

FINANCE

GENDER AND PHYSICAL LOCATION DISPARITIES IN FINANCIAL INCLUSION IN KENYA

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ABSTRACT

Purpose of Study: This study aimed to determine the gender gap in financial inclusion in Kenya by examining how different socioeconomic variables and characteristics contribute to the gap. It also explored factors that lead to geographical disparities in financial inclusion across Kenya.

Problem Statement: Despite progress in financial inclusion in Kenya, gender-specific and geographical disparities remain. Financial services must be accessible to all individuals, but barriers persist that prevent certain groups, particularly women and those in disadvantaged areas, from using these services effectively.

Methodology: Secondary data for this research was sourced from the Kenya National Bureau of Statistics' 2021 Fin Access Household Survey. The Oaxaca-Blinder decomposition methodology was applied to decompose the differences in financial inclusion outcomes between males and females into portions due to observable characteristics, such as education and experience, and portions that remain unexplained.

Result: The study found significant gender and geographic disparities in financial inclusion. These disparities were primarily influenced by socioeconomic factors like education and wealth quantile. The Oaxaca-Blinder decomposition showed that these characteristics play a crucial role in explaining the financial inclusion gap.

Conclusion: While progress has been made in financial inclusion in Kenya, gender and geographical disparities continue to hinder full financial access. The study advocates for policies that promote education, financial literacy, and accessible financial services for disadvantaged groups. Such efforts would aid in achieving the Sustainable Development Goals and Kenya's Vision 2030 by fostering inclusive economic growth.

Keywords: Financial Inclusion, Gender Disparities, Geographic Disparities, Oaxaca-Blinder Decomposition, Sustainable Development Goals, Vision 2030.

1.0 INTRODUCTION

1.1 Background Information

Ozili (2018) states that financial inclusion is when all segments of society, especially those facing economic disadvantage and other forms of marginalization, are able to easily and readily use financial services. The provision of affordable banking services to the great majority of low-income and disadvantaged populations is another possible interpretation of the phrase financial inclusion (Dev, 2006). Additional criteria of financial inclusion, according to Sahay et al. (2015), include both access to and use of formal financial services. None of these definitions downplay the importance of making sure everyone can use the financial services that are out there. People and organizations who are able to make use of adequate and cheap formal financial services that meet their needs while also being dispersed in a responsible and sustainable way are considered to be included in the financial inclusion category, according to the World Bank (2018).

The idea of financial inclusion has captured the interest of scholars, policymakers, and writers throughout the world, and it is quickly becoming a popular area of research. The concept of financial inclusion emerged in the early 1930s (Azimi, 2022), however some empirical studies and published works place its roots in the early 2000s. Global recognition of the unique role that financial inclusion plays in the creation and execution of policies aimed at sustainable development has propelled it to the forefront of policy discourse since the United Nations (UN) adopted the Millennium Development Goals (MDGs). This has been accompanied by economic growth indicators and other socioeconomic factors.

As a result of the non-uniform and multi-dimensional nature of financial inclusion outreach and the universal application, financial inclusion contributes to economic growth by integrating individuals into the formal financing system. This is accomplished through the provision of financial services at reasonable prices and by making them available to the general public. Therefore, other economic development drivers in the chain are affected in the long run by this. Possible results include a country's economic improvement, the end of severe poverty, narrowing income gaps, increasing human capital, and bringing the financially excluded into the mainstream.

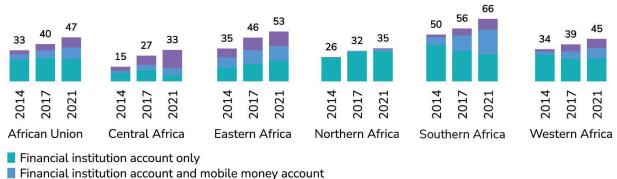
It is consequently impossible to ignore the crucial role that financial inclusion plays in encouraging economic. In this regard, world leaders have undertaken to ensure countries around the world promote financial inclusion. For instance, the G20 leaders through the Global Partnership for Financial Inclusion (GI) committed efforts to drum up support and promote financial inclusion in the world (Shaw, 2023).

It is the urban population that has the most access to formal financial services and goods, as well as the lowest levels of social exclusion. On the other hand, the rural population has the greatest rates of exclusion and the highest access to financial services and goods from providers that are not regulated. As a result of the growing adoption of mobile money among the rural population, the gap that existed between the access to formal financial service providers in urban regions and those in rural areas has continued to narrow (Fin access, 2021).

1.1.1 Status of Financial Inclusion

The World Bank (2018) states that the ownership of formal accounts, the capacity to access credit facilities, access to formal savings as well as access to insurance services are the indicators that will be used to determine whether or not an individual is financially included. The capacity to have access to a bank account that can be used for transactions is the first step toward attaining financial inclusion. The bank account serves to enable financial service activities such as accessing credit and making payments. Globally, the Global Findex report (2014) estimated that about 2 billion adults had no access to bank accounts which locked them out of the formal financial system (Demirgüç-Kunt *et al.*, 2022). Since the first Global Findex survey in 2011 which was designed to be the world's first and only data source gathered from financial service users on financial account ownership, usage, and financial resilience based on nationwide representative surveys of adults, the 2021 Global Findex survey results indicate that the share of adults globally with a financial account rose from 51 % in 2011 to 76 % in 2021. Generally, the report indicated that there has been a 50 % increase over the last decade in the global share of adults with an account. Despite this, some key disparities still remain, based on gender, income, geographical and education levels.

In Sub-Saharan Africa (SSA) across Africa from the various regional blocs.



Mobile money account only

Figure 1.1: Account ownership in Sub Saharan Africa among adults,2014-2021

Source: Global Findex Database 2021.

Figure 1.1 shows the evolution of account ownership in different African countries, categorized by their respective regional blocs, spanning the period from 2014 to 2021. The data presents a distinct upward trend, highlighting steady growth in three main account types: accounts associated solely with financial institutions, accounts combining both financial institutions and mobile money, and accounts dedicated only to mobile money. This rising trend emphasizes the growing embrace of not only traditional banking mechanisms but also the more recent digital financial services across the African continent during the period under review. Table 1.1 shows the top 10 African Countries in Financial Inclusion Ranking.

