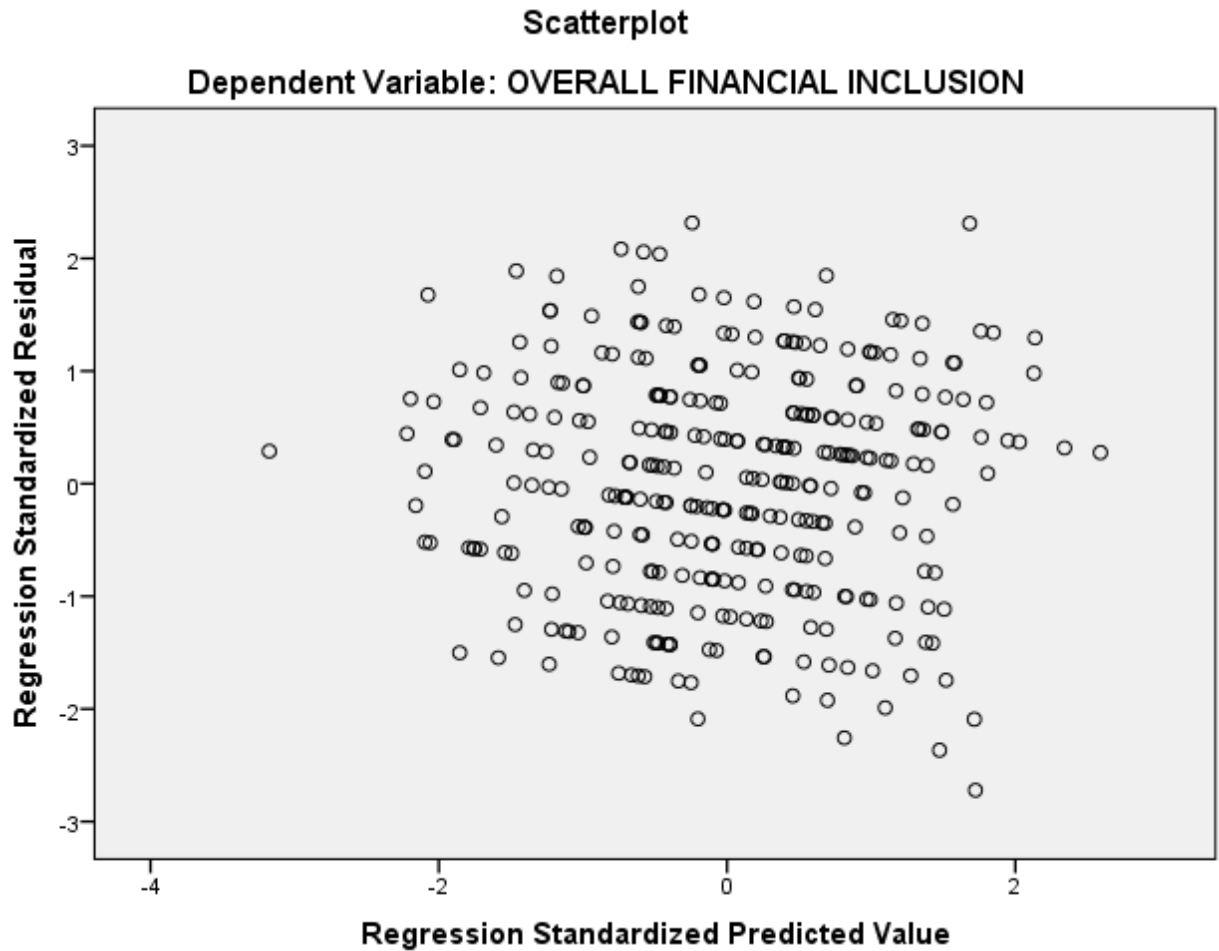


Figure 4.1 is a scatterplot that plots standardized residuals against standardized predicted values to check for heteroscedasticity in the regression model. The residual points are randomly distributed around the horizontal axis without any noticeable trend or funnel shape, or systematic clusters. The graphical evidence indicates that the assumption of homoscedasticity is met, meaning the variance of the residuals is not dependent on the value of the predicted values. Having seen no evidence of heteroscedasticity increases the credibility of the coefficient values being estimated and the accuracy of the statistical inferences made from the regression model.

