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Nairobi County, Kenya



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Effect of Mobile Network Operator Facilitated Digital Credit on the Financial Health of Youth Borrowers in Kibera, Nairobi County, Kenya



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Abstract

Purpose: The increased advancements in technological integration within the financial sector has led to development of new credit platforms which improve access to borrowing among the youth. Further, with proliferation of digital lending platforms which provide unsecured loans has led to a debt chokehold among the youth. This has resulted in poor financial health among the youth. The general objective of the study was to analyze the effect of mobile network operator facilitated digital credit on the financial health of youth borrowers in Kibera, Nairobi County, Kenya.

Methodology: The study employed a correlational research design. The population of interest for this study was youth borrowers who live and work in Kibera, Nairobi County. The sampling frame for this study was active users of digital credit who are between 18 and 35 years, residing in Kibera. The list was obtained from the Independent Electoral and Boundaries Commission's (IEBC) voter register for Kibera Ward. A stratified sampling technique was used to select the respondents. The sample size was 399 respondents. Data was collected using structured questionnaires. SPSS was used to aid in the data analysis. A descriptive statistical technique of analysis was used and shall entail the determination of the mean and frequency distribution of the datasets. Further inferential analysis was conducted using both correlation and regression analysis. The data was presented in tables and figures.

Findings: The study was able to obtain an 88 percent response rate, signifying high degree of accessibility of the youth in the area. Of these, most were male, while only 107 of the responses were from female respondents. The study established that mobile-facilitated digital credit on youth borrower's financial health has a positive and significant effect on youth's financial health. The study concludes that mobile network operator facilitated digital credit has a significant and positive effect on the borrower's financial health. The study concludes that mobile operator facilitated loans are fast and easily accessible which increases their effectiveness to the user.

Unique Contribution to Theory, Policy and Practice: The study recommends that mobile money operators that provide digital loans reduce their operation rates considering they have

high interest rates for the small loans they offer. The study also calls for the development of progressive peer to peer regulations that would improve the penetration of these loan devices that have been identified as key to young entrepreneurs.

Key Words: *Mobile Network Operator Facilitated Digital Credit, Financial Health and Youths*

Background of the Study

One billion young people in low- and middle-income countries are transitioning into adulthood, and they are engaging in various business ventures and creating official connections with government and social organizations. Access to financial services is essential to ensuring the youth develop into productive members of the society, enabling them to meet personal and family needs (Linh, Long, Chi, Tam, & Lebailly, 2019). However, Jamie, Hopkins and Myra (2019) are assertive that many young people often enter adulthood without access to financial services, leaving them unable to contribute to economic and social development. Healthy, productive youth need a reliable and supportive enabling environment with access to a range of financial and nonfinancial services and assets, and digital tools have emerged as new ways for financial institutions to facilitate access to financial services within various population segments such as women and the youth (Johnen, Parlasca, & Mußhoff, 2021). However, the World Bank (2019) reports that despite significant progress in the development of financial resources devoted to financial inclusion, more than two billion people lack access to financial services worldwide; and that the youth are the most disparaged. There are various categories of the youth; early adolescence (ages 12 to 18), late adolescence (ages 19 to 24), and young adulthood (ages 25 to 34), and individuals in these three age brackets have different financial needs and expectations from their interactions with financial service providers (Misiga, 2019). Youth in the early stage of adulthood have significant education needs, those in the older stage are focused on various income generating ventures, while those in the middle stages are focused on a blend of education, training and employment. In terms of financial behaviors, younger youth tend to save more while the older youth invest heavily in various income streams and have more credit, and insurance demands (Nyerere, 2018). Girón, Kazemikhasragh, Cicchiello and Panetti (2022) avers that youth access to financial services varies across regions, gender and within states. Access to financial services can be observed through account ownership and Asuming, Osei-Agyei and Mohammed (2019) study shows that young men in urban areas have more access to accounts than their female counterparts and those in rural areas. Youth are disparaged from formal financial services as they are perceived to be risky, low-value customers as they lack collateral, an established credit history and have a limited work history (Heitmann, Peterson, & Kinzinger, 2018).

Digital finances such as mobile money and crowdfunding have emerged as important financial innovation tools that have been deployed to facilitate financial access in developing economies (Hasan, Yajuan, & Khan, 2020). Tay, Tai and Tan (2022) avert that digital financial services

have been effective in enabling marginalized people to partake in the formal financial process. Their advent has been facilitated by supportive policies, increased ownership of mobile phones, and internet connectivity (Ebong & Babu, 2020). Digital platforms have been used to educate the public on available financial products and facilitate access to these products at improved convenience and at lower costs (Yue, Korkmaz, Yin, & Zhou, 2022). Currently, financial institutions are leveraging technology to facilitate youth's access to financial products such as digital loans, savings, and transfer with the aim to stimulate youth entrepreneurship. In the past, bank loans were characterized by stringent conditions which saw only 8 and 7 percent of youth in low- and middle-income countries borrowing from formal financial institutions (Ahmad, Green, & Jiang, 2020). Digital channels provide financial institutions the capability of providing remote banking products (Mpofu, 2022). Digital credit has evolved to address the needs of unbanked individuals (Aron & Muellbauer, 2019). They guarantee small loans to low-income earners and startups without asking for collateral (Babu, 2020). In 2018, the value of the digital credit market in the world was estimated to be USD 3.5 billion, rising to USD 10.7 billion in 2021 and is anticipated to grow to USD 20.5 billion by 2026 (MarketsandMarkets, 2021). This growth has been stimulated by the proliferation of smartphones, the need for better customer experience, supportive government interventions to safeguard digital lending, increased market information, increased demand for digital credit among SMEs, and an increase in digitization during the pandemic (Toh & Tran, 2020). Digitalization enables automation which increases the convenience and ease of access to loans by customers but according to Normawati, Rahayu and Worokinasih (2021), digital loans taken for consumptive needs can negatively affect a borrower's financial well-being and contribute to over indebtedness.