Country	Formal	Informal	Excluded
Seychelles-2016	95%	2%	3%
South Africa-2018	90%	3%	7%
Kenya-2021	83.7%	4.7%	11.6%
Rwanda-2020	77%	16%	7%
Namibia-2017	73%	5%	22%
Tanzania-2017	65%	7%	28%
Uganda-2018	58%	20%	22%
Cameroon-2017	49%	15%	36%
Nigeria-2018	48.7%	14.6%	36.8%

Table 1.1: Top 10 African Countries in Financial Inclusion Ranking

Source: KNBS 2021 Fin Access Survey Report

With an access level to formal financial services of 83.7% in 2021, Kenya is placed third among other African nations in terms of financial access, as shown in Table 1.1. However, 11.6% of Kenyans are still barred from receiving these services. When it comes to formal access, the Seychelles are at the top of the list with a 95% rating in 2017, followed by South Africa with a 91% rating in 2019. This indicates more that still 11.6% of the population in Kenya is locked out of the mainstream financial system.

Generally, account ownership has grown by 30 % points among the developing economies, which rises the total account ownership for adults globally in developing countries to about 71 %. Considering that millions of people have created accounts and utilized them, the 2021 Global Findex report credits this to the fact that digitalization has occurred. This shows that people can get their hands on the right financial services and know how to put them to good use for managing their money. From 2006 to 2021, Figure 1.2 shows a complete picture of Kenya's access to formal financial services and products.

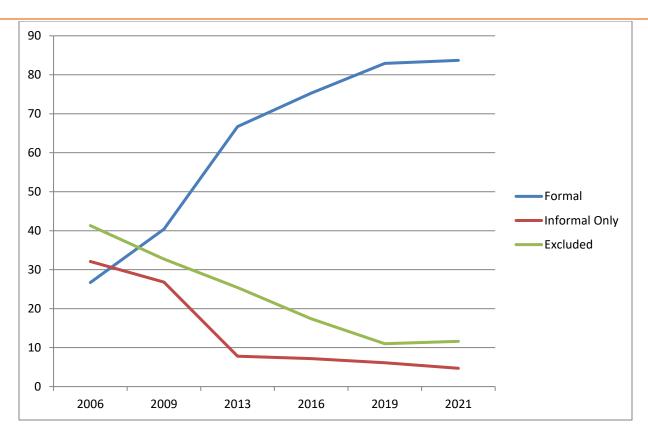


Figure 1.2: Overall access 2006-2021 (%)

Source: KNBS 2021 Fin Access Survey report

Figure 1.2 shows that the overall availability of official financial access has continued to expand since the initial survey Fin Access survey in 2006 when access stood at 26.7 percent. Over time, formal access has grown significantly, to 82.9% in 2019 and finally reaching 83.7 percent, according to the latest 2021 Fin Access survey report released by KNBS. Recent developments in financial technology, in particular those pertaining to mobile banking and mobile money, have been credited with contributing to this growth. Conversely, there has been a considerable drop in access via informal ways, with the percentage falling from 6.1% in 2019 to 4.7% in 2021. The percentage of the population that lacked access to any kind of financial service increased slightly from 11% in 2019 to 11.6% in 2021. The COVID-19 pandemic has had a negative impact on family incomes and business productivity, which may explain, at least in part, this increase. Figure 1.3 shows access by gender.

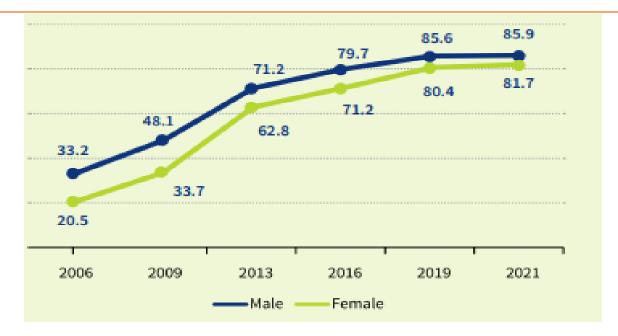


Figure 1.3: Formal inclusion male vs. female (%)

Source: KNBS 2021 Fin Access Survey report

The rate at which male and female members of the population gained access to formal financial services and products slowed in 2021 in comparison to 2019. The fact that formal inclusion uptake by sex increased at a slower rate in 2021–2019 compared to 2019–2016 suggests that uptake in the 2019–2021 timeframe was extremely low. Despite the modest expansion of formal financial inclusion, the gender gap decreased from 5.2 percent in 2019 to 4.2 percent in 2021, indicating improving gender equality. Between 2016 and 2019, there was a steady 3.3 percentage point reduction in the difference. Figure 1.4 shows access by residence.

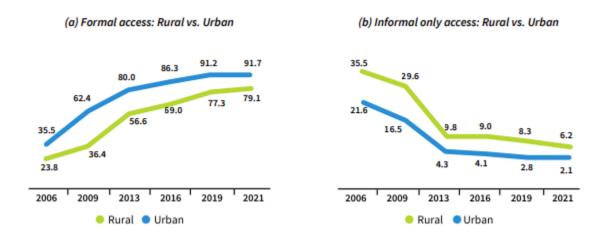


Figure 1.4: Access by residence (%)

Source: KNBS 2021 Fin Access Survey report

Urban population have the greatest access to formal financial services and goods, and they also have the lowest levels of social exclusion. Rural areas, on the other hand, have the greatest rates of exclusion and the highest access to financial services and goods from providers who are not subject to regulation. Citizens in rural areas are increasingly using mobile money, which has helped to decrease the gap between their access to official financial service providers and that of metropolitan areas. As part of its attempts to contain the coronavirus pandemic, the government may impose limitations on non-cash transactions in 2020, which might explain this phenomena. In both urban and rural regions, the proportion of persons who were excluded from the program grew slightly between the years 2019 and 2021, going from 14.4 percent and 6.1 percent, respectively, to 14.7 percent and 6.2 percent.

In the context of financial inclusion, the term usage dimension describes the extent to which people use financial services and products. This is measured by how often, for how long, and consistently they use these services and goods. A metric that sheds light on how financial services and products are really put to use is the usage dimension. Furthermore, it provides information about the reasons for using or not using those specific providers or goods, even if it is accessible to those providers or products in general. Figure 1.5 shows how providers use financial services and goods.

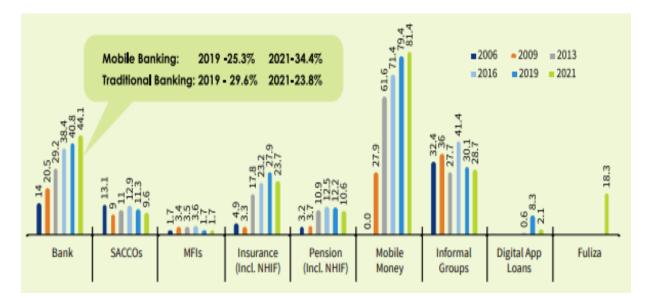


Figure 1.5: Usage of financial services and products by providers (%)

Source: KNBS 2021 Fin Access Survey report

The purpose of the 2021 FinAccess Survey was to investigate the ways in which Kenya's adult population used a variety of financial services and products, broken down by supplier. According to the survey's findings, 44.1 percent and 81.4 percent, respectively, of respondents used bank and mobile money service providers. The response rates are not cumulative because consumers of these services and products use them collectively. Furthermore, this indicates that users of mobile money also make use of services and products offered by a variety of service providers, including but not limited to banks, insurance companies, SACCOs, and pension funds.

