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EFFECT OF FINANCIAL INCLUSION ON ECONOMIC GROWTH IN KENYA

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ABSTRACT

This research project investigates the impact of financial inclusion on economic growth in Kenya, with a particular focus on the roles of mobile and agency banking. As digital financial services continue to evolve, understanding their influence on economic dynamics becomes crucial for policymakers and financial institutions. The study employs a descriptive and causal research design to analyze the relationship between financial inclusion and GDP growth, utilizing time series data from 2007 to 2023. Through rigorous data analysis using STATA software, the research examines how mobile banking, agency banking, and digital lending services contribute to enhancing financial accessibility and promoting economic participation among underserved communities. The findings highlight the significance of regulatory frameworks in fostering responsible lending practices and the potential of alternative credit scoring methodologies to expand financial access. Additionally, the research identifies demographic factors influencing financial inclusion and suggests strategies for improving service delivery and customer satisfaction. Ultimately, this study aims to provide insights that can guide stakeholders in creating a more resilient and inclusive financial environment, thereby supporting sustainable economic development in Kenya.

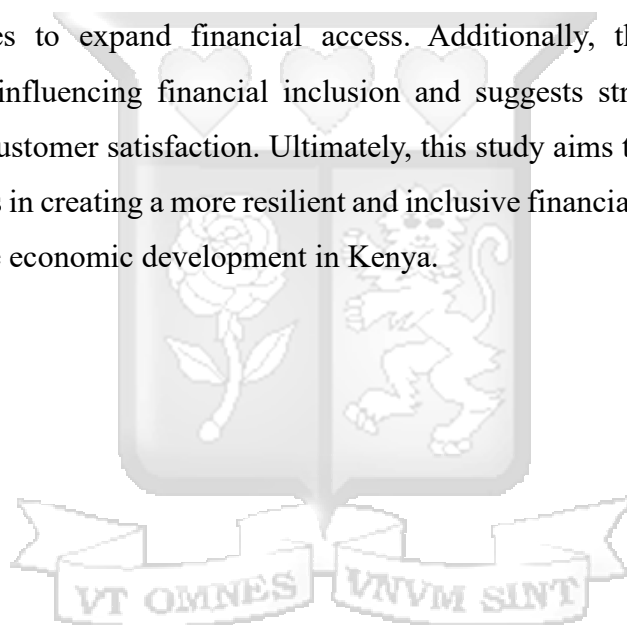


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LIST OF ABBREVIATIONS.

GDP – Gross Domestic Product

CBK – Central Bank of Kenya

GNP – Gross National Product

FD – Financial Development

MFI – Micro-finance Institutions



CHAPTER ONE.

INTRODUCTION.

1.1. Background of the study.

In Kenya, the evolution of financial technology and innovation has significantly transformed the landscape of financial inclusion. Financial inclusion is defined as the state in which all persons have access to appropriate and desired financial goods and services for efficient money management (Leyshon and Thrift, 1995). In contrast, financial exclusion is the inability to receive critical financial services in an acceptable manner (Sinclair, 2001). Exclusion may be caused by access obstacles, bad circumstances, expensive pricing, poor marketing, or self-exclusion as a consequence of negative experiences. Access to finance is especially important for Kenyans since it empowers them and promotes inclusive development. This is done via customer financial awareness and competence, as well as financial access given by service providers (Transact, 2007).

Efforts to promote financial inclusion have been a focus for both financial and developmental institutions (Aduda & Kalunda, 2012). However, while financial inclusion is critical, the ultimate goal is to drive economic growth. Economic growth in Kenya has been significantly impacted by the expansion of financial services, facilitated by technological advancements (Demirguc-Kunt & Levine, 2009). These advancements, particularly in ICT, have revolutionized banking services, making deposit accounts, loans, insurance, and electronic transfers more accessible (Sarma, 2012). Economic growth benefits from financial inclusion through several channels. This increased economic participation stimulates business activity, leading to job creation and higher income levels. For instance, microloans provided through mobile banking platforms can foster entrepreneurship, boosting economic activity at the grassroots level (Decker, 2012).

Furthermore, financial inclusion helps to reduce income inequality by providing economically marginalized individuals with the tools to improve their financial stability. This, in turn, enhances overall economic resilience and contributes to sustainable economic growth. According to Pazarbasioglu et al. (2020), a significant portion of adults in developing nations still lacks access to financial services, which hinders economic progress. In sub-Saharan Africa, only 33% of adults own a bank account, highlighting a critical area for improvement.

The impact of mobile financial services on economic growth in Kenya is particularly noteworthy. Mobile banking and agency banking have bridged infrastructural gaps, facilitating financial transactions even in remote areas. This has led to increased savings and investments,

driving economic activity. M-Pesa, a mobile phone-based financial service, is a prime example of how leveraging mobile technology can integrate more people into the financial system, thereby boosting economic growth. Inclusive finance is recognized for promoting wealth creation and sustainable economic growth, contributing to the United Nations' Sustainable Development Goals (Abor et al., 2018). By providing affordable financial services, financial inclusion can increase business opportunities, expand investments, and drive GDP growth. Thus, the interplay between financial inclusion and economic growth is critical for achieving inclusive development in Kenya.

1.1.1. Financial inclusion.

The process of making sure that people and businesses have access to practical, reasonably priced financial products and services that satisfy their needs—transactions, payments, savings, credit, and insurance—and are provided in an ethical and sustainable manner is known as financial inclusion. It is a major force behind economic growth and the reduction of poverty because it gives more people the means to engage in the economy by giving them the resources to handle their money, make investments in the future, and guard against monetary hazards. By overcoming market frictions that typically exclude these populations, financial inclusion seeks to integrate them into the formal financial system (Allen et al., 2016).

Financial inclusion can be made available through agency banking and mobile banking. Retail agents and banks form partnerships through agency banking, which enables the agents to provide basic financial services on the banks' behalf (CGAP, 2010). By expanding the reach of financial institutions beyond traditional branches, this model facilitates access to banking services for residents of rural and isolated areas. Conversely, mobile banking makes use of the growing popularity of mobile devices to offer banking services like bill payment, savings accounts, and money transfers (Jack & Suri, 2014). By providing a practical and affordable alternative to bank accounts for conducting financial transactions, services such as M-PESA have completely transformed financial inclusion in Kenya (Mbiti & Weil, 2011).

Financial inclusion aims to guarantee that all people and businesses, especially those in marginalized and disadvantaged communities, have access to suitable and reasonably priced financial services and products, including credit, insurance, savings accounts, and payment systems. Financial inclusion attempts to advance economic empowerment, lessen poverty, and spur sustainable economic growth by incorporating these populations into the official financial system. In order to help people make wise financial decisions and raise their standard of living

generally, it also aims to increase financial literacy and guarantee that financial services are provided responsibly and sustainably.

1.1.2. GDP growth.

The term "economic growth" refers to the rise in the production of goods and services in an economy during a certain time, which is often assessed annually or quarterly. This expansion is often measured by an increase in a country's Gross Domestic Product (GDP), which reflects the total value of all products and services produced inside its boundaries. Economic development is critical since it is directly related to raising living standards, creating employment, and ensuring a society's overall prosperity. When an economy expands, companies expand, job opportunities improve, and governments have more resources to spend in infrastructure, education, and healthcare, all of which benefit the people.

The factors driving economic growth are diverse and interconnected. Investments in infrastructure, education, and technology are among the primary drivers, as they enhance productivity and efficiency in various sectors of the economy. A well-educated workforce can innovate and adapt to new technologies, leading to more efficient production processes and the creation of new industries. Additionally, stable political and economic environments encourage investment from both domestic and international sources, further fueling growth. Natural resources, while important, are not the sole determinants of growth; how effectively a country manages and utilizes these resources also plays a significant role in sustaining long-term economic development. Moreover, unchecked economic growth can have adverse environmental impacts, such as resource depletion and pollution, which can undermine the sustainability of future growth. Therefore, while economic growth is vital for improving living standards, it is essential to ensure that it is inclusive, equitable, and sustainable to truly benefit society as a whole.