One area where the disparity is quite pervasive and is receiving increased attention lies within digital credit providers' terms and the impact of digital credit provided by banks, mobile network operators and fintech firms on the financial health of users (Pazarbasioglu, et al., 2020). Financial health refers to the state of an individual's monetary affairs (Khandelwal, Kolte, Veer, & Sharma, 2022). The Financial health network (2021) defines financial health as an individual's ability to spend, save, borrow, and plan to enable resilience and facilitate the pursuit of opportunities over time. Financial health indicates an individual's businesses' effectiveness at meeting their financial obligations. Cenfri (2020) identifies three main dimensions of measuring financial health that encompass savings, expenses and investment. Savings show the financial strength on individuals and shows their ability to meet current financial obligations and consumption needs. Savings also indicates the degree of preparedness to face and recover from economic shocks. The expenses aspect of financial health indicates the individual's ability to meet non-discretionary and fixed expenses, while investments refer to the longer-term perspective showing how individuals expect to meeting future goals and maintain or improve current well-being (Cenfri, 2020). Access to finances has been associated with increased financial well-being for businesses and individuals (Asuming, Osei-Agyei, & Mohammed, 2019). Kibera is one of the largest slums in Africa and more than 80 percent of Kibera youth are

unemployed or lack access to stable income. Additionally, most of these youth live on less than two dollars in one day. Officially, Kibera is home to around 250,000 residents, of which 60 percent are categorized as youth, and Sambo (2016) avers that poor security, lack of social amenities and low education attainment levels are among the main factors affecting youth entrepreneurship development in Kibera. Bashir and Ondigo (2018) study showed that the number of financial products has a significant effect on the financial performance of SMEs. This study analyzed the effect of mobile network facilitated credit on the financial health of youth borrowers through this perspective.

Statement of the Problem

Ahmad, Green and Jiang (2020) avers that access to financial services is key to sustainable economic performance within an economy. Towards this end, digital technologies serve as key tools for facilitating financial inclusion and negating the harmful effects of poverty (Asuming, Osei-Agyei, & Mohammed, 2019). Digital technologies are changing how borrowers interact with financial institutions, and how lenders target possible customers, especially the youth who are key to economic development (Gubbins & Edoardo, 2018). Digital tools have enabled lenders and borrowers to disburse and repay loans electronically, making the loan system “instant, automated, and remote”, facilitating financial inclusion (Ozili, 2018). In sub-Saharan Africa, digital credit is mainly offered through loans disbursed via mobile money platforms (Wathome, 2020). Robinson, Park and Blumenstock (2022) acknowledge that there exists robust demand for digital loans, and millions of people have taken out these loans, despite significant questions being raised regarding the effectiveness of these loans to the users and the transparency of lenders to their consumers. Accordingly, Björkegren, et al., (2022) assert that easy access to high-interest loans does not necessarily benefit consumers. Digital loans are mostly automated, have flexible payment and lending terms, rarely require collateral and short repayment periods, while digital borrowers are mostly ill-informed about loan terms. In Malawi, for instance, Brailovskaya et al. (2021) report that only a third of potential borrowers are aware about interest rates, the due date, or the consequences upon late fee payment. Garz et al. (2021) reports lack of clear information sharing between lenders and borrowers, with lenders intentionally misrepresenting lending terms and leaving them opaque. The opaqueness of digital loans has left borrowers incurring significant fines, with most being unable to afford high interest rates (Natile, 2020).

Studies on the relationship between digital credit and borrower well-being report contrasting findings. In China, peer to peer lending has been associated with increased economic activity and startup success (Jiang, Wang, Ren, & Xie, 2021). Cornelli, et al. (2021) researched on the Portuguese FinTech space and determined that after SMEs access FinTech loans, they increase asset investment, employment, and sales, and can diversify from a wide pool of lenders. Robinson, Park and Blumenstock (2022) reviewed literature on the impact of digital credit on developing economies and found evidence that digital loans have positive impacts on borrower

welfare, resilience and subjective well-being. In Nigeria, Björkegren, et al., (2022) investigated the effect of instant loans on well-being and reported that although mobile application loans have positive effects on subjective well-being, they have insignificant effects on expenditure, resilience and economic empowerment. Suri et al. (2021) investigated the effect of fintech loans on household resilience in Kenya by focusing on the M-Shwari loans and reported improved capacity for households to cope with income shocks. No negative outcomes were associated with the use of M-Shwari digital loans. According to Ozili (2017), digital credit increases access to finances among poor individuals, smoothens household risks during economic shocks, reduce the cost of financial intermediation for banks and Fintech providers, and increases aggregate government expenditure. None of these studies address how these types of credit affect youth borrowers.

