

**EFFECTS OF SOCIO-ECONOMIC FACTORS ON UPTAKE OF MOBILE
BANKING SERVICES IN KENYA**

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**THE RESEARCH PROPOSAL IS SUBMITTED IN PARTIAL FULFILMENT
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DECLARATION

I do hereby state that this research project has never been submitted in any academic institution.

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This research project is hereby submitted for examination purposes with my approval as the university supervisor.

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ACKNOWLEDGMENT

I give the Almighty God all the glory for enabling me to reach this level. I also thank my entire family for their endless support, words of encouragement and prayers throughout the journey.

DEDICATION

I dedicate this work to my entire family, friends, and the entire fraternity of the University of Nairobi for their endless support and guidance. Special gratitude to my supervisor Dr. Joshua Wanjare for the endless support and guidance.

ACRONYMS

ATM	: Automated Teller Machines
CAK	: Communication Authority of Kenya
CBK	: Central Bank of Kenya
FINTECH	: Financial Technologies
FSD	: Financial Sector Deepening Kenya
GSMA	: Global system for Mobile Communications Association
KES	: Kenya shilling
MMT	: Mobile Money Technology
NACOSTI	: National Commission for Science, Technology, and Innovation
SDGs	: Sustainable Development Goals
SPSS	: Statistical Package for Social Sciences
TAM	: Technology Acceptance Model
UN	: United Nation
UON	: University of Nairobi
USSD	: Unstructured Supplementary Service Data

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DEFINITION OF KEY TERMS

Economic factors:	Factors that can influence and affect the financial status of an individual.
Social Factors:	The effects of groups and people influencing one another through social class, family, reference groups, subculture, and culture.
Socio-Economic Factors:	Circumstances or conditions that surround an individual and have financial implications.
Mobile banking:	The use of mobiles to perform activities that involve the transfer of ownership and rights to use goods and services originating through a mobile device with the help of mobile telecommunication services.
FinTech:	The application of advanced technologies to the financial service industries.
Mobile Money Technology:	The act of using mobile phones to send and receive money.
Uptake of Mobile banking:	The action of taking up, accepting, adopting, or making use of mobile phones to gain access to all banking related services.

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CHAPTER ONE

INTRODUCTION

1.1. Background Of the Study

Today the market is highly competitive, and the business environment is also volatile due to the digital disruption that has shaken the economy of every sector including the banking sector, which previously had been known to be conservative, but it has not been spared too. Thus, the use of financial technologies has opened new markets and created new business models (Vives, 2017). Technological change in the financial sector is inevitable as it is to every other sector. The adoption of mobile banking services has since then seen these dimensions change due to the introduction of alternative delivery channels; It has seen the Automated Teller Machines (ATM) being replaced by mobile phone banking (Muiru, 2015). FinTech in Kenya has greatly been influenced by mobile banking. Technological factors, environmental characteristics, and organisational factors strongly influenced mobile FinTech uptake.

The study by Moturi (2020) notes that the uptake of mobile banking services is affected by social economic factors, geographical factors, technological factors, and legal and environmental factors amongst others. The study by Ndungu, & Moturi, (2020) focuses on the effects of social economic factors on the uptake of mobile banking by the commercial banks in Kenya. The social economic factors pinned in the Fin Access (2021) survey conducted by the Central Bank of Kenya were education level, age, income level and perceived riskiness. These were some of the factors established with mobile FinTech uptake. However, Ndungu, & Moturi, (2020) established that with mobile FinTech uptake, the operation costs were reduced, and business operations were efficient (Ndungu & Moturi, 2020). Mobile FinTech has a profound effect on lending and payments processing. Organisations have been forced to adopt cashless payments. These include e-wallets, m-wallets, peer to peer payments, and digital currencies (Vives, 2017).

Fin Access survey (2021) highlights these effects of social economic factors on the uptake of mobile banking services by commercial banks in Kenya. Fin Access (2021) indicated that the adoption of mobile banking services differed amongst the age groups, where younger people (18-35 years) were noted to quickly adopt and take up mobile banking as compared to the middle age group (36-45)

whereas those who were above 45 years were more pessimistic on taking up mobile banking as they still preferred the convectional way of banking.

Fin Access survey (2021) revealed that income level of the people also had great effect on uptake of mobile banking. The study notably recorded that the people with lower income level preferred cash transactions for avoidance of transaction charges during the transfer and the same was considered safe to them whilst using the convectional banking method as there was exchange of documents of proof that a transaction had taken place whereas middle class and upper-class income level earners embraced mobile banking more viewing the product as effective, efficient and costs savings.

Fin Access survey (2021) notes that the education level of the population also played a huge role in the impact of uptake of mobile banking. Ndungu & Moturi, (2020) also in their study indicated that the illiterate group in the community were noted to be very pessimistic on the uptake of mobile banking as they viewed the product to be risky whereas the literate group quickly embraced the product, this was likely to be attributed by the fact that they were more aware of the technological changes in the market and understood that the market merits outweighed the demerits for instance it has also provided us a lending platform, mobile FinTech providing the mobile banking customers with a digital lending and automated platforms which has hence made it easier for the clients to make decisions quickly on whether to borrow or not as indicated by Moturi (2020) The platform stipulates the lending rates, interest charged, repayment periods and other lending costs to the users. FinTech has also been greatly used by the lenders to access the customer credit worthiness, information that is perceived to be of great importance to the lending institutions. (Laukkanen, 2017). Mobile FinTech provides flexible, effective, and convenient ways of accessing mobile banking services. 'Mobile banking' is a key driver to ensuring customer satisfaction, reduction of operational costs, and a pathway for penetration of banking services to the public (Muiru, 2015). Does mobile banking provide a universal form thought-out all the financial institutions platforms? Different businesses in collaboration with the financial institutions tailor make applications that best suit their business models in partnership with telecommunication providers. (Porteous, 2006). The telecoms provide the mobile banking platform where the services are also embedded in bank's mobile banking services to mention just a few applications that allow customers to transfer funds from their accounts to M-Pesa example include: KCP App, FCB Popote, PesaPap and many others (Odera, 2013)

The effects of social economic factors on uptake of mobile banking services by commercial banks is linked to two theories. The theories define what the users of these mobile banking services would consider before taking up mobile banking services. The Technological Adoption Model (TAM) and Diffusion of Innovation Theory (DIT). Technological Adoption Theory dissects the factors that an individual likely to consider before deciding on whether to accept or reject a product and the Diffusion of Innovation Theory is used in the study to help an individual pin out correctly the factors to consider before accrediting or discrediting a product. The theories are thus aimed at assisting the individual make the right decisions on the uptake of mobile banking.

Mobile banking users and commercial banks in Kenya have found the need to understand the effects of the social economic factors on uptake of mobile banking this likely to change their mode of dealing with business in the future as the world changes due to digitization and the convectional banking method.

