Digital Financial Services and Implications of Financial Literacy on Gender and Over-Indebtedness: The Case of Kenya

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Anne Kamau
Roseline Misati
Kethi Ngoka
Maureen Odongo
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Bringing Rigour and Evidence to Economic Policy Making in Africa

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Anne Kamau
Central Bank of Kenya

Roseline Misati
Central Bank of Kenya

Kethi Ngoka
Central Bank of Kenya

Maureen Odongo
Central Bank of Kenya

and
Maureen Were
Central Bank of Kenya

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Content

List of tables

List of Figures

Abbreviations and Acronyms

AMFI-K	Microfinance Institutions in Kenya
CBK	Central Bank of Kenya
COVID	Coronavirus
CRBs	Credit Reference Bureaus
DCP	Digital Credit Providers
DFS	Digital Financial Services
DSIK	German Sparkassenstiftung Eastern Africa
FE	Financial Education
IVR	Interactive Voice Response
MNOs	Mobile Network Operators
OECD	Organization for Economic Cooperation and Development
SACCOs	Savings and Credit Cooperative Societies
SMS	Short Messages Service
SSA	Sub-Saharan Africa
T&C	Terms and Conditions

Abstract

This study examines the relationship between financial literacy and over-indebtedness from a gender perspective and considering increased usage of digital financial services. The study used both primary and secondary data sourced from the FinAccess Household Survey 2021. The results show that although gender gaps in access and usage have declined over time, disparities still exist in terms of utilization of different components of financial products, financial literacy and indebtedness. Specifically, the results show that women prefer informal channels of credit services such as Chamas compared to men whose preference is formal channels. The results further show that both formal education and financial literacy lower the probability of over-indebtedness, and that women are less financially literate than men and, for that reason, have higher chances of being over-indebted than men. The results also reveal that there is a huge demand for financial education, and that slightly more than a quarter of the surveyed population is aware of credit reference bureaus and less than a quarter can access and use them despite their significance in minimizing information asymmetry, improving credit pricing, and minimizing default rates. Based on the results, the study provides three recommendations. First, development of customized financial initiatives targeting different customer segments S including women would be beneficial in minimizing financial literacy gaps and over-indebtedness. Second, the terms and conditions of loans that form an important financial decision-making tool need to be reviewed at industry and regulatory level, with an objective of making them simple, readable, concise and user-friendly. Thirdly, enhancement of access, usage, and awareness of CRBs can be an important policy tool for minimizing over-indebtedness.

Keywords: Digitalization, financial education, gender, indebtedness

1.0 Introduction

The role of financial inclusion in promoting development and alleviating poverty continues to receive increasing attention especially in Sub-Saharan Africa (SSA) where most of the population is financially excluded. According to World Development Indicators (World Bank, 2017), only 42.6% of the total population in SSA had an account at a financial institution or with a mobile-money-service provider in 2017, in contrast to high-income countries whose financial inclusion was 93.7% of the population based on the same indicator. Although great strides have been made towards financial inclusion in some SSA countries, facilitated by advances in financial technology, gender gaps remain. For instance, in 2017, 48.4% of the population with account ownership at a financial institution or with a mobile-money-service provider in SSA were male while only 36.9% were female, compared with 94.5% and 92.9% male and female account holders, respectively, in high-income countries.

Relative to other African countries, Kenya's financial sector has undergone significant transformation and development, driven by digitalization and increased use of mobile phones leading to an upsurge in financial inclusion (Ndung'u, 2019). The 2021 FinAccess Household Survey (CBK, KNBS and FSD, 2021) in Kenya shows that access to formal financial services and products has increased significantly over the years from 26.7% in 2006 to 83.7% in 2021, attributed to innovation in mobile money and banking. In terms of usage, mobile money and bank services recorded the largest growth while digital loans slowed down. Usage of mobile money grew from 27.9% in 2009 to 81.4% in 2021. A key feature of this growth is the increased uptake of *'fuliza'*,[2] a mobile-based overdraft facility offered by a consortium of banks in Kenya. However, the use of digital applications recorded the largest drop in 2021 to 2.1% from a significant growth in 2019 of 8.3%, reflecting a shift in preferences from

1 "Well-informed consumers, who can serve as their own advocates, are one of the best lines of defense against the proliferation of financial products and services that are unsuitable, unnecessarily costly, or abusive, (Ben Bernanke, 2011)"

2 Fuliza is a digital overdraft facility launched in January 2019 and is offered by selected commercial banks through the Safaricom mobile money operator.

previously non-regulated digital loans[3] to formal digital loans of *'fuliza'* and other mobile bank loans. The gender gap in terms of access has also declined from 12.7% in 2006 to 4.2% in 2021 as more women access financial services and products (CBK, KNBS and FSD, 2021).

Whereas these impressive developments portend a promising financial system, a few areas of concern on usage and quality have emerged. First is the issue regarding the relationship between increased use of Digital Financial Services (DFS) and financial literacy and whether this relationship has implications on indebtedness and gender disparities. Analysis of this linkage is important in view of the observation that provision of DFS is more focused on a person's willingness to repay rather than their ability to repay as per the algorithms displayed on most of the digital platforms. Consequently, most digital loan seekers engage in multiple borrowing, with over one-third having tried accessing loans from more than one digital lender and nearly half reporting late loan repayments (Totolo, 2018). This flaw has manifested itself in over-indebtedness brought about by debt cycle and loan stacking, partly attributed to the ease and speed at which loans are approved on digital platforms.

Analysis undertaken by MicroSave Consulting (2019) showed that out of the digital loans taken between 2016 and 2018, 2.2 million individuals in Kenya had non-performing loans and had been negatively listed for late payment or default with a credit reference bureau (Gubbins and Totolo, 2018; Mustafa et al., 2017). The percentage of non-performing loans was 16% for digital loans compared with 5% for traditional products. In addition, 62% of the borrowers had more than one digital loan, due to low loan limits coupled with short tenures. The rapid expansion of digital credit providers and easy access to loans in an environment of low financial literate and numerate population has made consumers more vulnerable to over-borrowing, thus reversing the financial inclusion and welfare gains.

Second is the issue of present bias (self-control) on the part of the consumer, arising from behavioural tendencies that do not factor intertemporal horizons when making decisions (Xiao and Porto, 2019; Dick and Jaroszek, 2013). Past studies show that digital credit users can be segmented into three behavioural categories, which imply different risk profiles for indebtedness, product design, and marketing strategies. Of interest is the borrower who is unaware of credit terms and conditions, ignores repayment reminders, has multiple loans and does not understand the implications of negative listing by credit reference bureaus (CRBs). Consumers with self-control problems and who are not financially literate are also likely to take advantage of easy access to high-cost credit, or to be taken advantage of. A positive relationship is found between consumer behaviour (lack of self-control) and financial illiteracy and non-payment of credit and over-indebtedness (Gathergood, 2011). The theory of financial education assumes that poor financial health, including over-indebtedness,

3 The Central Bank of Kenya (Amendment) Act, 2021 became effective 23 December 2021. The Amendment provides the Central Bank of Kenya (CBK) with the powers to license and oversight the previously unregulated digital credit providers.

is caused by poor financial decisions resulting from lack of financial knowledge/ literacy.[4] Empirical studies have also found this relationship to be true, particularly for Thailand (Rojrathanachai 2019; Moenjak et al., 2020).

According to the 2021 FinAccess Household Survey, the main source of financial advice was from friends and family at 45%, then 'self' at 43.3%. This is a reversal from the previous survey of 2019 where more people relied on self for financial advice. This financial behaviour is nonetheless wanting, given financial literacy is still limited to a small population. Moreover, in terms of gender, the survey results showed that 50% of females relied more on friends/family and group/Chama for financial advice compared to 39.4% of males. Financial knowledge for females was relatively low with 55.6% not able to accurately compute a 10% interest rate on Ksh 10,000 loan, implying that they are therefore unable to understand the cost of borrowing or interpret it correctly. The survey also showed that 32.8% of females could either not read short messages service (SMS) or interpreted it incorrectly. This is a clear indication of the glaring dangers of low financial literacy levels and uptake of financial services, particularly among women, which may contribute to growing indebtedness, among other outcomes. Moreover, women risk being left behind in exploiting the opportunities availed by DFS in promoting well-being and development.

Previous research shows that digital literacy is lower among women. In particular, existing evidence indicates that women struggle to understand terms and conditions from lenders and especially digital ones. As a result, they shy away from app-based lenders due to lack of understanding and awareness on how to navigate app-based user interfaces (MSC, 2019). This is manifested in the usage of the Internet to pay bills or buy goods online. Whereas, on average, 33% of males used the Internet to pay bills or buy goods online, only 20% of females used the Internet for similar services in 2017 (Demirgüç-Kunt, et al, 2020).