Theoretically, improving financial access has been associated with improved economic and personal well-being, with finances ensuring people can meet their immediate expense needs, emergency needs and investment goals. However, according to Bećirović, Plojović and Ujkanović, (2017), access to finances does not translate to effective utilization of said funds. Instead, credit effectiveness is dependent on the borrower's financial literacy (Asuming, Osei-Agyei, & Mohammed, 2019). According to the Global Findex studies by the World Bank, between 2014 and 2017, although financial inclusion (account ownership) rose across the world, financial resilience decreased in all regions, excluding high-income countries. In Kenya FinAccess surveys by FSD-K showed that the number of financially healthy adults dropped between 2016 and 2019, even as access and usage of financial services increased (Cenfri, 2020). The emergence of digital credit may facilitate financial inclusion but also carries with it the risks associated with late payment, financial mismanagement and high default rates, which may contribute to stress among borrowers. This study sought to assess the effect of mobile network operator facilitated digital credit on the financial health of youth borrowers in Kibera, Nairobi County, Kenya, considering the youths lacks stable sources of income, financial knowledge and high affinity for digital services and products.

Objective of the Study

The main objective of the study was to analyze the effect of mobile network operator facilitated digital credit on the financial health of youth borrowers in Kibera, Nairobi County, Kenya.

Research Questions

To what extent does mobile network operator facilitated digital credit affect the financial health of youth borrowers in Kibera, Nairobi County, Kenya?

Literature Review

Theoretical Review

Asymmetrical Information Theory

The theory was established in the 1970s by George Akerlof, Michael Spence and Joseph Stiglitz but was formalized in 2001 (Stiglitz, Akerlof, & Spence, 2001). The theory affirms that information asymmetry is the most fundamental challenge for financial transactions and associates the problem with ex-ante adverse selection and ex-post moral hazard problems (Rosser, 2008). In perfect market settings, all transacting parties have costless access to all details pertaining to the transaction, present and future trading conditions and do not suffer from market failure of information. However, in the real world, the operating environment is associated with high uncertainty risks, and market information is neither perfect nor costless. This theory posits that in any transaction, lenders may allocate finances to risky projects that may not produce positive outcomes; and creditors will offer their services at costs that equal the opportunity cost of funds (Besley, 1995). Information is, thus, distributed asymmetrically between the lender and borrower (DeFusco, Tang, & Yannelis, 2021). Lenders usually use financial history, collateral assets, and soft information to analyze and mitigate credit risk. Financial history analyses borrowers' financial data to predict borrowers' probability of loan default (Bhandari, 2022). Collateral refers to the quality and valuation of assets or guarantees that are used as securities, while soft information refers to small purchases and repayment data that show borrower's immediate financial history (Bhandari, 2022). These three strategies help bridge the information asymmetry between lender and borrower, and several studies show how lenders can leverage on these three to help minimize two main information asymmetry problems; adverse selection and moral hazard (Bazarbash, 2019).

From the lender's point of view, adverse selection is a result of lacking adequate information on the credit worthiness of the borrower and the value of the various projects being financed. On the other hand, borrowers may fail to fulfil their loan obligations, giving rise to the problem of moral hazard which is a result of the lender's inability to effectively monitor all loan project progress (Lu, Wu, & Ye, 2020). From the borrower's perspective, adverse selection results from the lender's inability to provide all details regarding loan terms such as interest rates and loan repayment period. This can contribute to selection of bad loan terms, resulting in a moral hazard whereby they fail to meet their loan obligations. The lender may also exacerbate the moral hazard problem by preferring to keep some information regarding lending terms secretive to attract unsuspecting borrowers and make higher profits (Owusu-Manu, et al., 2020). The information asymmetry theory shows that both lenders and borrowers stand to benefit from asymmetric information problems. The theory asserts that the cost of bad loans, befall both parties, since lenders will make bad investments while borrowers will take high interest, low-value loans. This theory has been useful before in explaining non-performing bank loans (Kingu, Macha, & Gwahula, 2018), and has since been employed in assessing the effects of Fintech credit risk on SME performance in China (Huang, et al., 2020). Lu, Wu and Ye (2020) used the theory in explaining the relationship between digital footprints of customers and how firms use them to predict customer default rates. This study sought to use the relationship to explain the effects of digital credit factors such as lending terms, finance usage and interoperability on the

financial health of youth digital credit through network operator facilitated digital credit applicants, who, in many ways behave like businesses when seeking the best loan terms.

Effect of Mobile Network Operator Facilitated Digital Credit on Financial Health

Li, Wu and Xiao (2020) used unbalanced panel data reported by the China Household Finance Survey in 2013, 2015 and 2017, and the digital inclusive finance index developed by Peking University in examining the impact of digital finance on household consumption. The study used regression analyses which revealed that digital finance is a significant determinant of household's consumption patterns, especially low-income citizens with fewer assets. Digital loans and payment systems were identified as the key sources and methods of payment, encouraging loan access and expenditure. Digital loans relieved households' liquidity constraints, expanded investment channels and increased income, thus enhancing security. This study did not specify digital loans but focused on all digital financial services including payment, saving and obtaining credit. Burlando Kuhn and Prina (2020) used a regression-discontinuity design when investigating the effect of digital credit services on loan outcomes. The study used reported by a lender in Mexico and sought to ascertain the relationship between delivery speed and credit effectiveness. The descriptive analysis applied revealed that doubled delivery time was associated with higher rates of loan repayment. The study determined that digital credits are usually delivered immediately, usually feature high interest rates, stiff penalties for delinquency, and consequently, have the highest loan default rates. The analysis suggests that regular borrowers rarely consider these factors when taking up and paying back digital loans. However, for defaulters, the risk of being reported to credit bureaus and having their access to services interrupted was a source of mental stress. This study was centred on loan repayment while the current focused on the well-being of youth borrowers whether they default or do not default on their loans.