4.4.4 Autocorrelation Test

Table 4.10
Table Durbin-Watson

Model	Durbin-Watson
1	1.845
a. Predictors: (Constant), Digital Payments , Digital Credit , Mobile Banking	
b. Dependent Variable: Overall Financial Inclusion	

According to the results of the Durbin-Watson test shown in Table 4.10, the test statistic in this case is 1.845, which is in the acceptable range of 1.5–2.5, so it appears that the residuals of the regression do not display serious autocorrelation. Sufficient error independence with respect to the regression can generally be assumed, and therefore, the regression estimates of the model can be considered statistically valid.

4.5 Correlation Analysis

Table 4.11
Correlations

		MOBILE BANKING	DIGITAL CREDIT	DIGITAL PAYMENTS	OVERALL FINANCIAL INCLUSION
MOBILE BANKING	Pearson Correlation	1	.457**	.278**	.693**
	Sig. (2-tailed)		.000	.000	.000
	N	328	328	328	328
DIGITAL CREDIT	Pearson Correlation	.457**	1	.127*	.466**
	Sig. (2-tailed)	.000		.021	.000
	N	328	328	328	328
DIGITAL PAYMENTS	Pearson Correlation	.278**	.127*	1	.246**
	Sig. (2-tailed)	.000	.021		.000
	N	328	328	328	328
OVERALL FINANCIAL INCLUSION	Pearson Correlation	.693**	.466**	.246**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	328	328	328	328

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The correlation matrix indicates that mobile banking had the strongest positive correlation with financial inclusion (i.e., 0.693). This means that the extent to which people use mobile banking services had a close relationship with their access to financial services. Therefore, while this finding illustrates financial inclusion efforts the strongest, it is also independent of the economy's technical constraints, where mobile banking can act as a major player for financial inclusion, especially when all the services it provided in the financial services context were limited or absent. Digital credit also has a moderate positive correlation with financial inclusion, with a score of 0.466. This shows that access to and use of digital credit facilities enhances financial inclusion, and indicates that digital credit is a supplementary mechanism to allow individuals to

participate in formal financial systems, particularly where traditional lending mechanisms are limited. Digital payments showed a lesser, but still positive relationship, with a coefficient of 0.328. This shows that digital payment platforms do contribute towards financial inclusion, albeit their impact is less pronounced than mobile banking and digital credit. This may reflect differences in user engagement or the transactional nature of digital payments, which may not directly translate into sustained financial access.

4.6 Regression Analysis

Regression analysis was conducted to quantify the relationship between the independent variables (mobile banking, digital credit, and digital payments) and the dependent variable (financial inclusion). This section presents the results of both simple linear regression analyses for each individual fintech dimension and a multiple regression analysis assessing their joint effect.

4.6.1 Mobile Banking and Financial Inclusion of Informal Households

Table 4.12
Mobile Banking and Financial Inclusion of Informal Households Regression

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	120.503	1	120.503	301.377	.000 ^b
Residual	130.348	326	.400		
Total	250.851	327			

Model	Unstandardized Coefficients		Standardized Coefficient	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error				Lower Bound	Upper Bound
(Constant)	.625	.140		4.464	.000	.350	.900
MOBILE BANKING	.782	.045	.693	17.360	.000	.694	.871

a. Dependent Variable: Overall Financial Inclusion

The results of the regression analysis indicate that mobile banking has a statistically significant and positive effect on financial inclusion levels for informal households. The F-statistic for the model is 301.377 with a p-value of .000, indicating that the presence of mobile banking provides a meaningful explanation of variability in financial inclusion. The regression sum of squares is 120.503 and the total sum of squares is 250.851, meaning mobile banking accounts for approximately 48 percent of the variance explained by the model. The unstandardized coefficient for mobile banking is 0.782, indicating that a one unit increase in mobile banking leads to 0.782 unit increase in financial inclusion. The standardized beta coefficient of 0.693 indicates a strong positive relationship. With a t-value of 17.360 and a very narrow 95% confidence interval of 0.694 and 0.871 the above results can further confirm the dependability and accuracy of the estimate.

The results strongly suggest that mobile banking is a significant predictor of financial inclusion in informal household contexts. The large beta value implies that mobile banking has a large effect in relation to other potential predictors. The very narrow confidence interval demonstrates that this estimate is stable and not susceptible to a large error. Further, the fact that the model accounts for almost 50% of the variance in financial inclusion indicates that mobile banking is providing key opportunities for financial inclusion in cases of households which invariably lack access to some financial services such as savings, credit and payments, largely because of exclusion from formal banking systems.

