



ASSESSING THE NEXUS BETWEEN FINANCIAL LITERACY AND FINANCIAL INCLUSION AMONG RURAL WOMEN IN KENYA

Mildred Amugune 

School of Business, Economics, Hospitality and Tourism Management, Machakos University, Kenya
milamugune@gmail.com

Josephat M. Kiweu

School of Business, Economics, Hospitality and Tourism Management, Machakos University, Kenya
jkiweu@mksu.ac.ke

Charles Ombuki

School of Business, Economics, Hospitality and Tourism Management, Machakos University, Kenya
combuki@mksu.ac.ke

Abstract

This paper explores the direct influence of financial literacy on the financial inclusion of rural women in Kenya, using the partial Least Squares Structural Equation Model (PLS SEM). On a sample size of 1000, the findings suggest that financial literacy has a positive impact on financial inclusion of rural women in Kenya. The empirical results reveal financial literacy is one of the aspects that influence financial inclusion. Women with financial knowledge, having adopted the right financial behavior and those who display positive financial attitudes generally adopt and use formal financial services as compared to those with minimal financial knowledge. The findings confirm that rural women who are financially literate are likely to be financially included since they have the knowledge and awareness to engage in positive financial behavior like saving that will allow them to access formal financial services enabling financial inclusion. The practical implication of the findings is that for financial inclusion to be achieved among rural women in Kenya, there has to be a deliberate move to ensure that financial literacy training opportunities tailored for rural women are developed and implemented in the rural areas to

make the rural women aware of formal financial services and how they can be used to better their wellbeing. The findings therefore support the drive for integrating targeted education programs for rural women into rural development strategies to empower women with the aim of promoting inclusive economic growth.

Keywords: Financial Literacy, Financial Inclusion, Financial Knowledge, Gender Gap, Financial Behavior, Financial Literacy Theory

INTRODUCTION

Financial inclusion has been recognized by the G20 as a key pillar to global development (Buch, 2017). This recognition has made financial inclusion to be a worldwide government concern. Many governments across the globe are putting efforts to solve this challenge and achieve high levels of financial inclusion by having little or no restrictions when opening a bank account, transferring most of the financial services to mobile technology and even putting limited interest on credit facilities (Ozili, 2020). Widarwati *et al.* (2022) notes that, limited opportunities to access financial services by vulnerable and needy groups is a global policy problem, which when left unresolved can slow economic growth and worsen economic inequality.

Financial inclusion enables the use and access of a broad range of affordable and quality financial products and services (Ozili, 2020). It aims at reducing poverty and inequality among the society while encouraging economic growth and development. It is seen as a major policy objective of bringing the excluded population into the formal financial sector by most of the developing and emerging countries (Ozili, 2020). However, achieving true financial inclusion necessitates more than just access to digital financial services, it requires financial literacy to ensure individuals effectively use the services (Grohmann *et al.*, 2018).

Ozili (2018) notes that the ability to access and even use the formal financial services has remained a limiting factor as a majority of people and more so women in rural communities are financially illiterate. Additionally, the World Bank Global Findex survey report (2021) noted that, two thirds of the unbanked worldwide indicated that if they opened an account, they would require help operating it, an indication of financial illiteracy. A third of the mobile money account holders also noted that they could not use their mobile money account without the help of their family members or agents (Global Findex Report, 2021). Out of this, rural women are 7% more likely to need help than men and urban women when using their mobile money account, an indication of being financially illiterate.

Regardless of the progressive increase in financial inclusion in Kenya for the past few years, it is evident that a significant portion of the population a majority of whom are women residing in rural areas are either partially or fully excluded from the financial sector with limited or no access to a meaningful range of financial products like credit, savings, pension and insurance. Previous studies highlight the role of financial literacy in enabling informed financial decisions (Asker et al., 2020; Yang et al., 2020; Showkat et al., 2024), and financial inclusion as the actual access and usage of affordable financial products and services by all individuals (Ozili, 2020). However, an understanding on how financial literacy influence financial inclusion among rural women in Kenya is under-explored.