In view of the foregoing background, to boost uptake of digital financial products, there is need for more work not only in enhancing financial literacy, but also closing the gender gaps. This study, therefore, seeks to address the following research questions:

1. What is the extent and performance of DFS in Kenya by gender?
2. Are there gender disparities in usage of DFS?
3. Does financial literacy differ across gender?
4. What is the role of financial literacy in the usage of DFS? Has it led to over-indebtedness?

4 Financial literacy is a combination of awareness, knowledge, attitude and behaviour necessary to make sound financial decisions (FinAccess Household Survey, 2019; OECD 2016; French and McKillop, 2016). Financial knowledge is particularly important as it enables a consumer to compare financial products and services and make informed decisions.

Objectives

In relation to the research questions, the key objective of the study is to analyze digital financial services and the implications of financial literacy on over indebtedness in Kenya. Specifically, the study aims to:

1. Describe the extent and performance of digital financial services in Kenya by gender.
2. Assess the role of financial literacy in the uptake and use of digital financial services.
3. Analyze the impact of financial literacy on over-indebtedness in Kenya.

The study applies both descriptive and quantitative methods and uses secondary and primary datasets to analyze DFS and implications of financial literacy on gender and over-indebtedness in Kenya. The analysis draws from 2021 FinAccess Household Survey (CBK, KNBS and FSD, 2021), Global Findex Database (Demirgüç-Kunt, et al, 2020) and Central Bank of Kenya data sources. A detailed exploration of these data sets is undertaken to establish the extent and performance of DFS by gender and levels of financial literacy. Besides the nationwide FinAccess Household Surveys, primary data is collected to assess uptake of financial education and its implications on indebtedness.

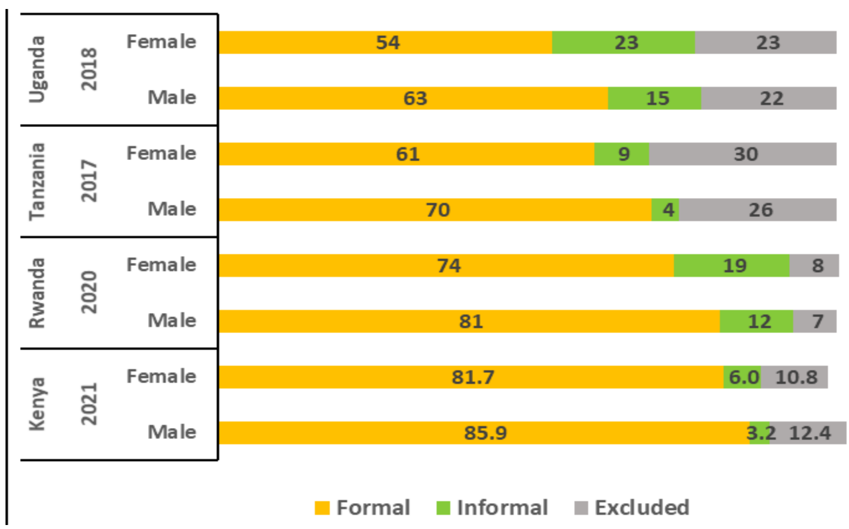
The rest of the paper is organized as follows: section two provides a detailed descriptive analysis of available data relating to digital financial services, gender, and financial literacy. The descriptive analysis seeks to partly address objectives one and two of the study. Section three discusses the relevant theoretical and empirical literature backing the study. Section four provides a brief write up on the methodology used in the study while section five discusses the primary survey and regression findings. Section six concludes the paper and gives some policy recommendations.

2.0 Digital Financial Services, Financial Literacy and Gender

2.1 Access and Usage of Financial Products and Services by Gender

In Kenya, access to formal financial services and products has grown over the years. In 2021, overall access expanded to 83.8% compared to 83.0% in 2019. The improvement was attributed to improvements in digital technology, modern business models, and financial innovations, especially in mobile money and mobile banking products (CBK, KNBS and FSD, 2021). The gender gap in access to formal financial services and products has also narrowed since 2006 from 12.7% to 4.2% in 2021. In 2021, 81.7% of women compared to 85.9% of men had access to formal financial services and products. Figure 1 shows access to financial services by gender. Compared to other countries in the region, the gender gap is smallest in Kenya at 4.2% in 2021, 7.0% in Rwanda in 2020, and largest at 9.0% in Tanzania (2017) and Uganda (2018), respectively (Figure 1).

Figure 1: Formal access strand by gender

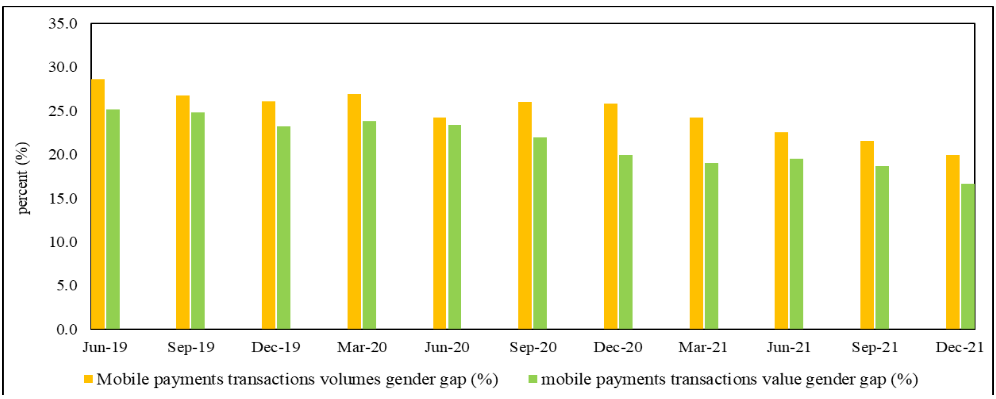


Source: FinAccess Household Survey, Various years and countries in East African Community (EAC)

Digital financial services have continued to gain prominence in Kenya. In particular, the integration of mobile money into the banking system has not only increased financial inclusion but also facilitated the usage of financial services and products (Misati et al., 2021; Ndung'u, 2019). Since the onset of the COVID-19 pandemic in 2020, there has been a significant increase in the use of digital financial services, which has enabled cashless transactions, amidst calls for social distancing and containment measures to mitigate the spread of the virus. This promoted the usage of mobile money, which increased to 81.4% in 2021 from 79.4% in 2019. Similarly, mobile banking expanded by 9.1 basis points to 34.4% in 2021, mainly attributed to the usage of Fuliza digital services, with 18.3% of the respondents having used them in 2021. These trends have been sustained even after the removal of cost reduction emergency measures in 2021, which had been implemented to facilitate increased use of mobile money transactions instead of cash in the context of COVID-19 pandemic. For instance, the value and volume of mobile transactions rose from Ksh 148.5 million and Ksh 350.4 billion, respectively, in February 2020 (pre-COVID levels) to Ksh 164.2 million and Ksh 567.9 billion, respectively, in February 2021. In February 2022, the value and volume rose to Ksh 171.3 million and Ksh 568.71 billion, respectively, implying a possibility of entrenched customer habits even after the resumption of mobile charges in 2021.

The total number of mobile payment transactions undertaken through mobile phones by gender indicates that males are the major users, shown by both higher volumes and values compared to females. Mobile transactions by males dominate in both volumes and values, averaging 62% and 51% in the period March 2019 to December 2021, against female averages at 37% and 29%, respectively. The transactions' gender gaps remain large at 25% for volumes and 22% for values, even with the closing gender mobile ownership, indicating perhaps levels of literacy, incomes, usage, and type of phone differentiates uptake of mobile transactions (Figure 2).

Figure 2: Total mobile payment transactions by gender

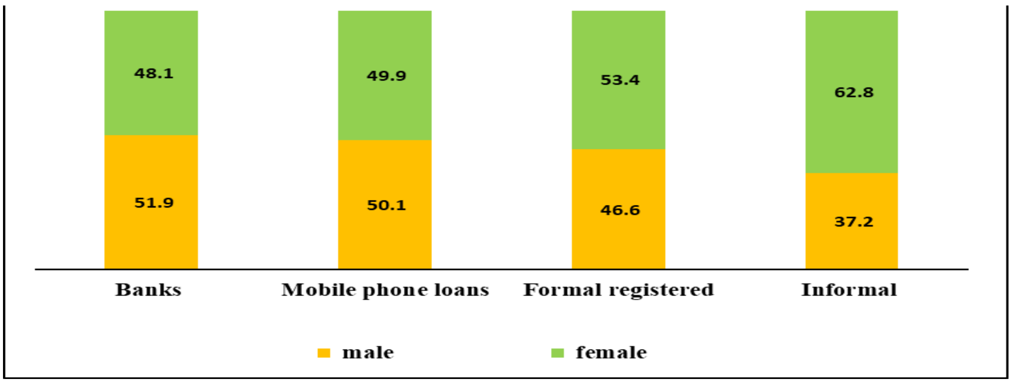


Source: Central Bank of Kenya (2022), National Payment Services

Digital platforms have transformed from simple mobile money transfers to unlocking savings, loans, investment, and insurance opportunities. In 2021, the usage of savings and credit increased, with the overall credit uptake growing by 10.4 basis points to 60.8% while savings uptake increased by 3.9 basis points to 74.0% (CBK, KNBS and FSD, 2021). Despite the growth in the usage of financial services and products, challenges remain, with a large proportion of the population (11.6%) still excluded from accessing both formal and informal financial services.