1.1.1. Social economic factors

The social economic factors affecting the uptake of mobile banking services include age, education level and income level of the users. A study one by Akinyemi and Mushunje (2020) seeks to demystify what determines uptake of mobile money in the rural areas. This study revealed that 78%-89% of the respondents are aware of the usage of mobile money however the uptake of the same was very low. This was attributed by education level, age, and income level of the people in these areas.

These social economic factors have great impact on users' dealings with financial products and services. The study seeks to measure the extent to which these social economic factors affect the uptake of mobile banking services through qualitative units of measure that is, access, perceived usefulness, quality improvements and general welfare of the users.

The user's level of education greatly affects their access and need for financial services and products. The study by Akinyemi and Mushunje (2020) notes that 98.5 percent of individuals with formal education required to use financial services thus the uptake of mobile banking is higher as compared to those individuals who didn't have formal education who required 64.2 percent to use financial services, this would notably indicate a lower uptake level of mobile banking services. This could also be linked to the general awareness of the existing changes in technology. Fin Access household survey (2021) revealed that 98.5 percent of individuals with formal education had access to the mobile

banking services in comparison to 64.2 percent that had no formal education and access to mobile banking services. The uptake of mobile banking services gradually increased from those with no formal education 64.2 percent, to primary level 83.5 percent, secondary level 84.7 percent and tertiary level 98.5percent Fin Access household survey (2021).

Age greatly affected the uptake of mobile banking. In reference to the study conducted by fin access household survey (2021) on usage indicated that a huge percentage of individuals between (18-25 years) lacked National Identification Cards, they were also either in higher institutions of learning and had no formal employment was noted and henceforth the uptake on mobile banking was low recorded at 20.5 percent as compared to individuals above 25 years of age who recorded a higher percentage of 79.5 on uptake of mobile banking. The access and usage of mobile banking services was better in comparison to the previous age group. Age factor excluded those without National Identification cards they could only access and use mobile banking services indirectly explaining the low uptake on the product. They also had little or no knowledge at all on the existence of the products. Fin Access household survey, (2021) The quality of the product was measured based on users' altitude. The economic benefit could only be measured through on those who interacted with the product.

Income level greatly influenced by the financial health of the individuals and the opportunities to use mobile banking services. This includes the investments by the individuals, savings patterns, employment levels and wealth quintile. Individuals who are financially healthy were noted to easily take up mobile banking services as compared to individuals who were not financially healthy. They were greatly linked to acknowledge the economic benefit of mobile banking services. An overview of mobile banking adoption among the urban community Sulaiman, A., Jaafar, N., & Mohezar, S. (2019). The study identified that those with relative healthy income level accessed the mobile banking services more whilst the others with no healthy stream of income recorded the lowest access to the mobile banking services. Fin access household survey (2021) Also revealed an increase in the access of mobile banking services amongst the low-income level population from the year 2019 to 2021 which was linked to the introduction of Fuliza services which have since been greatly embraced by the "mama mboga" This was also linked to the Covid 19 pandemic effects that saw individuals greatly embrace the product. It was linked to ease of use and improved quality in meeting users' needs, increased efficiency, and customer satisfaction.

1.1.2. Mobile banking services uptake

It's notably recorded that money is the most transferred item in the world. There are several channels used for this transference: like KCP App, FCB Popote, PesaPap. It is also noted that 90 percent of individuals with mobile phones are aware of the mobile banking applications and 69 percent of this population are likely to use them according to Fin Access household survey (2021). A study by Akiyemi and Mushunje (2020) established mobile banking was a key component in transference of money, it also noted that 79% of the users of mobile money use this platform for financial management thus confirming the economic benefit for all people to adopt mobile banking services. In this study the focus is on how the social economic factors affect or influence an individual to take up mobile banking or not.

The Fin Access household survey 2021 sought to establish the extent to which the mobile banking services are used. The services were measured across the population based on frequency, timelines and how consistent the users consumed the mobile banking services. The survey also established the easiness of the applications, altitude of the users' and the economic benefits perceived from the uptake of the mobile banking services on time series analysis across the key social economic factors, age, income level and education level.

1.1.3. Social economic factors and mobile banking uptake

Ndung'u and Moturi (2020) study illustrates Mobile technologies have rendered a great economic benefit both to the individuals and the organisations offering mobile banking applications. The social economic factors outweighed the technological, legal, environmental, and geographical factors. Social economic factors determined the financial health of an individual which directly determined the level, ability, and willingness of the same individual on uptake of mobile banking. For instance, the level of education would determine an individual understanding of the changing technology and thus the individual would be able to make the decision whether to accept or take up mobile banking. Age also was a high contributing factor as an individual financial health is expected to grow positively from (25-55) years as indicated by the Fin Access Household Survey (2021). This age group is also highly likely to take up mobile banking as compared to the young adults and the older adults. Income level of individuals was also noted to influence the individual's decision on whether to take up mobile banking or not. Individuals with higher income level had more disposable income and thus were more likely to take up mobile banking as compared to those with low disposable income. These variables should be studied since their influence has a direct linear relationship on the uptake of mobile banking.

1.1.4. Mobile Banking Services in Kenya

According to the CBK (2020) with the Kenya banking sector having undergone rigorous technological innovation in the last decade from the conventional banking to agency banking, online banking, and mobile banking, it was also reported that mobile banking is the most preferred technological innovation by Kenya. (Central Bank of Kenya, 2020). The paradigm shift in banking is attributed to the change in customer needs, technological advancement, changing economic conditions, financial products that are innovative, multiple delivery channels, and globalisation (Ngunyi, 2018). Further, competitiveness among financial institutions, the financial service providers such as SACCOS, micro-finance and telecommunication companies that offer mobile banking platforms. The telecommunication industry with supportive infrastructure and high penetration of mobile phones is a strategic driver of mobile banking in (Communication Authority of Kenya, 2022).

The commercial banks in Kenya have been forced to embrace mobile banking and the paradigm has shifted as they have started to diversify their products, for instance major banks like Equity, NCBA, KCB amongst others offer loans of maximum Kenya Shillings one million only (Ksh 1,000,000) on mobile platforms. The paradigm has shifted, commercial banks have now to reach their customers through mobile phones and use of access codes for communication and guidance on use of their available bank's products. The biggest challenge faced by the commercial banks has been to establish strong firewalls to protect the customers from fraud and potential loss of data.

1.2. Research Problem

Mobile banking uptake is greatly dependent by social economic, geographical, and technological factors. The social economic factors are age bracket and gender, income level and the education level. The empirical review established that despite there being a direct relationship between increased mobile banking uptake and the social economic factors that contributed to this, there are still mixed findings on their association and performance independent of each other as well as when all the variables are combined Global Mobile consumer survey Deloitte. (2019).