1.1.3. Relationship between financial inclusion and GDP growth.

The relationship between economic growth and financial inclusion is fundamental, since financial inclusion acts as a catalyst for broader economic development. Financial inclusion entails ensuring that individuals and companies have access to essential financial services such as savings accounts, credit, insurance, and payment systems. When more people and businesses are integrated into the financial system, they are better able to engage in the economy, resulting

in higher economic activity and growth. For example, having access to financing allows small firms to expand their operations, invest in new technology, and recruit more staff, all of which contribute to economic development.

Financial integration also promotes economic growth by improving financial market efficiency. When more people have access to financial services, savings and investments are mobilized more efficiently, resulting in improved resource allocation in the economy. This may lead to increased productivity by allowing organizations and people to invest in opportunities with the best rewards. Furthermore, financial inclusion helps to level out consumption patterns by enabling people to save during good times and borrow during bad, therefore stabilizing demand and reducing economic instability. In this approach, financial inclusion helps to maintain economic stability while also promoting development.

1.1.4. Financial inclusion and GDP growth in Kenya.

Kenya's pioneering position in embracing new financial technology makes the link between financial inclusion and GDP development all the more relevant. Over the last two decades, Kenya has seen significant economic growth, with financial inclusion playing a critical role. The introduction and broad use of mobile banking services, particularly M-PESA, has transformed the financial landscape by giving millions of Kenyans with access to previously unavailable financial services (Jack & Suri, 2014). Increased access has not only empowered individuals and businesses, but has also aided to the economy's overall development by integrating a larger section of the population into the formal financial system.

Financial inclusion in Kenya has resulted in increased economic involvement, especially among rural and low-income people who were previously excluded from formal banking. Financial inclusion has enabled these populations to participate in economic activities such as establishing small enterprises, investing in agriculture, and boosting family welfare (Mbiti & Weil, 2011). The expansion of agency banking and the proliferation of mobile money agents around the nation have increased financial inclusion by bringing financial services to rural communities, resulting in more equal economic development. These advancements have greatly boosted Kenya's GDP since more individuals can now engage in economic activities that promote growth. The relationship between financial inclusion and GDP development in Kenya is visible in the favorable effects on small and medium-sized companies (SMEs). Access to financial services has helped SMEs to expand their operations, enter new markets, and engage in technology and innovation, all of which are important drivers of economic development (Beck, Demirguc-Kunt, & Levine, 2007). As SMEs expand, they generate

employment and raise income levels, therefore stimulating economic activity. Furthermore, the increasing availability of financing has allowed for larger investments in industries such as agriculture, industry, and services, resulting in more diverse economic development. Overall, Kenya's experience demonstrates the relevance of financial inclusion as a catalyst for long-term economic development, emphasizing the essential role that inclusive financial policies and technology play in driving GDP growth.

1.2. Problem statement.

Economic growth is a key macroeconomic engine for a country's development and wealth. In other terms, it implies more earnings, higher living standards, and better overall population well-being. Previously, numerous elements fueled expansion, including technical advancements, human capital development, and strong economic policies. Knowledge of these characteristics is critical for any policymaker seeking to develop measures that ensure long-term economic development.

Financial inclusion may be defined as the accessibility of financial services to all individuals and enterprises, regardless of economic condition. This may include banking and credit access, as well as insurance and financial service expertise. Individuals should be financially involved because it allows them to save, invest, and manage their resources. It also promotes development in order to accumulate the necessary financial resources. Many experts have investigated the influence of financial interventions on economic growth in Kenya. Such research demonstrates that a larger proportion of financial services leads to better economic results, such as higher savings and investment rates. However, one key area that receives little attention is how digital financial services, such as mobile and agency banking, might help improve financial inclusion among rural communities. This gap will be addressed by trying to determine how digital financial services might be enhanced to aid in financial inclusion and, eventually, economic development in Kenya.

In Kenya, various research have been conducted on financial inclusion and economic growth. Decker (2012) conducted a research on the efficacy of microfinance organizations in promoting financial inclusion in Kenya. Decker (2012) established that MFIs should diversify their credits and savings as key financial products critical to empowerment as the first step toward financial inclusion, balancing their operations as commercial, non-governmental organizations (NGOs), or government programs to meet the financial needs of people at various levels. Ndege (2012) investigated the link between financial sector strengthening and economic development in Kenya and discovered that there is a positive association between the two. Odhiambo (2008)

conducted research on financial depth, savings, and economic development in Kenya, attempting to demonstrate a dynamic causal link. Based on the preceding considerations and the changing macroeconomic climate in Kenya, this study will attempt to address a research gap on the link between financial inclusion and economic development in Kenya. This study intended to address the following research question: What is the link between financial inclusion and Kenya's economic growth?

1.3. Research questions.

What is the effect of mobile banking on economic growth in Kenya?

What is the effect of agency banking on economic growth in Kenya?

What is the controlling effect of digital lending services on economic growth in Kenya?

1.4. Objectives of the study.

To determine the effect of mobile banking on economic growth in Kenya

To determine the effect of agency banking on economic growth in Kenya

To examine the controlling effect of digital lending services on economic growth in Kenya

1.5. Significance of the study.

This study has important implications for a variety of key stakeholders, including politicians, financial institutions, companies, and the general public. Understanding the effect of financial intervention may assist the government and policymakers in developing strategies to expand access to financial services, which is crucial for long-term economic growth and poverty reduction. Financial institutions, such as banks and microfinance firms, may utilize the results to customize their goods and services to better meet the needs of disadvantaged individuals, therefore expanding their clientele and enhancing financial stability. Businesses, especially small and medium-sized enterprises (SMEs), stand to benefit from increased financial inclusion since it improves access to credit and other financial resources, thus stimulating entrepreneurial activity and promoting economic development. Furthermore, expanded financial inclusion will help the general population, especially those living in rural and disadvantaged areas, by increasing access to savings, credit, insurance, and payment services, so improving their lives and contributing to economic stability. This study thus plays an important role in highlighting the critical link between financial integration and economic growth, providing valuable insights that can inform policy decisions, financial sector strategies, and community development programs aimed at fostering inclusive economic prosperity in Kenya.

CHAPTER TWO

LITERATURE REVIEW.

2.1. Introduction.

This chapter examines the literature relevant to the study topic. It includes a review of empirical studies, theoretical perspectives, and the conceptual framework. Additionally, the chapter critiques existing literature, summarizes key findings, and identifies research gaps. Overall, it aims to critically analyse the available literature to provide a solid foundation for the study.

2.2. Theoretical review.

This reflects various theories employed in the study. In this case, the Financial Intermediation Theory, Endogenous Growth Theory, Inclusive Growth Theory and Innovation Diffusion Theory were used.

2.2.1. Financial intermediation theory.

This theory, developed by Ludwig von Mises (1912), views banks as financial intermediaries that bridge the gap between savers and borrowers. According to this theory, banks act as collectors of surplus funds from individuals and businesses (savers) and channel these funds towards entities with a need for capital (borrowers). This process allows savers to earn interest on their deposits, while borrowers can access funds for investment or spending. The core purpose of Financial Intermediation Theory is to explain how banks facilitate the flow of funds within an economy. By matching lenders with borrowers, banks promote economic activity and growth. A key aspect of this theory is the concept of liquidity transformation (Dewatripont et al., 2010).