The results are in agreement with previous studies. Musa (2022) reported a positive relationship between mobile banking and financial inclusion amongst informal businesses in Nairobi, and this study has shown that this relationship can also be observed at the household-level. Esquivias et al. (2020) also med the same findings about mobile technologies facilitating access to finance, and increasing income generation. Ezzahid and ElouAourti (2021) also

confirmed that mobile banking can assist in overcoming barriers to access due to issues of distance and cost, and this model is supported overall in terms of explanatory power. Kim (2020) found that mobile money platforms help improve financial management for low-income urban residents. Present study confirms that mobile banking has a positive contribution to financial inclusion for informal households.

4.6.2 Digital Credit and Financial Inclusion of Informal Households

Table 4.13
Digital Credit and Financial Inclusion of Informal Households Regression

Model	Sum of Squares	df	Mean Square	F	Sig.		
Regression	54.524	1	54.524	90.536	.000 ^b		
Residual	196.327	326	.602				
Total	250.851	327					

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	.939	.219		4.295	.000	.509	1.369
Digital Credit	.660	.069	.466	9.515	.000	.523	.796

a. Dependent Variable: Overall Financial Inclusion

The regression results demonstrate a statistically significant, and positive, relationship between digital credit and financial inclusion for informal households. The model appears to have a meaningful effect, yielding an F-value of 90.536 with a p-value of .000, indicating that digital credit is an important explanatory factor with respect to financial inclusion. The regression sum of squares is 54.524, with a total sum of squares of 250.851, suggesting digital credit explains approximately 22 percent of the variance. For every one-unit increase in digital credit usage, the unstandardized coefficient was 0.660, meaning that every unit increase in digital credit usage, is

associated with a 0.660 increase in financial inclusion. The standardized beta coefficient of 0.466 indicates a moderate positive relationship. The t-value of 9.515, and the narrow confidence interval of between 0.523 and 0.796, also suggested reliability and precision of the estimate.

The findings indicate that digital credit is a significant predictor of financial inclusion in informal household contexts. The moderate beta value indicates any potential impact of digital credit is meaningful compared to other potential predictors. The narrow confidence interval indicates the estimate is stable and not subject to large measurement or estimation errors. The model also explains over one-fifth of the variation in financial inclusion, suggesting the important role that digital credit plays in improving access to financial services, including emergency loans, consumption smoothing, and micro-investments among households that are mostly excluded from the formal banking system.

The findings are consistent with literature that demonstrates that, with some caveats about over-borrowing and consumer protection, digital credit opened up financial services opportunities for low-income households in the Nairobi informal settlements, as reported by Kim (2022). Kelikume (2021) found that digital credit was a major contributor to informal sector growth and poverty alleviation throughout African countries. Peng and Mao (2023) found that digital credit benefited urban household's financial market participation and poverty alleviation in China. The current results indicate that digital credit confirms a positive impact on financial inclusion for informal households.

4.6.3 Digital Payment and Financial Inclusion of Informal Households

Table 4.14
Digital Payment and Financial Inclusion of Informal Households Regression

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	15.222	1	15.222	21.061	.000 ^b
Residual	235.628	326	.723		
Total	250.851	327			

Model	Unstandardized Coefficients		Standardized Coefficient	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	2.030	.212		9.573	.000	1.613	2.447
Digital Payments	.296	.064	.246	4.589	.000	.169	.423

a. Dependent Variable: Overall Financial Inclusion

The regression results show that digital payments demonstrate a statistically significant and positive influence on financial inclusion with informal households. The overall F-value of the model is 21.061 with a p-value of .000, demonstrating that digital payments has some element of substantive value to financial inclusion through meaningful effects and therefore continues to be a useful determinant explaining variance. There is a regression sum of squares of 15.222 and total sum of squares of 250.851, thus, digital payments represent approximately, 6 percent of the explained model. The unstandardized coefficient is .296, thus a one-unit increase in digital payment usage is associated with a .296 unit increase in financial inclusion. Considering that the standardized beta coefficient is .246 indicates a modest positive relationship, there is a t-value of 4.589, and the confidence interval is between 0.169 and 0.423. So, all these factors demonstrated that the estimate is robust and reliable.