The uptake of financial services and products by gender reveals that more males use banking products, mobile banking, and phones for credit financial services compared to women, who mainly rely on informal sources such as shylocks and formally registered SACCOs and digital app mobile money for credit services. More females compared to males prefer informal financial services for credit (62.8%) (Figure 3).

Figure 3: Usage of credit services by gender



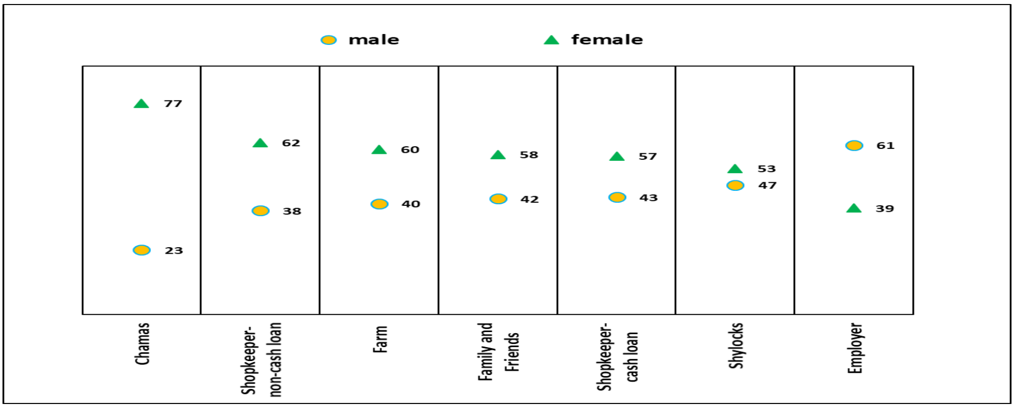
Source: CBK, KNBS and FSD, 2021 FinAccess Household Survey

In particular, the use of Chamas for credit facilities was higher in females (77%) than for males (23%) (Figure 4). This finding supports previous studies and surveys that show that women utilize informal finance, particularly Chamas, due to homegrown terms and conditions within the group, short turnaround time, ease of access, social capital and a sense of financial inclusion that women derive from meeting, planning and executing shared goals. Additionally, the ability to use deposits and savings as collateral, low interest rate, accessibility and minimal procedures make SACCOs attractive in Kenya.

Moreover, other studies have also shown that lack of collateral, particularly title deeds is one of the key incentives for preference of informal financial channels by women, (Dalberg and FSD, 2021; KIPPRA, 2019). The participation of women in formal finance is expected to be enhanced through the enactment of the the Central Bank of Kenya (Amendment) Act, 2021, which gives CBK power to license and oversight the previously unregulated digital credit providers (DCPs), effective on 23 December

2021. While these DCP regulations are likely to moderate the interest rate on loans by digital lenders and possibly expand the number of females in formal financing, it is still important for other measures, including customized financial education products for women and simplification of terms and conditions by formal financial service providers, to be implemented to attract interest of women in formal financial services.

Figure 4: Credit loans from informal providers by gender



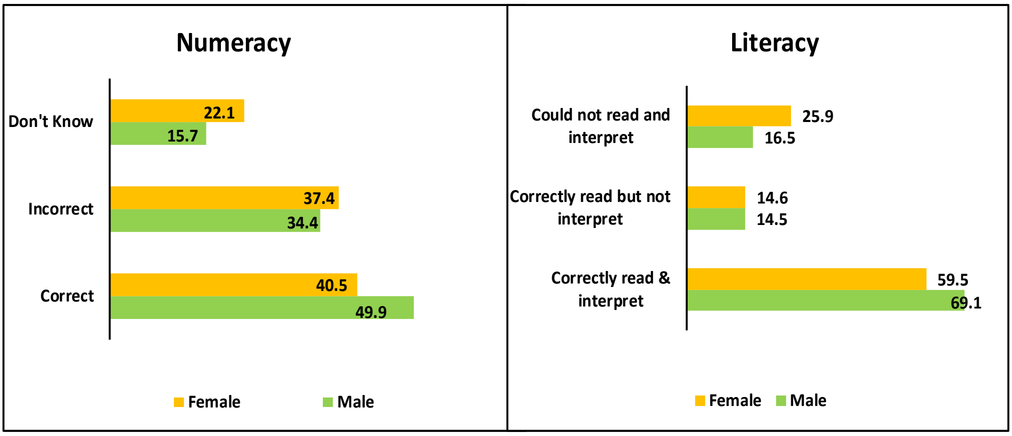
Source: CBK, KNBS and FSD, 2021 FinAccess Household Survey

2.2 Financial Literacy by Gender

Financial literacy is measured using four dimensions, which are considered fundamental in financial decision making, namely: (i) financial knowledge, measured using numeracy and literacy skills. Numeracy skills are defined as having the ability to compute a simple average interest rate on a loan, while literacy skills are measured as the ability to read and interpret messages and charges after making a financial transaction; (ii) financial skills are measured using money management practices and competencies on a financial decision. Specifically, it is the ability to plan and keep aside money for emergencies and living within means; (iii) behavioural attributes; and (iv) attitude, both measured using awareness dependency questions. Measures of awareness include sources of financial information, advice and education, and awareness of credit reference bureau reports (OECD 2005; 2016: CBK, KNBS and FSD, 2021).

Consistent with the definition of financial literacy and 2021 FinAccess Household Survey (CBK, KNBS and FSD, 2021), a person was financially literate if he or she demonstrates knowledge and understanding (via correct answers) to the questions relating to numeracy and literacy. From the analysis, more males were able to correctly compute, read and interpret financial information compared to females. The survey shows a gender gap of about 10% in terms of numeracy and literacy, and this would have implications on uptake of formal financial services.

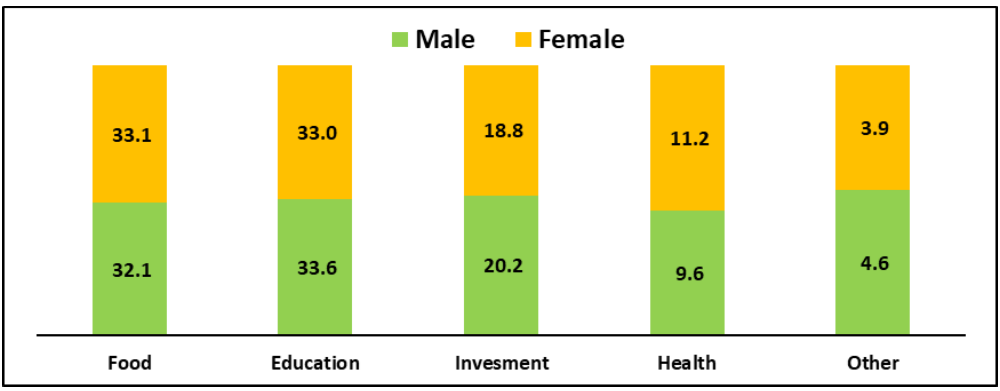
Figure 5: Numeracy and literacy knowledge by gender



Source: CBK, KNBS and FSD, 2021 FinAccess Household Survey

In terms of financial planning, the 2021 FinAccess data revealed the main financial goals for households as education, provision for food, and investments (Figure 6). Gender analysis revealed that both males and females are keen on providing basic needs such as food and education for themselves and for families. However, males are keener on investing, while females focus more on health provisions. Analysis by cluster showed a higher proportion of households in urban clusters reporting the key financial goals as health, business and career improvement.