Mises (1912) made a key assumption in this theory: that banks primarily act as credit intermediaries, borrowing funds from depositors to then lend them out. This focus on intermediation implies that banks don't inherently create new money, but rather redistribute existing deposits. The main takeaway from this theory is that banks play a vital role in the financial system by facilitating the flow of funds and transforming liquidity. They connect those with surplus funds with those seeking investment opportunities, contributing to overall economic efficiency.

However, the theory has limitations. Critics like Allen and Santomero (2001) argue that it downplays the role of risk management in modern banking and doesn't fully account for the

concept of participation costs (fees associated with financial intermediation). Also, the theory doesn't address the potential for banks to create new money through credit creation practices.

Financial Intermediation Theory is viewed as relevant for this study because it highlights the role of banks in attracting deposits. It helps to explore how these channels, by offering convenient and easy access for customers, can enhance a bank's ability to attract deposits and, consequently, expand its lending capacity. This aligns with the theory's focus on banks acting as intermediaries by mobilizing savings through efficient deposit channels.

2.2.2. Financial repression theory.

The financial repression theory, first presented by economists Edward Shaw and Ronald McKinnon in the early 1970s, explains how governments try to control and lower public debt by directing resources toward themselves. These strategies frequently involve enforcing capital controls, limiting access to financial markets, and regulating interest rates. By keeping borrowing costs for the government low and directing savings into government bonds, these policies aim to minimize the need for foreign borrowing and the associated costs of debt servicing. The theory sheds light on how governments influence financial systems to put their own needs for funding ahead of those of the private industry.

The main goal of financial repression theory is to clarify how financial market manipulation allows governments to control and lower their debt loads. Governments can effectively manage public debt without heavily relying on external borrowing by ensuring a steady flow of funds into their cash reserves through low interest rates and restricted investment options. As per the theory, governments have the power to regulate financial markets and interest rates, regulatory measures restrict the investment options available to savers, and lower interest rates lower the cost of borrowing for the government. Nevertheless, these strategies frequently result in inefficiencies, undermining the overall development of strong financial markets, preventing the growth of the private sector, and discouraging savings because of lower returns. These limitations highlight the potential long-term negative impacts on economic efficiency and growth.

In the context of this study, financial repression theory underscores the importance of reducing financial repression to foster broader economic participation. Promoting private sector investment through increased credit availability and expanded access to financial services are two ways that financial inclusion policies can mitigate the negative impacts of financial repression. Increased economic innovation and growth result from this as it enables more people to engage in the financial system. This theory will be applied in the research to

investigate how inclusive financial policies can minimize financial repression and boost economic growth in Kenya. This will help ensure a trajectory for economic development that is more equally distributed and sustainable.

2.2.3. Innovation diffusion theory.

Innovation Diffusion Theory, popularized by Everett Rogers (2003), sheds light on how new ideas and practices, like alternative banking channels, propagate within a social system. This theory emphasizes that innovations are perceived as novel by members of the system, and their diffusion (spread) occurs gradually through communication channels (Mahajan, 2010). The core purpose lies in explaining the rate of adoption of innovation and the factors influencing it. Why are some innovations embraced rapidly, while others face resistance explored by Sevcik (2004)?

Innovation Diffusion Theory rests on a few key assumptions. First, it presumes that innovation is new and unfamiliar within the social system (Rogers, 2003). Second, it posits that individuals learn about the innovation through social interactions and communication channels (Rogers, 2003). Finally, it assumes a decision-making process where individuals weigh the pros and cons before adopting (Rogers, 2003). The theory's main takeaway is that innovation adoption follows a predictable pattern, often resembling an S-shaped curve. This curve reflects the initial slow uptake by innovators and early adopters, followed by a period of rapid growth as the majority joins in, and finally a plateau as laggards eventually adopts or the innovation reaches its saturation point (Rogers, 2003).

Innovation Diffusion Theory also has some limitations to it. The model focuses on individual decision-making and doesn't fully account for the influence of external factors like economic conditions, regulations, or organizational structures. Additionally, the theory doesn't delve deeply into the long-term use of innovations beyond the initial adoption stage (Rogers, 2003). By incorporating Innovation Diffusion Theory, one can gain valuable insights into how the characteristics of alternative banking channels and social influences affect customer adoption rates.

Innovation Diffusion Theory is valuable for this study because it allows for exploring factors that influence customer adoption. Helps to examine how characteristics of the channels themselves, such as their complexity (ease of use) as discussed by Clarke (2005), relative advantage (benefits compared to traditional methods) (Clarke, 2005), and compatibility (alignment with existing practices) (Clarke, 2005), impact adoption rates. The theory also

highlights the role of communication channels in spreading awareness and influencing social norms around these new technologies (Rogers, 2003).

2.2.4 Endogenous Growth Theory.

Endogenous and neoclassical growth theories are supported by economists like Paul Romer and Robert Solow. Key proponent Solow developed the Solow-Swan growth model, emphasizing labor, capital accumulation, and technology in economic development. He believed technical innovation drives long-term development (Solow, 1956). Later, Paul Romer added knowledge and human capital, claiming that innovation and skill learning fuel growth (Romer, 1990). Kenya has been influenced by Joseph Schumpeter's economic development theory, which emphasizes innovation and entrepreneurship. These theories influenced infrastructure, entrepreneurship, and technological innovation programs to increase economic development (Schumpeter, 1934).

Current economic theory says human capital development, technical innovation, and capital accumulation drive long-term economic growth. Technological innovation and declining capital returns are stressed in the Neoclassical Growth Theory to overcome these limits. Naturally progressing However, theory suggests that economic advancement may be self-sustaining when innovation, knowledge, and human capital are inherent (Aghion and Howitt, 1992).

This shows that Kenya's long-term growth requires education, technology, and infrastructure expenditures. This theoretical framework is part of Kenya's Vision 2030 goal to transition the economy to middle-income status via innovation, infrastructure, and human capital (GoK, 2007).

Since its founding, Modern Economic Theory has evolved. The Endogenous Progress Theory solved the Neoclassical model's problem of explaining progress without external technological advances. Romer's model made innovation an internal activity of the economy, valuing human capital and R&D (Romer, 1990).

Modern Economic Theory has been applied to Kenya, stressing innovation ecosystems and digital infrastructure as economic development drivers. As ICTs become more important for long-term economic growth, the Kenya Digital Economy Blueprint (2019) recognises this transition.

Mwangi S. Kimenyi (2011) examined how innovation, human capital, and governance affect Kenya's economy. Insufficient governance and educational investment prevented current economic theory from reaching its full potential, he said. Fredrick G. Wamalwa (2015) examined Kenya's economic growth and infrastructural development using the Neoclassical Growth Model. Infrastructure spending, especially in transportation and electricity, matched capital accumulation projections from modern economic theory. Karugia J. Thuita (2020) studied Kenya's education system using endogenous growth theory. His findings confirmed the hypothesis that human capital boosts economic development.

In emerging nations like Kenya, Modern Economic Theory has limits despite its widespread use. Its assumption of ideal markets and rational people ignores institutional flaws, market imperfections, and corruption, which are frequent in African nations. The theory's focus on technical innovation may not address Kenya's infrastructural and human capital issues, which may postpone technology investment's advantages. The idea also downplays inequality, a major problem in Kenya's prosperity story.

Vision 2030 and the Big Four Agenda (2018) align Kenya's economic development goals with economic theory. Both theories stress capital investment, innovation, and human capital as fundamental components of sustainable development in current economic theory. The Big Four Agenda seeks food security, universal healthcare, affordable housing, and manufacturing via modernizing infrastructure and technology. Kenya's innovation strategy supports endogenous growth. Construction of ICT clusters like Konza Technopolis shows this. Kenya intends to become a knowledge-based economy by making innovation endogenous, following current economic theory for long-term development.