These results suggest that digital payments are a statistically valid but comparatively weaker predictor of financial inclusion in informal household settings. The lower beta value indicates that digital payments have a smaller effect relative to mobile banking and digital credit. Nonetheless, the confidence interval is sufficiently narrow to suggest that the estimate is stable and not subject to large errors. The finding that the model explains some of the variation in financial inclusion suggests that digital payments still have an important role to play in providing households that may not have access to formal banking infrastructure, access to financial services, such as peer-to-peer money transfer, bill payments and merchant payments.

These findings corroborate the current literature. For instance, Kim (2020) found that digital payment platforms facilitated better financial management and a higher speed of transactions for low-income urban people. Esquivias et al. (2021) found that digital payments facilitated financial inclusion in Southeast Asia, although these payments had an even more significant influence when bundled with mobile banking and credit. Musa (2022) observed that digital payments supported informal businesses in Nairobi by enabling cashless transactions and improving financial traceability. The present results confirm that digital payments contribute positively to financial inclusion among informal households, albeit with a more limited effect compared to other digital financial services.

4.6.4 Joint effect of Fintech on the Financial Inclusion of Informal Households

Table 4.15

Joint effect of Fintech on the Financial Inclusion of Informal Households Regression				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.715 ^a	.512	.507	.615

a. Predictors: (Constant), Digital Payments , Digital Credit , Mobile Banking

b. Dependent Variable: Overall Financial Inclusion

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	128.395	3	42.798	113.239	.000 ^b
Residual	122.455	324	.378		
Total	250.851	327			

a. Dependent Variable: Overall Financial Inclusion

b. Predictors: (Constant), Digital Payments , Digital Credit , Mobile Banking

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficient	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-.079	.218		-.362	.718	-.508	.350
MOBILE BANKING	.666	.051	.591	13.110	.000	.566	.766
DIGITAL CREDIT	.268	.062	.189	4.335	.000	.146	.389
DIGITAL PAYMENTS	.070	.049	.058	1.444	.150	-.025	.166

a. Dependent Variable: Overall Financial Inclusion

The regression analysis results reveal that the combined effect of fintech, including mobile banking, digital credit, and digital payments, has a statistically significant and positive effect on the level of financial inclusion of the informal households. Moreover, the model registered an F-value of 113.239, with a p-value of 0.000, which affirms that the joint fintech variables provide considerable explanation about the differences in financial inclusion. The regression sum of squares of 128.395, from a total of 250.851, reveals that the joint model explains about fifty-one percent of variance. The R-squared of 0.512 and adjusted R-squared of 0.507 indicate an adequate level of explanation. The standard error of the estimate of 0.615 means that the estimated values sufficiently and closely fit the observed values.

These coefficient estimates indicate that mobile banking is, by far, the strongest individual predictor in the joint model. The unstandardized coefficient for mobile banking was 0.666, which

means that one additional unit of mobile banking usage corresponds with an additional 0.666 units of financial inclusion. A standardized beta coefficient of 0.591 shows a strong positive correlation and highlight that the coefficient is statistically significant with large t-value of 13.110 and p-value of 0.000. Digital credit also shows a statistically significant effect with an unstandardized coefficient of 0.268 and a standardized beta of 0.189. The t-value of 4.335 and p-value of 0.000 confirm its significance, although the effect size is smaller than that of mobile banking. In contrast, digital payments do not present a statistically significant effect in the joint model. The unstandardized coefficient associated with digital payments is 0.070, the standardized beta value is 0.058, and the p-value is 0.150, indicating its contribution is not statistically distinguishable from zero at conventional significance levels. The confidence interval for digital payments is between -0.025 to 0.166, pointing to more uncertainty around any positive effect.

These results suggest that while fintech as a whole significantly enhances financial inclusion, the strength of this effect is primarily driven by mobile banking and digital credit. Mobile banking, in particular, demonstrates a dominant role in improving access to financial services among informal households. Digital credit contributes moderately, while digital payments appear to have a limited standalone effect when controlling for the other two variables. The findings reinforce the importance of prioritizing mobile banking and credit-based innovations in policy and practice aimed at expanding financial inclusion in informal settings.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a synthesis of the study by summarizing the main findings, drawing conclusions based on the empirical findings, and putting forward recommendations for policy, practice, theory and future research. The chapter is a continuation of the analysis discussed in Chapter Four and will reflect on the extent of attainment of the study objectives. It provides a systematic interpretation of the effect of mobile banking, digital credit and digital payments on financial inclusion among informal households in Kibera slums, Nairobi County. The recommendations are informed by the observed relationships and are intended to guide stakeholders in enhancing the effectiveness of fintech interventions within informal financial ecosystems.