A digital overdraft service called Fuliza was introduced in January 2019 by the mobile money provider Safaricom and is provided by a number of institutions. Quickly accepted by the banking and mobile money sectors, Fuliza marked a key milestone in the industry. According to the survey results, 18.3% of participants utilized it in the previous 12 months. At 6.2 percentage points, the use of digital loan apps experienced the biggest fall. At the height of the COVID-19 pandemic, several factors may have played a role, including the fact that borrowers weren't listed with the Credit Reference Bureaus (CRBs), the presence of official digital credit products like Fuliza, the unfair debt collection practices employed by digital loan apps, and the expectation that the CBK would regulate these apps. Both mobile money and banks serviced the greatest adult population, with 22.2 million and 10.2 million customers, respectively, out of the total population of 27.3 million persons who were assessed. The adult population used informal gatherings more frequently in 2021. On the other side, in 2021, fewer people used SACCOs, pension financial service providers, and insurance (including NHIF).

1.1.2 Need for Financial Inclusion

Financial inclusion has been championed to have the potential to enhance household financial resilience and promote economic development. For this reason, it has become a significant policy objective in numerous developing countries. According to Allen et al. (2016), the governments of these nations are working toward the goal of integrating underserved groups into the formal financial sector by providing them with access to formal financial services and products. A great number of countries are devoting a significant amount of work to the goal of achieving strong levels of financial inclusion. This has been achieved through a range of measures, such as making it easier to open bank accounts with less paperwork, enforcing deadlines for citizens to get bank IDs, providing free debit cards and insurance, leveraging mobile technology to access finances, establishing direct G2P payment systems, easing mortgage enrollment without mandatory equity down payments, and significantly increasing the use of bank correspondents.

The positive benefits on individuals have been the subject of an increasing quantity of study, providing political and economic justification for government programs aimed at expanding access to financial services. In particular, information on the use of bank accounts is the most convincing. Possessing a bank account empowers women, boosts spending as well as productive investments for entrepreneurs, and enhances savings (Ashraf et al., 2010). Additionally, prior investigations concentrating on individuals without bank accounts in the United States have suggested that lacking a bank account can lead to various adverse consequences. For example, Lusardi (2010) notes that not having a bank account might make it more difficult to manage finances and make payments. This, in turn, can lead to higher fees associated with services like money orders or check cashing. People without bank accounts are particularly vulnerable to the financial and personal risks associated with trading in cash since they have no legal protection in the event that their money is stolen (Gross, Hogarth, & Schmeiser, 2012).

According to the World Bank 2022, Kenya, a nation with a lower-middle income, has seen consistent economic development over the course of the last several years. Between 2007 and 2016, the country's GDP expanded at a pace that was 5.2% higher than the average yearly growth rate. This lower-middle income position is accompanied by a sizable informal sector that provides a substantial contribution to the establishment of job opportunities, the production of income, the

elimination of poverty, and the expansion of the economy. The majority of the workers are informal economy workers (World Bank, 2022). The endeavor to enhance financial inclusion and subsequent household financial resilience among these groups of the population who bear the brunt of financial exclusion has made Kenya stand out as a notable exemplar in this endeavor, gaining acknowledgment for its innovative strategies in promoting financial inclusion, particularly through advancements made in mobile money services like *M-Pesa* and robust strategies in addressing financial access.

However, despite substantial progress made, persistent disparities linked to gender and geographical location continue to challenge efforts toward financial inclusion (KNBS, 2022), yielding multifaceted challenges that necessitate a comprehensive inquiry. Gender disparities, deeply rooted in socio-cultural norms, frequently yield restricted financial entry and influence for women, obstructing their involvement in economic pursuits and magnifying their susceptibilities (Duflo, 2012). Furthermore, inequalities in financial inclusion are also impacted by geographic settings; rural as opposed to urban regions encounter unique obstacles due to inadequate infrastructure, deficient financial literacy, and constrained availability of formal financial institutions (KNBS, 2022). All these have a negative bearing in achieving financial inclusion for all.

After reviewing the many explanations of financial inclusion, it is clear that providing easy access to basic financial services for every member of a community is an important and non-negotiable component. Businesses and individual users require access to reasonably priced financial services so they are able to satisfy needs sustainably. Different regions and countries have varying financial practices coupled with unique cultural and socioeconomic situations that define certain practices that bring about disparities in financial inclusion.

1.2 Statement of the problem

The UNCDF has acknowledged that increasing financial inclusion helps reduce poverty and drive economic growth. Additionally, it assumes a crucial function in enhancing the welfare of households and mitigating poverty rates, all the while promoting the attainment of the SDGs. It is imperative that Kenya, as a member state of the United Nations, plays a leading role in advancing this development agenda, which includes other critical areas like ending hunger, achieving gender equality, and boosting infrastructure development. The World Bank has offered its support to the Universal Financial Access 2020 Initiative, a campaign to lower the number of people without bank accounts throughout the world. Its main focus was on the 25 listed countries in which Kenya is among them which makes up 73 % of financially excluded people. With this global obligation and call for action, the need for robust financial inclusion strategies in the country cannot be overlooked. In addition, the government of Kenya through public-private partnerships has invested huge resources in addressing financial inclusion due to its far-reaching economic implications (KNBS, 2022). This therefore, coupled with the strong connection between the economy and financial inclusion necessitates a look into the existing disparities that continue to undermine efforts geared towards attaining financial inclusion. Reports from KNBS indicate that 83.7% have formal financial access, 4.7% have informal financial access, and a considerable 11.6 % are excluded from financial access (KNBS, 2022). 11.6% of the adult population presents a huge population in the country and efforts must be made to include them in the mainstream formal

financial system. These statistics also point out that a significant chunk of the population may not be fully productive economically thus leading to over-reliance on the productive members of the population and this strains the economy resulting in slowed economic growth.

Financial inclusion is a crucial factor in economic development and poverty reduction. However, gender disparities in financial inclusion persist in many countries, including Kenya. For this reason, in a bid to understand this phenomenon, the current proposed study will mainly focus on the economic impacts of financial access as well as the association between education and income inequalities and financial inclusion. By focusing on the disparities in financial inclusion in Kenya based on gender and geographic location, the current proposed study will reveal the contributory factors to these disparities in Kenya's financial landscape which presents a unique context for studying these disparities. It is thus evident there is a paucity of research and further study is required to understand this interplay between gender, geographic location, and financial inclusion. This study endeavors to enrich the existing body of knowledge by delving into the gender and geographical location imbalances within financial inclusion in Kenya. Through a thorough examination of both quantitative and qualitative data, this research strives to pinpoint the contributing factors to these disparities, evaluate the efficacy of ongoing financial inclusion policies, and offer suggestions for more precisely targeted interventions. This current state of affairs begs for attention and is what prompted the researcher to undertake the current proposed study which seeks to determine disparities in financial inclusion in Kenya based on gender and geographic location.