Kouame and Kedir (2020) reported a proliferation of disruptive technology in finance and investigated the effect of mobile money transactions and use of this ICT-enabled payment, deposit and credit on financial inclusion in Burkina Faso. The study carried out a review of available literature and defined financial inclusion as the ability to make investment in business, education and health. The analysis revealed that most mobile money transactions were for payment and self-investment. The analysis revealed that the small mobile loans were key to ensuring students met their education goals such as fee payment, class attendance and purchase of essential educational materials which are relatively cheap. The study recommended development of student-specific digital credit to facilitate relationships with financial institutions. Affirming that it is important to ensure individuals and businesses have access to useful and affordable financial products and services that meet their needs, Myeni, Makate and Mahonye (2020) researched on the effect of mobile money on financial inclusion in Eswatini. The study used data reported in 2014 by the. The study adopted a quasi-experimental methodology, relied on a FinScope Consumer Survey (2014) and applied a multistage

sampling design. Propensity Score Matching (PSM) was employed in assessing whether mobile money use contributes to bank account ownership. Analyzing the cross-sectional dataset, it was determined that formally employed/entrepreneurial urban dwellers with high education levels were more likely to own bank accounts. However, a larger number of rural residents only had access to mobile money accounts, indicating that mobile money does not accelerate financial inclusion to the target population. The study thus concluded it would be important to use mobile money to connect low-income users to formal institutions through bank facilitated mobile money. This study investigated financial inclusion which specifies long-term financial health.

A similar study was carried out in Uganda where Tabetando and Matsumoto (2019) used panel data to assess the impact of mobile money and risk sharing on educational investment among populations in rural areas. The study relied on data reported between 2003 and 2015 by the Research on Poverty, Environment and Agricultural Technology (RePEAT) project and used the difference in differences (DID) methodology. Data analysis revealed a positive effect of mobile phone-based credit and savings on the livelihoods of rural households. Mobile credit was more available, less risky and facilitated investment towards education accomplishment. Further, other mobile money services such as money transfer significantly reduced the cost of sending and receiving remittances, resulting in increased saving behavior and self-insurance. This study addressed households from all ages while the current focused on the youth. Wieser, Bruhn, Kinzinger, Ruckteschler and Heitmann (2019) also based their study in Uganda and they sought after the effect of mobile money agents' expansion on rural populations' financial inclusion. The study used an experimental design, investigating regions with rapid expansion against those with minor expansion between 2017 and 2018. The analysis determined that facilitating mobile money transactions has a significant impact on economic development in rural areas. The mobile money agent rollout increased the probability of sending and receiving peer-to-peer transfers, reduced the cost of remittance transactions and doubled the nonfarm self-employment rate. However, although the services increased the food security of low-income families, there was no effect on savings, agricultural outcomes, or poverty. This study focused on all mobile money services while the current specifically assessed mobile loans and their effect on youth populations.

Shema (2022) also used the experimental study methodology in an investigation into the effect of digital credit on borrower indebtedness. The study specified on airtime credit facilitation, affirming a positive relationship between higher credit card limits and increased borrower indebtedness and spending. The study sought data from an airtime lender with the analysis revealing a similar positive relationship between higher airtime limits and user borrowing. The study further ascertained that providing higher credit limits has a negative effect on loan repayment rate and long-term usage of communication services even, among borrowers who regularly paid credit balances on time. Further, the customers' borrowing experience influences how they respond to higher credit limits. Abiona and Koppensteiner (2019) used the difference-

in-difference framework in investigating the effect of mobile money services' precipitation on consumption smoothing, poverty, and investment in human capital in Tanzania. The study relied on the expansion of mobile money agents between 2010 and 2012, analyzing data reported by Tanzania's National Panel Survey (NPS). The analysis revealed a positive relationship; households were more resilient to periods of shocks and were able to meet education, health and investment needs. Interactions with mobile money neutralized the negative effect of drought and floods, providing funds for immediate emergency, smoothing of preventive health expenditure and increasing use of healthy products such as sleeping under treated malaria bed nets. This study focused on all mobile money services while the current examined the digital credit products.

Wamalwa, Rugiri and Lauler (2019) utilized demand-side data reported by various stakeholders in analyzing the uptake of digital credit and its impact on household indebtedness in Kenya. The study used a multinomial model employing logistic regressions on the data that was collected. The analysis revealed choice of digital credit was influenced by a set of individual and socio-economic characteristics. However, using conventional credit is preferred to digital credit. The empirical results show that individuals with high financial literacy have low utilization of digital credit and that regular usage of digital products correlates with likelihood of selling assets to repay loans. Further, younger borrowers were more active and tended to borrow from multiple loan providers while older and richer households preferred conventional credit-despite this effect being minimal. Access to credit increased households' allocation to investment, but only if the household debt is directed towards investments that generate income sufficient enough to repay the debt. Oyier (2020) researched on the effect of access to digital Nano-credit on economic welfare among low-income earners in Nairobi County. The study relied on a cross-sectional survey research design and utilized correlation, and ordinary least square multiple regressions in analysis of data reported by micro-lenders. The analysis determined that usage of digital nano-credit was determined by the age of the borrower, and household income. The analysis revealed that micro-credit products are key to improving user's livelihood by enabling them to buy essential goods and services. However, the analysis revealed a negative relationship between larger households and access to digital credit access, showing high likelihood of loan default. Further, the analysis determined that digital credit does not have a significant impact on economic performance in the short-term.