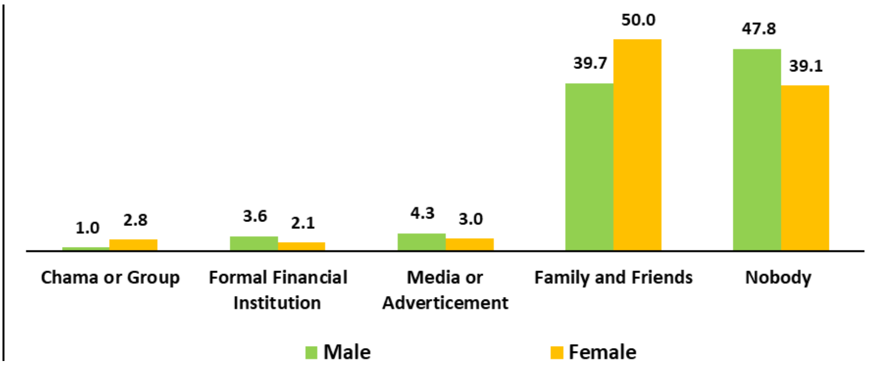
Figure 6: Financial planning goals by gender



Source: CBK, KNBS and FSD, 2021 FinAccess Household Survey

In 2021, relatively more people (90.1%) relied on informal sources for financial advice compared to 78% in 2019. Specifically, family and friends (45%), self (43.3%), and Chama and groups (3.0%). The assessment by gender revealed a similar trend, with more females[5] compared to males relying on family and friends, while more males relied on self for financial advice. However, loans from family and friends recorded relatively higher default rates at 41.8% compared to banks at 21.8%, implying that the preference of family and friends by women would be suggesting a possibility of high default rates. Trends in Figure 7 also show that the use of formal sources for financial advice remains low, and this calls for financial providers to incorporate financial education and financial literacy programmes on a regular basis and in their services and products.

Figure 7: Source of financial information by gender



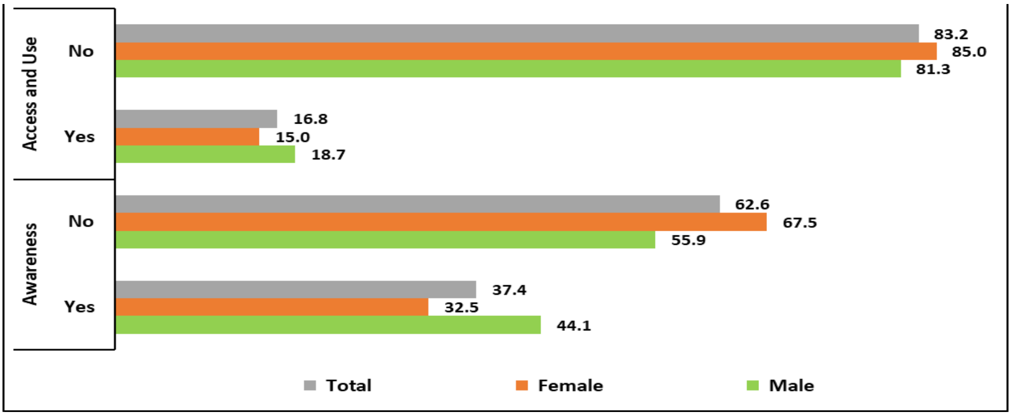
Source: CBK, KNBS and FSD, 2021 FinAccess Household Survey

Credit Reference Bureaus (CRBs) hold credit data shared by financial institutions and facilitate credit lending to financial institutions.[6] In Kenya, there are three CRBs, among them CREDIT INFO, Metropol, and Transunion Kenya. They are all regulated by the Central Bank of Kenya. They receive credit data from various sources such as banks, SACCOs, micro finance banks/institutions, and fintechs. Customers are encouraged to constantly check their credit reports to verify the information contained in the reports. Similarly, lending institutions are required to provide accurate information about their customers. In 2021, more males compared to females were aware of the CRBs. However, very few had tried to access or use the report. There were many respondents, both males and females, who have neither heard about CRBs nor used the reports from the CRBs. This could imply the need for awareness creation, especially considering that the uptake of digital financial products is gaining prominence.

5 The decision on who and when to consult on financial matters is made at a personal/individual level. However, it is assumed that consultation of family members includes the spouses for the married women.

6 A credit reference bureau (CRB) is a firm that collects information from financial institutions and provides consumer credit information on individual consumers for a variety of uses.

Figure 8: Awareness and usage of credit reference bureau by gender



Source: CBK, KNBS and FSD, 2021 FinAccess Household Survey

It is clear from the exploration of available data that gender gaps in financial access have significantly narrowed from 12.7% in 2006 to 4.2% in 2021. However, glaring gaps persist in the use of financial services and literacy levels. It is observed, when the number of payment transactions is considered, that males perform significantly higher volumes and values compared to females. Regarding the uptake of credit, more females compared to males prefer informal sources (Chamas, shopkeepers, family and friends) and formally registered (fuliza) compared to formal banks and mobile-based loans. The numeracy and literacy indicators show that females fell short by 10% compared to males; that is fewer females can compute interest rates and correctly read and interpret financial messages compared to males. When it came to being aware of the credit reference bureaus, more females did not know about CRBs compared to males. Lastly, when sources of financial advice are considered, more females relied on family and friends compared to males. The outlined interesting findings indicate persistent vulnerabilities that females are exposed to in their quest to access and use available financial services in Kenya.

2.3 Financial Education in Kenya

An exploration of the status of financial education in Kenya reveals the existence of a few financial education initiatives provided by commercial banks, microfinance institutions, savings societies, and other players in the financial space (Table 1A in Appendix). The available education is generally targeted to the youth and women – a segment of the population believed to be vulnerable and mainly owners of micro, small and medium businesses.

The focus of the available financial programmes has mainly been on financial concepts regarding savings, planning and budgeting, financial negotiation skills, debt management, banking services, and investments. Fewer programmes extend their training to entrepreneurial skills, mentoring, and coaching. Moreover, only the microfinance institutions go into the details of teaching on loan policies and procedures. Models of financial education delivery range from in-house face-to-face/ seminars/conference structures, media/radio/TV/newspaper adverts, online –self online training/e-print material/ coaching, from print material and phone training.

It is observed that training targeted specifically towards digital financial literacy is scarce and majorly lacking. From the data explorations, we find one financial institution offering targeted Interactive Voice Response (IVR) Digital Financial Literacy Programme - German Sparkassenstiftung Eastern Africa (DSIK) together with the Association of Microfinance Institutions in Kenya (AMFI-K), launched in May 2021.

In sum, there are efforts and initiatives to financially educate people from various institutions. However, the evidence points to little focus on digital financial literacy, despite DFS being a key source of over-indebtedness in Kenya. Therefore, efforts to develop tailor-made programmes for digital financial literacy ought to be developed in line with identified needs of clients or public.

3.0 Survey of Literature

Theories on financial education and financial literacy centre on consumer's ability to make informed financial decisions on available resources over their lifetime. Earlier literature assumed rational and well-informed individuals capable of making optimal decisions on consumption (Modigliani and Brumberg, 1954; Friedman, 1957; Ando and Modigliani, 1963). The main theoretical argument was that consumers use savings and borrowings to smoothen consumption patterns, and this decision is largely driven by liquidity constraints, preferences between current and future consumption and information on future consumption prospects. The model assumed consumers' expertise in dealing with complex economic decisions. However, recent theoretical models on life cycle optimization process have assumed that consumers' preferences are shaped by financial market fundamentals (Mankiw, 1981; Hansen and Singleton, 1983; Hall, 1988) since planning horizons are intertemporal and therefore extend beyond a single period (Hubbard and Judd, 1986; Zeldes, 1989).

Empirical literature has focused on five fundamental elements of financial literacy: knowledge, skills, awareness, attitude and behaviour, which are considered necessary for effective planning and management of financial resources (Noctor, Stoney and Stradling, 1992; Moore, 2003; Hilgert et al., 2003; Atkinson and Messy, 2012). The elements are conceptually related, since financial skills contribute to competence gains and the ability to correctly interpret financial information (Moore, 2003; OECD, 2005). Making informed choices requires knowledge of financial concepts, products and services, risks and opportunities (OECD, 2005). Decision-making, therefore, becomes important as it enables consumers to make informed choices regarding financial resources and control of personal finances. Knowledgeable consumers with financial skills benefit from the full range of financial market undertakings (Noctor et al., 1992; Hilgert et al., 2003), while individuals with lower financial knowledge are likely to make financial mistakes (Bernheim and Garett, 1996; Kimball and Shumway, 2010; Agarwal and Mazumder, 2013; Benjamin et al., 2013).

A growing body of empirical research provides evidence on the implications of financial literacy or the lack of it on consumer choices and economic outcomes (Bernheim 1996; Delavande et al., 2008; Hsu, 2011; Lusardi and Mitchell 2008, 2009; Lusardi et al., 2013; Jappelli and Padula, 2013). Past empirical findings reveal that financial literacy and financial decision making is directly related to savings decisions (Kotlikoff and Bernheim, 2001; Carlin and Robinson, 2010); credit, loan and debt

(Hilgert et al., 2003; Moore, 2003; Campbell, 2006; Stango and Zinman, 2009 Lusardi and Tufano, 2009; Gerardi, Goette, and Meier, 2013; Brown et al., 2016), retirement planning (Lusardi and Mitchell, 2007) and stock market participation (Bucher-Koenen et al., 2021; Delavande et al., 2008; Kimball and Shumway, 2010; Christelis et al., 2010).