5.2 Summary of Findings

This study sought to investigate the influence of financial technology on financial inclusion among informal households in Kibera slums, guided by three specific objectives. The following is a concise summary of the key empirical findings, contextualized within the broader literature and theoretical framework.

5.2.1 Mobile Banking and Financial Inclusion of Informal Households

The first objective of the study was to examine the effect of mobile banking on financial inclusion among informal households in Kibera slums, Nairobi County. The regression statistics revealed a strong and significant positive relationship between mobile banking, as an independent variable and financial inclusion as a dependent variable. More specifically, mobile banking

explained 48% of the variance in financial inclusion with a standardized beta coefficient of 0.693 and a p-value of .000. This led to the rejection of the null hypothesis that mobile banking does not have a positive significant effect on financial inclusion.

The above findings corroborate prior empirical findings, such as Musa (2022), who states that mobile banking provides accessibility to financial services by reducing transaction costs and convenience. Ezzahid and Elouaourti (2021) echoed this and concluded that mobile banking platforms promote financial inclusion by overcoming infrastructure challenges in underserved communities. The findings reinforce theoretical reasoning through the resource-based theory which theorizes that access to strategic resources like mobile financial platforms can help promote inclusion and economic empowerment from a consumer's perspective. Finally, the findings also reflect the financial intermediation theory of a digital channel influencing increased access to financial service for marginalized communities.

5.2.2 Digital Credit and Financial Inclusion of Informal Households

The second of the study's objectives was to investigate digital credit as a possible predictor of financial inclusion for informal households in Kibera slum, Nairobi County. The regression analysis indicated a positive, statistically significant relationship between digital credit and financial inclusion. Digital credit explained 22 percent (22%) of the variability in financial inclusion, with a standardized beta coefficient of 0.466 and a p-value of .000. Overall, these results suggest that digital credit can play a meaningful role informing financial inclusion in informal settlements.

Digital credit platforms offer flexible and immediate access to funds, which is particularly valuable for households with irregular income streams and limited access to formal banking services. The findings are consistent with prior studies such as Kim (2022), who found that digital

credit improves liquidity and supports micro-entrepreneurial activities in low-income communities. Similarly, Kelikume (2021) observed that digital lending platforms reduce barriers to credit access by leveraging alternative data for credit scoring.

From a theoretical stand point, the outcomes lend support to financial intermediation theory since it recognizes access to credit as a means of engagement with the financial system to facilitate more widespread participation. Digital credit platforms, in that sense, act as intermediaries to help underserved populations gain direct access to financial institutions, and therefore short term borrowing, without requiring a collateralized loan. This would provide informal households decision-making capacity towards more productive economic opportunities and financial planning.

5.2.3 Digital Payment and Financial Inclusion of Informal Households

The third research question sought to understand whether or not digital payments have an effective impact on financial inclusion for informal households in Kibera slums, Nairobi County. The regression results demonstrated a statistically significant but relatively weaker positive relationship between digital payments and financial inclusion. Digital payments accounted for approximately 6 percent of the total variation in financial inclusion, with a standardized beta coefficient of 0.246 and a p-value of .000. These results suggest that although digital payments improve financial inclusion, their individual effect is weaker than mobile banking and digital credit.

Digital payment platforms allow users to transact electronically (this could include peer to peer payments, paying bills directly, or making purchases from merchants). These platforms are helpful for informal households, as they eliminate or reduce reliance on cash, provide a sense of security with their transactions, and enable them to participate in the digital economy. The results

are similar to findings reported by Kim (2020), in which digital payments allowed low-income urban dwellers to better manage finances and conduct transactions more easily. Esquivias et al. (2021) also found that digital payments may be conducive to financial inclusion, particularly when combined with other digital financial services.

From a theoretical perspective, the results align with the inclusive finance framework, which emphasizes the importance of accessible, affordable, and diverse financial services. Digital payments expand the range of financial tools available to underserved populations, although their effect on inclusion may depend on factors such as network coverage, merchant acceptance, and user literacy. The relatively modest effect observed in this study may reflect limitations in infrastructure or usage patterns within informal settlements.