2.3. Empirical review.

According to the IMF (2018), Kenya's financial inclusion initiatives have had a substantial impact on its economic development throughout the years. The research focuses on the growing availability of credit via mobile banking platforms such as M-Pesa, which has enabled more Kenyans, especially those in rural regions, to join in the formal financial system. Mobile banking has lowered transaction costs and fostered entrepreneurship, resulting in increased economic activity. Furthermore, the report concludes that, despite these improvements, more needs to be done to overcome the legislative and physical barriers to expanded financial inclusion. This empirical research highlights the critical role of technology-driven financial inclusion in improving Kenya's economic performance.

Numerous scholars and researchers have investigated the link between financial inclusion and economic development. Aduda and Kalunda (2012) performed a literature study on financial inclusion and financial sector stability in Kenya. They discovered that financial exclusion is often caused by social exclusion, emphasizing the importance of financial inclusion in promoting inclusive development. Their research concluded that comprehensive measures of financial inclusion, including both access and use, are necessary. They emphasized that access and consumption, although not identical, are complementing dimensions of financial inclusion. They also stressed the need of merging information and financial services, which play a vital role in developing nations.

Sarma (2012) proposes the development of a financial inclusion index as a measure of the finance sector's inclusiveness. Sarma argues that developing an inclusive financial system is a top issue for many nations. Despite increasing acceptance of the significance of financial inclusion, there has been a lack of a comprehensive metric to assess the amount of financial inclusion across various countries. To close this gap, Sarma suggests an index of financial inclusion (IFI), which combines data on numerous aspects of financial inclusion into a single value ranging from 0 to 1. In this measure, 0 implies full financial exclusion, while 1 indicates complete financial inclusion. The IFI is intended to be simple to calculate, comparable between nations and across time, and to meet key mathematical features.

Sahu (2013) investigated the role of commercial banks, financial integration, and economic development in India. The research sought to examine the level of financial inclusion in India, estimate the financial inclusion index (IFI) for several states, and investigate the relationship between the IFI and socioeconomic indicators. According to the findings, 72.7 percent of India's 89.3 million farmer families do not have access to official financial services. Furthermore, credit-deposit (C-D) ratios rose in 2011 compared to the previous year: international banks had a ratio of 85 percent, regional rural banks 59.9 percent, and private sector banks 74.7 percent, up from 72.9 percent, 58.3 percent, and 72.7 percent, respectively. No Indian state was classified as having a high IFI, with Chandigarh and Delhi falling into the medium IFI category, while the rest of the states had low IFI ratings.

Sharma (2016) investigated the relationship between several characteristics of financial inclusion (FI) and economic development in India, a developing country, from 2004 to 2013. The research focused on three key elements of FI: financial service availability, penetration, and use. The results revealed that most FI aspects were positively related to economic development. Additionally, a Granger causality study revealed a link between economic

development and geographic outreach. It also found a one-way causal relationship between the number of deposit/loan accounts and GDP.

Ibrahim (2017) investigated the effects of financial development (FD) on economic growth in Sub-Saharan Africa. According to the report, the development of the financial sector helps significantly to economic growth by increasing the number and quality of financial services. It discovered that greater levels of financial development resulted in long-term growth, including advances in human capital and overall income levels. The study highlighted the need of foreign direct investment in reforming economic processes in order to achieve long-term economic development.

Decker (2012) explored how microfinance institutions (MFIs) promote financial inclusion in Kenya. The research found that MFIs used a variety of techniques to increase financial inclusion in Nairobi, including focusing on merchants and farmers who are often excluded from the formal financial system. Key financial products such as credit and savings were highlighted as critical for empowerment and financial inclusion. MFIs balanced their activities as commercial businesses, non-governmental organizations (NGOs), or government initiatives to meet the financial requirements of varied communities. They depended extensively on savings as a key source of capital, particularly for commercial enterprises, to reduce their reliance on external borrowings. Lending policies relied on accumulated savings and capacity to pay, lowering the chance of default. To make loan repayment easier, reasonable and affordable interest rates were adopted, as well as flexible payment periods. The survey highlighted the diverse demands for MFI products, including a significant demand for working capital on the credit side and savings accounts on the savings side. Overall, 85% of MFI products matched consumer expectations, demonstrating MFIs' efficacy in fostering financial inclusion.

Mulwa (2012) investigated the impact of wireless communication in financial inclusion in Makueni County using a case study of mobile banking products. The conclusion suggested that translation required to recognize the context-specific character of the goods it translated, and that the stability of mobile banking products was dependent on the interaction between all parties involved—human and nonhuman—and what it created. The reliability of major players in their alliances is important to translation success. Notably, the research highlighted three key theoretical implications for mobile banking assuming stabilization is achieved throughout the deployment process: Because the network's logic determines the requirements for participation, mobile banking requires a minimum number of users and access points to survive, and translation requires utilizing all available resources to ensure that the most effective mobile

banking model is implemented before rollout, no single actor has the power to control the network or impose its own culture and personal objectives on the other nodes sharing the network.

2.4. Research gap.

Despite tremendous progress in promoting financial inclusion and its good consequences on economic growth, many concerns remain unsolved, notably in Kenya. Previous research has demonstrated that reducing social inequality via financial inclusion is critical to supporting fair economic growth. Sarma (2012) and Sahu (2013) conducted studies that expanded our knowledge of financial inclusion measures and their socioeconomic effects, while particular channels such as agency and mobile banking got less attention.

Ibrahim's (2017) research on financial development in Sub-Saharan Africa, as well as studies on the wider economic implications of financial inclusion (Binswanger & Khandker, 1995; Pande & Burgess, 2003; Levine, 1997), emphasized the importance of financial systems for economic growth. However, these studies fail to explore the transformative potential of mobile banking and agency banking in rural communities. Furthermore, when it comes to promoting financial inclusion in rural areas, they neglect the complex potential and problems that these digital financial services provide. More study is needed to fully understand how digital financial services, especially agency and mobile banking, might boost financial inclusion and economic development in Kenya. In order to overcome this gap, this research will look at how successfully these services can reach a larger audience, assess their influence on economic activity, and suggest ideas for using digital financial services to generate more significant economic advantages. To promote fair economic growth and maximize the potential of Kenya's financial inclusion initiatives, it is critical to bridge this policymaking gap.

2.5. Conceptual framework.

This study's conceptual framework incorporates the major components of financial inclusion and economic growth within the context of digital financial services in rural Kenya. It intends to demonstrate how mobile banking and agency banking may serve as catalysts for increasing financial inclusion and, as a result, driving economic development.

Components of the Conceptual Framework:

Independent Variables: Digital Financial Services

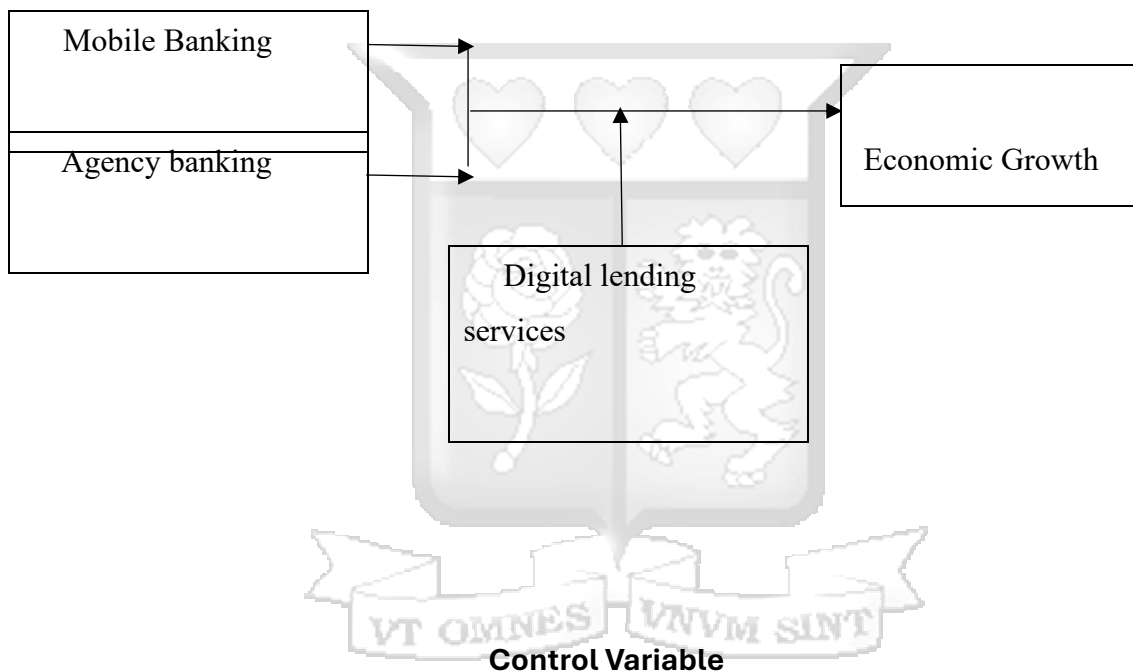
- **Mobile Banking:** Use of mobile phones to perform banking transactions such as transfers, payments, savings, and loans.
- **Agency Banking:** Use of third-party agents to offer banking services facilitating access to banking across the nation.

