

**MOBILE MONEY SERVICES AND SAVING CULTURE: A STUDY OF
INDIVIDUAL SMALL BUSINESS OWNERS IN TOI MARKET**


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DECLARATION


This research project is my original work and has not been submitted for examination in any other university or institution.

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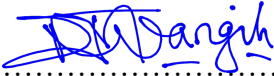
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DEDICATION

I dedicate this paper to my entire family for the love and support shown to me throughout my studies.

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LIST OF ABBREVIATIONS AND ACRONYMS

ASCAs	-	Accumulated Savings and Credits Associations
CAK	-	Kenyan Communications Authority
CBK	-	Central Bank of Kenya
COVID-19	-	Coronavirus Disease 2019
GSMA	-	Global System for Mobile Communications
KCB	-	Kenya Commercial bank
LCS	-	Life-cycle saving
PEOU	-	Perceived Ease of Use
PIN	-	Personal Identification Number
PU	-	Perceived usefulness
ROSCAs	-	Rotating Savings and Credit Associations
SACCOs	-	Savings and Credit Cooperative Societies
SMS	-	Short Message Services
TAM	-	The theory of technology acceptance model
UTAUT	-	Unified Theory of Acceptance and Use of Technology
ANOVA		Analysis of Variance

ABSTRACT

Recent technological advancements have resulted in access to mobile phones by majority of the adult population. A wide variety of mobile phone based financial services that have made it easier for individuals to transfer money affordably have consequently emerged. The purpose of this study was to determine the effect of mobile money services on saving culture among individual small business owners in Toi Market, Nairobi County. The study adopted descriptive research design. The target population of the study comprises of 750 individual small business owners within Toi Market. The study adopted stratified random sampling to select 100 respondents and primary data collected using questionnaires. Collected data was analyzed through descriptive and regression statistics generated through SPSS. Multiple regression analysis was used to obtain the relationship between saving culture and mobile money services. The Analysis of Variance was used to determine the significance of the results. The study concluded that mobile money services had a positive and significant effect on saving culture among individual small business owners in Toi market. The study found that majority of respondents used mobile money services to place savings and that they valued the presence of a wide network of agents as well as the ease with which deposits could be made via mobile money services the most and this impacted on the level of savings held. The study recommended the need to develop more savings products that involved the use of mobile money agents as part of the service package and that the products get market tested to ensure they are easy for customers to use in placing deposits. The study also recommends that mobile money products empower customers with information to enable them to verify the transactions occurring relating to their mobile money savings.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Saving is the ability to sacrifice the current expenditure and it is one of the most important drivers of investment in an economy. From the Economics school of thought, people save from a portion of their income that has not been consumed (Maradung, 2013). The rapid change in technology has changed the manner in which people can save to achieve intended goals. The emergency of new technologies like mobile money have revolutionized and transformed the way people save (Ouma, Odongo & Were, 2017). The recent statistics indicate that about 74% of people around the world currently own mobile phones (GSMA, 2019) with about 80% of the population in Kenya having ownership of the mobile (Geopoll, 2019). Thus, it is against this background of increased penetration of mobile phones that the current study seeks to establish how this trend has contributed towards saving especially among the poor who may have limited access to formal bank accounts.

The theory of technology acceptance model (TAM), life-cycle saving (LCS) and a common theory of accepting and using technology are utilized to underpin the research theory. The LCS argues that during periods of high income (employment), people will try to save as they reduce their expenditure. The savings accumulated during the periods of high income are then used to finance future expenditure when the individuals have retired (Modigliani & Brumberg 1954). Thus, the theory will be used to support the need for people (especially the low income) to save using mobile money. The TAM hypothesis developed by Davis (1986) says that insights into ease of use and utility educate individuals about the usage of certain kinds of technology such as

mobile monetary platforms. Based on this TAM hypothesis, the connection between individual perceptions and their capacity to utilize mobile money services is thus anticipated. The idea of technology acceptance and usage brings in additional variables such as sex, age and experience and their mediating function in the interplay between human views and their capacity to save mobile money (Venkatesh et al., 2003).