5.3 Conclusion

The research investigated the correlation between financial technology services and financial inclusion among informal households living in Kibera slums at Nairobi County. Three broad dimensions of fintech - mobile banking, digital credit, and digital payments, were analyzed to understand the use of fintech for financial inclusion. It adopted a structured linear regression framework to assess their relationship. The study identified that mobile banking had the greatest positive effect on financial inclusion, either followed or preceded by digital credit and digital payments. The implication of these findings is there is not symmetrical power of fintech services over others, nor that it was the same in term of influence from one service to another and or the context of use. Mobile banking emerged as the most accessible and widely adopted tool, offering informal households a reliable means to save, transfer funds, and access formal financial services. This confirms its central role in bridging financial access gaps in low-income urban settings.

Digital credit was found to have a moderate but significant influence on financial inclusion. It provided informal households with short-term liquidity and supported consumption smoothing, especially during periods of income instability. The findings align with existing literature that emphasizes the need for responsible lending practices and regulatory oversight to protect vulnerable users from over-indebtedness and financial exclusion. Digital payments contributed positively to financial inclusion, although their effect was comparatively weaker. They facilitated cashless transactions, improved convenience, and reduced reliance on informal financial mechanisms. The results indicate that digital payments are more effective when integrated with other fintech services such as mobile banking and digital credit. This calls for coordinated efforts to improve digital infrastructure, promote interoperability, and enhance user engagement through targeted financial literacy programs.

The combined impact of mobile banking, digital credit, and digital payments explained a significant amount of the variability in financial inclusion. The related subset of fintech services were found to have the greatest impact when delivered in an ecosystem as opposed to individually or separately. The inclusive finance framework supports this thinking by promoting and advocating for various financial instruments that are accessible, affordable, and appropriate for underserved populations. In the context of informal settlements, bundled fintech could address numerous barriers to financial access (e.g. affordability, convenience, and trust). Integrated fintech is important for achieving sustainable and meaningful financial inclusion.

From a policy perspective, the findings highlight the importance of enabling regulatory environments that support fintech innovation while safeguarding consumer interests. Policymakers should prioritize digital infrastructure development, promote financial literacy, and encourage responsible product design. Collaboration between government agencies, fintech providers, and

community organizations is critical to ensure that fintech solutions are contextually relevant and inclusive. By addressing both supply-side and demand-side constraints, stakeholders can foster a more equitable financial landscape that empowers informal households and contributes to broader economic resilience.

5.4 Recommendations

Based on the study's findings, it is recommended that policymakers strengthen the regulatory environment to support inclusive fintech development. Mobile banking emerged as the most impactful tool for enhancing financial inclusion among informal households. Therefore, policies should prioritize infrastructure expansion, reduce transaction costs, and promote interoperability across service providers. Regulatory bodies must also enforce consumer protection standards, particularly in digital credit markets where informal users may be vulnerable to opaque terms and exploitative pricing. Clear guidelines on data privacy, interest rate disclosures, and dispute resolution mechanisms are essential to build trust and ensure responsible service delivery. Additionally, public-private partnerships should be encouraged to extend mobile banking services to underserved regions and promote financial access at scale.

Financial service providers must take a user-centered design approach that addresses the reality of informal households. Mobile banking platforms should be simplified to better support users with low digital literacy. Customer support should be localized and responsive. Digital credit products should offer flexible repayment schedules, and incorporate alternative data to improve borrower profiling. The findings of the study showed that digital credit has a moderate impact on financial inclusion, and that this impact is constrained due to the structure of access to informal financial services. Providers should invest in flexible credit-scoring models that consider informal income patterns and informal financial behaviors. Digital payments, while less impactful, can be

strengthened through merchant onboarding, agent network expansion, and integration with other financial services. These practical measures were enhanced in terms usability and relevance for informal users.

This research offers theoretical contributions by showing that financial inclusion is not uniformly created by each fintech channel. Mobile banking, digital credits, and digital payments all exert varying degrees of influence, which leads us to argue that theoretical models must adopt a disaggregated approach to fintech modalities rather than lump them together into a single construct. Existing frameworks such as the inclusive finance model must be expanded to incorporate digital access, usage depth, and contextual relevance. The findings also highlight the importance of behavioral factors, such as financial literacy, in shaping fintech outcomes. Future theoretical work should integrate insights from behavioral economics and socio-technical systems to better explain adoption patterns and financial decision-making among informal populations.