In line with this the banking sector has in fact leapfrogged conventional banking prompting banks to embrace technology by providing banking services through use of mobile phones. Banks have been in competition amongst themselves to win the biggest market niche and became the biggest industry players which has also consequently allowed new field players to offer competition such as the telecommunication companies such as M-Pesa which has 28.7 million subscribers who actively use

these applications and the percentage that has continued to grow annually at a rate of 4.7% Fin Access household survey (2021). This takes more than 50% of Kenya's population whereas Airtel Money and T-Cash assume about 9.8 million subscribers (Deloitte, 2019; Communication Authority of Kenya, 2022). The main focal points are banks like NCBA, EQUITY and KCB Banks that have gone an extra mile in the use of technology advancement to improve their performance amongst their clients ensuring all stakeholders needs are met with efficiency and effectiveness.

The study seeks to demystify to what extent do these social economic factors, age, education level and income level affect uptake of mobile banking services. What is the user's perceived riskiness while deciding on whether to take up the product or not.

In Kenya, mobile banking platforms have been rolled out in most banks to connect clients bank accounts to the country's mobile players including Safaricom, Airtel, and Telecom. Mobile banking is a beneficial innovation to banks, employees, and the clients as the technology is convenient, saves time and money, eliminates errors, and reduces transaction costs and thus, enhances customer satisfaction (Kamuti, 2018). The rise of mobile payments in Kenya has been facilitated by the multiple banking apps and network operators that have allowed payment and transfer of money in people's daily lives through use of USSD or downloading mobile application from play store. Businesses have also invested in payment options where customers can make payments through mobile phones such as till and pay bill numbers. There is preference of use of mobile money among the elite and rich in the society purchasing of products and services as well as keep track of funds balances (Deloitte, 2019). In the study, two theories have been used to diffuse the effects of these social economic factors on uptake of mobile banking, Technological Adoption Model (TAM) by Fred Davis and Diffusion of Innovation Theory (DIT) by Everett Rogers

However, the society is still sceptical and pessimistic on taking up mobile banking. Age, education level and income level of individuals. Individuals will only decide to take up mobile banking depending on the perceived riskiness of the product, data protection and personal information security which notably affects the uptake of mobile banking services.

Fin Access household survey, (2021) identifies the individual concerns and need for financial literacy on issues affecting one's uptake of mobile banking, some of key concerns among individuals were cost involved in accessing the product, maintenance costs, fraud, unstable market infrastructure, bank systems downtime, tax exposure effects and lack of transparency on the basis used in pricing the use of mobile banking.

According to Fin access household survey, (2021) cash transactions decreased from 29.6percent to 23.8 percent in a period of 2 years, in the same period banking services recorded an increase from 40.8 percent to 44.1 percent. This was indicative of gradual increase in uptake of mobile banking, and a decline in usage of cash transactions. The study also noted that only 18.3 percent wholly used mobile banking on their transactions. How does the social economic factors affect this uptake of mobile banking noting the numbers of individuals who have taken up the product is quite low. The study seeks to measure the impact of age, education, and income level in influencing one's decisions to use mobile banking services. The study therefore seeks to answer the question: what is the effect of socio-economic factors on the uptake of the mobile banking services in Kenya?

1.3. Research Objectives

The main objective of this study is to examine the effect of socio-economic factors on the uptake of mobile banking in Kenya.

The specific research objectives are:

- i. To establish the effect of education on the uptake of mobile banking in Kenya
- ii. To examine the effect of age of the user on the uptake of mobile banking in Kenya
- iii. To investigate the effect of income on the uptake of mobile banking in Kenya

1.4. Value of the Study

This study will provide information for purposes of theory, policy, and practice for academicians, researchers, and market players. The academician and researchers' can use this study as a source of their literature review whereas the banking sector can use the same to gain more understanding of people's views on how these social economic factors affect their uptake and adoption of mobile banking leading to improved knowledge of the market and better market penetration strategies. The findings highlight the gap and reasons for the gradual uptake and adoption of mobile banking. I anticipate that users of this information will enhance better decision-making processes leading to development of better strategies and overall growth in the market segment.

The findings from this study will benefit scholars, industry players and policy creators. The literature review provides a guidance on the industry players that is the mobile providers on bringing an understanding as to what social economic factors an individual contemplates prior to uptake of a mobile banking application. This can thus be used to make better decisions, financial planning and

budgetary by the commercial banks on how to increase the market niche through understanding its biggest consumers of the mobile banking services.

The literature review will bring clarity to the policy makers through understanding of the country's financial health and economic benefit of the country in the consumption of mobile banking services. For instance, the uptake of mobile banking services and its relevance to the income level depicts the wealth distribution in different geographical locations an observation that would be relevant to the government effort to equitable wealth distribution by the county governments. Age, income level and education level provide very important data on the impact and general welfare of individuals and consumption of mobile banking services data that is key to government when making decisions such as transition level of high school students to tertiary levels of educations, are all students issued with national identification cards after high school level of education? The law makers can use this data to develop laws on consumers perceived risks and data protection where users have declined to adopt mobile banking services due to the perceived risks of use.

The scholars can use the study as a learning material and as a research reference.

CHAPTER TWO

LITERATURE REVIEW

2.1. Theoretical Literature Review

This chapter gives a detailed analysis review of mobile banking uptake and the social economic factors that affect it. The factors are discussed extensively to develop a relationship with the research objectives. The chapter also examines the theories that underpin the research. The theoretical framework adopted in the research will guide us on how re-evaluate whether there is indeed a gap in the social economic factors that affect the uptake of mobile banking. Different theories have been applied to this research to support and uphold this. It also identifies with the decision-making process by an individual, and the determinants of uptake of mobile banking services.

2.1.1. Technological Adoption Model (TAM)

TAM was invented by Fred Davis in 1986 which aimed at modelling user acceptance of technologies or information systems (Davis, 1989). The adoption theory examines the choices made by individuals by accepting or rejecting a certain innovation. Adoption is not about the choice to assume an innovation but to what extent is the innovation assumed to have the right context. According to (Venkatesh, Morris, Davis, & Davis, 2003) study a model will be perceived to be accepted due to its increased perceived economic benefit and ease of use.

Mobile banking users perceive the use of mobile banking to be safe, easy, convenient, cost effective, and fast as compared to the conventional banking for transmitting payments in rural areas of Africa and enhances better performance. This explains the growing adoption of mobile banking services (Akinyemi & Mushunje, 2020). Perceived usefulness is measured by the extent to which an individual believes that performance of a particular application has been improved and it's better. According to Davis and Venkatesh (2003) this can only be attributed through technology and customers' willingness to adopt the new mobile banking technology.

For system or innovation to be successful or accepted, both perceived use and perceived ease of use are achieved in each system (Al-Mamary, Shamsuddin, & AbdulHamid, 2013). This theory postulates that PMIS its usage will be determined by the system's user intent, in instances where the user's intent is intertwined by their personal attributes and their perceived usefulness in their unique needs then they are likely to adopt the method.

An individual will either accept or reject a product. This is based on a decision-making process in effort to derive the most benefit in a product or service. The theory depicts this by illustrating the adoption and decision-making process in the users' minds before uptake on mobile banking services. The theory however assumed that individuals will always adopt a product due to perceived benefits and there were no biased, compromised, or subjective decisions that would influence the uptake of the mobile banking services.