1.3 Objectives of the Study

The general objective of the current study was to determine the disparities in financial inclusion in Kenya based on gender and geographic location. These particular goals served as the basis for the research;

i.To analyze the effect of socioeconomic characteristic to gender-gap in financial inclusion in Kenya.

ii. To analyze factors contributing to geographical disparities in financial inclusion in Kenya.

2.0 LITERATURE REVIEW

2.1 Theoretical review

The theoretical review explores key concepts related to financial inclusion, starting with the lifecycle hypothesis. This theory, introduced by Modigliani and Brumberg, suggests individuals adjust their saving and spending habits over their lifetime to maintain a stable consumption pattern. People tend to save more during their working years to support their needs during retirement. Financial institutions can utilize these consumption patterns to offer tailored services that improve financial inclusion, encouraging long-term financial planning (Ando & Modigliani, 1963; Sablik, 2016).

The Theory of Financial Exclusion, proposed by Sinclair (2001), highlights the barriers that prevent people from accessing financial services, which can be voluntary or involuntary.

Involuntary exclusion often results from socio-economic, cultural, or infrastructural obstacles, which perpetuate poverty and inequality. These barriers, such as inadequate financial literacy or lack of access to banking facilities, make it harder for excluded individuals to benefit from financial systems, thus intensifying economic inequality.

The Supply-Leading and Demand-Following Theory, presented by Patrick in 1966, focuses on the stages of financial development. The initial phase, supply-leading, involves the creation of new financial institutions and services, even before demand exists. This proactive approach aims to foster economic activities. As the economy grows, the demand-following phase begins, where the demand for financial services naturally rises as people become more familiar with financial systems.

The Network Theory of Financial Inclusion, introduced by Jackson and Zenou in 2015, examines the role of social networks in accessing financial services. Individuals positioned at the center of influential networks can gain quicker access to financial information and services. Conversely, those in fragmented networks face delays in accessing financial opportunities, contributing to exclusion. Well-connected networks, therefore, play a critical role in promoting financial inclusion.

The Behavioral Theory of Financial Inclusion draws from behavioral economics and emphasizes that financial decisions are often influenced by psychological and cognitive factors. These biases can lead individuals to make suboptimal financial decisions. The theory suggests using 'nudges' to encourage better financial behaviors, such as making savings options the default, which can significantly boost participation in financial systems (Liu et al., 2021; Ouma et al., 2017).

2.2 Empirical review

Mndolwa and Alhassan (2020) explored gender differences in financial inclusion in Tanzania using Finscope survey data with 4,466 participants. Their study revealed that women were less likely than men to have formal savings accounts, formal accounts, or mobile money accounts, with a 17.1% lower likelihood for savings accounts. However, women were 2% more likely to obtain formal credit. The disparities in savings and mobile accounts were attributed to lower education levels, income, and women's dependence on men. The authors recommended gender mainstreaming and improving job and education opportunities to address these disparities.

Fanta and Mutsonziwa (2021) examined financial literacy's role in financial inclusion in Kenya and Tanzania using instrumental variable regression on 2016 data from 6,029 individuals. Their findings underscored the importance of financial literacy, with eligibility for financial systems in Kenya tied to age, location, religion, income, and education, while in Tanzania, gender and geography played a more significant role. The study also suggested that digital financial services, particularly mobile money, helped reduce Kenya's gender gap in financial inclusion.

Using the 2017 World Bank Global Findex database, Hundie and Tulu (2021) investigated the gender gap in Ethiopian financial inclusion. Their econometric analysis found that men, older individuals, higher education, and wealth positively influenced financial inclusion. They noted significant differences in productivity and advantages between men and women, amplifying the

gender gap. These findings could inform further studies on gender and geographic disparities in Kenya.

Koomson et al. (2022) studied Kenya, Tanzania, and Uganda to examine financial literacy's impact on poverty reduction. The study showed a 6.9% drop in poverty levels due to increased financial literacy, facilitated by financial inclusion and entrepreneurship. The study highlighted gender and location variations in this relationship, particularly in Tanzania, followed by Kenya and Uganda.

In a Ghana-based study, Koomson et al. (2023) explored the connection between financial inclusion and trust in banks, finding that financial inclusion rates were 34.3% higher among individuals who trusted banks. The study emphasized that men and urban residents with higher education were more likely to experience the positive effects of bank trust. It also recommended that financial institutions focus on building client trust to reduce borrower discouragement.

The review of literature highlights gaps, particularly the lack of focused studies on Kenya's gender and geographic disparities in financial inclusion. While several studies have examined individual factors like gender or location, comprehensive research addressing both is scarce. The proposed study aims to fill this gap by providing a detailed exploration of financial inclusion in Kenya, considering gender and geographic disparities.

3.0 METHODOLOGY

3.1 Theoretical Framework

Theoretical framework modelling financial inclusion is pegged on Ruiz-Tagle (2005) credit constraint model. For the purpose of developing the framework, access to credit is used as a proxy of financial inclusion. Therefore, households borrow against future income. Individuals face two major factors that compel them to borrow to smoothen consumption or to invest in income generating projects. Financial market will therefore offer the individual debt t households depending on characteristics; mainly income, wealth, and other demographic factors. In this regard, a household if financially excluded if his desired level of credit is less than what he/she is offered by the market.

The study adopted Life cycle-hypothesis model which holds that individuals prefer to smoothen their consumption over their lifetime rather than allow it to fluctuate with change in income of the household. Therefore, households borrow against future income

Where C_i^* is the optimal lifetime consumption level of household *i* without credit constraint, $Y_{i:}$ lifetime flow of income of household *I*, $A_{i:}$ is the wealth of household i, r refers to real interest rates and D_i is the amount of debt household i is able to acquire. Given that the lifetime consumption level C_i^* and D_i are an unobservable variable over the household's lifetime. However, Buckland & Simpson (2009) contends that the variables can be approximated by observing socio economic factors like income and assets and demographic factors such as marital states, age,

region, number of members in a household and region. Therefore, optimal consumption C_i^* is given as:

$$D_i = \gamma X + \mu \dots 3.3$$

Where α and γ are the models' coefficients and ε and μ represent the error terms. Equation 3.1 can be presented as an implicit function such that:

 $C_i^* - Y_i - A_i(1+r) - D_i > 0.....3.4$

Equating equation 3.2 and 3.3 into equation 3.4 yields:

This condition makes it possible to formulate the latent variable model as follows such that

$$X'(\alpha - \gamma) + (\varepsilon - \mu) \equiv X\beta + \pi \ge 0 \dots 3.6$$

Where π – is the error term. Equation 3.6 forms the basis of our analysis. It follows that:

Equation 3.7 forms the basis of the study's analysis. Note that if the implicit function is greater that than zero then household is *financially excluded* since consumption is greater than the sum of debt, assets and disposable income.