There are some recent empirical studies that analyze the impact of financial literacy on household indebtedness, focusing more on the impact of the financial crisis, COVID-19 pandemic and the uptake of digital credit. Kurowski (2021) used Polish survey data to analyze the role of debt and financial literacy on households' over-indebtedness during the COVID-19 pandemic. The findings revealed that financial literacy helps households in planning and budgeting, and that households with higher debt literacy are less likely to default because of accumulated savings. Similarly, households with mortgage loans were better able to manage their repayments as opposed to households with non-mortgage loans who were over-indebted. Wamalwa et al. (2019) analyzed the implications of credit uptake on household indebtedness in Kenya. The study used the FinAccess Household Survey data for 2015/2016. The findings showed that financial literacy reduces uptake of digital credit and that individuals using digital credit have low income, numerous loans and therefore face difficulties in repaying the loans, compared to those who use conventional credit.

Brown et al. (2016) examined the relationship between financial literacy and debt behaviour among young Americans. The study showed that both mathematics and financial education improve repayment behaviour. Additional mathematics training leads to improved creditworthiness and budgeting, and therefore lower levels of over indebtedness among students. Lusardi and Tufano (2009) used the debt literacy measures on numeracy, perception, and risks to assess household's financial literacy and experiences with indebtedness in the USA. The findings revealed low debt literacy, with only a third of the population being able to comprehend interest compounding and compute interest on credit cards. Specifically, the study revealed that individuals with lower levels of debt literacy incur high transaction costs, higher fees and high cost borrowing and, as a result, have excessive debt loads.

In terms of gender dynamics, studies have generally found that women tend to have, on average, lower levels of financial literacy than men (Hasler and Lusardi, 2017; Fonseca et al., 2012; Fonseca et al., 2012; Lusardi and Mitchell, 2008; Kotlikoff and Bernheim, 2001). Even for high-income countries with considerably higher overall levels of financial literacy than low-income countries, the gender gap in financial literacy is still large (Atkinson and Messy, 2012; Hasler and Lusardi, 2017; Klapper and Lusardi, 2020). When asked to answer questions on basic financial concepts, women are less likely to answer correctly compared to men and more likely to indicate that they do not know the answer. Bucher-Koenen et al. (2017) found that these gender differences in financial literacy were similar across countries. Using questions on four fundamental concepts in financial decision-making: knowledge of interest rates, interest compounding, inflation, and risk diversification, Klapper and Lusardi (2020) found that worldwide, just one in three adults are financially literate; that is, they know at least three out of the four financial concepts. In particular, women, poor adults, and the less educated were more likely to suffer from financial knowledge gaps, both in developing countries and countries with well-developed financial markets. Lusardi and Tufano (2009) identified sharp differences between male and female debt literacy levels, with women either being less likely to respond correctly compared to men or not knowing the response. The findings revealed significant gender differences in young women and old women.

The literature also analyses factors determining the gender gap in financial literacy. Notably, findings by Hsu (2011) revealed that women only acquire additional financial literacy as they approach widowhood, mainly because they have higher life expectancy and tend to outlive their husbands. Fonseca et al. (2012) found that greater financial decision-making, and hence financial responsibility within the household, is positively correlated with higher financial literacy for men, but not for women, and that men are more likely to increase their financial knowledge when they are in charge of the financial and economic decisions. Fonseca et al. (2012) analyzed potential explanations for the gender gap in financial literacy and noted that within the households, men more often than women, specialize in making household financial decisions thus, acquiring more financial knowledge, while women specialize in other household functions. Based on micro-data from the household, income and labour survey in Australia, Preston and Wright (2019) used Oaxaca-Blinder decomposition technique to examine the determinants of the gender gap in financial literacy and found that labour market variables such as sector, occupation, industry, union membership and labour market status were more important in explaining the gender gap in financial literacy; human capital variables such as age and education were not statistically important. However, the large unexplained gap suggested that the main determinants are neither human capital nor labour market factors.

In sum, the body of empirical literature on the role of financial literacy including gender disparities and implications on financial behaviour and decision making is growing. The findings generally show positive impact of financial illiteracy on household indebtedness. Low levels of financial literacy exacerbate consumer and financial market risks, especially given the rapid expansion of digital financial services which, while they continue to enhance financial inclusion, have come with new challenges as increasingly complex financial instruments enter the market (Klapper and Lusardi, 2020; Lyons and Kass-Hanna, 2021). However, studies that examine these emerging patterns and relationships are still relatively limited. Recent research has even proposed the need for a framework to operationalize the concept of digital financial literacy as the traditional financial literary definitions are insufficient to capture peculiarities of financial services within a digital context (Lyons and Kass-Hanna, 2021). Moreover, existing studies have largely focused on developed countries with little focus on low-income countries particularly in Africa. Yet, the region in general and specific countries such as Kenya have experienced proliferation of modern technology and financial innovations, entailing a variety of financial products and services, which require financial knowledge and skills.

4.0 Methodology

The study used cross-section household survey data on financial inclusion and primary data to provide a detailed analysis of digital financial services and implications of financial literacy on gender and over-indebtedness in Kenya. Both qualitative and quantitative analytical methods were used. The descriptive analysis provided information on gender dynamics of access to and usage of financial services in Kenya over time, and established the extent and performance of digital financial services by gender and various measures of financial literacy. The empirical analysis examined the impact of financial literacy and gender on over-indebtedness.

4.1 Research Design and Sampling Method

The secondary data used in the analysis was sourced from the 2021 FinAccess Household Survey database. The survey was administered nationally across 22,024 households in Kenya during the period June-October 2021 and provided information on financial inclusion across four dimensions, namely: access, usage, quality, and welfare (CBK, KNBS and FSD, 2021). The access dimension covered access to formal, digital, and informal financial services. The usage dimension measured actual use of both formal and informal financial services and products, including savings, credit, investments, pensions, insurance, among others. The quality dimension assessed financial knowledge, skills, and awareness, while welfare measured gains from the usage of financial products and services.[7] Financial skills were based on money management practices and capabilities, which include decision-making skills on financial matters, and sources of financial information and or advice.

Primary data was also collected to provide additional information on financial education. A structured questionnaire targeting users of financial services from bank, non-bank and Telcom-based digital financial services was developed. The questionnaire focused on the extent of over-indebtedness and whether financial education had any role on the ability to make sound financial decisions. The survey targeted 60 respondents. A non-probability sampling method was used to identify potential respondents who use digital financial services. Snowballing sampling

7 The sampling frame and design of the survey is provided in the 2021 FinAccess Household Survey report (CBK, KNBS and FSD, 2021)

technique was applied to identify the subsequent respondents. The questionnaires were administered through telephone interviews and face-to-face, to those that accepted to a meeting (see Appendix A2 for the full questionnaire).

4.2 Empirical Model

To empirically assess the impact of financial literacy on over-indebtedness, the study used the 2021 FinAccess Household Survey data to estimate an econometric model defined in equation 1. The dependent variable used in the model is over-indebtedness, measured using various indicators, namely arrears, debt burden and amount of outstanding loans. Similarly, the main explanatory variable is financial literacy, measured using knowledge, skills, behavioural and awareness indicators. The control variables used individual demographics and household socio-economic characteristics, namely gender (female), age, marital status (married), income (log income), education, and employment (employed). The estimated model is presented in equation 1 below.

$$Indebtness_i = \alpha + \beta_1 finlit_i + \beta_2 gender_i + \beta_3 age_i + \beta_4 agesq_i + \beta_5 marital_i + \beta_6 education_i + \beta_7 digital_i + \beta_8 income_i + \beta_9 employed_i + \varepsilon_i \ldots\ldots [1])$$

Where:

1. Over-indebtedness

The variable of over-indebtedness was derived from respondents who indicated to be using credit products from either formal, digital, or informal financial services. Three indicators were computed, namely: arrears, debt burden, and the number of outstanding loans.

i) Arrears was captured as a binary indicator. Individuals who had loan products and indicated to have paid late, missed a payment, and never paid any amount captured as one, while those who indicated to have met all their obligations on time as otherwise.

ii) Number of outstanding loans was measured as a count variable and by type of loan. The individuals with four loans or more were considered as over-indebted: and

iii) Burden of loan - the number of measures taken to repay a loan, where a higher debt burden required a combination of measures to clear outstanding loans.

2. Financial literacy

Financial literacy was defined based on the four main attributes, namely financial knowledge, skills, awareness, and attitude. All the attributes entered the model as a binary variable.

i) Financial knowledge was measured by the ability to compute basic financial transaction cost accurately (numeracy) and the ability to read and interpret financial information (literacy).

ii) Behavioural attributes captured by awareness of the credit reference bureau report and whether the respondent had made use of the report.