Nairobi County was set up in 2013 after a new constitution promulgated in 2010 promoting the decentralization. Besides being among the 47 counties in Kenya, it is also the capital city that houses headquarters of different organizations. The country is a cosmopolitan with its inhabitants being drawn from different tribes around the country. Nairobi County is also a home of different areas of informal settlements with Kibera being the largest slum in Kenya, Africa and around the world. Majority of the dwellers in some parts of Nairobi like Kibera are low-income people, most of them being unemployed. Most people in Nairobi do not have formal ownership of bank accounts as the low-income individuals have traditionally been excluded by most commercial banks due to economies of scale. At the same time, majority of the people in the county have poor saving culture, given that most of them survive on less than a dollar income on a daily basis. This research is therefore driven by the need to understand the impact mobile money services have had on the saving culture of individuals in Nairobi County with a focus on individual small business owners in Toi Market within Kibera.

1.1.1 Mobile Money Services



Mobile money services are electronically established monetary accounts accessible by customers through their telephones (Mbele-Sibotshiwe, 2013). They enable people to transfer money electronically using their mobile phones. Users may deposit cash into the account of their mobile phones, transfer funds to other users through PIN-protected SMS, including sellers of goods and services, retake cash deposits, retain cash, obtain access to credit and insurance products at a small cost. Customers may deposit and withdraw their money through a network of intermediaries, including resellers and agents that function as banks. Mobile money services usually come under the possession and operation of a mobile network operator or a financial firm. Mobile network operators have a cellular network, have access to mobile consumers and are often present in their communities, but have no previous expertise in the creation and delivery of financial services. For mobile money services provided by financial institutions such as banks, customers' mobile devices are linked to their own bank accounts enabling them to manipulate their bank accounts using their mobile devices.

The provision of savings products via mobile services is a fairly recent concept. Safaricom's M-shwari service offered in partnership with Commercial Bank of Africa, which enables customers to make low value savings in money wallets stored on their phones and earn interest is a pioneer in this field. Central Bank of Kenya (CBK) enables all holders of a Central Depository for Securities account for government securities to invest in Government Securities such as Treasury Bills and Bonds, using their mobile phones. Users can apply and bid for government securities, receive notifications of bid outcomes and receive statements of their account balance. This study

will look at mobile money services within the context of movement of funds using mobile money and assets accumulated in mobile money.

1.1.2 Saving Culture

Savings imply the surplus of income over consumption expenses (Keynes, 1936). Saving is the practice of allocating part of current revenue for future use or of accumulating resources over a period of time. The set aside portion is typically stored in a saving instrument which can be a financial services product or a physical asset. Formal financial services are provided by organizations that are legally registered, prudentially or not by an independent statutory governmental agency or operate by direct government intervention such as Commercial Banks, Microfinance Banks, Insurance Service Providers, Saving Credit Colleagues (SACCOs), Intermediaries on Capital Markets and Insurance Providers. Informal financial services are provided in many forms which are not regulatory but have a reasonably well defined organizational structure. Groups include Accumulated Savings and Credits Associations (ASCAs), Rotating Savings and Credit Associations (ROSCAs), Chamas and supply chain loans. Such groups are included in this report. Persons who are not categorized in formal/informal are considered excluded since they either use the services and products of financial saving only through family, friends and neighbours, keep money in secret, store income in the shape of physical goods, such as livestock, or do not utilize financial services (Central Bank of Kenya, Kenya National Bureau of Statistics and Financial Sector Deepening, 2019).

A saving culture helps individuals to accumulate wealth that can be used for investment and better living standards. The savings accumulated by individuals will not only be beneficial to the

household but to the overall growth of the economy as a whole. Saving require people to sacrifice their consumption patterns and trend (Mpiani, 2017). The growth in technology has increased the uptake of mobile phones that has transformed the way people save. More saving at an individual level can be achieved through implementation of financial education programs to enhance the financial literacy of people (Jonubi & Abad, 2013).