2.1.2. Diffusion of Innovation Theory (DIT)

The theory was invented by Everett Rogers. It is popular since it is perceived to help an individual explore the factors that may determine their adoption of an invention in the technology. According to this theory, an innovation refers to a process or technology deemed unfamiliar to individuals. Diffusion is that process of flowing information related to the innovation or technology from an individual to another in each social system (Zhang, Yu, Jun, & Spil, 2015).

For success of an IT innovation there are four major determinants: the elements of the innovation, communication networks, the physical characteristics of the adopters, and the social structure. As for the elements of the innovation it includes compatibility, complexity, trial ability, observability, and relative advantage. Compatibility is the extent to which a given innovation is consistent with a given environment. The more an innovation can integrate with the values, skill, and needs of potential adapters then the more chances of likelihood of adoption and diffusion. Complexity relates to the degree at which an innovation is alleged to be challenging to understand by the user (Venkatesh, Morris, Davis, & Davis, 2003).

Rogers (2013) posits that the adoption rate of an innovation is dependent on factors such as ease of use, perceived risks, pricing, ongoing cost, benefits over alternative products, and communicability of the product benefits. Customer allegiance to a product is significantly influenced by the level of satisfaction, trust, superficial value, and preference. Mobile banking adoption and use by clients is because of satisfaction of these psychological factors, personality attributes, social class, and culture. Factors such as convenience, perceived value, and loyalty influence the level of satisfaction regarding mobile based banking application usage (Amoroso & Hunsinger, 2009).

Rogers (2013) further argued that new technology poses a risk to many customers and their reactions based on their individual characteristics. The behavioural inclinations and a person's predilections are crucial contributing factors to adoption of mobile banking. There are five stages to diffusion of innovation theory which include: awareness, persuasion, decision, implementation, and continuation.

In any given social system, a group of individuals exist which include early adopters, innovators, early popular, laggards and the late popular. All these individuals have different characteristics in relation to adoption of technology. The laggards are resistors of the system while the innovators have critical understanding of complex knowledge. Thus, with the adoption uptake of mobile banking the individuals will fall in those five groups. The structure of the social system will determine the attitude of the towards innovation and so will be the rate of adoption (Rogers & Singhal, 2003).

The theory is relevant to the study due to its elements, process towards adoption and factors thought. These are deemed important as they enable flow of information to the intended population and thereafter a product adoption of mobile banking services will be dependent on how well the users understand the product on its economic benefit, usage, and access.

2.2. Determinants of Uptake of Mobile Banking

Uptake of mobile banking is greatly determined by technological, geographical, and social economic factors. The objective of the study is to establish the effect of the social economic factors on the uptake of mobile banking. Cross sectional and simple random sampling method is best fitted since samples can be drawn from random populations. The methods allow the researchers to compare different variables on random sampling basis where all the variables have equal probability of being chosen without bias. Social economic factors determined the uptake of mobile banking services based on access to mobile phones, marketing strategies, alternatives, cost of the service, network coverage, security, and privacy concerns, convenience of the service, comfortability in using the services, trust, awareness, conceptualization of mobile banking services, and the social context of transactions. (Obanda, 2019). The main objective of the study is to establish the contribution of these social economic factors to the financial industry. The study questionnaires targeted individuals who have attained the age of 18 years since at this age one can access financial services at individual level. The dependent variables were measured against the lines of interest.

2.3. Empirical Literature Review

What is the education level of the users? It is believed that education attainment plays a substantial role in defining the attitude towards the acceptance of technology (Oyeleye, Sanni, & Shittu, 2015). According to Njenga (2010) on literacy levels, education background and scope were found to have negative correlation with mobile banking usage. However, the population with lower education levels tend to be major users of mobile banking. The study, however, fails to establish the rationale of this

argument that academic exposure is insignificant regarding usage of technology-based products and to what extent if it does. Njenga (2010) further argues that the semi-illiterate and unschooled can quickly easily capture the skill needed to manipulate the sophisticated mobile devices as the value the mobile phone hold in form of cash makes them to familiarise themselves with the monetary oriented bill of fare as they do when dealing with a different monetary exchange (Njenga, 2010)

According to Kabir (2017) the adoption of mobile banking among the professional bodies and the educated persons is still a debatable issue due the risks that are involved in the transactions. Akinyemi and Mushenje (2020) established that the elderly in the community embraced mobile banking as they were more elite in comparison to those who were not. It is thus evident as per Gichuki and Mulu-Mutuku (2018) that the education level has direct mutual and positive relationship on the uptake of mobile banking in Kenya.

A study by Suleiman et al (2019) further indicates that the higher the education level, the more this group of people are likely to adopt mobile banking in comparison with those who have achieved the minimum and ordinary level of education. This study further revealed that the education level directly influences the perceived ease of use of mobile banking thus indirectly influencing the uptake of mobile banking by customers. The elite are less likely to spend countless hours in banking halls in comparison to the less elite in the community, this also could have been contributed by the easy access of digital banking platforms amongst them. This group of people are well conversant with the technological changes, cybercrimes, data protection and their main interest is effectiveness and efficiency which is of great importance. (Oyeleye, Sanni, & Shittu, 2015).

What is the impact of age on technology? Age has a negative relationship on technology, the old generation is less receptive to any new technology in comparison with the younger generation. This is due to high perceived risks and uncertainty among the old people as well as fear of change. In a research by (Okazaki & Mendez, 2013) it was reported that the Financial Sector Deepening Kenya (FSDK) opine that, 19% of the entire population have access to formal education, leaving the 81% with no access to formal education. This group has thus no access to knowledge on digital mobile banking. The demand for an affordable and reliable way of holding funds with minimal risk levels is gradually unfolding. The unprecedented uptake of mobile phone banking services in Kenya is a testament to the fact that a potential system to obliterate the access to banking services was needed (Kamuti, 2018).

In a study by Ndung'u (2013) concluded that age of users and household income significantly influence mobile bank adoption. However, security and confidentiality, and awareness also hinder the adoption of mobile banking. Perceived benefits which include convenience and efficiency are some of the motivating considerations that promote the adoption and uptake of mobile banking. Contrary, a study carried by Korir (2012) on factors influencing mobile banking in Kenya established that demographic factors such as age and education do not influence mobile banking uptake in Kenya. A study done by Kabir (2017) showed that 65.6% & people of age between 25-35 years were the best users of mobile banking while the remaining 34.4% are not using mobile banking though there is future interest. Akinyemi and Mushunje (2020) in this study, it was well articulated that the determinants of mobile money expertise and its adoption in rural areas of Africa was that of the age group of the users. Amongst the younger generation the probability of the uptake of mobile money was higher. I thus concluded that indeed there is an inverse relationship between age and the adoption of mobile money.