Future research should consider the longitudinal impact of fintech adoption on financial resilience, savings behavior and asset accumulation in informal households. Better comparative studies of fintech in different regulatory contexts would help deepen our understanding of how policy environments mediate fintech results. Mixed-method research that integrates quantitative measures with qualitative interviews would facilitate a deeper understanding of user experiences and barriers. Additionally, future studies should examine gender dynamics in fintech usage, particularly how digital financial services influence economic agency and household decision-making among women. These areas of inquiry will help refine policy and practice while advancing the academic discourse on digital financial inclusion.

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APPENDICIES

Appendix 1: QUESTIONNAIRE

SECTION A: DEMOGRAPHIC INFORMATION

1. **Gender:**

- ☐ Male
- ☐ Female
- ☐ Prefer not to say

2. **Age Group (in years):**

- ☐ 18–25
- ☐ 26–35
- ☐ 36–45
- ☐ 46–55
- ☐ 56 and above

3. **Highest Education Level Attained:**

- ☐ No formal education
- ☐ Primary
- ☐ Secondary
- ☐ Tertiary

4. **Employment Status:**

- ☐ Self-employed
- ☐ Informal casual worker
- ☐ Unemployed
- ☐ Other (specify): _____

5. **Monthly Household Income (KES):**

- ☐ Below 5,000
- ☐ 5,001–10,000
- ☐ 10,001–20,000

☐ Above 20,000

6. Duration of Residence in Kibera:

☐ Less than 1 year

☐ 1–5 years

☐ 6–10 years

☐ Over 10 years

SECTION B: MOBILE BANKING AND FINANCIAL INCLUSION

Please indicate your level of agreement with the following statements using the scale below:

1 – Strongly Disagree 2 – Disagree 3 – Neutral 4 – Agree 5 – Strongly Agree

Statement	1	2	3	4	5
1. I own and operate a mobile banking account.	☐	☐	☐	☐	☐
2. Mobile banking services are easy for me to use.	☐	☐	☐	☐	☐
3. Mobile banking has helped me save money securely.	☐	☐	☐	☐	☐
4. I frequently use mobile banking for bill payments or transfers.	☐	☐	☐	☐	☐
5. Mobile banking has improved my access to financial services.	☐	☐	☐	☐	☐

SECTION C: DIGITAL CREDIT AND FINANCIAL INCLUSION

Statement	1	2	3	4	5
1. I have accessed digital loans through my phone or mobile apps.	☐	☐	☐	☐	☐
2. Digital credit providers offer fast and convenient loan services.	☐	☐	☐	☐	☐
3. I understand the terms and repayment conditions of digital loans.	☐	☐	☐	☐	☐
4. Access to digital credit has helped me manage financial emergencies.	☐	☐	☐	☐	☐
5. I am satisfied with the digital loan services I've used.	☐	☐	☐	☐	☐

SECTION D: DIGITAL PAYMENTS AND FINANCIAL INCLUSION

Statement	1	2	3	4	5
1. I regularly use mobile payment services (e.g., M-Pesa, Airtel Money).	☐	☐	☐	☐	☐
2. I find digital payment services safe and secure.	☐	☐	☐	☐	☐
3. Digital payments have reduced the need to carry physical cash.	☐	☐	☐	☐	☐
4. I use digital payments when purchasing goods and services.	☐	☐	☐	☐	☐
5. Digital payments are widely accepted in my neighborhood.	☐	☐	☐	☐	☐

SECTION E: OVERALL FINANCIAL INCLUSION

Statement	1	2	3	4	5
1. I can easily access financial services when I need them.	☐	☐	☐	☐	☐
2. I have access to savings, credit, and payment services through digital platforms.	☐	☐	☐	☐	☐
3. Fintech has increased my ability to participate in financial activities.	☐	☐	☐	☐	☐
4. I feel more financially empowered due to mobile-based services.	☐	☐	☐	☐	☐
5. I would recommend digital financial services to others in my community.	☐	☐	☐	☐	☐

Appendix 2: Originality Report

Turnitin Originality Report

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Proposal By Nafisa Abdi

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