Therefore, this study sought to investigate influence of financial literacy on financial inclusion of rural women in Kenya, by addressing the critical question: To what extent does financial literacy, influence the financial inclusion of rural women in Kenya. A clear understanding of this is essential for informing targeted policy interventions aimed at achieving equitable financial inclusion.

The Concept of Financial Literacy

Different authors have defined the term financial literacy in different ways thus to date, there is no widely accepted definition for financial literacy that has been universally adopted (Lyons and Kass- Hanna et al., 2021). Askar et al. (2020) defines financial literacy as the people's understanding of financial concepts, as well as their skills and ability to manage money and make informed financial decisions. On their part, Carlin and Robinson (2020) look at financial literacy as people's ability to make financial decisions in their own best short-term interests. Houston (2010) states that financial literacy is the awareness and knowledge of financial concepts and products needed for managing personal finance. Additionally, Hung et al. (2009) defines financial literacy as the ability to use knowledge and skills to manage financial resources effectively from a lifetime of financial well-being.

According to Atkinson and Messy, (2012), financial literacy encompasses knowledge, awareness, skills, attitudes and behaviors necessary to make rational financial decisions with ultimate goal of achieving financial wellbeing. Additionally, Lyons and Kass-hanna (2021) definition sees financial literacy as an individual's or community's awareness and knowledge about available financial products and services and how best to access and use them. This definition is important because it refers not only to being aware and having knowledge about the digital financial products and services, but also includes the aspect of access and use which are very crucial for this study as it aims at analyzing how rural women can easily navigate digital platforms to access financial services and use them for their wellbeing (Hung et al., 2009).

Therefore, in this study, financial literacy is seen as an individual's state of being aware of financial services, having knowledge about the financial concepts and services and possessing the required skills to access and effectively use the financial services to improve their financial wellbeing.

The Concept of Financial Inclusion

Financial inclusion is the process of ensuring access to financial services and timely and adequate credit when needed by vulnerable groups like the weaker sections and low-income groups at an affordable cost (Sowjanga *et al.*, 2015). It is the access to financial products and services which are affordable and useful and that meet the needs of transactions, payments, savings, credit and insurance delivered in a responsible and sustainable way (The World Bank, 2018). Over the past decade, Kenya has made significant strides in financial inclusion. This is attributed to the rise of mobile money like Mpesa that made financial services accessible to millions of Kenyans. According to the FinAccess survey report (2021), Kenya's financial inclusion index as measured by financial access at 84%.

Financial Literacy and Financial Inclusion among Rural Women

Financial literacy is critical for decision making at individual, household and community level (Hassan & Hogue, 2021). It involves having basic knowledge about financial services, being able to access them and finally being able to use the financial services for personal well-being. According to Lyons and Kass-hanna (2021) financial literacy is an individual's or community's awareness and knowledge about available financial products and services and how best to access and use them. For instance, rural women will only demand and access financial services that they are aware of. If they have no knowledge and information about the products and services, they will not demand for them thus remain financially excluded. Asker *et al.*, (2020) emphasized that financial literacy promotes rural women's increased participation in economic life as influences how they save, how they invest and how they manage their financial affairs.

LITERATURE REVIEW

The key theory in this study is the Financial Literacy Theory (FLT) that proposed that individuals with higher financial literacy levels are usually better equipped to make informed financial decisions than those with low literacy levels. According to Lusardi and Mitchell (2008) these individuals are able to utilize financial products effectively thus achieving greater financial wellbeing. This theory relates well when it comes to the influence of financial literacy on financial

inclusion among rural women in Kenya in the sense that limited financial literacy can actually hinder or bar a rural woman from accessing financial services that would enable them to be financially included. With limited financial knowledge, it will be hard for a rural woman to understand, navigate and use digital financial services that are offered through mobile money or any other digital platform.

Lyons & Kass-hanna, (2021) define financial literacy as an individual's or community's awareness and knowledge about available financial products and services and how best to access and use them. It is a prerequisite for financial inclusion since no matter the availability of financial products and services, lack of financial knowledge will prevent or hinder access to financial services.