Akinyemi and Mushenje (2020) in their study established that unemployed people use less of mobile money than the employed. These findings were further proved with findings of Afawubo et al (2020) that people who are employed are more likely to adopt mobile money in Togo. Those who worked in the informal sector in the rural areas of Africa had much fewer transactions performed through mobile banking in comparison to those that do not have a regular income. This also further explained by Omilola and Kaniki (2014) that most African countries do not have both unconditional and conditional money transfer options for the informal sector that acts as a social net and thus, those who are employed use less of mobile money in their daily lives. Though most of the unemployed receive mobile money from family and friends who have regular income.

Akinyemei and Mushenje (2020) further established that the net monthly income of respondents was influenced by the adoption of mobile money in remote areas in Africa. These individuals who recorded relatively low income relied more on mobile banking as they perceived it to be more accessible and reliable in effort to combat the tough life events experienced in the rural areas. Kicono et al (2020) further adds that individuals with access to better income, that is individuals living above the poverty levels, were more advantageous and quickly adopted mobile money transfer in remote areas of Africa. Majority of mobile banking users are the average or low-income earners coincidentally; the same majority are holders of a higher percentage of individuals without bank accounts. Thus, the individual

users without bank accounts tend to perceive mobile banking as a complete substitute to bank accounts. (Njenga, 2010).

Coulibaly (2019) research notes that, high income individuals were more receptive to mobile money more compared to low-income earners. They mostly used mobile money accounts to transact, such as making payments, sending, and receiving and thus the money accounts are better managed and efficiently utilised by persons with high disposable income. According to Suleiman et al (2019) wealthier customers exhibited a high tendency of using mobile banking. Similarly, those who are above the average disposable income earners are thus more inclined to use mobile banking than the other lower group. Further, the income and individual net worth are positively related to mobile banking adoption (Sulaiman, Jaafar, & Mohezar, 2019). Lee et al (2014) argue that income is thus an essential tool in the determination of uptake of mobile banking.

Njenga (2010) further adds from his study that the middle- and low-income groups and the unbanked group form the biggest beneficiaries of mobile banking as 46% of the users who participated in our survey were new to banking with no preceding history of holding bank accounts. The key users are provided by the move towards cashless transactions and increased limits that have been set by service providers and in line with guidelines from CBK. During the COVID-19 time the limits were reviewed upwards to a maximum of Ksh 294,800 and thus, there is a likelihood that it has opened new catchments in the higher income clusters.

Ngunyi (2018) records in their study that and upon assessment of the uptake of mobile banking as perceived by commercial bank employees in Kenya. The study used descriptive survey design and targeted 43 banks that provide financial services in Kenya with a sample of 60 banking employees used. The study found that with mobile banking, commercial banks in Kenya have experienced growth, gained a competitive advantage, and have also gained assurance of survival in the dynamic market. Further, the mobile technological innovations have placed Kenya up there in the global technological innovation sphere as it has transformed the mode of banking and its uptake. In addition, mobile banking has helped financial institutions to reduce the operational costs, increased competitiveness, increased their richness and financial performance. However, mobile banking security, infrastructure, cost of technology, and human capability are the major challenges affecting the uptake of mobile banking among commercial banks (Ngunyi, 2018).

Mbiti and Weil (2011) well noted during their study that the impact of M-Pesa in Kenya as a mobile banking platform had notably caused a decrease in the costs thus increased competitiveness amongst other mobile transfer platforms like the Western Union. The study focused on the use of M-Pesa and its economic impact since its inception in 2007. The study also found that the use of M-Pesa had changed people's preferences and was slowly being adopted as an account savings platform. However, as this is the case, it was interchangeably hard to confirm and ascertain that people used M-pesa platform to store their wealth. The study was thus only able to confirm M-Pesa as the most preferred and digital mobile application that people were eager to experiment and use. It is thus denotable that its benefits have positively given it the dominance in the market, which is evident in the reported revenues and income in comparison to other market players like Western Union, MoneyGram, and Postapay (Mbiti & Weil, 2011).

In another study by Muiru (2015) seek to quench the people on what exactly will cause one to opt for mobile banking and the other not to. What factors must be considered and are deemed important by the people before the uptake of mobile banking? Our thirst for knowledge took us on a journey to numerous surveys by Fin Access household surveys in guideline with the CBK. The focus and intent are to clarify on the relative advantage of mobile banking services, complexity of using this application, while monitoring mobile banking and its relative compatibility in the industry. A sample of 300 registered clients had been assessed from a target population of 30,600 banking customers who were administered with questionnaires. The study established that perceived risk of mobile banking and complexity of mobile banking influenced the mobile baking uptake. Further, the study also established that the compatibility and observability of mobile banking influenced mobile banking uptake. The study further recommends investment by banks on advertisement to reach out more clients (Muiru, 2015).

A study done by Odera (2013) noted that the banking industry considered the uptake of mobile banking to be highly influenced by factors such as, social factors, economic factors, and technological factors and how they are associated with mobile baking services in Kenya. These key factors required us to implement a descriptive research design with our target population being five most preferred banks that provide financial services in terms of quality and assurance in Kenya. A sample of 500 bank employees comprising of junior staff management. The study found that most employees used mobile banking to transfer funds to their M-pesa from their bank's accounts. M-pesa was found to be the leading mobile banking services offered by a telecommunication company. As for the factors

influencing mobile banking include convenience, knowledge of the services, and handset operability. However, the study established that cost of service was not the principal factor to consider as it was the one offered by the bank.

2.4. Summary of the Literature Reviewed and the Gaps Identified

The literature review affirms that there is indeed a positive relationship between the social economic variables and the uptake of mobile banking services. The study Njenga (2010) indicated that the education level had a great effect in the uptake of mobile banking services. Mobile banking services usage was perceived to require little or no education prior to its use. The study failed to identify the perceived risks by this group of using mobile banking services such as fraud and data privacy that caused registering a low uptake of mobile banking services. The study indicated that the mobile banking platform education could be passed over through advertisement and awareness creation by the banking industries, this however was not reflected in the Fin Access household survey (2021). The uptake level of mobile banking services and education had a direct relationship. Oyeleye, Sanni, & Shittu, (2015) study indicated that the literate group preferred usage of mobile banking services indicating that they had better access to technology and citing users' education level was interlinked to their age and income level.

However, the social economic factors are interlinked but the uptake of mobile banking services could only be measured on them individually across the studies shown. Education level was the biggest trigger on the uptake of mobile banking services. The studies failed to show its effect as a controlled variable. Age and income level of the users were the uncontrolled variables and interrelated with education level. The study concluded that the social economic factors had a positive correlation on the uptake of mobile banking in the short and long run. This calls for more research to ascertain if education level of individuals plays the biggest role in uptake of mobile banking services. The studies also did not show the inter correlation between social economic factors and other factors like technological, geographical, and legal factors on the uptake of mobile banking. The research gap identified is that studies have focussed on social economic factors wholesomely. The study seeks to fill this gap using education as a dominant variable in collaboration with age and income level of the users at the same time measuring their impact on uptake of mobile banking services.