3.2 Empirical model Specification

To evaluate the financial inclusion gender gap three sets of Equation 3.7 were estimated such that

Where j = m, f, p represents the male, female and pooled regression models. This study will utilize the decomposition technique introduced by Blinder (1973) and Oaxaca (1973). The aim is to decompose the outcome variables into two segments: one that stems from variances in observed characteristics and another that arises from differences in the returns associated with these characteristics. The set of coefficients estimated from the three set of equations defined in Equation (3.8) results will be used to estimate the gender gap as follows:

$$\overline{FI}^M - \overline{FI}^F = \left[(\overline{X}^M - \overline{X}^F) \hat{\beta}^M \right] + \left[\overline{X}^F (\hat{\beta}^M - \hat{\beta}^F) \right].$$
(3.9)

Where;

- \overline{FI}^M and \overline{FI}^F are the average Financial Inclusion index for the male (M) and female (F) groups respectively,
- \overline{X}^{M} and \overline{X}^{F} represents the average observation of predictor variables for male and female groups (education, location, wealth quintile and age) for the male and female groups.
- $\hat{\beta}^{M}$ and $\hat{\beta}^{F}$ are the respective socio-economic coefficients are estimated from Equation 3.8

Based on Fairlie (1999, 2006) and Ghosh and Chaudhury (2019) a decomposition technique will be applied to analyze differences in socioeconomic characteristic to gender-gap and geographical disparities in financial inclusion. Equation (3.9) provides a way to decompose differences financial inclusion gender gap into parts: the part due to differences in observable characteristics (like education, age, location, wealth quintile) and the part due to different returns to these characteristics.

Variables	Definition of the Variables	Measurement
Financial	How well financial products and services	Financial inclusion index as
Inclusion	are being distributed and used by the	measured by KNBS. There are
	common population, including the	three components that make up
	remote and vulnerable sections of society	the Financial Inclusion Index:
		access to financial services, use
		of these services, and the
		quality of service provided.
Gender	Being male or female	Dummy that takes 1 if the
		respondent is a female, and 0
		otherwise
Education	Instruction level of the respondent:	It takes a score of one if the
	Primary education or less; and Secondary	responder has finished
	education.	secondary school, and a score
		of zero if they have not.
Age	Age of the respondent in years.	Years
Wealth quintile	measure of how wealth is distributed	Wealth quintiles of the
		respondents as given by
		KNBS; 1 for Wealthiest, 2 for
		second wealthiest, 3 for
		middle, 4 for second poorest, 5
		representing Poorest.
Location	Residence of respondent	It take 1 if respondent resides in
		rural and 2 if urban area.

Table 3.1: Definitions and measurements of Variables

3.6 Data Type and Source

The study used Cross-sectional data from the Fin Access individual survey of 2021 by the KNBS, Financial Sector Deepening (FSD) Kenya and CBK.

4.0 EMPIRICAL RESULTS AND DISCUSSION

4.1 **Descriptive Statistics**

Table 4.1 presents descriptive statistics of study variables.

Variables	Observations	Mean	Std. Dev	Min	Max
Age	22,024	38.89	17.21	16	116
Gender	22,024	1.575	0.494	1	2
Wealth Quantile	22,024	2.739	1.397	1	5
Location	22,024	1.344	0.475	1	2
Education	22,024	3.451	2.474	1	9

Source: Computations using study data

The results show that the number of observation for all the variables was 22,024. Respondents had a mean age of 38.89 years with a standard deviation of 17.21, it is important to note the youngest respondent was 16 years while the oldest was 116 years. Most of the respondent were female with an average of 2, this is because the aim of the study was to determine the disparities in financial inclusion in Kenya based on gender and geographic location. The analysis also showed that most of the female were in the middle category of wealth endowment with some being in the lowest category while others are in the wealthiest category in the society with the gap between the poorest and the wealthiest deviating with about 1. Further, on average the respondents were found to reside in the rural areas as opposed to urban areas with a variation revolving around the rural areas. Lastly, the respondents had a secondary level of education with a no education level as minimum and tertiary level being the highest level with level of education revolving around primary level.

4.2 Correlation Analysis

The analysis was carried out using Spearman's correlation coefficient in order to determine the direction and magnitude of correlation among the study variables. Table 4.2 shows the results.

Variables	Gender	Wealth Quantile	Location	Education
Gender	1.0000			
Wealth Quantile	0.0949	1.0000		
Location	-0.0022	0.3490	1.0000	
Education	-0.0837	0.3966	0.2284	1.0000

Table 4.2: Correlation Analysis

Source: Study Data

The results show that all the coefficients were less than or equal to 0.8 and according to the rule of the thumb, a coefficient less than or equals to 0.8 indicates absence of high correlation among the study variables hence all the variables were used to determine disparities in financial inclusion in Kenya since chances of getting spurious results were minimal. Further, it is important to note that female gender has a low positive relationship with the wealth quantile but a negative negligence relationship with location of the female similarly to education level. The outcomes are in line with the expectation of the study as far as disparity is concern.

4.3 Diagnostic Test

The diagnostic test conducted by the study was multicollinearity test. The test was carried out using Variance Inflation Factor (VIF). The results of the test for the two models are presented in table 4.3 and 4.4

Table 4.3: Multicollinearity Test-model 3.8

Variables	VIF	1/VIF	
Age Square	4.46	0.2244	
Age Category	4.40	0.2275	
Wealth Quantile	1.20	0.7666	
Education	1.25	0.7995	
Location	1.17	0.8534	

Source: Study Data

Table 4.4: Multicollinearity Test-model 3.9

Variables	VIF	1/VIF
Age Square	4.45	0.2247
Age Category	4.40	0.2273
Education	1.26	0.7906
Wealth Quantile	1.22	0.8210
Gender	1.02	0.9722

Source: Study Data

The test was necessary to establish the relationship among the independent variables of the study. The results show that all the coefficients were less than 10 and according to the rule of the thumb a coefficient less than 10 indicate absence of multicollinearity while a coefficient greater than 10 indicates presence of multicollinearity. Therefore, based on the results in table 4.3 and table 4.4, where the coefficients are less than 10, the study concluded that there was absence of multicollinearity among the independent variables hence chance of getting spurious results were minimal during estimations

4.4 Empirical Analysis

The aim of the study was to determine the disparities in financial inclusion in Kenya based on gender and geographic location. In order to achieve the objective the study focuses on two specific objectives, the first objective was to analyze the effect of socioeconomic characteristic to gender-gap in financial inclusion in Kenya and secondly to analyze factors contributing to geographical disparities in financial inclusion in Kenya. The achievement of the two objectives was realized by carrying out Belinda-Oaxaca decomposition regression analysis in order to determine how differences in gender and location enhances discrimination or disparity among the gender and location of residence in financial inclusion in Kenya.