Elizabeth (2020) researched on the use of digital credit and their effect on Micro and Small Enterprises in Nairobi City County in Kenya. A descriptive design served to guide the study and a multiple linear regression was applied in data analysis. The analysis revealed that the speed of loan approval and disbursement has a significant effect on the adoption of digital loans. However, a high number of approved loans was linked with a high volume of defaulted funds as the loans' design, delivery and cost of borrowing, and the borrower's financial literacy and credit risk management determine their risk exposure. Many borrowers took on multiple loans showing

that digital loans rarely satisfy the user's needs and the short repayment periods increased pressure on repayment, contributing to an online debt trap. The terms of the loans such as hefty penalty for late payment resulted in high default rates and late repayment led to many borrowers being listed with reference bureaus, posing a serious menace to consumers. Rapid loan approvals and ease of acquiring personal data by the digital lenders also resulted in identity fraud and digital scamming. The study showed significant risks emanating from usage of digital credit.

Conceptual Framework

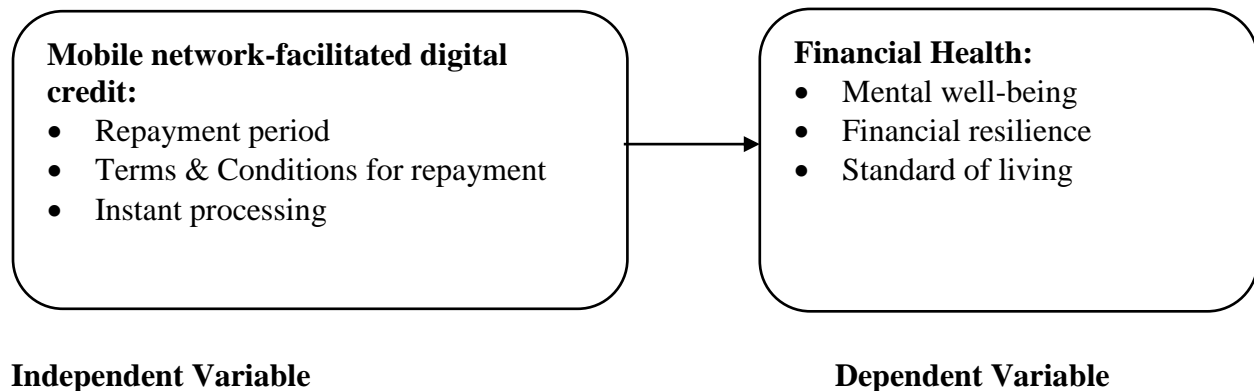


Figure 1: Conceptual Framework

Research Methodology

Research Design

For the purpose of this study, the research design that was employed is correlational research design. According to Sousa, Pickard (2013) Correlational research designs involve the systematic investigation of the nature of relationships, or associations between and among variables, rather than direct cause-effect relationships. Within correlational research design, researchers are primarily interested in determining noncausal relationships amongst variables; more specifically, the correlational research design is a type of non-experimental study in which relationships are assessed without manipulating independent variables or randomly assigning participants to different conditions (Saunders, Lewis, & Thornhill, 2012).

Target Population

The population of interest refers to the study's target population that it intends to study or treat (Pickard, 2013). A population must be defined in very specific terms to include only those sampling units (items) that possess the characteristics that are relevant to the problem (Fowler Jr, 2013). The target population for this study is youth mobile loan borrowers residing in Kibera. According to the World Bank (2020) there are approximately 250,000 people living in Kibera. For this study, the target population was adults aged above 18 years. According to statistics by the Independent Electoral and Boundaries Commission (IEBC) there are 118,276 registered

voters in Kibera. We can therefore assume a target population of 118,276 adults in line with the figures from IEBC.

Sampling Technique

Sampling technique refers to the method used to select research participants that constitute the sample (Sekaran & Bougie, 2016). Stratified random sampling technique was used. Stratified sampling allowed for inclusion of categories of respondents in proportion to their existence in the large population to ensure that all population groups are represented in the sample. The stratification of the participants was based on their age; if they fit within the description of youth members of the population between 18-35 years. Further, the study only considered participants who have applied and utilized a digital credit provider in the past and excluded any respondent who has not used any of the services.