Dependent Variable:

- **Economic Growth:** Measured by Gross Domestic Product (GDP).

Independent variable.

Dependent variable.



CHAPTER THREE

METHODOLOGY

3.1. Introduction.

This chapter covers the study methods used to assess the effects of financial inclusion on economic growth in Kenya, focusing on mobile and agency banking. It describes the study's design, target population, data gathering methods, and data analysis procedures. The method aims to provide precise insights into how financial inclusion via new banking channels might promote Kenya's economic growth.

3.2. Research design.

The study used a descriptive research design and a casual research design. According to Mugenda & Mugenda (2003), a descriptive research design is a systematic, empirical inquiry in which the researcher does not have direct control over the independent variable since its manifestation has already happened or cannot be changed. Descriptive studies concentrate on understanding what, where, and how a phenomena occurs, making them ideal for developing a full profile of that occurrence (Mugenda & Mugenda, 2003). In this scenario, a descriptive research method is suitable since the study intends to develop a profile of the relationship between financial intervention and GDP growth in Kenya. This method enables a detailed assessment of how mobile banking and agency banking contribute to economic development by increasing financial inclusion, without affecting any factors. By using this method, the research hopes to give a clear and systematic explanation of the dynamics of financial intrusion and economic development.

According to Cooper and Schindler (2014) a causal research design seeks to find the influence that a variable on another and explains why certain outcomes are obtained. The logic of hypothesis testing underpins the concept of causality which leads to inductive conclusions. A causal research design will be suitable for this study since it enables the study to establish a causal relationship between the variables and answer the 'how' question.

3.3. Population of the study.

In statistics, population refers to the particular group for whom information is needed. Ngechu (2004) defines a population as a well-defined collection of people, services, elements, events, groupings of objects, or households under investigation. This research examined secondary

data to better understand the relationship between financial intervention and GDP growth in Kenya. GDP growth data was acquired from the Kenya National Bureau of Statistics, while mobile banking, agency banking, and digital lending services were collected from the Central Bank of Kenya. The analysis focuses on the financial periods from 2007 to 2023, a time frame selected owing to major economic changes affecting financial inclusion characteristics in Kenya.

The research employed quarterly data, which enabled a consistent and systematic analysis of trends and relationships across the required time period. The independent variable data was collected monthly and then modified and approximated to quarterly data to ensure consistent and reliable analysis. The study's goal is to provide a thorough picture of how financial inclusion via mobile banking and agency banking has effected economic development in Kenya by analyzing this large dataset.

3.4. Data collection.

The Central Bank of Kenya offered statistics on financial inclusion, while the Kenya National Bureau of Statistics provided secondary data for the study. The data was collected using customized, coded, and cleaned data collection sheets. The statistics covered the fiscal years 2007 to 2023. The project used quarterly data. In addition, data was taken from KNBS' GDP reports and websites, as well as the CBK report on digital lending services, agency banking, and mobile banking.

3.5. Data analysis.

After collecting all of the data sets listed on the data collection sheet, the researcher cleaned the data to make it suitable for analysis. The researcher evaluated the data using STATA software. The study's hypotheses were tested using both descriptive and inferential statistics. The study's variables were assessed using inferential statistics such as regression analysis and correlation (Kothari 2011). A p value less than 0.05, as determined by the 5% significance level test, provides sufficient evidence to reject the null hypothesis and accept the alternative hypothesis. A multivariate regression model was used to connect the independent and dependent variables. A regression model was employed to assess the significance of the link between financial inclusion and GDP growth. The analysis was conducted using time series data spanning 16 years, from 2007 to 2023. Prior to developing the regression model, the data was subjected to diagnostic tests for autocorrelation, Pooled OLS, serial correlation, and heteroskedasticity.

3.5.1. Analytical model.

Using time series data, the study examined Kenya's GDP growth over 16 years, from 2007 to 2023, as well as changes in financial inclusion and the regulatory role of digital lending services. Kenya's GDP growth and financial inclusion were evaluated using the following

The following regression model will be adopted in this study:

$$Y_{it} = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \epsilon_{it}$$

Y_{it} is Economic Growth in period t

X_1 is Mobile Banking in period t

X_2 is Agency Banking in period t

X_3 is Digital lending services in period t

β_0 is The Constant

$\beta_1 - 4$ is the specific beta coefficients

ϵ_i is error term in the model

3.6 Diagnostic Tests

Heteroskedasticity, serial correlation, Pooled OLS, autocorrelation, multicollinearity, and stationarity tests were among the diagnostic tests used to declare the data normal for analyzing changes in financial inclusion and GDP growth in Kenya, as well as the moderating impact of digital lending services.

3.6.1 Heteroscedasticity

The Breusch-Pagan-Godfrey test was used to detect heteroscedasticity; if heteroscedasticity exists in the model, the standard errors are wasteful, but the OLS parameter estimators are objective and consistent. The traditional t or F statistics for testing our hypothesis cannot be employed unless the standard errors are adjusted for heteroscedasticity. In the presence of heteroscedasticity, robust standard errors are often more dependable. The test statistics yield pretty accurate p-values, but adding robust standard errors does not change coefficient estimates. The variance of the error process seems to be independent of the explanatory variables, which may be used to determine if the models calculated exhibit heteroscedasticity. When the null hypothesis is rejected, the statistical evidence implies heteroscedasticity (Wooldridge 2013; Baltagi, 2005).

3.6.2 Auto Correlation

Autocorrelation is the relationship between error terms across time (Wooldridge, 2013). As a consequence, standard errors distorted estimators and reduced their efficiency (Wooldridge 2013). The Wooldridge F-test was employed to test for autocorrelation, and the null hypothesis (no serial correlation) was compared to the alternative (there was). If the p-value was less than 0.05, the null hypothesis was rejected.

3.6.3 Multicollinearity

Baltagi (2005) defines multicollinearity as the potential of independent variables becoming connected. As a consequence, regression coefficients may become inflated or deflated, rendering test statistics erroneous (Wooldridge, 2005). Variance inflation factors (VIF) were used in the study to detect multicollinearity. According to Baltagi (2005), $VIF < 10$ indicates that multicollinearity is not a concern. Furthermore, correlation analysis was performed, and any variables with correlation coefficients greater than 0.8 indicated collinearity.