4.4.1 The effect of socioeconomic characteristic to gender-gap in financial inclusion in Kenya.

The first objective of the study was to analyze the effect of socio-economic characteristic to gender-gap in financial inclusion in Kenya. In order to achieve the objective, the study carried out Belinder-Oaxaca decomposition regression between financial inclusion and gender plus other covariates that the study considered. The results are presented in table 4.5.

Dependent Variable: Financial Inclusion					
Variables	Coefficients	Standard Deviation	Z	P> z	
Overall:					
Group 1	3.6228	0.02134	169.75	0.000	
Group 2	3.3879	0.01701	199.12	0.000	
Difference	0.2349	0.02729	8.61	0.000	
endowments	-0.1075	0.01246	-8.61	0.000	
Coefficients	0.3164	0.02534	12.48	0.000	
Interaction	0.0259	0.00927	2.80	0.005	
Endowments:					
Age-category	-0.0033	0.0021	-1.62	0.105	
Age-Square	0.01139	0.0033	3.47	0.001	
Location	-0.0006	0.0020	-0.33	0.742	
Education	0.0325	0.0037	8.71	0.000	
Wealth quantile	-0.1474	0.0109	-12.52	0.000	
Coefficients:					
Age-category	0.6268	0.1252	5.01	0.000	
Age-Square	-0.1332	0.0594	-2.24	0.025	
Location	0.0448	0.0740	0.60	0.545	
Education	0.2339	0.0381	6.15	0.000	
Wealth quantile	0.0464	0.0580	0.80	0.424	
Constant	-0.5023	0.1141	-4.40	0.000	
Interaction:					
Age-category	-0.0061	0.0037	-1.65	0.099	
Age-Square	0.0064	0.0033	1.96	0.050	
Location	0.0001	0.0002	0.29	0.772	
Education	0.0299	0.0054	5.54	0.000	
Wealth quantile	-0.0044	0.0055	-0.80	0.424	
Group 1- Male		Number of observ	Number of observation 1		
Group 2- female		Number of observation 2 12,6			

Table 4.5: Effect of so	• •	1 4 4 4	4 1	• •	
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Source: Study Data

In the table 4.5, gender 1 represents male gender while gender 2 represents female gender. The mean coefficient for male gender was 3.6228 while that of female was 3.3879 with a difference between the mean coefficients being 0.2349 which are statistically significant at 5 percent and 1 percent level of significance. The difference between the mean coefficients measures the level of any potential discrimination disparity among the two gender. However, the results indication a minimal statistical difference indicating that there is low chances of discrimination among the gender in financial inclusion. Additionally, the results show that the mean coefficient of endowment which measures the contribution of socio-economic characteristics on gender-gap in financial inclusion was negative (-0.1075) at 5 percent level of significance, implying that a one percent increase in the socio-economic characteristics the study considered leads to 0.11 percent significant decline in gender disparities in financial inclusion, this indicates that the socio-

economic characteristics the study considered highly contribute to a decline in gender-gap disparity in financial inclusion. Further, results also showed that the mean value of the interaction term is positive (0.0259) and statistically significant at 5 percent implying that the combined effect of endowment (explained) and coefficient (unexplained) significantly affect gender-gap disparity in financial inclusion.

The results also showed the coefficients of each of the explained (endowment) socio-economic characteristics effect on gender-gap disparities on financial inclusion in Kenya. The coefficient of age-square was found positive (-0.0033) and statistically significant at 5 percent level of significance. This means that there is a statistical significance difference between female and male in financial access due to high likelihood of discriminating female gender. The negative coefficient implies that as female age increases from young age to old age by one percent the possibility of the gender-gap disparities in financial inclusion widens by 0.011 percent points. This is contributed to by low ownership of assets to be used as collateral to guarantee loans. Similarly, the coefficient of education level is positive (0.0325) and statistically significant at 5 percent significance level. This means that as years of schooling increases by one years, the likelihood of discriminating female from financial inclusion increases by 0.033 percent points as compare to male counterparts with the same education level.

On the other hand, the coefficient of wealth quantile was negative (-0.1474) and significant at 5 percent level of significance, this implies that a shift from one level of wealth ownership or income level by one percent, reduces potential gender-gap disparity between female and male by 0.147 percent points. This is because both the gender have the capability to owner debt obligations as they fall due. This is facilitated by expansion of assets owned by the female gender hence easy access to financial services in Kenya.

Other explained variables which were found to be insignificant were age-category and location of the individual. This could be attributed to by the fact that whether an individual lives in the rural or urban areas means nothing to financial access hence not a socio-economic characteristics that determines gender-gap disparities in financial inclusion in Kenya.

The coefficients or unexplained part of the results indicates the contribution of other variables that the study may have failed to consider. Age-category coefficient is positive (0.627) and statistically significant at 5 percent level of significance. This means that one percent movement from one age category to another lead to 0.63 percent point increase in gender-gap disparities in financial inclusion which are not explained by the model. This implies that there are other age characteristics or structural differences between female and male that the current study did not consider but significantly affect discrimination in financial access.

The coefficient of age-square is negative (-0.1332) and significant at 5 percent level of significance, this means that as age advances, the likelihood of potential discrimination in the financial sector decreases by 0.13 percent points. However, this proportion of the total difference in terms of female and male are not explained by the model. Additionally, out of the total differences in gender-gap disparities in financial inclusion contributed by education level, only 0.234 cannot be explained by the model. This means that the model captured most of structural changes and characteristics of education systems in the country.

Further, the constant term had a negative (0.5023) statistical coefficient at 5 percent significance level, this implies that without the socio-economic characteristics the study considered, gender-gap disparities in financial inclusion negative and that the factors determine about 0.5 percent of the changes in gender-gap disparities changes in financial inclusion.

Lastly, of the combine effect of both endowment and coefficients on gender-gap disparities in financial inclusion only age-square and education level contributes to differences in gender-gap disparities in financial inclusion in Kenya. The coefficients were both positive implying that as age advances and more years of schooling are acquired, the difference in financial access by the both gender also increases. However, other variables such as age-category, location and wealth quantile do not have a significant combine difference in gender-gap disparities in financial inclusion between female and male, this indicates that the study captures most of their characteristics in the model.