Sample Size

A sample size is the smaller set of the larger population that is selected cautiously as a representative of the population that guarantees that the subdivisions used in the study are provided for accurately (Blumberg, Cooper, & Schindler, 2014). A sample size of 399 mobile loan borrowers was selected from the large population of borrowers of digital credit. Representatives was calculated using Yamane's formula with 95% confidence level and $P=.05$ yielding a sample size of respondents (Yamane, 1973). The sample size was derived from the below formula:

Where: n = sample size required

N = size of the population = 118,276

e = margin of error = 0.05

$n = 118,276 / 1 + 118,276(0.05)^2$

$n = 398.65 \approx 399$

Data Collection Methods

Data collection was done in the month of September 2022 via Google forms among 399 youth members drawn from Kibera using a stratified random sampling technique. For this study, primary research methods was utilized. Primary research methods involve collecting first hand data from the selected sample; primary data denotes information collected for a distinctive purpose pertaining to the research at hand (Greenfield & Greener, 2016). The primary research method was the use of questionnaires that contain questions relevant to the research questions. Questionnaires was appropriate for this study because they saves on time and ensure anonymity of the respondents. The questionnaires have been structured according to the research objectives of the study. The respondents, who are not fluent in English, was guided by the researcher to ensure comprehension of the questions.

Data Analysis Methods

According to Blumberg, Cooper and Schindler (2014), data analysis is a research technique for the objective, systematic and qualitative description of the manifest content of a communication. Data analysis gives a diagnostic tool that is used to assess the adequacy of the model and to check assumptions (Fowler Jr, 2013). The results from the questionnaires were coded and entered into the Statistical Package for Social Sciences (SPSS) for further quantitative analysis. Descriptive analytical approach was used in this study and this involves a process of transforming a mass of raw data into tables, charts, with frequency distribution, percentages, means and standard deviation, which are a vital part of making sense of the data. Further the research conducted inferential analysis involving both correlation and linear regression analyses to determine the relation between the variables and the strength of the relationship respectively. The data was then be organized into tables, graphs and charts so as to ease data interpretation. The study employed the below multiple regression for the main objective and this was further condensed in conducting simple linear regression for each individual independent variable;

$$Y = \alpha + \beta_1 X_1 + \varepsilon$$

Where;

Y = Dependent variable (financial health)

α = The model intercept

β_1 = Coefficient of independent variable

X_1 – Mobile network operator-facilitated digital credit

ε = Error Term

Results

The research focused on collection of research data from 399 youth members of the population between 18-35 years within Kibera. From the sample participants of the survey the research was able to obtain 88% (n = 351) response with only 12% of the sampled respondents not able to provide their responses within the study period (n = 48). Cooper and Schindler (2010) have argued that when conducting quantitative analysis, a response rate above 60% is deemed applicable in drawing inferences for the whole population.

Descriptive Findings and Analysis

Financial Health among Youth in Kibera

The dependent variable for the study reviewed the financial health of the respondents through analyzing mental health, financial resilience and the standard of living. The study adopted descriptive measures such as frequencies, means and standard deviation. The respondents agreed

they have made adequate plans to ensure their financial resilience in the long-run (Mean = 4.154, Dev = 1.098). The youth moderately agreed they are able to meet their short and long-term financial goals (Mean = 3.435, Dev = 1.067). The analysis showed disagreement among respondents (Mean = 2.014) they have the ability to withstand changes with the economy and sustain their needs. The study also noted disagreement among respondents (Mean = 1.954) they are able to meet their regular expenses without any problems.

Table 1: Financial Health among the Youth

| | N | Mean | Std. Deviation |
|---|-----|--------|----------------|
| I'm able to meet my regular financial obligations | 351 | 3.2821 | .93668 |
| I have the capacity to meet all my consumption needs | 351 | 3.1709 | .92542 |
| I have the ability to withstand changes with the economy and sustain my needs | 351 | 2.0142 | 1.02390 |
| I'm able to meet my regular expenses without any problems | 351 | 1.9544 | 1.04918 |
| I have been able to meet my short and long-term financial goals | 351 | 3.4348 | 1.06693 |
| I'm able to sustain my well-being and improve on the standard of living with ease | 351 | 3.9088 | .99295 |
| I have made adequate plans to ensure my financial resilience in the long-run. | 351 | 4.1538 | 1.09765 |

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The study adopted descriptive, correlation and regression analysis and the findings are shown in this section. The study findings showed strong agreement (Mean = 4.402, Dev = 1.012) the respondents find mobile digital credits to be appealing due to their speed in delivery of the money. Results showed strong agreement (Mean = 4.416, Dev = .961) the participants routinely use digital mobile credit as they require minimal collateral requirements. The respondent strongly agreed they routinely utilize mobile digital credit as they provide cheaper transfer costs reducing their expenses (Mean = 4.350, Dev = .935). The participant also strongly agreed (Mean = 4.299) they regularly utilize digital mobile credits as they offer more reasonable interest rates.

Table 2: Mobile Network Operator Facilitated Digital Credit

| | N | Mean | Std. Deviation |
|---|----------|-------------|-----------------------|
| I find mobile digital credits to be appealing due to their speed in delivery of the money. | 351 | 4.4017 | 1.01187 |
| I regularly utilize digital mobile credits as they offer more reasonable interest rates. | 351 | 4.2991 | 1.05504 |
| I utilize digital mobile credits due to their low penalties on failure to meet repayment schedule | 351 | 4.3590 | .98383 |
| I routinely use digital mobile credit as they require minimal collateral requirements | 351 | 4.4160 | .96106 |
| I use digital mobile credits as they have very minimal service interruption which enhances accessibility | 351 | 4.3932 | .97357 |
| I prefer digital mobile credits as they provide instant processing of disbursal and repayments which improve user experience. | 351 | 4.3704 | .95297 |
| I routinely utilize mobile digital credit as they provide cheaper transfer costs reducing my expenses | 351 | 4.3504 | .93488 |

Inferential Statistics

Correlation between Mobile Network Operator Facilitated Digital Credit and Financial Health

The research conducted Spearman rank correlation to establish the nature of relationship between the independent and dependent variables and findings are shown in table 3. The results established there was a moderate and positive relation between mobile network operator facilitated digital credit and the financial health of the youth in Kibera ($r = .541^{**}$, $N (351)$, $sig = .000 < .05$).