3. Control Variables

The control variables were captured using social-economic attributes of the respondent and included binary variables: gender, education, employment, marital status, the amount earned (income), and age of the respondent. Household earnings may have positive effects on credit uptake because of the absence of liquidity constraints and uncertainty about future earnings (Zeldes, 1989; Romer, 2008), but may also have positive effects because of buffer stock saving behavior (Deaton, 1991).

5.0 Discussion of Primary Survey and Empirical Findings

5.1 Survey Findings on Impact of Financial Education on Indebtedness

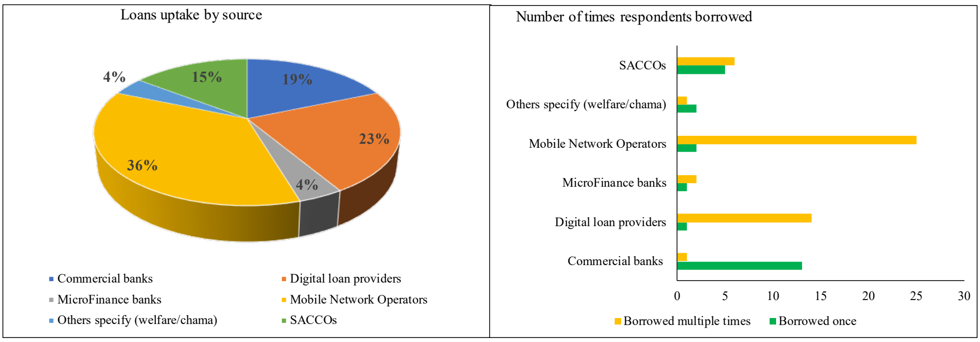
Characteristics of respondents

A diverse group of respondents were interviewed, with 70% of the respondents being in the age bracket of 20-40 years, while 30% respondents were in the age bracket of 41-70 years. The target was to have 50% of each of the sexes; however, the respondents comprised of 53% and 47%; that is 32 women and 28 men, respectively. All respondents had at least a bank account in one bank, even though not all had a regular source of income or a stable job or business. In addition, to bank accounts, all respondents had access to different bank and non-bank digital applications on their mobile phones, plausibly to diversify their ability to access credit.

Credit uptake and frequency

In the last one to four years, 76% of the respondents had accessed loan facilities while 14% had not accessed any loans from banks or digital apps. From the 46 respondents who had accessed loans, 21 were women and 25 were men. Figure 9 shows the sources of loans and the number of times the different loans were taken. The sources of loans were as expected – diverse – from commercial banks, MNOs, Digital Apps, SACCOs, microfinance banks and others (staff welfare and *Chamas*) with the majority being from mobile network operators (MNOs) and digital lenders. Moreover, there was a higher frequency in borrowing digital loans and MNOs, compared to borrowing from commercial banks. It is noteworthy that all the 21 women had MNOs and digital loans and only four had ventured into getting commercial loans.

Figure 9: Sources of loans and the number of times the different loans were taken



Source: Computations from survey outcomes

Financial education

The survey results showed that 40% of the respondents had received financial education (FE) while 60% had not received any financial education. The fact that fewer respondents from the sample had received financial education shows scarcity of its availability, or poor marketing strategies on the part of the providers. From the 24 respondents that had received financial education, five were women while 19 were men, and they got to know about the financial education programmes by virtue of association; that is, from institutions they banked with or social groups they belonged to, for instance the INUKA tribe for young entrepreneurs. The remaining 36 respondents who indicated they had received financial education 26 were females while 10 were males, a clear indication of low financial education uptake among women. Nearly all the respondents that had not received FE had no idea it existed and did not know where to get it from. 21 (88%) respondents indicated that they found the training to be useful in: financial management; awareness of financial products and services; financial decision-making; and understanding terms and conditions for loan repayment. Four (12%) respondents did not find the FE training to be useful, indicating that it was complicated, and they did not understand much during the training. Moreover, they indicated that the training was geared towards ensuring they repaid their loans rather than imparting financial knowledge.

Financial education and indebtedness

The questionnaire also sought to understand whether those that had received FE were better off in terms of indebtedness. Eight respondents (35%) indicated they still had too much debt and experienced difficulty in paying the loan before and after FE, while a bigger proportion of 10 respondents indicated they were comfortable in repaying their loans while 6 had received FE but had not taken any loan. The high number of both genders being able to repay their loans and better manage their finances after FE indicates the importance of FE and its potential for reducing indebtedness. Moreover, when the respondents were asked whether they would recommend FE to friends, family, and colleagues all agreed that financial education was important and they would recommend and even enroll in it again, for knowledge attainment. From the 46 respondents who had taken loans, 41 had multiple loans, which included all the 21 women with loans.

When asked to comment on a statement that "financial literate persons were more aware of their finances and made good decisions on their finances, and therefore had low debt levels" 45 respondents agreed with the assertions of the statement while 15 respondents disagreed. It is noteworthy that from the 15 who disagreed with the statement, 12 were women while 3 were men. Some reasons for agreeing with the statement included:

i) Knowledge enhanced decision-making for borrowing and repaying.

ii) FE ensured understanding and good management practices of finances.

Some reasons for disagreeing included:

i) Borrowing and spending habits are different from financial intelligence quotient (IQ).

ii) Indebtedness depended on individuals' character and not on whether one had FE or not.

iii) People borrow to deal with problems, so FE did not matter. Nonetheless, no one wanted to be highly indebted.

iv) Those with FE borrow more and live beyond their means.

The fact that 75% of the respondents link financial education to better debt management coupled with the findings above that show that over 40% of the respondents serviced their loans better or refrained from excess borrowing after financial education implies that positive outcomes on managing indebtedness at individual level is possible, with targeted and intentional financial education.

Reading of terms and conditions

Amazingly, 40 respondents indicated they read the Terms and Conditions (T&C) of the loans they took, although they also indicated they understood bits and pieces of the information provided. Six (6) respondents did not bother to read the T&C at all, given the small print, length and difficulty in understanding. Five (5) of those that did not read T&C and had accessed loans were women and one was male. 28 respondents who read the T&C did not understand what monthly rate of interest meant in annual terms. When asked which T&C were easier to understand, 50% indicated those of banks as the bankers took time to explain to the customers while the others indicated either they did not know or found the T&C for digital apps easier to understand.

The findings seem to suggest there is a definite need for financial education among users of digital financial services while the suppliers of the FE are few and not known. Moreover, the recipients of financial education appreciate their improved ability to better manage their finances after the FE and resist the urge to over-borrow and be caught up in debt cycle. However, access of FE would take deliberate effort from users to look for where the FE is available/being offered. The providers of loans should endeavor to simplify and make information content in T&C more user friendly, understandable, better in appearance, to avoid misinterpretations and entice users to read.

5.2 Empirical Findings

The results from the empirical estimation for equation 1 are presented in Table 1 below. The regressions in models 1-3 used the Probit model, since the dependent variable is a binary outcome that equals one if the respondent reported being in arrears, and zero otherwise. The marginal effects reported in model 1 reveal that the probability of falling into arrears is 1.5% higher for females relative to males. Similarly, having a digital loan increases over-indebtedness. Model 2 includes measures of financial literacy. The findings show that being financially literate reduces over-indebtedness. Specifically, knowledge in the computation of financial costs as captured by numeracy lowers the probability of falling into arrears by 7.4% while literacy knowledge reduces the probability of over-indebtedness by 8.5%. Model 2 also reveals a lower probability of females falling into arrears, confirming the important role of financial literacy in managing financial matters.