4.4.2 Factors contributing to geographical disparities in financial inclusion in Kenya.

Objective two of the study was to analyze factors contributing to geographical disparities in financial inclusion in Kenya. In order to achieve the objective, the study carried out Belinder-Oaxaca decomposition regression technique and the results are presented in table 4.6.

Dependent Variable: Financial Inclusion					
Variables	Coefficients	Standard Deviation	Z	P > z	
Overall:					
Group 1	3.3384	0.0160	208.48	0.000	
Group 2	3.7722	0.0237	159.40	0.000	
Difference	-0.4339	0.0286	-15.18	0.000	
endowments	-0.7760	0.0232	-33.45	0.000	
Coefficients	0.2419	0.0284	8.51	0.000	
Interaction	0.1003	0.0227	4.41	0.005	
Endowments:					
Age-category	0.0542	0.0161	3.36	0.001	
Age-Square	-0.0606	0.0212	-2.86	0.004	
Location	-0.0009	0.0028	-0.33	0.742	
Education	-0.1536	0.0113	-13.57	0.000	
Wealth quantile	-0.6152	0.0211	-29.12	0.000	
Coefficients:					
Age-category	0.24885	0.1310	1.90	0.057	
Age-Square	-0.10921	0.0561	-1.95	0.051	
Location	0.16345	0.0824	1.98	0.047	
Education	-0.18695	0.0471	-3.97	0.000	
Wealth quantile	-0.19361	0.0722	-2.68	0.007	
Constant	0.31932	0.1371	2.33	0.020	
Interaction:					
Age-category	0.03482	0.0184	1.86	0.058	
Age-Square	-0.0456	0.0234	-1.94	0.052	
Location	0.00024	0.0007	0.32	0.746	
Education	0.05257	0.0133	3.94	0.000	
Wealth quantile	0.05823	0.0217	2.68	0.007	
Group 1-Rural		Number of observ	Number of observation 1		
Group 2- Urban		Number of Observ	7,569		

Table 4.6: Factors	contributing to a	mographical	disnarities i	n financial	l inclusion i	n Konvo
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Source: Study Data

In table 4.6, group 1 represents rural areas and group 2 represents urban areas. The overall mean coefficient for rural residents is positive (3.338) and significant implying that there is a statistical difference in access to financial services relative urban residents. Similarly, mean coefficient for urban resident was positive (3.772) and also significant implying a statistical difference in geographical disparities in financial inclusion. However, the mean difference between geographical location is negative (-0.4339) and significance at 5 percent level of significance, this means that a shift from rural to urban by one percent reduces geographical location disparities by 0.434 percentage points, indicating a low potential of discrimination between the locations in financial inclusion. This can be attributed to by access to various financial institutions, adequate information and ownership of some assets like cash.

The coefficient of endowment (explained) variables the study considered was negative (-0.7760) and statistically significance at 5 percent level, this implies an increase in the factors in the model results to a decline in geographical disparities in financial inclusion by 0.776 percentage points. On the other hand, the coefficients (unexplained) variables was positive (0.2419) and statistically significant at 5 percent, implying that an increase in other factors outside the model lead to an increase in geographical disparities in financial inclusion. The coefficient for the interaction part which measures the combined effect of both the endowment and coefficients was also positive (0.1003) and significant at 5 percent, this indicates a low combine effect of both the endowment and coefficients factors in the model on financial inclusion in Kenya.

The endowment factors in the model were found to affect financial inclusion and the study interpreted the coefficient of each factor. The coefficient of age category was positive (0.0542) and statistically significant at 5 percent implying that a shift from one age category to another by one percent leads to an increase in geographical disparities in financial inclusion by 0.0542 percentage points. This is because as someone shift from one age category to another, he or she becomes old and therefore leading to a widening geographical gap in financial inclusion.

The coefficient of age-square was negative (-0.0606) and significant at 5 percent level of significant, meaning as one becomes old, chances of geographical disparity in financial inclusion reduces by 0.061 percentage points. This is attributed by the factors that an older person is more responsible and therefore easily include in financial services across regions. Additionally, the coefficient of education was negative (-0.1536) and significant at 5 percent level of significance, this implies that an increase in education level by one percent reduces geographical disparities by 0.154 percentage points. This is due to more years of schooling widens a person knowledge in matters of finance as well as lending institutions existence irrespective of the location hence reducing geographical disparities since education is one of the equalizers and reduces potential discrimination of any form in the society.

Further, the coefficient of wealth quantile was also negative (-0.6152) and statistically significant at 5 percent, this means that an increase in wealth by one percent leads to a decline in geographical disparity by 0.615 percentage points. This is because, wealth acquisition enables a person to use the wealth as a guarantee for more loans hence chances of potential geographical discrimination reduces significantly.

The combined effect of endowment and coefficient geographical factors in the model that had a significant effect on financial inclusion were education and wealth quantile. However, the effect was low in influencing geographical disparities in financial inclusion in Kenya hence minimal potential discrimination in financial inclusion.

5.0 SUMMARY, CONCLUSION AND POLICY IMPLICATIONS

5.1 Summary of the Study

The idea of financial inclusion has captured the interest of scholars, policymakers, and writers throughout the world, and it is quickly becoming a popular area of research. The concept of financial inclusion emerged in the early 1930s, however, some empirical studies and published

works place its roots in the early 2000s. Global recognition of the unique role that financial inclusion plays in the creation and execution of policies aimed at sustainable development has propelled it to the forefront of policy discourse since the United Nations (UN) adopted the Millennium Development Goals (MDGs). This has been accompanied by economic growth indicators and other socioeconomic factors.

The UNCDF has acknowledged that increasing financial inclusion helps reduce poverty and drive economic growth. Additionally, it assumes a crucial function in enhancing the welfare of households and mitigating poverty rates, all the while promoting the attainment of the SDGs. The World Bank has offered its support to the Universal Financial Access 2020 Initiative, a campaign which has lowered the number of people without bank accounts throughout the world. In addition, the government of Kenya through public-private partnerships has invested huge resources in addressing financial inclusion due to its far-reaching economic implications.

Financial inclusion is a crucial factor in economic development and poverty reduction. However, gender disparities in financial inclusion persist in many countries, including Kenya. For this reason, in a bid to understand this phenomenon, the current proposed study will mainly focus on the economic impacts of financial access as well as the association between education and income inequalities and financial inclusion. By focusing on the disparities in financial inclusion in Kenya based on gender and geographic location, the current study has revealed the contributory factors to these disparities in Kenya's financial landscape which presents a unique context for studying these disparities

Based on these disparities, the current study sought to determine the disparities in financial inclusion in Kenya based on gender and geographical location. The study was supported by two objectives which were to analyze the effect of socioeconomic characteristics on the gender gap in financial inclusion in Kenya and to analyze factors contributing to geographical disparities in financial inclusion in Kenya with the main focus in the financial sector.