Past studies have examined the influence of financial literacy on financial inclusion. Shibia (2012) investigated the effects of financial literacy on financial access in Kenya and found out that financial literacy is a strong predictor to formal financial access in Kenya calling for enhanced policy efforts geared at increasing financial literacy as a strategy for expanding access to formal financial services. Accordingly, Fanta and Mutsonziwa (2021) efforts to promote financial inclusion must be accompanied by financial literacy campaigns. Nonetheless, as highlighted by Salvatore *et al.*, (2018) financial literacy is low among the least educated, the elderly and the women which gives a substantial financial literacy gap.

Breitbach and Waltstad (2022) recorded that young adults in the US have significantly lower levels of financial literacy than middle age and older adults. Low financial literacy levels hinder access and usage of digital finance. Similarly, Showkat *et al.* (2024) using the Technology Acceptance Model (TAM) and the theory of planned behavior revealed that financial literacy significantly amplifies the benefits of digital financial services in promoting women empowerment. Therefore, there is a need to prioritize financial literacy initiatives within digital platforms to maximize their effectiveness.

Askar *et al.* (2020) highlighted that financial literacy plays an important role in reducing poverty regardless of the financial measure used. Similarly, Ozili (2020) noted that financial literacy helps in enhancing financial knowledge and in developing skills of individuals so that they can compare and choose the best finance-oriented products and services which in the end increase their access to banking services. Without access to banking services, financial literacy alone cannot enhance financial wellbeing among individuals.

The common feature of all the aforementioned research investigations is that a financially literate person is able to easily access formal financial services, make wise financial decisions, and improve their financial wellbeing. Therefore, low financial literacy is one of the barriers to financial inclusion among rural women.

CONCEPTUAL FRAMEWORK

To examine the influence of financial literacy on financial inclusion of rural women in Kenya the study conceptualized the relationship that exists among the variables as shown in figure 1. The dependent variable in this study is financial inclusion while the independent variables are financial literacy and digital finance. Financial literacy which is measured through awareness of financial products, knowledge of financial products and financial behavior serves as a driver of financial inclusion. It equips individuals with the knowledge and skills necessary to understand and effectively use financial products and services. Therefore, a higher level of financial literacy is expected to directly contribute to increased access and usage of formal financial services. Rural women who understand financial products and services are more likely to seek them out, utilize them effectively, and make informed financial decisions.

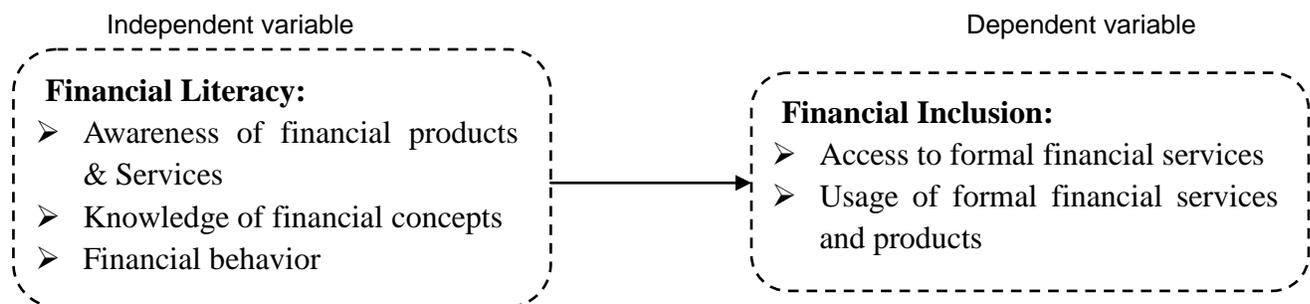


Figure 1. Conceptual Framework

Financial Inclusion as a dependent variable is measured by access to and usage of formal financial services. This is the ultimate goal of the conceptual framework. It represents the extent to which rural women, can access and use formal financial services. Rural women who are in a position to access formal financial services and use financial services for their financial wellbeing are deemed financially included. Financial literacy therefore (See figure 1) enhances financial inclusion as usage of formal financial services requires awareness and knowledge of how to use them for one's benefit.