Kenya places a heavy reliance on external borrowing as a means of financing investments resulting in large outflows of resources that would otherwise be invested in the country in the form of external debt repayment. Savings would boost investment leading to an improvement in Gross Domestic Product. Low level of savings results in low economic growth and living standards. Savings levels at the individual level and societal level are thus critical. This study will operationalize saving culture into deposits held in financial intermediaries and informal groups.

1.1.3 Mobile Services and Saving Culture

The fast progress of technology has led to more mobile funds and thus to the necessity to comprehend the interaction of mobile money and culture of saving (Kithinji, 2014). Goss, Salah & Mas, Ignacio & Radcliffe, Daniel & Stark, Evelyn. (2011) concluded that people with low incomes need safe, practical and cheap ways to manage the little money they have available. Their cash inflows are in low value amounts and are irregular and this impacts on their choice of savings products and level of savings. Mobile money services platforms enable high volume low value electronic transactions to be conducted by individuals on their mobile phones through a large network of agents who enable the conversion of physical cash to electronic value.

Introduction of mobile financial services has resulted in various mobile money-based savings products such as M-Shwari (Safaricom in collaboration with Commercial Bank of Africa), KCB M-Pesa (Kenya Commercial bank in collaboration with Safaricom, M-Kesho (Equity bank in collaboration with Safaricom) and others. Customers can save as little as Ksh 50 in a fixed deposit or target savings account and earn interest of up to 6% per annum. Low-income individuals can set aside part of their wages in small values in periods when they have income and utilize this to meet needs such as purchase of food for their family, deal with emergencies such as unexpected medical expenses, education of family members during periods of no income. Funds set aside can also accumulated and transferred to saving groups for accumulation of lumpsums.

Providers of traditional formal savings services such as banks have found it challenging to develop savings products that can handle large volumes of low-cash transactions, meet the savings needs of low-income individuals and bring acceptable levels of profitability to the service providers. Mobile service providers can handle small value transactions at low costs but need to tailor the services to suit the needs of low-income individuals (Goss et al. 2011) Studies on the impact on saving culture of mobile banking in inhabitants of Molo City have shown the majority of Molo city citizens believe mobile banking has helped them enhance their behavior in saving (Ng'ang'a). A study of the link between mobile banking and micro and small enterprises in the Nairobi County market in Gikomba showed a decline in the respondents' disposable income even in periods of increased income for respondents that used mobile banking (Wamaitha, 2016). A favorable connection between mobile money services and saving culture is theoretically predicted.

1.1.4 Small business owners in Toi Market

Kibera is the largest informal settlement in Africa and Kenya in general with about 250,000 people (African Population and Research Center, 2012). Majority of the people in Kibera live below the poverty line characterized by low income of less than a dollar on a daily basis and derive their livelihood from the informal sector. Many own informal enterprises in Toi market consisting of heterogeneous activities from which they derive their livelihood. A study of poverty in the informal sector, focusing on Toi Market showed 60% of start-up capital was financed from personal savings whilst 38.3% was financed from loans (Mayieka, 2003). Given income from these informal businesses is low and unpredictable, such individuals cannot afford quality services and have limited access to formal credit. The amount of profit they obtain from their businesses is utilized in meeting their daily needs with little left to save. The few who manage to save usually leverage on such methods as storing their wealth in informal and unregistered saving groups and under their mattresses.

Recent research shows that mobile finance has formally been included and collaborations and developments such as mobile banking, agency banking and Digital Finance, as well as mobile applications have grown from 2006 to 2019. 79% of persons have a mobile cash account, 25% have a mobile banking account, and 30% have a conventional bank account. 30 % of people continue to utilize high informal financial services (CBK et al. 2019). The aim of this study is to evaluate the effect of mobile money services on the culture of saving for individual small business owners in Toi Market, Nairobi.

1.2 Research Problem

The ability of people to save has significant contribution towards investment and capital formation that can be used to drive the growth of the economy. The ability to save helps people to accumulate income that can be consumed during the old days and in event of unforeseen emergencies. Since technology has revolved to bring in mobile money, it would be critical to carry out an assessment of how this has helped people to save (Mensah, Chuanyong & Zeng, 2020). A recent study done by Ipsos Synovate Group in 2017 indicates that there is a poor saving culture among people in Kenya that could adversely affect most people especially at their old age on account of insufficient level of income. The report further details that the saving ratio in Kenya has been hovering at around 12% in comparison to other advanced economies like China at 20-40% (Ipsos Synovate, 2017).