2.5 Conceptual Framework

This is a pictorial diagram describing the social economic variables under the study. The aim is to boost understanding of these variables and how they interrelate with each other. The dependent variable are education, age, and income level while the dependent variable is the mobile banking services.

The figure 2.1 illustrates this.

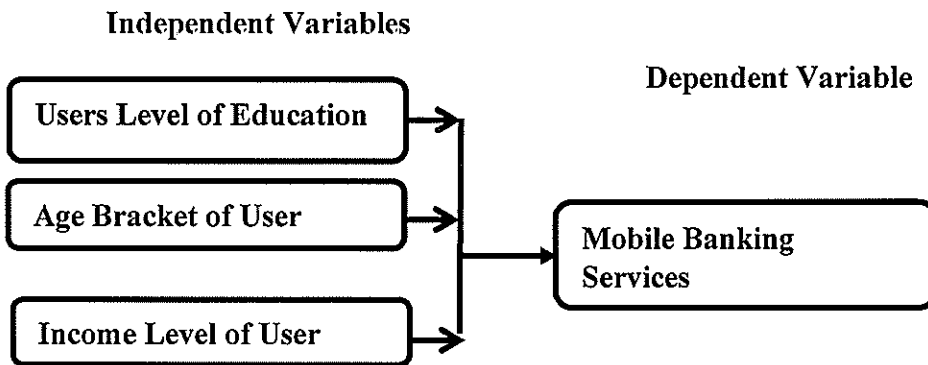


Figure 2.51: The Conceptual Framework.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Research Design

This is the application of a well-planned method aimed at collecting and analysing data in a manner that is hoped to bring a positive economic benefit both to the researcher and the users of the report in the future. (Bryman, 2016). A probit regression method will be used in the research to analyse data collected. The method is relevant in the study since it allows the variables to take only two values. The method ensures that the variables estimate only take values of 0 or 1 and thus its better than the logit regression method. This also allows us to test the data for heteroskedasticity using the probabilities ranges of (0.2-0.8). The chapter illustrates the research design, target population, samples, and data analysis techniques to be employed in efforts to derive the research objectives of the study.

3.2. Population

The study will use Fin Access survey dataset collected in year 2021. Fin Access 2021 survey was collected across the 47 counties in Kenya covering both rural and urban areas. The survey collected data from 30,600 households. Thus, this study will be based on a population of 30,600 households located across the counties.

3.3. Collection of Data

The research covered the period January 2019 to December 2021. Secondary data will be used in this study from Fin Access 2021. The data was measured against technological, social economic and geographical factors and the usage of mobile banking services across. Among the sections included household and respondent information (this comprised of level of education, age, gender, family size and marital status), financial products/services usage (including use of mobile banking platforms), financial health and awareness of financial institutions among others. Secondary data was used from Fin Access household survey 2021 in guidelines with CBK. Education level, age and income level were measured on basis of frequency, timelines, and consistency of the users.

3.4. Data Analysis

The study will use both descriptive statistics and inferential data analysis techniques. The descriptive statistics will comprise of measures of central tendency and measures of dispersion such as mean, minimum, maximum, standard deviation, and frequencies. The inferential statistics will be based on probit regression model. Probit regression model was chosen because the dependent variable, uptake of mobile banking, is measured as a dummy variable where it is equals to 1 if the respondent uses any of the following mobile banking platforms; Mshwari, KCB MPesa, MCoop cash, Eazzy Loan, Timiza, HF Whizz, MPESA, Airtel Money, TCash, Tangaza, MobiKash or Equitel and it will be zero if otherwise. The study will use STATA version 17 to estimate the following probit regression model.

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \varepsilon_i \dots \dots \dots (1)$$

Where:

Y denotes Uptake of Mobile banking services (1 if respondent uses any of the following mobile banking platforms; Mshwari, KCB MPesa, MCoop cash, Eazzy Loan, Timiza, HF Whizz, MPESA, Airtel Money, TCash, Tangaza, MobiKash or Equitel and 0 otherwise)

X₁ denotes highest level of formal education completed by the respondent (none, primary, secondary and tertiary education)

X₂ denotes the age (in years) of the respondent

X₃ denotes the gross annual income (in Kshs) of the respondent

i denotes the individual respondents, ε denotes the error term while β's denotes the parameters to be estimated.

3.5 Operationalization of the Variables

The study exemplified independent and dependent variables. Independent variable consists of education level, income level and age of the user as indicated in the table illustrated below.

Table 3.1 Operation of Variables

Variables	Measures	Empirical reference
Education Level	None, primary, secondary, and tertiary level	(Oyeleye, Sanni, & Shittu, 2015).

Income level	High income level and low-income level	Coulibaly (2019)
Age	Age brackets (Below 24, 25-35 years, 36-55 years and above 55 years)	Akinyemi and Mushunje (2020)

3.6 Diagnostic Tests

The data will also be tested for diagnostic, normality, multicollinearity, and heteroscedasticity tests. The purpose of the tests is to scrutinize the relationship and to what degree the variables are dependent to each other. (Cohen et al., 2003). The diagnostic tests are conducted to determine if the probit regression model is correctly specified and all the regressors have been built-in, there is need to ensure that the assumptions of classical linear regression model are not violated. This study will therefore conduct various diagnostic tests to ensure the classical linear regression assumptions are not violated.

Normality tests assumes that the data will be assumed to be normally distributed, the data mean, and median are obtained and both mean and median tested for skewness; the data plotted on a normal curve displays bell shape (Hand, 1996). Other tests in this stage are the standard deviation, standard error, and the ranges of the values from the variables. Normality as used in regression shows that the error terms will be normally distributed with most values in the random variable being distributed close to the mean while those with only a few values are spread away from the mean. Kurtosis of the data will also be tested. The data is plotted on a graph to determine its distribution and concentration. In the study, Schapiro wilk test has been used to test for normality to test the null and alternative hypothesis distribution on the variables. The Null hypothesis tests if the variable is normally distributed whereas the alternative hypothesis tests for abnormalities in the variables distribution. Probability values with a greater than 0.05 signify normality and the reverse is true.

Multicollinearity is alleged to happen in a regression model where the explanatory variables are highly correlated such that one explanatory variable can be predicted linearly from the other explanatory variable (Montgomery et al., 2001). The tests thus measure the relationship between these two independent variables and their tolerance level. In the study, multicollinearity will be measured using Variance inflation factor (VIF) test. VIF greater than 5 is an indication that multicollinearity may be present.

Homoscedasticity assumption of OLS regression states that the data about variables should have constant variance and that variance of individual observations in the sample should not vary significantly from that of the true population (McCulloch, 1985). Observations depicting infinite variances are said to be heteroscedastic leading to spurious regression. The study will employ Breusch-pagan / cook-Weisberg test for the existence of heteroscedasticity where p-values less than 0.05 shows that heteroscedasticity is present in the data.