METHODOLOGY

The research design used to examine the relationship between financial literacy, and financial inclusion among rural women in Kenya in the year 2024 was the descriptive cross sectional research design since it facilitated the description of financial literacy and digital finance variables and their influence on financial inclusion of rural women.

The study targeted a population of 13.1`million rural women in Kenya. Multi stage sampling technique was used to purposively select rural women from the counties, then sub counties and finally the women were randomly selected from the wards giving a sample of 1000 as recommended by OECD (2021). However, due to lack of complete information the sample size was reduced to 961 rural women. The data for this research consists of primary data. Primary data was obtained using structured questionnaires adopted from the Global Findex database (2021) and the FINSCOPE questionnaires modified to capture relevant information on financial literacy and financial inclusion. The questionnaires were read out loudly to the respondents to capture aspects of financial literacy and financial inclusion. The collected data was then analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM) Technique.

The analytic approach adopted involved a multi-step process. To begin with, descriptive cross-sectional research was chosen to describe the variables and their relationships. This was followed by a multi stage sampling technique to select a representative sample of rural women. Primary data was then collected using modified pre-existing questionnaires to ensure the reliability and validity of the data. Finally, descriptive statistics and PLS-SEM was used to analyze the collected data and model the relationship between financial literacy and financial inclusion among rural women.

RESULTS AND DISCUSSION

To determine whether financial literacy influences financial inclusion of rural women, the study used descriptive analysis as well as the Partial Least Squares Structural Equation Modelling (PLS-SEM) method.

Descriptive Results

Financial literacy was measured using three indicators; financial knowledge, financial behavior and financial attitudes. Following OECD (2017), the overall financial literacy score was computed as the sum of the scores on financial knowledge, financial behavior and financial attitudes. The overall financial literacy score was scaled to range between 0 and 21. The entire financial literacy results of rural women in Kenya are presented in Table 1.

Table 1: Financial Literacy Score of Rural Women in Kenya

	N	Maximum	Mean Financial Literacy Score	Financially Literate %	Financially Illiterate %
Rural Women	961	21	11.152	53	47

Findings from this study show that the overall mean for financial literacy score of the respondents was 11.15 as shown in Table 1. According to OECD/INFE (2022), the minimum target score for financial literacy is defined as scoring at least 13 points out of 21. Higher literacy scores indicate higher levels of financial literacy while lower literacy scores indicate low financial literacy levels among the women.

Financial Inclusion in this study was measured using the Simple Average Index method whereby each of the financial inclusion indicators was assigned an equal weight and the average of the indicators for every individual was calculated to get the Financial Inclusion Index. The financial inclusion indicators in this study were access to formal financial services and usage of formal financial services. Each indicator was assigned a value of 1 if present and 0 if absent. Access to formal financial services was determined using 3 questions and usage of formal financial services was determined using 7 questions. A total of 10 questions were asked giving a total score of 10. The average score was then determined by summing up the score for each rural woman and then dividing it by the number of indicators to get the financial index for the rural woman. The financial inclusion score of rural women is presented in Table 2.

Table 2: Financial Inclusion Score

	N	Maximum Statistics	Financial Inclusion Index	Financially Included %	Financially Excluded %
Rural Women	961	10	3.851	39	61

According to World Bank (2020), any score of closer to 10 indicates higher levels of financial inclusion while a score far away below 10 shows low levels of financial inclusion. Computation of the average score using the Financial Inclusion Index (FII) was informed by several studies including Kumar and Kaur (2016); Demirgüç-Kunt et al. (2018); Sarma (2015) and World Bank (2020) who used this index to assess and improve financial inclusion in different contexts.

The results in this study reveal that the overall financial inclusion index for rural women in Kenya was 3.85 indicating low levels of financial inclusion as shown in Table 4.17. This suggests that only 39% of rural women in Kenya are financially included while 61% of rural women are not able to access formal financial services. According to FinAccess (2024), women remain both unserved and underserved as compared to men because of the widespread lack of awareness.