3.6.4 Data Stationarity

Given the data's time series properties, it is required to determine if the variables in question are stationary or non-stationary. Stationary series, unlike non-stationary series, have a tendency to return to their mean value, a restricted variation, and transient excursions from the mean (Baltagi, 2005). As a consequence, either the data is stationary or the variables to be estimated have a fixed mean and vary over time. When non-stationary data is used in regression analysis, the results are erroneous and inconsistent. When spurious regression is used, null hypotheses that should not be rejected may be rejected. The Levin-Lin-Chu, Phillips Perrons, and Augmented Dickey Fuller root tests were utilized in this study to assess stationarity. These two tests also included autocorrelation in the error process (Wooldridge, 2013; Baltagi, 2005). To mimic autocorrelation, variables on the left-hand side are lagged (ΔX_t) as additional explanatory variables. This improves the statistical fit of the equation, and r gains effectiveness as more data is collected. The essential formulas employed in the ADF and PP tests are similar. For ΔX_{t-1} , the number of lags (K) should be large enough to allow autocorrelation in the error term while staying minimum to retain degrees of freedom.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

Following the established research objectives, this chapter summarizes the study's findings and interpretations. The data was examined using time series regression, descriptive, and statistical approaches. The impact of financial inclusion on Kenyan economic growth was determined using regression analysis, and the nature of the variables analyzed was addressed using descriptive analysis. This section also discusses the diagnostic tests performed to determine if the panel data model was an exact match for the data.

4.2 Descriptive Studies

The study's three independent components were agency banking, mobile banking, digital lending services, and GDP, each with one dependent variable. These characteristics were assessed using a variety of methods. The minimum, maximum, standard deviation, and mean values of each measurement were also underlined. Each one is highlighted in this section.

Table 4.1 Summary of Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP Millions	68	1371962.9	894229.13	317768	2665918
Agency Banking	68	432274.06	323596.09	307	1000373
Mobile Banking	67	103.082	70.584	0	231.83
Digital Lending Services	68	56.593	16.301	0	81.5

Table 4.1 illustrates the key criteria to consider when evaluating financial inclusion and Kenya's economic success. GDP has an average of 1.37 million KSh and a standard deviation of 894,229.13 KSh over 68 observations. The significant discrepancy between the lowest GDP value of 317,768 million KSh and the greatest GDP value of 2,665,918 million KSh indicates economic instability or growth fluctuations. The results reinforce the notion that financial inclusion may boost economic growth by increasing the availability of money to individuals and enterprises, highlighting Kenya's dynamic economy (World Bank, 2020).

Agency banking, with an average of 432,274.06 transactions and a standard deviation of 323,596.09, contributes to Kenya's financial inclusion. Agency banking is quickly expanding because it serves underserved communities and provides financial services in distant and rural

areas, as seen by these 307 to 1 million transactions. According to research, agency banking has reduced travel time and increased accessibility to rural communities (Kipyego & Wanjiku, 2021). Surprisingly, agency banking activity rises with savings, promoting investment and growth (Ouma et al., 2021).

The standard deviation of 70.584 indicates that Kenyan mobile banking use is increasing owing to widespread cell service and M-Pesa. From 67 observations, the average mobile banking transaction is 103.082, with a range of 0 to 231.83. Mobile banking has made Kenya's financial environment safer and speedier, especially in areas with little banking infrastructure, according to research. According to local and regional research, mobile banking services promote financial inclusion and economic development by offering savings, credit, and payment services without the need for bank accounts (Muthinja and Chipeta, 2019). Mobile banking boosts global economic growth by enabling cashless payments and lowering transaction costs (Demirgüç-Kunt et al., 2021).

Digital lending services vary from 0 to 81.5, with a mean of 56.593 and a standard deviation of 16.301 based on 68 observations. This suggests continual usage with significant unpredictability, maybe owing to shifting digital payment system confidence and regulatory constraints. Micro-entrepreneurs and those without conventional credit need digital finance for quick funding choices that promote business continuity and development (Kithaka et al., 2022). However, digital lending has prompted worldwide concerns about excessive interest rates and debt loads, emphasizing the need of regulatory frameworks that balance financial inclusion and consumer safety (CGAP, 2020).

4.3 Inferential Statistics

This section presents the results of the inferential statistics that were used to investigate the correlation between the independent and dependent variables. This section summarizes the results of regression analysis, diagnostic testing, and correlation analysis. Correlation analysis was used to determine the kind and strength of the relationship between the independent and dependent variables.

4.3.1 Correlation Analysis

Correlation analysis was also used in the study to investigate the link between independent and dependent variables.

Table 4.2 Correlation Matrix

	GDP	Agency Banking	Mobile Banking	Digital lending services
--	-----	----------------	----------------	--------------------------

GDP	1.0000			
Agency Banking	0.9458	1.0000		
Mobile Banking	0.9066	0.9878	1.0000	
Digital lending services	0.4290	0.5230	0.5497	1.0000

Table 4.2 provides a detailed association matrix for Kenya's GDP, Agency Banking, Mobile Banking, and Digital Lending Services. It gives vital new information on how financial inclusion policies effect economic growth. The high positive association between GDP and agency banking ($r = 0.9458$) suggests that expanding banking services to neglected areas benefits Kenya's economy. Mobile platforms provide quick and widespread access to financial services, hence increasing financial inclusion and economic activity. A high correlation between GDP and mobile banking ($r = 0.9066$) lends evidence to this. However, the low correlation ($r = 0.4290$) between GDP and digital lending services indicates that agency and mobile banking have a higher impact on economic growth than digital lending.

The grid also demonstrates how linked financial inclusion pathways are. The near-perfect correlation ($r = 0.9878$) between mobile banking and agency banking shows that mobile platforms employ agency networks to reach a larger audience. Digital loans use agency banking networks, implying a partial dependence ($r = 0.5230$). Digital lending services and mobile banking show a somewhat stronger relationship ($r = 0.5497$), indicating their relevance in financial inclusion and the role of mobile platforms as digital credit access channels.

4.3.2 Diagnostic Tests Results

Because of the time series form of the data used in this study, essential diagnostic tests were applied to confirm or refute data stationarity. The first test, known as homoscedasticity, was meant to ensure that the regression models' residuals remained consistent throughout time. The null hypothesis was predicted to be rejected if the Prob > chi2 value was significant (less than 0.05). The Durban Watson D test was used to evaluate the hypothesis of the second test, which looked at autocorrelation in time series data. The modified Dicky-Fuller test was used to better assess unit root stationarity. In order to hypothesize on the model type to be utilized in the regression model of financial inclusion and GDP growth, the Hausman test was also applied.

4.3.2.1 Test for Normality

The Shapiro-Wilk test was utilized in this investigation. When normality is present, the Shapiro-Wilk test computes a test statistic (W) using the correlation between actual and expected values. A p-value represents the strength of the evidence against the normalcy null hypothesis. If the p-value is larger than 0.05, the data is presumed to be normally distributed. If the Shapiro-Wilk test indicates an uneven distribution, normality is broken. Log transformation may be used to normalize non-normal variables.

Table 4.3 Shapiro-Wilk W test for Normal data

Variable	Obs	W	V	z	Prob>z
GDP Millions	68	0.814	11.158	5.237	0.000
Agency Banking	68	0.925	4.500	3.265	0.001
Mobile Banking	67	0.926	4.408	3.218	0.001
Digital Lending Services	68	0.729	16.266	6.055	0.000

Table 4.2 uses the Shapiro-Wilk W test to assess the normality of data distributions for Kenyan financial inclusion and economic variables such as GDP per million, agency banking, mobile banking, and digital lending services. This test checks if parametric tests are acceptable by examining the data for each variable to ensure that it follows a normal distribution. The "W" statistic indicates that data around 1 follows a normal distribution. The "V," "z," and "Prob>z" statistics indicate data departure from normality.