Table 1: Regression results

	Dependent Variable								
		Arrears			Number of Outstanding Loans			Debt Burden	
	Model 1	**Model 2**	**Model 3**	**Model 4 (Fuliza)**	**Model 5 (Mobile)**	**Model 6 (Informal)**	**Model 7**	**Model 8**	**Model 9**
Female	0.0151*	0.0010**	-0.0210***	0.012***	0.0013	0.473***	0.0179**	0.0206**	0.0215***
	(0.0089)	(0.0090)	(0.0098)	(0.0042)	(0.0030)	(0.1161)	(0.0080)	(0.0080)	(0.0080)
Digital	0.0006***	0.0011***	0.0015***						0.0012***
	(0.0003)	(0.0003)	(0.0003)						(0.0005)
Numeracy		-0.0740***	-0.0608***		-0.0054	-0.2209**	-0.0579***		
		(0.0107)	(0.1163)		(0.0039)	(0.0660)	(0.0084)		
Literacy		-0.085***	-0.093***	-0.0706***	-0.0248***	0.0202			
		(0.0109)	(0.1210)	(0.0046)	(0.0036)	(0.0818)			
Education			-0.1605	-0.0531***	-0.0349***	0.1626**		-0.0164***	-0.0187**
			(0.1124)	(0.0052)	(0.0044)	(0.0810)		(0.0084)	(0.0085)
Credit reference bureau					-0.0951***	0.3158***		-0.0286**	-0.0315**
					(0.0039)	(0.0586)		(0.0144)	(0.0145)
Age			0.0063***	0.001***	-0.0048	0.0742***	0.0092***	0.0092***	0.0091***
			(0.0174)	(0.0001)	(0.0038)	(0.0186)	(0.0013)	(0.0013)	(0.0014)
Age squared			-0.0001***		0.000469	-0.0009***	-0.0001***	-0.0001**	-0.0001***
			(0.0000)		(0.0004)	(0.0002)	(0.0000)	(0.0000)	(0.0000)
Marriage			0.0019	-0.0114**	-0.0128***	0.2816***	0.0316***	0.0322***	0.0326***
			(0.0015)	(0.0042)	(0.0032)	(0.0857)	(0.0084)	(0.0084)	(0.0084)
Income			-0.0449***	-0.0244***	-0.0125***	-0.0392			
			(0.0049)	(0.0018)	(0.0014)	(0.0750)			
Employment			0.014	-0.0581***	-0.0104**	0.4928***			
			(0.0132)	(0.0042)	(0.0032)	(0.0913)			
Intercept				1.22	1.3	-2.199			
				0.0151	0.0121	0.565			
No. of observations				19,617	19,617	19,619	12207	12207	12207
Pseudo R square				0.0055	0.0049	0.045	0.011	0.0088	0.008

Consistent with the findings by Wamalwa et al. (2019), results in model 3 confirm the significant and negative effects of financial literacy indicators on over-indebtedness even after controlling for the demographic and socio-economic characteristics of the respondents. Similarly, digital loans increase the probability of loan arrears and therefore over-indebtedness. This could be attributed to the stringent repayment measures and the cost of servicing the digital loans. However, the probability of females falling into arrears changes from being positive in models 1 and 2 to negative after accounting for the demographic characteristics. The results in model 3 indicate that the probability of falling into arrears is 2.1% lower for females relative to males. These results are consistent with the findings in Meyll and Pauls (2019), who showed that females have a lower probability of falling into arrears and are more uncomfortable with debt (Almenberg et al., 2018), and being key decision-makers, male-headed households utilize digital credit more than conventional credit (Wamalwa et al., 2019).

In models 4-6, the dependent variable is the number of outstanding loans individuals have with the various loan providers. The higher the number of loans the more indebted one is. Poisson regression is used since it is suitable for count data analysis. Two sources of loans are considered: informal loans (welfares, Chamas, friends, relatives) and digital loans (mobile bank and apps based, and Fuliza loans). The digital loans are estimated separately given their increased uptake evidenced in the recently concluded 2021 FinAccess Household Survey (CBK, KNBS and FSD, 2021). We control for robust standard errors as recommended by Cameron and Trivedi (2010) for mild violation of underlying assumptions. The findings in models 4 and 6 are positive for gender Fuliza (0.012) and (0.473) informal loans, implying that as women increasingly access digital-based loans, the number of Fuliza and informal loans increased, therefore, women became more indebted compared to men. The gender variable is not significant in model 5, plausibly indicating more males are indebted when mobile loans are considered compared to females.

In models 7 to 9, the dependent variable is a measure of debt burden regressed against different configurations of the explanatory variables. The debt burden indicator captures the number of measures taken to repay a loan and may include one or a combination of the following: loan refinancing, use of savings, sale of assets, reducing expenditure on food or non-food products, and starting a business or working more hours. A higher debt burden depicts a situation where a combination of measures is needed to offset an outstanding loan. The explanatory variables include age, marital status, sex, literacy, numeracy, education, and knowledge of and access to a credit reference bureau (CRB) report. An interactive term, awareness, is generated by combining responses on awareness of the CRB report, and access to the report. Access to the report is considered more useful to the decision-making process of households. The effect of the CRB awareness measure is captured in model 9.

The marginal effect in models 7 to 9 reveal a statistically significant gender gap. The analysis shows that women are approximately 2 percentage points more likely to have a higher debt burden. The effect of gender on the debt burden remains robust even as we include other control variables. The results also show that financial knowledge (financial numeracy or literacy), education and CRB awareness are important explanatory variables. We observe that in specifications where we include either literacy or numeracy as an indicator of financial knowledge, the education variable defined as some secondary level of learning or higher is not significant. This suggests that literacy, numeracy, and education each capture aspects of financial knowledge. The results are consistent with the finding that low levels of financial literacy result in higher debt burden, default, and delinquency (French and McKillop, 2016). The indicator on CRB awareness is statistically significant in model 9 in which financial knowledge is by education. The result shows that women who interact with the respective CRB reports are approximately 3.2 percentage points less likely to have a high debt burden.

Models 1-9 account for individual demographics and household socio-economic characteristics including age, education, marital status, income, and employment. The results reveal that age increases over-indebtedness but tapers off as age advances. This finding is consistent with Ando and Modigliani (1963) life-cycle hypothesis, where the younger age groups borrow, thus increasing their debt level in the process of assets acquisition and as they age, they repay their debts. Models 4 and 5 considered those that had secondary school education and had ability to read financial messages and find a negative relationship for the education (-0.0531) and literacy (-0.0248), with the fuliza and mobile loans, which indicates the higher/better the education level and literacy, the lower the number of loans women took. Gesthuizen (2011) finds that acquisition of education increases the cognitive ability for one to understand and use digital infrastructure and access digital credit for themselves and others in a responsible manner, which supports this finding. In the case of informal loans (model 6), education, literacy, and awareness of credit reference did not matter. The findings reveal that income reduces arrears and number of loans across all the categories. This could be attributed to buffer stock savings, especially with anticipation in income fluctuations (Deaton, 1991). Similarly, having some secondary education reduces over-indebtedness, while the married tend to accumulate debt.

6.0 Conclusions and Policy Recommendations

This study sought to examine digital financial services and financial literacy and their implications on over-indebtedness, from a gender perspective. The study uses both secondary and primary data and undertakes both descriptive and quantitative analysis to assess the implications of uptake of DFS and financial literacy on over-indebtedness from a gender lens. The descriptive analysis mainly relied on secondary data from the 2021 FinAccess household Survey and primary data based on a purposeful survey on 60 beneficiaries that had received financial education and those that had not received financial education in the last 36 months. The regression analysis was based on FinAccess Household Survey data, 2021 (CBK, KNBS and FSD, 2021).

The descriptive analysis shows that although gender gaps have significantly declined over the years in terms of access and usage of financial services and products, the male gender still dominates mobile transactions in terms of both volume and value, and that mobile banking expanded in 2021 due to usage of *fuliza* digital services. The analysis further showed that more than half of females utilize informal channels including the use of *Chamas* for credit services while males rely more on banks for similar services. The analysis also showed that males are financially more literate than females as they can correctly compute, read, and interpret financial information. More females also rely on financial advice from family and friends while more males relied on self for financial advice.

Results from the survey showed that financial knowledge is key and is good for financial decision-making, considering that over half of the respondents either consistently serviced their loans or minimized loan uptake after receiving financial education compared to before receiving it. This result implies that positive outcomes on managing indebtedness at individual level are possible with increased financial education. The findings further showed preference of digital financial services as a source of credit based on perceived favourable terms and conditions, and that they held multiple loans mainly from these digital financial service providers. The perception that such loans have favourable terms and conditions is an indication of low financial knowledge – a lack of understanding on implied costs/fees/interest rates/ financial computations and misinterpretations of the harsh terms and conditions. The fact that there is a huge demand for financial education as indicated by the survey findings corroborates the argument that borrowers prefer relatively highly priced digital products due to lack of financial awareness.

The econometric analysis separately used arrears, number of outstanding loans and the debt burden as indicators of indebtedness. Generally, the results show that gender matters for indebtedness, with more females than males likely to be indebted regardless of the indicator used. Specifically, the results show that the probability of falling into arrears and a heavy debt burden ranges between 1.2% and 2.1% higher for females compared to males. The over-indebtedness is amplified in cases of single females as implied by the results, which show a negative relationship between accumulation of digital loans and marital status. The results further indicate that both education and financial literacy are important in explaining over-indebtedness, complementing the survey results that revealed a high demand for financial education. Additionally, awareness of and access to credit reference bureau reports contributes to reduction of the debt burden, implying that utilization of CRB would be minimizing information asymmetry between borrowers and lenders and thus facilitating appropriate credit scoring, besides encouraging customers to maintain financial discipline as a measure that contributes to favourable loan pricing.