The test of significance will be directed at 95% confidence level with controlled variables. The overall significance of the effect of social economic factors on uptake of mobile banking was determined by F test where F-calculated greater than F-critical meant will mean that social economic factors had a significant effect on uptake of mobile banking. The significance of the effect of individual explanatory variables will be tested using either t test or the p value. Where t-calculated is greater than t-table would mean the individual explanatory variable has a significant impact on uptake of mobile banking

Education - Secondary	-0.2569	0.0590	0.0039	-0.0439	-0.1559	-0.0903	-0.5388	1.0000	
Education - Tertiary	-0.0967	0.0432	0.3213	-0.0489	-0.1068	0.0085	-0.2958	-0.2370	1.0000

For all the variables, the correlation coefficient is less than 0.8 implying that there is no multicollinearity.

4.4 Regression Analysis

The tabulation of results table 4.3 below confirms that uptake on mobile banking has a undeviating dependence on all the dependent variables, age, income level and education level. The probit regression model had a Pseudo r-squared of 0.195, Chi-square of 4115 with a p value of 0.000 implying that the model is a decent fit and noting that, the independent variables jointly influence the uptake of mobile banking in Kenya.

Age of the respondent positively and significantly influences uptake of mobile banking. The older one becomes, the more likely is he/she going to use mobile banking services. Table 4.3 also shows that gender of the respondent has no substantial effect on uptake of mobile banking.

Income positively and significantly influences uptake of mobile banking. The more income one gets, the more likely he/she is going to use mobile banking services. It is also shown that divorced/separated, widowed and married respondents are more likely to use mobile banking services as compared to those who were single or never married.

Respondents with primary, secondary, and tertiary education were more persuaded to use mobile banking services in comparison to those who had no education.

The analysis confirmed that there is a positive relationship between the social economic variables and the uptake of mobile banking. All the variables including the respondents age, income and

education level increased the uptake of mobile banking services. Other factors like gender and marital status had no significant effect on the uptake of mobile banking.

Table 4.3: Probit Regression Results

	Coefficient	Standard Error	t-value	p-value	[95% Conf Interval]		Sig
Age of the Respondent	.005	.001	6.21	0	.003	.007	***
Gender of the Respondent	.023	.024	0.96	.338	-.024	.069	
Gross income (in Thousands)	.063	.002	25.76	0	.058	.068	***
Marital Status- Divorced/Separated	.976	.051	19.16	0	.876	1.076	***
Marital Status- Widowed	.63	.048	13.04	0	.535	.724	***
Marital Status- Married	.984	.029	33.38	0	.927	1.042	***
Education- Primary	.747	.029	25.94	0	.69	.803	***
Education- Secondary	.9	.034	26.27	0	.833	.967	***
Education- Tertiary	1.967	.071	27.62	0	1.828	2.107	***
Constant	-.912	.043	-21.05	0	-.997	-.827	***

Mean dependent var	0.815	SD dependent var	0.389
Pseudo r-squared	0.195	Number of obs	21972
Chi-square	4115.224	Prob > chi2	0.000
Akaike crit. (AIC)	16967.485	Bayesian crit. (BIC)	17047.460

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

Dependent Variable: Uptake of Mobile banking

4.6 Discussion of Findings

The p value of 0.000 between the social economic factors and uptake of mobile banking indicates that it was a good fit as all the social economic factors tested had a direct impact on the uptake of mobile banking.

The study directed by Suleiman et al (2019) confirmed that the education level was a major contributory factor to the uptake of mobile banking. People were more likely to take up mobile

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.1 Introduction

The study gives a detailed analysis of discussions and findings on the effects of social-economic variables on the uptake of mobile banking services in Kenya from the year 2019 to 2021. The chapter gives specifics on descriptive statistics, various trend analysis over the period, partial correlation, and multiple regression analysis.

4.2 Descriptive Statistics

A Descriptive examination was conducted towards bringing an understanding on the overall characteristics of the most significant variables in the study that is age, gender of the respondent, income level of the respondent, marital status, and education level of the respondent on the uptake of mobile banking.

Table 4.1: Descriptive Statistics

Variable	Observation	Mean	SD	Min	Max
Uptake of Mobile banking	22022	.815	.388	0	1
Age of the Respondent	22024	38.897	17.212	16	116
Gender of the Respondent	22024	.424	.494	0	1
Gross income (in Thousands)	22024	7.406	12.178	.098	400
Marital Status- Single/Never Married	21999	.264	.441	0	1
Marital Status- Divorced/Separated	21999	.073	.261	0	1
Marital Status- Widowed	21999	.117	.322	0	1
Marital Status- Married	21999	.546	.498	0	1

Education- None	21999	.181	.385	0	1
Education- Primary	21999	.402	.49	0	1
Education- Secondary	21999	.301	.459	0	1
Education- Tertiary	21999	.115	.319	0	1

*SD- Standard Deviation

Source: CBK Data Fin Access Household Survey (2021)

Minimum yearly age of the respondents to uptake of mobile banking was 16 whereas the maximum recorded age was 116 with mean age level within the 3 years period of 38.897. The standard deviation recorded was 17.212. Income level, measured in thousands, minimum income level over the period was .098 and maximum was 400, mean 7.406 whereas the standard deviation of 12.178. Education level was measured across the different levels of education, the minimum was 0 and highest 1, the mean of education level was 0.24975 and standard deviation of 0.303

4.3 Diagnostic Test Results

Multicollinearity test was conducted to determine the level of correlation in the different variables. The research also applied the Tolerance and Variance Inflation Factor (VIF). A multi collinearity problem undermines the arithmetic importance of the self-regulating variables by inflating the standard errors, this inversely results to increased confidence levels. Multi collinearity problem will thus result in less reliable statistical inferences. Variables are perfectly co related when the correlation coefficient is +/-1.0

Table 4.2: Multicollinearity

	Age of the Respondent	Gender of the Respondent	Gross income (in Thousands)	Marital Status- Divorced/ Separated	Marital Status- Divorced/ Separated	Marital Status- Divorced/ Separated	Education - Primary	Education - Primary	Education - Primary
Age of the Respondent	1.0000								
Gender of the Respondent	-0.0208	1.0000							
Gross income (in Thousands)	-0.0005	0.1445	1.0000						
Marital Status- Divorced/ Separated	0.0439	-0.0125	-0.0133	1.0000					
Marital Status- Widowed	0.4928	-0.2174	-0.0900	-0.1026	1.0000				
Marital Status- Married	0.0832	0.0622	0.1171	-0.3081	-0.3998	1.0000			
Education - Primary	0.0611	0.0093	-0.1505	0.0843	0.0044	0.0651	1.0000		

banking services depending on their level of education. These findings were consistent with our findings where education level was the biggest contributing factor to the uptake of mobile banking services. The uptake of mobile banking increased as the education level went up. This was attributed to the ease of use, increased awareness on data protection among the elite group. This group was more aware of the economic benefit of mobile banking, the efficiency and effectiveness of the services. (Oyeleye, Sanni & Shittu, 2015).