Most people living in Nairobi County, especially in informal settlements are of low income surviving on less than a dollar income per day. Most of these low-income individuals face various challenges including limited access to formal bank accounts, high level of poverty and more consumption as opposed to saving. This is a negative trend as such people may not be able to respond well in the event of risks and emergencies like the COVID-19 pandemic. Furthermore, the poor saving culture of people in some areas in Nairobi like Kibera would have a long-term implication in their old days since there will be no income for consumption. It is thus important to evaluate if the use of mobile money services has helped to improve saving culture in order to address these current problems.

Locally in Kenya, Osore's (2015) study on the impact of mobile money services on the savings pattern of fishermen in Mbita Division found that mobile money services were a strong replacement for informal means of saving, such as physical cash and complemented traditional financial institutions such as banks by facilitating money transfer to and from the fishermen's accounts thus increasing level of deposits held. Mobile money services have nevertheless repercussions as a safeguards platform because savers could quickly access their funds and reverse previous savings patterns such as the usage of savings clubs. Ng'ang'a (2013) examined the effect on saving culture of mobile banking amongst Molo city residents. The study has shown that mobile banking impacts on saving culture and that advances to mobile technology and equipment enable users to enjoy banking services at all places and times. Wamaitha examined the link between mobile and micro-business deposits in the Nairobi County Gikomba market in Kenya (2016). There were less discretionary earnings for respondents since mobile banking was used despite the increase in revenue due to savings.

The worldwide empirical research include Ansi and Chagwiza (2019), which were conducted in South Africa on the variables that influence people's capacity to save. It has been demonstrated that individual income drives their saving capacity. Fanta, Mutsonziwa, Goosen, Emanuel and Kettles (2016) examined mobile money and its function in financial inclusion using the Madagascar context and found that the popularity of mobile money platforms will affect its usage. John (2016) has been largely focused on evaluating key factors in mobile cash use as a payment platform using evidence from Tanzania and key factors that were identified in the study include awareness of mobile money, access to mobile money services, ease to use platforms, transaction costs and the safety attitudes of people using mobile money services.

The above research in Kenya indicate that mobile cash services have disadvantages as an economizing platform since savers quickly access their funds and reverse informal saving practices like saving clubs. It is therefore important to examine if the adoption of mobile money services has an effect on savings, including other currencies such as savings clubs, bank accounts and government securities by allowing storage and transfer of income to these other currencies. Other studies were limited to assessing the impact of mobile banking on saving culture and it would be critical to assess how mobile services impact on saving culture. Some of the studies were conducted in other countries like Madagascar, South Africa and Tanzania and not in Kenya which create contextual gap. This study sought to address the following questions in order to fill this gap: How can mobile money services affect a population's saving culture in Nairobi, Kenya?

1.3 Research Objective

The study aimed to assess how mobile money services affect the culture of saving among individual small business owners in Toi Market, Nairobi County.

1.4 Value of the Study

Policy makers such as the CBK and the Kenyan Communications Authority (CAK) would be able to establish appropriate regulations governing mobile money operations. This research will be essential for telecommunications service providers like as Safaricom, financial institutions including banks, micro-finance institutions and SACCOs, which investigate methods of improving their mobile products systems. The study will contribute to a greater match between customer needs and asset accumulation products developed. The study will contribute towards the understanding and knowledge of factors affecting the ability to use mobile money to save

which can be used to drive uptake of innovative products such as government securities traded through mobile services.

Practitioners including Information and Communication experts will rely on the findings of the study to understand the key features that are desirable for mobile money systems. The study will add to the existing theories that support acceptance of technologies like TAM. This study will help consumers of mobile money services understand how to better use technology to accumulate savings. Future scholars will rely on this study as a point of reference to carry out empirical review.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The aim of this chapter is to examine mobile money theories literature. The current empirical research also revealed some variables which affected the usage of mobile money to save money.