Partial Least Squares Structural Equation Modelling Results

Based on the results of the analysis using PLS - SEM, it can be seen the influence of each variable in the following table.

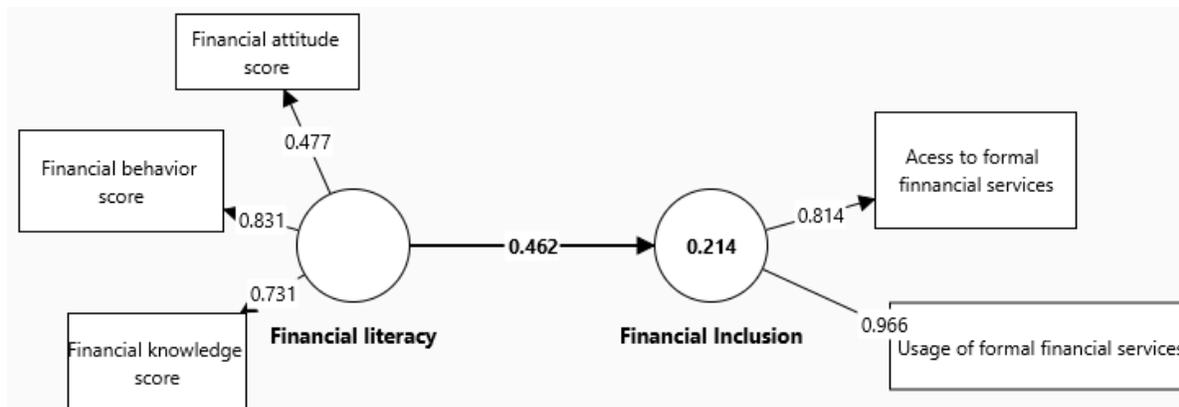


Figure 1: Financial Literacy and Financial Inclusion

Financial Literacy has a positive and significant effect on financial inclusion with a coefficient of 0.46 and a significance value of 0.000 which is smaller than 0.05 implying that financial literacy influences financial inclusion of rural women in Kenya. Financial behavior has a strong positive path coefficient of 0.831 indicating a significant positive relationship between an individual's financial behavior and their financial literacy. Additionally, financial knowledge also displays a strong positive path coefficient of 0.731 indicating a substantial positive relationship between an individual's financial knowledge and their financial literacy.

From figure 2, financial literacy explains 21.4% of the variance in financial inclusion as represented by a R-squared of 0.214. Access to formal financial services has a strong positive path coefficient of 0.814 while usage of formal financial services has a very strong positive path coefficient of 0.966 in relation to financial inclusion and indication that increased financial inclusion correlates with access to and usage of formal financial services.

Discussion

Financial literacy has a significant effect on financial inclusion. This means that higher levels of financial literacy are associated with greater financial inclusion. Basically, this means that financial literacy contributes to access to and usage of formal financial services among rural women in Kenya. Rural women with high levels of financial literacy are likely to access and use formal financial services as compared with those with low levels of financial literacy. This is consistent with previous research by Lusardi and Mitchell (2014), Klapper et al. (2016) and

Grohmann et al. (2018) who highlighted that financial literacy among individuals have some positive relationship with financial inclusion. Therefore, there is a need to design financial literacy promotion policies and initiatives to empower rural women by providing them with essential financial information and skills that will enable them make educated economic decisions.

Financial behavior significantly affects financial literacy. An individual's financial actions and habits are the most significant enablers of their financial literacy levels. This thus suggests that rural women who actively engage in positive financial practices are more likely to have higher levels of financial literacy than those who only have the knowledge or positive attitude.

There is a substantial positive relationship between financial knowledge and financial literacy. Rural women with greater financial knowledge tend to have higher financial literacy as compared with those women with limited financial knowledge.