GDP is not normal in this research due to a relatively low p-value ($\text{Prob}>z = 0.000$) and a W statistic of 0.814. This suggests that GDP data is likely to diverge significantly from a normal distribution, thereby influencing future statistical studies that presume normality. Mobile banking and agency banking had lower p-values ($\text{Prob}>z = 0.001$) but higher W-values (0.925 and 0.926). While closer to GDP, agency and mobile banking statistics continue to vary from a normal distribution. Digital lending services show the greatest deviation from normality, with the lowest W statistic (0.729) and p-value ($\text{Prob}>z = 0.000$).

None of the variables followed a normal distribution, indicating skewed or irregular distributions owing to Kenyan economic peculiarities or rapid changes in financial inclusion determinants. Previous research has shown that economic growth and financial inclusion variables, particularly in developing nations, follow non-normal distributions. Kimani et al. (2020) investigated financial inclusion and economic development in Kenya, East Africa, and found similar anomalous trends, particularly for digital financial services and mobile banking

variables that developed rapidly. Muriithi and Muturi (2021) discovered that agency banking in Kenya had a non-normal distribution due to disparities in financial services development between urban and rural areas.

Global research, such as Demirgüç-Kunt et al. (2019), has revealed that financial inclusion features, especially in emerging countries, have skewed distributions owing to rapid expansion and varying adoption rates. These findings indicate that financial innovation and access inequities may lead financial inclusion measurements to deviate from norms.

4.3.2.2 Multicollinearity Test Results

To determine multicollinearity, the Variance Inflation Factor (VIF) and Tolerance were used. VIF shows how adding more explanatory variables improves the predictability of the explanatory variable.

Table 4.4 VIF Summary Statistics

	VIF	1/VIF
Mobile Banking	47.282	.021
Agency Banking	44.451	.022
Digital Lending Services	1.547	.646
Mean VIF	31.093	.

This study investigates the "Effect of Financial Inclusion on Economic Growth in Kenya." Table 4.3 shows summary data for the Variance Inflation Factor (VIF), which measure multicollinearity across independent variables. VIF values assess predictor correlation, highlighting multicollinearity concerns in agency and mobile banking models. High VIF scores, such as 47.282 for mobile banking and 44.451 for agency banking, indicate significant correlations between these variables, which may undermine the model's trustworthiness.

This study supports earlier Kenyan, African, and worldwide research. Njenga and Mwangi (2021) discovered that agency and mobile banking are critical to Kenya's financial inclusion, but their close connection may obscure their separate contributions to economic progress. Moyo et al. (2020) performed research across Africa and confirmed the use of digital financial services to enhance financial inclusion, emphasizing multicollinearity issues due to service and function overlap. According to Faye and Triki's (2022) worldwide research on financial inclusion and economic development, digital banking, especially mobile-based platforms,

fosters considerable economic growth, whereas agency-based services produce multicollinearity concerns.

4.3.2.3 Stationary Test

Table 4.5 Stationary Test

Levin Lin	Statistics	Significance
GDP	207.171	0.0004
Agency Banking	108.037	0.0227
Mobile Banking	106.812	0.0273
Digital Lending Services	118.241	0.0115

The table below shows a Levin-Lin stationary test for Kenya's economic growth and financial inclusion criteria. GDP, agency banking, mobile banking, and digital lending are all variables. The results reveal that every variable is stable at all significance levels. GDP has the highest statistical significance, since it is associated to economic development, with a test statistic of 207.171 and a p-value of 0.0004. Agency banking, mobile banking, and digital lending services all exhibit significant p-values of 0.0227, 0.0273, and 0.0115, indicating their critical role in economic growth. Financial inclusion alters Kenya's economy, as shown by these research.

4.3.2.4 Autocorrelation Test

Table 4.6 Autocorrelation Test

Model	Durbin - Watson
1	0.3733522

The autocorrelation test in Table 4.6 yields a Durbin-Watson (DW) statistic of 0.3733522 for Model 1 in the Kenyan financial inclusion study on economic growth. This DW value, which is much less than 2, indicates a considerable positive autocorrelation in the regression model's residuals. Autocorrelation may violate the OLS regression assumption, indicating non-independent residual components. This violation might result in inefficient estimators and biased standard errors, necessitating generalized least squares, lagged variables, or other serial correlation treatments.

4.3.2.5 Heteroscedasticity Test

This study used the Levene test to test for homoscedasticity, as Field (2013) advised. Variances are deemed equal when the Levene test probability statistics findings surpass the p-value of 0.05. To meet the homoscedasticity criteria and allow for further analysis using the regression model, the value must be greater than 0.05.

Table 4.7 Test of Homogeneity of Variables

Test of Homogeneity of Variables	Levene Statistic	Sig.
GDP	1.158	0.009
Agency Banking	0.108	0.108
Mobile Banking	1.983	0.978
Digital Lending services	1.008	0.004

Table 4.7's Test of Homogeneity of variables investigates the variance consistency and effect of financial inclusion variables on Kenyan economic growth. The Levene Statistic, which uses the significance (Sig.) value to quantify the randomness of such disparities, determines whether the assumption of equal variances across groups has been violated. GDP (sig. = 0.009) and Digital Lending Services (sig. = 0.004) show significant heterogeneity. Agency Banking (Sig. = 0.108) and Mobile Banking (Sig. = 0.978) have comparable variations, indicating a more consistent impact across scenarios.

4.3.4 Regression Analysis

Pooled OLS regression was fitted to test whether financial inclusion significantly predicted GDP growth in Kenya.

$$Y_{it} = \beta_0 + \beta_1 x_{1t} + \beta_2 x_{2t} + \beta_3 x_{3t} + \epsilon_{it}$$

Table 4.8 Pooled OLS Regression Analysis Results

GDP Millions	Coef.	St. Err.	t-value	p-value	[95% Conf Interval]
Mobile Banking	5.499547	.6520428	8.43	0.000	4.196543 6.80255

Agency Banking	-13123.28	3064.083	-4.28	0.000	-19246.36	-7000.193
Digital Lending Services	-1539.85	2634.467	-0.58	0.561	-6804.412	3724.711
Constant	416115.4	129089.3	3.22	0.002	158151	674079.8
Mean dependent var	1387666.179	SD dependent var		891481.508		
Overall r-squared	0.895	Number of obs		67		
F(3, 63)	246.78	Prob > F		0.000		
R-squared within	0.9216	R-squared between		0.9178		

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 4.8 shows a multivariate regression analysis of financial inclusion and Kenya's GDP in millions. Financial inclusion areas such as digital lending, agency banking, and mobile banking each have a varied impact on the country's economy. The mobile banking coefficient (5.499547) has a 1% positive correlation with GDP (p-value = 0.000). Mobile banking seems to be a crucial driver of economic development, with each unit increase in activity resulting in a 5.50 million unit GDP boost. These results are consistent with Muthiora (2020), who found that M-Pesa and other mobile banking systems in Kenya significantly improved economic development and inclusion.

Agency banking has a p-value of 0.000 and a coefficient of -13.123.28, indicating a negative association with GDP. Every unit increase in agency banking activity lowers GDP by 13,123.28 million. Agency banking's potential to negatively impact GDP arises from structural inefficiencies, inadequate agent training, and low financial literacy among users, as highlighted in studies like those by Ndede & Ali (2024) and Mishra et al. (2024). Poor integration with broader economic frameworks, operational bottlenecks, and policy misalignments exacerbate these challenges, leading to economic inefficiencies and transaction costs that erode benefits, as noted by Githinji et al. (2024) and Cahyono & Mazlan (2024). Additionally, issues such as overconcentration of resources in urban areas, economic leakages due to weak oversight, and ineffective policy implementation hinder agency banking's effectiveness, per Amijaya et al. (2024) and Kim et al. (2024). To reverse

these outcomes, strengthening infrastructure, boosting financial literacy, ensuring policy alignment, and enhancing the integration of agency banking into economic strategies are critical steps to harness its full potential for fostering inclusive economic growth.