Table 3: Correlation Test for Mobile Network Operator Facilitated Digital Credit and Financial Health

| | | Financial Health | Mobile Network Operated |
|-----------------|------------------|-------------------------|--------------------------------|
| Spearman's rho | Financial Health | Correlation Coefficient | 1.000 |
| | | Sig. (2-tailed) | . |
| | | N | 351 |
| Mobile Operated | Network | Correlation Coefficient | .541 ^{**} |
| | | Sig. (2-tailed) | .000 |
| | | N | 351 |

Multiple Regression Analysis

The study applied simple linear regression to estimate the extent of the relationship between the mobile network operator facilitated digital credit and the financial health. The findings are shown in Table 4. From the findings, the regression model show that the value of R square is 0.318. This suggests that 31.8% variation in financial health among the Youth borrowers in Kibera, Nairobi Kenya can be explained by changes in mobile network-operated digital credit (repayment period, terms & conditions for repayment and instant processing). The remaining 67.2% suggests that there are other factors that can be used to explain variation in financial health among the youth that were not discussed in this study. The Analysis of Variance was used to test the significance of the independent variables on the dependent variables and to establish existence of variations in the variables. The F-ratio tests whether the overall regression model is a good fit for the data. The test result revealed F-statistic of 162.804 was greater than (F- critical = 1.162), with significance value at 0.000 ($P < 0.05$). This implied there was a positive and significant relationship between mobile network operator facilitated digital credit and financial health. The coefficient results revealed a $\beta_1 = .554$; $t = 12.759$; $sig = .000 < .05$; which showed that changing mobile network operator facilitated digital credit factors by a unit will contribute to .554 improvement in the financial health of Youth borrowers in Kibera.

Table 4: Regression Test for Mobile Network Operator Facilitated Digital Credit and Financial Health

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .564 ^a | .318 | .316 | 5.04303 |

a. Predictors: (Constant), Mobile Network Operated

ANOVA^a

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|---------|-------------------|
| 1 | Regression | 4140.454 | 1 | 4140.454 | 162.804 | .000 ^b |
| | Residual | 8875.808 | 349 | 25.432 | | |
| | Total | 13016.262 | 350 | | | |

a. Dependent Variable: Financial Health

b. Predictors: (Constant), Mobile Network Operated

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | Sig. |
|-------|-------------------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | t | |
| 1 | (Constant) | 11.386 | 1.354 | | 8.409 | .000 |
| | Mobile Network Operator | .554 | .043 | .564 | 12.759 | .000 |

Discussions

According to the information asymmetry theory, mobile lenders and borrowers are two parties that have more information about the loan such as the application requirements and repayment. From the findings, respondents agreed that they make routine use of mobile loans since they have minimal collateral requirements, a finding shared by Tabetando and Matsumoto (2019) which showed school going children making use of mobile money for its appropriateness and ease of access as it is easily affordable and requires little to no collateral. The study also reported that mobile money is popular for its affordability in sending and receiving money across multiple platforms, resulting in improved savings behaviour. These findings are also shared by Wieser, et al., (2019) who reported improved wellbeing among rural populations who now had access to affordable sources of credit. The study concluded that mobile money has a significant impact on the economic development of rural populations as it increases the probability of sending and receiving peer-to-peer transfers, reduces the cost of remittance transactions resulting in more investment and double the non-farm self-employment rate. According to the study, the low collateral requirements and multi-applicability of mobile loans has improved rural populations' ability to meet day-to-day expenses,

The respondents affirmed that mobile digital credits are appealing due to their speed in delivery of the money that the borrower had applied for. These findings are confirmed by Tabetando and Matsumoto (2019) whose study determined that mobile credits are immediately disbursed and this makes them more appropriate for use by students and parents aiming to meet emergency education-related expenses. Abiona and Koppensteiner (2019) found the speed of delivery of digital loans to be key to improving the wellbeing of Tanzanians in periods of economic and natural shocks such as droughts and floods as it provides affordable sources of funding for emergency use such as purchase essential items such as treated malaria nets. According to Oyier (2020), the immediate processing of digital nano-credit has a positive effect on the user's livelihoods as it enables them to meet immediate and necessary expenses such as transport and food. However, the study determined that digital nano-credit is not appropriately designed for larger-sized families as it increased the probability of loan defaults in such situations. There was further agreement among respondents that they use digital mobile credit due to their guaranteed accessibility since they have minimal service interruptions which enhances their accessibility. Myeni, Makate and Mahonye (2020) made a similar connection in the study that compared digital credit use among urban and rural borrowers and asserted that urban borrowers are more likely to utilize mobile network digital loans since they have easier access to mobile money points of sale where they can easily make deposits and withdrawals. In Uganda, Tabetando and Matsumoto (2019) determined that rural livelihoods improved significantly with the increased proliferation of mobile money agents in rural areas. Together, these studies assert that mobile money usage can be enhanced if the digital lenders are willing to make them more accessible to the potential borrowers.