The reviewed literature is summarized to indicate the gaps that were filled.

2.2 Theoretical Review

The foundation of the research is the life cycle saving theory, the technology acceptance model and the unified theory of acceptance and usage of technology. These theories are discussed in greater detail in the below sections.

2.2.1 The Life-Cycle Saving Theory

This theory was formulated by Modigliani and Brumberg (1954) and it argues that people will follow a given pattern of saving that is in form of a hump over their life-time. The theory argues that during periods of high earning from employment, people will save at an increasing trend while smoothing out expenditure. On the other hand, during the periods of low income (particularly prior to periods of employment earning across the time of retirement), individuals will leverage on their savings to meet their lifetime needs that require expenditure. Based on this theory there is the need for financial planning by individuals who should consider their lifetime income and use this to determine the level of savings and consumption.

In the past individuals relied on institutions, for example pension contributions from their employers, social security programs availed by the government or support from their family and were not proactively planning for consumption post-retirement. Current reduction in birth rates and high self-employment or unemployment rates means the burden of choice of financial instruments for asset accumulation rests on the individuals. Supporters of this theory argue that it should be used by financial service organizations to provide asset accumulation products that consider the life-cycle of the individual. It should be used by government to formulate policies around financial service products and financial advisors and consumers will find its principles useful in making savings choices.

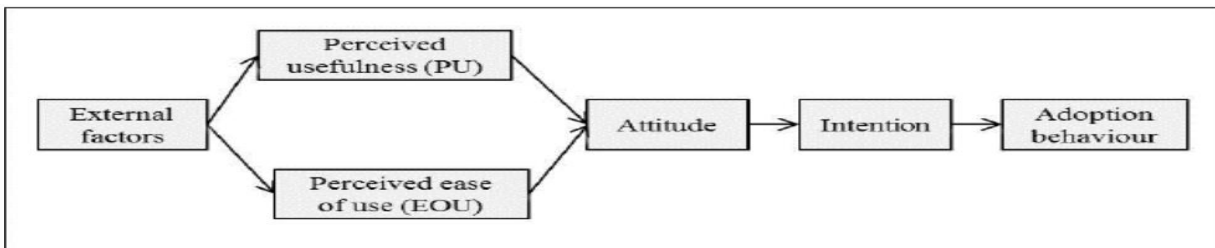
The theory has been criticized since most individuals are not able to measure total income over their lifetime due to unplanned outcomes. James Tobin (1967) challenged the theory's view that savings rates increase with economic growth. According to Tobin, if individuals expected income growth throughout their lifetime, then they would consume more than their income, via debt, during their younger years which may lead to a contradictory relationship between savings and growth rates. The theory also assumes that individuals finish off savings in old age, however individuals pass down wealth to their children. The assumption that individuals are rational and come up with lifetime savings plans may not always be the case due to the discipline involved. In addition, the theory suggests an advantage for high income individuals who have a greater capacity to save. Low-income individuals with debt may not be able to save. Individual small business owners in Toi market who are the subject of our study are self-employed and therefore do not benefit from any institutional retirement plans. Based on the life-cycle theory, we would expect mobile money services to be a mediating factor that would impact on the savings culture

of individuals as it would provide a quick avenue to accumulate low value assets as and when income is received.

2.2.2 Technology Acceptance Model Theory

This was proposed by Davis during his study in 1986, the theory provides explanation of how people utilize and embrace technological advances and explains the reasons that help people to embrace or reject certain forms of technology. The TAM model reviewed two concepts, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). PU is defined as the user's view that their task will be enhanced through use of an information system. PEOU is the extent to which the person who is operating a system anticipates this operation will be easy (Davis, 1986). Characteristics of the system, how well the users have been trained on the system and user involvement in the system's design and its implementation are external variables whose effect is considered since they affect people's desire to utilize technology. According to the theory, behavior, attitudes, perceived utility and ease of use of users influence their choice to embrace and utilize given technology. In other words, technology mediates how easy usage and usefulness influence technology uptake (Park, 2009). Figure 2.1 summarizes TAM theory with its related components and how they interact in determining technology' intents.