GDP is not substantially associated with digital financial services (coefficient = -1,539.85, p-value = 0.561). This demonstrates that, despite its rapid adoption, digital finance has had little impact on Kenya's economic development. This is congruent with Ndung'u et al. (2022), who discovered that high default rates and a lack of integration into bigger financial institutions limit digital lending's economic growth potential.

The model's constant term (416,115.4) is statistically significant (p-value = 0.002) at the 1% level, indicating that GDP would be much higher without these financial inclusion components, reflecting economic fundamentals.

The model's R-squared of 0.895 suggests that independent variables account for 89.5% of GDP variance. The model is significant, as shown by the F-statistic (246.78; p-value = 0.000). Financial inclusion is connected to global economic development. Demirgüç-Kunt et al. (2020) argue that access to financial services promotes economic growth by increasing investment and savings. According to Wamalwa and Akech (2021), Kenya has the highest rate of mobile banking adoption and integration. They highlight the importance of mobile banking in East African economic resilience. According to Otieno et al. (2019), mobile banking is at the heart of Kenya's financial inclusion strategy, assisting small companies in accessing finance and growing.

Despite improvements, obstacles remain. Gitonga and Muriuki (2023) advocate for tighter regulatory frameworks to fully realize the economic development advantages of digital lending and agency banking. Financial literacy training enhances financial inclusion programs, according to regional studies such as Mugendi et al. (2021).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the study's results on how fluctuations in interest rates affect the profitability of Kenyan commercial banks in terms of loan performance and liquidity. This chapter summarizes the results, draws conclusions, makes suggestions, and discusses future research opportunities.

5.2 Summary of Findings

The paper focuses on how financial inclusion initiatives, particularly mobile banking, benefit Kenyan economic growth. Kenya's GDP swings, indicating that financial services availability drives economic development. Agency banking is known for its high transaction volumes and adoption rates in underserved areas, but the model does not reveal that it increases GDP, implying that, although it improves access, its direct benefits to economic development may be less obvious. Mobile banking boosts consumer spending and company operations by providing convenient credit, savings, and payment services, resulting in a positive and statistically significant impact on GDP. Kenyans employ mobile money systems such as M-Pesa, which have transformed the financial landscape by enabling cashless transactions and promoting equitable growth. Digital lending services provide quick loans but have no clear relation to GDP development, perhaps owing to regulatory restrictions and high interest rates. Multicollinearity difficulties demonstrate that mobile and agency banking are inextricably linked in Kenya's financial ecosystem, making it difficult to estimate their independent merits. The findings are consistent with regional and worldwide research on financial inclusion initiatives in disadvantaged countries, demonstrating that mobile banking promotes economic growth whereas agency and digital lending provide less obvious benefits.

5.3 Conclusions of the study

Financial inclusion programs, particularly mobile banking, are critical to Kenya's economic progress, according to the study findings. Significant GDP volatility and the advent of mobile banking platforms show how important financial inclusion is for economic growth and empowerment. Mobile banking networks such as M-Pesa increase GDP by boosting access to financial services and business and consumer spending. Mobile banking has transformed cashless transactions and economic engagement in both urban and rural populations.

Agency banking has successfully spread financial services to underserved areas, but its direct

GDP contribution is unclear, perhaps because it prioritizes accessibility over growth. Agency banking's high transaction volume suggests that it is critical for bringing underserved regions into the formal financial system, but mobile banking may mask its impact. Due to regulatory constraints and worries about interest rates, digital lending may not contribute to GDP growth. According to the survey, mobile banking is the most essential financial inclusion initiative for Kenya's economic progress. Multicollinearity demonstrates that mobile and agency banking are inextricably intertwined in Kenya's financial system, making them more accessible but more difficult to analyze. This research demonstrates that financial inclusion via mobile banking increases economic success in underdeveloped countries, even if agency banking and digital lending are secondary support mechanisms.

5.4 Recommendations of the study

The report recommends extending mobile banking infrastructure, increasing financial literacy, simplifying agency banking, enhancing digital lending practices, promoting cross-platform cooperation, and financing continuing research to optimize the effect of financial inclusion on Kenya's economic development. Mobile banking has enhanced Kenya's GDP; thus, it should be expanded in both urban and rural areas. To assist this growth, governments and financial institutions should encourage mobile service providers to reach out to disadvantaged persons and reduce transaction costs. Prioritize financial literacy initiatives that educate clients on the benefits and ethics of digital financial services such as mobile investing and savings. Specific rural communities should benefit from these measures. Mobile banking benefits financially competent individuals, resulting in longer-term growth.

Although agency banking has boosted access to formal financial services in rural regions, the paper recommends expanding them to directly enhance economic growth. To improve rural clients' financial resilience, agency banking might provide insurance and microsavings accounts. Secure networks and reliable connections would enable these services in remote places, making transactions quicker and simpler. The study underlines the need of regulatory frameworks in addressing digital lending's high interest rates and loan accessibility. Consumer protection legislation, such as interest rate limitations and disclosure standards, may help to reduce excessive debt. Fostering new digital lending choices, such as alternative credit scoring, may make it simpler for those with negative credit to get loans, hence expanding economic participation.

Because mobile and agency banking are inextricably linked, the study recommends working across both platforms to optimize data integration and service delivery. By encouraging

cooperation and using data analytics, financial providers may eliminate service redundancies, improve financial ecosystem efficiency, and satisfy the demands of their customers. These partnerships might aid in service analysis multicollinearity, exposing how each platform contributes to economic success. More research is required to substantiate these beliefs about the long-term effects of financial inclusion on GDP. Information on investment trends, saving habits, and spending patterns from government, financial institution, and academic collaborations may have an impact on Kenya's long-term economic development objectives.

5.5 Areas for further study

The report's recommendations for increasing financial inclusion's impact on Kenya's economic growth highlight several crucial topics for future inquiry. First, additional study is needed to determine how mobile banking benefits rural economies. Mobile banking has been found to boost Kenya's GDP, but knowing how it impacts rural economies may help us understand how mobile financial services encourage community development, which in turn affects employment, local entrepreneurship, and income distribution in underserved regions. Future studies should investigate the effectiveness of financial literacy programs, especially in rural areas. Such study on the long-term benefits of financial literacy on saving, investing, and judicious borrowing might assist decide how to teach financial management to varied groups. This would make it easier to analyze how educational activities promote long-term growth and economic stability.

The study concludes that further research on agency banking optimization is required to increase financial resilience. Future study should look at how regulatory frameworks protect consumers from high interest rates and over-indebtedness from digital lending. Examining how regulations such as interest rate limitations and transparency requirements impact loan accessibility, borrowing habits, and the sustainability of digital lending may all contribute to promote responsible lending.

Alternative credit scoring methodologies are intriguing, especially because short credit histories limit financial inclusion. Researchers may test new credit scoring models based on social data or smartphone usage to determine whether they may expand loan availability to underserved communities and decrease debt. Cross-platform collaboration and data integration between agencies and mobile banking may improve service delivery and ecosystem efficiency. Investigating the benefits of data integration and financial provider cooperation on customer satisfaction, economic involvement, and service efficiency might improve the financial system and reduce redundancy.

Finally, a longitudinal examination of how financial inclusion impacts Kenya's GDP growth is required to assess its long-term sustainability. Tracking user spending, saving, and investing over time might help evaluate if financial inclusion produces long-term economic advantages. Furthermore, user demographics and digital financial service adoption rates may show factors influencing financial inclusion across age, gender, income level, and education. Policymakers and financial organizations may target inclusion and economic participation by understanding these demographic factors. These research subjects may assist stakeholders and policymakers in creating a more resilient, inclusive, and growth-oriented financial environment by increasing understanding of how financial inclusion supports long-term economic development in Kenya.



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