The respondents were also in agreement that they prefer digital mobile credits due to their instant processing feature which reduces the period between loan application and disbursement, affirming that this has had a significant impact on the user's experience. Elizabeth (2020) shares these findings in the study which focused on mobile money use among SMEs in Nairobi. According to the study's findings, the digital credit approval process is expedited and users know their qualification status instantly. The study also determined that customers can make enquiries and receive immediate response on their status which improves their planning and resource allocation capacity more efficiently than conventional credit. However, the study determined that users are likely to misuse this feature and take on multiple loans which increases their likelihood of loan default. Burlando Kuhn and Prina (2020) made opposite findings in Mexico in a study which determined that consumers apply for digital loans regularly for their immediate approval capacity and that loan providers with shorter loan disbursement periods are associated with higher loan repayment rates. However, the researchers also ascertained that mobile credits usually have high interest rates, stiff penalties for delinquency, and consequently, have the highest loan default rates.

The respondents were also in agreement that they utilize digital mobile credits frequently since they have low penalties upon failure to meet the repayment schedules and according to Li, Wu and Xiao (2020), this feature makes mobile loans especially useful to low-income earners who have little to no physical assets. The study revealed that digital finance services have minimal requirements which has enabled households to relieve their liquidity constraints with less pressure than conventional financial services. The researchers argued that the low penalties encourage people to access loans and increase their expenditure options which can contribute to irresponsible expenditures. According to Kouame and Kedir (2020), this is the most popular feature for college students who take advantage of the flexible repayment schedules to make fee payments and purchase educational materials on a regular basis. The study also found that borrowers routinely utilize mobile digital credit since they have lower transfer costs which reduce the borrower's expenses and these findings are echoed by Weiser et al. (2019) who determined that transactions involving mobile loans such as money transfer are cheaper and facilitates sending and receipt of remittances which is key to sustaining borrower's livelihoods. Abiona and Koppensteiner (2019) also made similar observations, affirming that the low costs associated with sending and receiving money over mobile phones has aided families to respond to emergencies in a more effective manner. Both of these studies also aver that aside from the low cost of transactions, mobile loans also have low penalties for default which reduces the pressure on borrowers to make loan repayments at stipulated timelines. Wamalwa, Rugiri and Lualaba's (2019) study did not make similar observations since in the study, individuals with low levels of literacy are likely to fall victim to predatory lenders who design loan products with unspecified loan repayment terms.

The respondents also showed agreement that the use digital mobile credits regularly as they have more reasonable interest rates than conventional bank loans and informal loans, a sentiment shared by Shema (2022) whose study provided evidence that digital credit services have low interest rates and features that encourage continued use such as automatically accumulating loan limits which increase the useability of accessed funds. However, the study also determined that this feature was key for borrowers who regularly borrow and repay the loans on time as the incremental credit limits can impede borrowers from repaying the loans on time once they reach a certain level that the borrower cannot afford. The first objective specified the effect of mobile money facilitated credit components on borrower's financial health and the analysis implied that the effect is positive and significant. The regression analysis revealed that mobile network-operated digital credit is the most popular digital credit and that changes to its repayment period, terms and conditions for repayment can explain up to 31.8 percent of the variations in financial health among the youth. The findings are consistent with Li, Wu and Xiao (2020) study showed how access to mobile facilitated credit relieved households' liquidity constraints, expanded investment channels and increased income. In Mexico, Burlando Kuhn and Prina (2020) determined that faster loan approval was related with reduced default rates. According to Kouame and Kedir (2020), mobile facilitated digital credit is a cost-effective financing method that provides a wide range of complementary services such as paying and sending functionalities which enhance the quality of transactions.

Conclusion

The study concludes that mobile network operator facilitated digital credit has a significant and positive effect on the borrower's financial health. The study concludes that mobile operator facilitated loans are fast and easily accessible which increases their effectiveness to the user. Further, key to their use is the minimal collateral requirements which reduces the stress associated with accessing official loans. The aspect of collateral requirement means that the mobile loans are the cheapest and most affordable among all the other forms of digital credit. The study also concludes that mobile network operator facilitated digital credit have cheap transfer costs and have reasonable interest rates which has been a key determinant of their adoption and of the user's overall financial well-being. The final conclusion that can be drawn from the findings is that the repayment period associated with mobile loans is usually flexible and this improves the borrower's repayment capacity, despite the interest rates being too high for unsuspecting consumers.

Recommendations

The study finds that mobile network operator facilitated digital credit has significant positive effects on the borrower's health and that improving MNO facilitated digital credit repayment period, terms & conditions for repayment and instant processing can result in a 31 percent improvement in the financial health of the borrower. The study recommends that mobile money

operators that provide digital loans reduce their operation rates considering they have high interest rates for the small loans they offer. The study also recommends that MNOs introduce products that can address the collective needs of a group of people with similar needs. Further, the study recommends that suitable data protection regulations be developed to reduce risks associated with data sharing and to guarantee data security to users.

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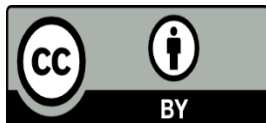
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