Figure 0.1: Technology Acceptance Model



Source: (Davis, 1986)

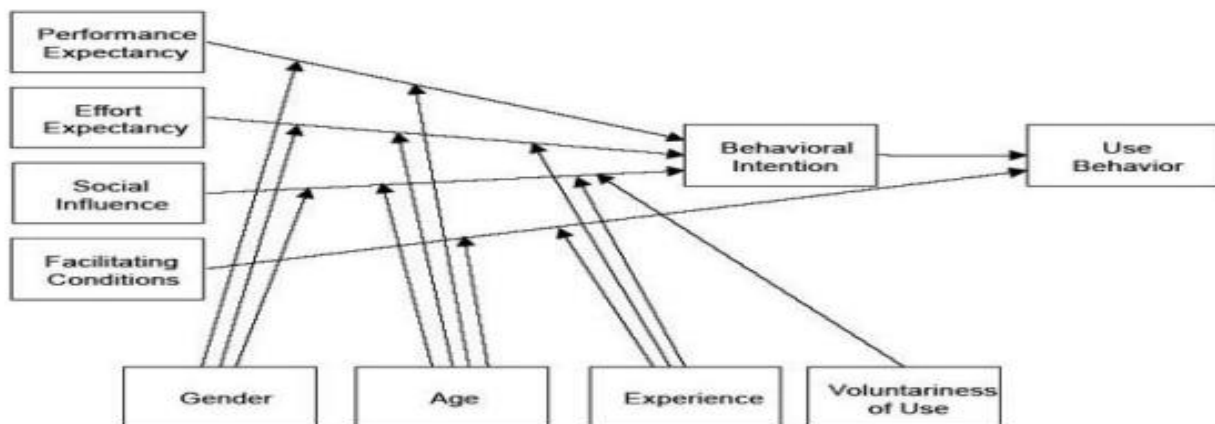
Venkatesh and Davis (2000) study concluded that PU and PEOU have an immediate influence on users' actions. They further developed TAM 2 theory which proposes that alignment of the outcomes of executing an action and key work related targets highly contributes to how users think about the utility of a system. Davis, Bagozzi and Warshaw (1989) in their study contrasted TAM with Theory of Reasoned Action. They merged the two theories, resulting in PU, PEOU and behaviour intention being major determinants of acceptance of new technology. This demonstrates that for purposes of research, TAM is not difficult to employ on diverse settings (Lai, 2017). Critics of TAM state that it does not take into account social influence, and this limits its applicability beyond the work environment. Other critics state that since inherent motivations are not taken into account, TAM may be difficult to apply where users' adoption of a system is to enable fulfillment of emotive needs. Based on multiple research conducted to evaluate it, TAM model has been found to be a popular foundation for forecasting the uptake of information technology (Paul, John and Pierre,2003). It is therefore used in many settings when the response of users to new information technology is being analyzed. Based on this theory, a positive relationship is predicted between mobile money services and behaviour of savings since

individual small business owners are predicted to find mobile services easy to understand and useful in assisting them accumulate funds.

2.2.3 Unified Theory of Acceptance and Use of Technology

Advanced by Venkatesh et al. (2003), it offers an explanation of how the intentions at the individual level on technology use and how the individual differences may drive the use of technologies. It takes up the most important aspects of older theories on embracing and employment of technology. It postulates that although factors like PEOU and PU shape and predict how individuals adopt and use some forms of technology, there however exists some variations in terms of their age, experiences, and the gender of the individuals. This theory is as summarized in Figure 2.2.

Figure 0.2: Unified Theory of Acceptance and Use of Technology



Source: Venkatesh et al (2003)

Table 0.1: Definitions of Constructs of the UTAUT Model

Constructs	Definition
Performance Expectancy	The delivery of satisfaction and improving the user's achievements.
Effort Expectancy	The user's presumption about the simplicity of operating a system.
Social influence	Effect of others on the user to commence and carry on the utilization of a system.
Facilitating Conditions	Institutional and technological facilities underpin the utilization of a system.
Behavioral intention	The user's desire to carry out a plan of action and the resolve concerning utilizing a given system.