The study by (Okazaki & Mendez, 2013) and (Kamuti, 2018) indicated that age had a negative relationship with the uptake of mobile banking, these results did not agree with the Fin Access Household survey which indicated a positive relationship between age and uptake of mobile banking. The study reveals that as age of the respondents increased their education level and income level also increased which reversely increased the uptake of mobile banking. The study thus confirmed that only the generation gap could explain the low receptive of age and uptake of mobile banking. The study indicates that the younger millennial generations had the benefit of growing up in a technologically evolving world and thus had become part of the technology. This explained the positive linear relationship on age and uptake of mobile banking services.

Akinyemi and Mushenje (2020) in their study noted that income level and the source of income is a big contributing factor on the uptake of mobile banking services. The study notes that the uptake of mobile banking services was low in comparison with the formal sector. The findings of this study were that income level has a positive relationship with the uptake of mobile banking services. These findings were consistent with our findings from the Fin Access household survey.

These findings found a significant relationship between effect of education, age, income level and uptake of mobile banking. Education level had the greatest effect on the uptake of mobile banking services and in the research, it was identified as the controlled variable whereas the age and income level were uncontrolled variable. The study confirmed that income level increased with education level and reversely there was high uptake of mobile banking services, it also indicated that where the education level was high, age level was not a contributory factor to the uptake of mobile banking services, the individuals were receptive due to the economic benefit.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter will entail a comprehensive summary of the findings, conclusions, recommendations, and proposals for additional studies.

5.2 Summary of Findings

The findings of this study reveals that that uptake of mobile banking services had a direct linear relationship with the social economic variables, age, income level and education level. Minimum yearly age of the respondents to uptake of mobile banking was 16 and maximum was 116 with mean age level over the 3 years period of 38.897 and standard deviation of 17.212. Income level, measured in thousands, minimum income level over the period was .098 and maximum was 400, mean 7.406 and standard deviation of 12.178. Education level was measured across the different levels of education, the minimum was 0 and highest 1, the mean of education level was 0.24975 and standard deviation of 0.303. Pseudo r-squared of 0.195, Chi-square of 4115 with a p value of 0.000, this indicates that all the social economic factors that were tested influenced the uptake of mobile banking positively.

The age of an individual influenced the uptake of mobile banking positively and as one grew up in years, they were more likely to take up mobile banking services. It was also noted that gender played no significant role on the uptake of mobile banking. Age of the respondent positively and significantly influences uptake of mobile banking.

Income positively significantly influenced the uptake of mobile banking. The study noted that an individual was likely to take up mobile banking as their disposable income increased. It also noted that the divorced, separated, widowed, and married respondents were more likely to use mobile banking services as compared to those who were single or never married.

Education level was also noted to have a direct relationship with the uptake of mobile banking services. Individuals with no education were less likely to take up mobile banking services as

compared to those with primary, secondary, and tertiary education. The uptake of mobile banking services increased as the individuals' level of education increased

The trend analysis was consistent in the period 2019 to 2021 and gradually increased across the social economic variables. The uptake of mobile banking was also noted to be very high in the year 2020 to 2021. This could be attributed to covid 19 effects and health guidelines by World Health Organization discouraging use of cash transactions in effort to reduce transmission of covid 19 virus. The uptake of mobile banking services has been consistent among the population even after the Covid 19 pandemic. This is due to the impact and economic benefit of the mobile banking services. This has attracted individuals to retain the product. There has been no recorded decline in the uptake of mobile banking services.

5.3 Conclusions of the study

The study seeks to establish the consequence of social economic factors on uptake of mobile banking services. From the findings a positive relationship exists between the social economic factors and mobile banking. As the social economic variables increased the uptake of mobile banking services increased. The main objective of the study was to find out to what extent these social economic factors affected the uptake of mobile banking. Increase in income level, education level and age all led to increased uptake of mobile banking services. Education is an important determinant in the uptake of mobile banking and there was need to positively control this variable. An elite nation would lead better and stabilized economy and growth in the country's Gross Domestic Product. The study confirms that, uptake of mobile banking services did not decline among the elderly in instances where the individuals had high levels of education, tertiary level, the product was considered effective and efficient thus consistent retention rate on the uptake of mobile banking services.

From the study, the following conclusion can be made. The relationship between effects of social economic factors and mobile banking services is positive.

5.4 Recommendations of the study

In view of these findings, the following recommendations can be drawn.

The government in conjunction with the Central Bank of Kenya and technological firms should collaboratively work together in effort to establish 100 percent uptake on mobile banking services. Education level having played the biggest role in the uptake of mobile banking by bringing increased understanding to society on the economic benefit of the mobile banking services. This would extensively result in improved efficiency, literate nation which would thus stimulate the country's economic growth rate. These findings can also be used for other purposes by the government for instance management and making policies on educational matters amongst its population.

The study also found out that the level of income of the respondents of interrelated to their level of education and an assumption drawn that one's income level is expected to increase automatically upon attainment of education, and the uptake of mobile banking also increased. The uptake of mobile banking services was also notably higher in the urban areas than the rural areas. These findings could also be used to describe the wealth distribution quantile in different geographical locations. The formal sector was highly receptive to the mobile banking services in comparison to the informal sector. This study could also be used to explain the wealth distribution in the country.

The age of the respondents and the uptake of mobile banking services was found to be inter linked to their education and income level. As the respondents age increased the education and income level increased and the uptake of mobile banking services increased.

The study indicates that 11.6 percent of the population did not use mobile banking services. This data is very resourceful to the industry players such as banks marketing departments, technological firms, and education sectors in effort to make decisions on how to improve this. The areas of concern by this percentage of population were identified as high costs of accessing the mobile banking services and lack of transparency in product pricing, possible fraud causes and systems downtimes.

5.5 Limitations of the study

The study was confined the main social economic factors, age, education, and income level. Other variables that could possibly affect the uptake of mobile banking services like internet accessibility and wealth quantile were left out. The study also heavily relied upon the secondary data from fin access household survey in collaboration with Central Bank, this was the average data and thus

likelihood of being inaccurate as the technological firms providing mobile banking services notably recorded higher transactions and mass exchanges of money.

5.6. Suggestions for Further Research.

The research covered a period of 3 years only which was conducted on a yearly basis. Due to the fast uptake of mobile banking services further studies should be done in collaboration with mobile banking providers and on quarterly basis to enhance more understanding on the fast uptake of mobile banking services. The research recommends use of both primary data and secondary data to draw inferences in the future.

The research failed to establish the extent and effect of internet accessibility on the variables. This is an area for further research as areas endowed with good internet accessibility like Nairobi are likely to be more receptive to mobile banking services in comparison to areas like Lodwar and Marsabit counties where internet accessibility is very poor. Geographical locations and wealth quantile were also likely to indirectly affect the social economic factors and hence forth the uptake of mobile banking. The research can thus be conducted in line with these guidelines in effort to establish the effect of social economic factors under uncontrolled environment and the uptake of mobile banking services.

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