Financial behavior and financial knowledge are the most significant predictors of financial literacy. The results suggest that any interventions aiming at improving financial literacy should prioritize the development of sound financial habits as well as the dissemination of financial knowledge. Financial knowledge alone is not sufficient for an individual to be financially literate; application of the knowledge that is evident by financial behavior is very important. This aligns with the study of Robb (2011) who suggested that financial behavior predicted by financial knowledge and attitudes contributing to an individual's overall financial literacy as well as Shim et al. (2010) who emphasized that financial knowledge plays a key role in building financial literacy among young adults.

The effect of financial attitude on financial literacy among rural women in Kenya is not as strong as that of financial behavior or knowledge. This is an indication that positive attitudes alone may not be as influential as having concrete knowledge and behavior

Therefore, from the results it can be inferred that having financial knowledge, engaging in positive financial behavior and having a positive financial attitude contributes to improving financial literacy of rural women in Kenya. This concurs with the study of Xiao and Porto (2017) that highlights the interconnectedness of financial knowledge, attitudes, and behaviors in shaping an individual's overall financial literacy and well-being. Grohmann et al. (2018) also emphasized that financial knowledge, behavior, and attitude play a role in facilitating access to and usage of formal financial services.

Approximately 21.4% of the variance in financial inclusion is explained by financial literacy. A considerable portion of 79% is explained by other factors that are not included in this model which also influence financial inclusion. Therefore, while financial literacy is important, its impact on financial inclusion might be limited without addressing other broader issues. Relying

solely on financial literacy interventions without addressing other broader systemic and structural issues could have limited impact on achieving comprehensive financial inclusion. All interventions aimed at improving financial literacy should also consider other aspects if tangible improvements in financial inclusion are to be seen. This aligns with Willis (2011) who presented a more critical perspective on the effectiveness of financial literacy education alone in achieving financial well-being and inclusion and suggested that other than financial literacy, structural factors and product regulation also play crucial roles in promoting financial inclusion. Additionally, research by Carpena et al. (2016) highlighted the psychological aspects of financial decision-making and suggested that factors beyond just knowledge and attitudes can significantly influence financial behavior and inclusion.

Descriptive results on financial inclusion indicate that approximately suggests that only 39% of rural women in Kenya are financially included while 61% of rural women are not included. This then implies that women in Kenya remain both unserved and underserved because of the widespread lack of awareness (FinAcess, 2024).

Increased financial inclusion significantly correlates with greater access to and usage of formal financial services. This basically implies that higher financial inclusion is strongly associated with greater uptake and utilization of formal financial services. In as much as access to formal financial services is crucial, actual usage of the services is an even stronger reflection of financial inclusion. Therefore, once barriers to access to formal financial services are overcome, rural women need to be encouraged into using formal financial services thus enhancing financial inclusion. These findings concur with those of Demirgüç-Kunt and Klapper (2013) and Suri and Jack (2016) who found out that increased financial inclusion (through mobile accounts) leads to greater access and usage of formal financial services leading to positive economic impacts.

CONCLUSION AND RECOMMENDATIONS

Based on the results of the analysis, it can be concluded that financial literacy has an effect on financial inclusion of rural women in Kenya. Financial literacy a combination of financial knowledge, financial behavior, and financial attitude is necessary to make financial decisions that positively influence financial inclusion of rural women in Kenya. Financial knowledge, financial behavior, and financial attitude all contribute to improved financial literacy which enhances financial inclusion. Rural women with higher financial literacy are more likely to be financially included, while those with lower financial literacy are more likely to be financially excluded.

A positive financial orientation for rural women, fostered through education and awareness, directly correlates with increased access to and usage of financial services leading to financial inclusion.

Targeted financial education programs specifically for rural women should be designed and implemented. The financial institutions should design localized financial literacy curricula that emphasizes the understanding of basic financial concepts, practical financial management and the benefits of digital finance which are crucial for eventual financial inclusion. The study recommends the development of community-based training programs that are tailored to different regions while incorporating digital skills that will help demystify technology building confidence among rural women in Kenya enabling them to easily and freely interact with digital financial platforms effectively.

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