The study reviewed a number of theoretical literatures which were very relevant to the study. The theories were; the Life-cycle hypothesis, theory of financial exclusion, supply-lead and demand-following theory, network theory of financial inclusion and behavioral theory of financial inclusion. Further, the study reviewed past literatures which provided more insights into the socio-economic impacts of financial inclusion in Kenya.

The study employed non-experimental research design with cross-sectional data which was analyzed using Belinder-Oaxaca decomposition regression model. Before the analysis was done, all the pre-test and the necessary post-test analysis were carried out to ensure that the results obtained are not spurious.

This study aimed to examine the disparities in financial inclusion in Kenya, focusing on gender and geographic location. The research was supported by two objectives were to analyze the effect of socioeconomic characteristics on the gender gap in financial inclusion in Kenya and to analyze factors contributing to geographical disparities in financial inclusion in Kenya. To achieve these objectives, the study employed various statistical analyses, including descriptive statistics, correlation analysis, diagnostic tests, and the Belinder-Oaxaca decomposition regression analysis. The study involved 22,024 respondents. Key findings from the descriptive statistics are as follows: The mean age of respondents was 38.89 years, with a standard deviation of 17.21, and the age ranged from 16 to 116 years. The gender variable had a mean of 1.575, indicating that the majority of respondents were female. The mean wealth quantile was 2.739, with respondents distributed across different wealth categories. Most respondents resided in rural areas, as indicated by a mean location value of 1.344. The average education level was around secondary school, with education levels ranging from no education to tertiary education.

Spearman's correlation analysis showed a low positive correlation between gender and wealth quantile (0.0949) and negligible negative correlations between gender and location (-0.0022) and education (-0.0837). There were moderate positive correlations between wealth quantile and location (0.3490), wealth quantile and education (0.3966), and location and education (0.2284). The Variance Inflation Factor (VIF) test indicated no multicollinearity among the study variables, as all VIF values were below the threshold of 10.

The empirical analysis employed the Belinder-Oaxaca decomposition regression to assess the disparities in financial inclusion based on gender and geographic location. The analysis revealed that the mean financial inclusion score for males was 3.6228, while for females, it was 3.3879, with a significant difference of 0.2349. Socioeconomic characteristics significantly reduced gender disparities in financial inclusion. Factors like age-square and education level were significant contributors to the gender gap. Wealth quantile showed a significant negative effect on gender disparities, indicating that higher wealth levels reduced the gender gap in financial inclusion.

The analysis also showed that rural residents had a mean financial inclusion score of 3.3384, while urban residents had 3.7722, with a significant difference of -0.4339. Socioeconomic factors that significantly reduced geographical disparities in financial inclusion were education and wealth quantile, highlighting the equalizing effect of education and wealth on financial inclusion.

5.2 Conclusion

The findings of this study underscore the importance of addressing socioeconomic characteristics to bridge the gaps in financial inclusion in Kenya. The significant differences in financial inclusion scores between genders and geographic locations reveal underlying inequalities that need targeted interventions. Enhancing financial inclusion for women and rural residents can be achieved through policies that promote education and economic empowerment.

The study reveals that education and wealth are critical equalizers, mitigating disparities in financial inclusion. A higher education levels and wealth quantiles correlate with improved financial inclusion, efforts to enhance these factors among disadvantaged groups can lead to more equitable financial systems.

Additionally, the study highlights that while location-based disparities exist, their impact on financial inclusion can be reduced by addressing socioeconomic variables. This suggests that urban-rural differences in financial inclusion are not solely due to geographic location but are influenced significantly by factors such as education and wealth among the members of the society.

Policymakers should consider these findings to develop comprehensive strategies that address both gender and geographic disparities. Tailored financial literacy programs, targeted economic policies, and inclusive financial products can help bridge these gaps. By focusing on the socioeconomic determinants of financial inclusion, Kenya can work towards a more inclusive financial environment that benefits all citizens.

This study contributes to the broader understanding of financial inclusion and its determinants in Kenya. Future research should explore additional factors that may influence financial inclusion, such as cultural attitudes, access to technology, and government policies. By continuing to investigate and address these disparities, stakeholders can create more effective solutions to promote financial inclusion and economic equity.

5.3 Policy Implications

Based on the findings, several policy recommendations can be made to enhance financial inclusion in Kenya. Implementing programs to improve financial literacy, especially among women and rural residents, can significantly reduce disparities in financial inclusion. Financial literacy programs tailored to the needs of these groups can empower them with the knowledge and skills necessary to effectively use financial services, thus bridging the inclusion gap. Additionally, encouraging higher education attainment for all genders is vital. Higher education levels correlate with better financial inclusion outcomes, and policies promoting education can help mitigate gender-based financial disparities.

Policies that support wealth accumulation, such as savings and investment programs, are essential in reducing both gender and geographical disparities in financial inclusion. Providing access to financial products that facilitate wealth-building, particularly for women and rural residents, is crucial. These products should be designed to cater to the unique needs and circumstances of these groups, enabling them to accumulate wealth and improve their financial stability.

Enhancing the accessibility of financial services in rural areas can significantly reduce geographical disparities. Expanding the reach of financial institutions and services in these regions ensures that rural residents have equal opportunities to access and benefit from financial services. Promoting digital financial services can also bridge the gap between urban and rural financial inclusion. Digital platforms can overcome physical barriers, providing rural residents with convenient and efficient access to financial services.

Policymakers should identify and address structural barriers that contribute to gender and geographical disparities in financial inclusion. This involves creating an enabling environment for women and rural residents to access financial services. Structural barriers such as discriminatory practices, lack of infrastructure, and regulatory constraints need to be dismantled to achieve inclusive financial growth.

Developing and implementing gender-sensitive financial policies is crucial in addressing the specific needs of women, thereby reducing gender disparities in financial inclusion. Policies that promote female entrepreneurship and provide targeted financial products for women can significantly enhance their financial inclusion. Supportive measures such as providing credit

facilities, business training, and mentorship for women entrepreneurs can empower them economically and improve their access to financial services.

In conclusion, addressing the socioeconomic factors influencing financial inclusion disparities in Kenya requires a multifaceted approach involving education, wealth accumulation, access to financial services, and addressing structural barriers. Implementing these policy recommendations can lead to a more inclusive financial environment, benefiting all segments of the population. A holistic strategy that incorporates these elements will ensure that financial inclusion efforts are comprehensive and effective, fostering economic growth and development for all.

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