It can be concluded from these results that financial education and literacy is inevitable in reducing over-indebtedness, and that there is a huge financial literacy gap despite its overwhelming demand by consumers. However, there are gender disparities in financial literacy and education that have contributed to higher levels of indebtedness among women. Thus, to effectively address the existing gap of financial knowledge, it may be useful to explore various policy initiatives, including design and development of customized financial literacy programmes for different customer segments of the population, including targeted financial literacy programmes towards women. While financial service providers would be the most appropriate implementers of such initiatives, other actors in the financial system including government would target schools and community level platforms. In this context, coordinated efforts across various players on financial literacy interventions may be critical. Additionally, the results showed that the terms and conditions of loans by various financial providers are bulky and complicated even for those who are financially literate, implying a need for a review of terms and conditions by all financial service providers with an objective of making them less complicated, easily readable, concise and user friendly. This recommendation may require intervention of the respective financial regulators to ensure that all the customer needs are incorporated in the reviewed terms and conditions templates.

Based on the results, it can be observed that enhancement of access, usage and awareness of CRBs can be an important policy tool for minimizing over-indebtedness. The results showed that less than 40% of the population are aware of CRBs and only 17% access and use CRBs. This implies that consumers are not aware of the potential benefits of the role of CRBs price competitiveness of credit facilities and minimizing default rate. Apart from measures to enhance awareness of CRBs, it is also important for further investigation to be conducted to establish the determinants of usage, access and awareness of the CBRs to understand whether the design, structure and content of the reports requires modification.

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Appendix

Table 1A: Financial education initiatives

Name of Bank/Institution	Name of initiative	Year of inception	Targeted group	Time period	Channel
Equity*	GOK sponsored programme which was available for MFIs	2007	Youth and women, MFIs	Six weeks training programme before accessing loan facilities	Face-to-face seminars with follow-up weekly meetings
	Equity Group Foundation and The MasterCard Foundation -Financial Education Program	2011	Youth and women	12-weeks	
NIC/NCBA			Upper and middle income groups	Regular quarterly e-newsletters	Electronically distributed materials
Post Bank	Student In Free Enterprise (SIFE)		youths in universities		
Stanbic Bank	Ubunifu (IFC & Stanbic)		handcrafters country wide (all)		
	Equity Group Foundation and The MasterCard Foundation Launch Financial Education Program in Kenya				
Others					
VISA	Financial literacy	2007	all consumers -- banked, underbanked and unbanked	Scheduled 3 day road shows	Road shows in major towns
MFIs KWFT, Faulu, Jamii bora	Financial education, masomo in collaboration with JKUAT		Clients/customers	Weekly, adhoc	seminars
KWFT				Annual	seminars
Faulu			Economically active low income adults(rural and urban)	Weekly adhoc, demand driven	Face to face and mulitmedia tools. Diversified financial education delivery channels and tools.
Jamii bora					
Inuka	Inuka program	2014	MSMEs	3 months program	Face to face and online
Juhudi Kilimo			rural smallholder farmers and micro entrepreneurs		
Musoni					
My Oral Village**		2011			
Free to grow			Low-income employees of large companies with low levels of literacy		Face-to-face training
Financial Academy & Technologies					
Orali Mobile		2020	Women		

Source: Various reports by authors

*The Equity Group and Mastercard Foundation are initiatives that aim at advancing learning that promotes financial inclusion for majority of population. The initiatives are of two kinds: one is more general supporting students at the secondary school level to Technical and Vocational Education and Training (TVET) Act and the second is targeted to impart financial knowledge to the youth and women entrepreneurs.

**My Oral Village is an institution that has focused on building an interface to enable women who are illiterate and innumerate to be able to understand financial information and ably participate in accessing and using financial products and services. They also provide supplementary/introductory course materials for financial management. The idea is to have women access financial services without having to go through any written documentation, but orally. My Oral Village markets their literacy programmes through social media, direct contact of digital and financial institutions and rely on the trained women to inform others about their programmes. The training delivered to the women has proven to be highly useful. However, there has been no assessment done on the impact it has had on indebtedness.

Appendix A2

Questionnaire: A Survey on Financial Education and Credit to Randomly Selected Customers

Preliminaries
Age bracket:......................
Gender:.........................
Bank: ....

1. Have you taken a loan in the past 12 -36 months? Yes/No (If No skip to question 6)

2. If yes, who was the loan provider?	3. How often did you borrow? Once Multiple times	4. What platform or loan app was used? Physical visit to the Bank Mobile phone bank loan (MShwari, KCB M-Pesa) Mobile money loan (fuliza) Digital Application (Tala, Branch)	5. Approximately how much was borrowed? (in Ksh)
Commercial Bank			
Micro Finance Bank			
Mobile network Operator e.g. Safaricom			
Digital Loan Providers e.g. Tala, Branch			
SACCO			
Others specify			

6. Have you received any financial education programme from the providers?

If Yes, (skip to question 7)

If No, why? (skip to question 12)
....
....

7. If yes, how did you know about the financial education programme was being offered?

i. Through a friend

ii. The bank/source contacted you

iii. Through your own initiative

iv. Media/Newspapers

v. Other (specify) -_____

1. Who offered the training? Select from the above-mentioned loan providers	What channel/mode of delivery was used to for training? i. In person training/face to face/seminar and conferees ii. online training, self-learning/e-print material/ coaching iii. Distribution of print material iv. Phone Training v. Media/TV/Radio vi. Other Specify
i. Commercial Bank	
ii. Micro Finance Bank	
iii. Mobile bank loan	
iv. Mobile network Operator e.g. Fuliza	
v. Digital Apps e.g., Tala, Branch	
vi. SACCOs	
vii. Government	
viii. Others (specify)	

2. Was the training offered useful in financial decision-making?

   If Yes, how so?
   ....
   If No, how so?..

   ....

3. Which component/element of financial education was most useful in managing your finances?
   i. Knowledge on planning and computing interest rates on loans
   ii. Skills on decision making
   iii. Awareness of financial products and services
   iv. Attitude towards money on spending, saving, investment and consumption

4. Which of the following best describes your past debt situation? (before

financial education; continue to question 17)

i. I had too much debt experienced difficulty paying it off.
ii. I am currently paying off my debt regularly.
iii. I have no debt at the moment.

5. What is the reason for not receiving Financial Education?
   i. I have never heard about any initiative on Financial Education
   ii. I don't think I need any Financial Education
   iii. I would like to be receive Financial Education
   iv. I am indifferent

6. Who do you turn to for financial advice whenever you need some?
   i. Your friends
   ii. Your colleagues
   iii. Your family members
   iv. Your mentors

7. If you are to receive Financial Education in what areas do you think it would be most useful?
   i. Knowledge on planning and computing interest rates on loans
   ii. Skills on decision making
   iii. Awareness of financial products and services
   iv. Attitude towards money on spending, saving, investment and consumption

8. Which is your preferred method of delivery of Financial Education if you were to receive it?
   i. In person training/face to face/seminar and conferees
   ii. online training, self-learning/e-print material/ coaching
   iii. Distribution of print material
   iv. Phone training
   v. Media/TV/radio
   vi. Others specify

9. Who would you prefer to be the provider of this Financial Education? And would you pay a fee to get it? Yes No.
   i. Your bank
   ii. Your digital lenders
   iii. Your mobile lenders
   iv. Any other provider as long as they are giving Financial Education
   v. All of them

Yes, why?...

No, why?...

(If the respondent does not have a loan, skip to question 30, otherwise continue to question 17)

10. How many loans do you currently have outstanding? (Recall from question 2)

11. How often do you make repayment on this loan?

12. What was your main reason(s) for taking this loan (education, asset purchase, business)?

13. Which channels do you use to make your loan repayments (e.g. Deposit in M-Pesa, mobile phone)?

14. In a typical month, how difficult is it for you to make your repayment, cover your expenses and pay all your bills?
    ....

15. In general, how many times have you been late with your loan repayments?

16. What proportion of your income goes to servicing loans?

17. Which of the following best describes your current debt position? (whether you receive financial education or not)
    iv. I have too much debt right now and I have difficulty paying it off.
    v. I am currently paying off my debt regularly.
    vi. I have no debt at the moment.

18. Do you read the terms and conditions on financial agreements for loans?

    If Yes/Why?

    If No/Why?

19. When comparing terms and conditions on loans offered by banks and that of loans offered by other loan providers, which easier to

    Understand? Give reasons

    And access? Give reasons

20. Between bank loan, digital loan app and mobile loan offered by MNO, which one would you prefer?

Which one attracts more/less fees comparably?

21. Given an opportunity, would you enroll for Financial Education course again? Yes /No

22. Would you advice others (family, friends, colleagues) to undertake Financial Education? Yes/No?

If Yes/Why?

If No/Why?

23. It is suggested that highly knowledgeable consumers are more aware of their finances and are less likely to have high levels of household and personal debt. Do you agree with this statement? Yes/No

    Give reasons

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Middle East Bank Towers,
3rd Floor, Jakaya Kikwete Road
Nairobi 00200, Kenya
Tel: +254 (0) 20 273 4150
communications@aercafrica.org