Source: Momani (2020)

Supporters of the model such as AbuShanab and Person (2007) who used the model in their review of the acceptance of internet banking by customers in Jordan, concluded that behavioural intention was materially influenced by Effort expectancy, Performance expectancy and Social influence. Im, Hong and Kang (2011) found UTAUT to be the most useful model in examining the impact culture had on the model's constructs. The theory has been criticized by a number of scholars including Vanraaji and Schepers (2008) who shared that it did not have adequate information to give the relevant results and thus may not necessarily give correct information. Bagozzi (2007) criticized the theory as lacking clarity since it is supported by many variables that only complicates and confuse its applicability. Mobile money services have been useful in bringing financial services to previously low-income individuals who have been excluded from mainstream financial services therefore a positive relationship between mobile money services and savings behaviour is expected based on UTAUT.

2.3 Determinants of savings Culture

Several factors played a role in determining the savings culture among a population. These determinants were discussed in detail below:

2.3.1 Level of Income

The spread of saving on income groups indicates an affirmative relationship between income and saving. Out of total savings, the biggest proportion is attributable to families that earn the highest (Lusardi and Browning (1996). Income is therefore positively related with savings as a result of availability of more income to save. In cases where income increases, savings will increase whilst savings will decrease if income decreases.

The Keynesian hypothesis argues that current consumption levels in the household depend on available income. Thus, when income levels rise, part of the gain is spent during times of unemployment or illness (Wamaitha, 2016). Marginal consumption decreases with an increase in income leading to increased saving capacity. If an individual has attained a way of life and his or her disposable income falls, he or she will not cut current consumption but will spend more from the extra cash to the point of de-sparing and de-investing, in an attempt to recoup his previous consumption level.

2.3.2 Precautionary Motive

People who believe they are in danger of losing their jobs save more than those who believe their jobs are secure. This is because they believe they can rely on their savings if they lose their job while waiting to get back on their feet. As a result, the informal sector has more savings than the

formal sector. The pure forced-saving effect diminishes personal saving, whereas the forced-saving effect continually governs the risk-reduction impact, suggesting that people feel safe and cautious impulses are removed from them when social security is introduced.

Studies into how Kenyan households earn, save and spend their money showed that low-income individuals in Kenya face a combination of low income and high levels of uncertainty on their ability to generate income and their spending needs. Income fluctuated 55% and consumption fluctuated 43% from month to month. Therefore different financial devices are used to save. Alongside mobile money, banks are used for safekeeping with ROSCAS and ASCAS being used to accumulate lumpsums for large expenditure (Financial Sector Deepening, Digital Divide Data and Bankable Frontier Associates, 2014).

2.3.3 Convenience

Saving through mobile money is perceived to be more convenient as it is available to the registered customers at any time (Ryder, 2014). Mobile money services are also flexible as it allows the users to save even smaller amounts of money at their convenience (Mwangi, 2017). Banks are out of reach for poor people in Kenya where World Bank indicates there are 4.65 commercial bank branches and 7.69 automated teller machines per 100,000 adults. They have queues, limited working hours and complicated processes. Convenience is critical in promoting savings through mobile financial services by ensuring savings can be done as soon as income is received and providing quick access to funds when required.

Customers are motivated to save when charges of each transaction are simple, understood, and commensurate with the service being rendered. (Goss et al. 2011). Bank fees are usually difficult

to understand and there are some fees not linked to transactions such as account opening fees, statement inquiry and minimum balance requirements. Savings groups have no membership charges and no savings or borrowing charges. Interest rates for loans are agreed upon by the group. Even though loans advanced are charged high interest rates, the members have the incentive to borrow since this is distributed to individual members as interest for their deposits resulting in high returns for savers. Account maintenance charges are minimal since they relate to the funds held in the Bank by the group and when split out amongst group members they are not significant, and these factors contribute to their popularity.

2.3.4 Liquidity

Low-income individuals require financial products that provide different levels of liquidity to enable them meet the competing priorities of having sufficient liquidity to meet day to day needs and emergencies versus less liquid funds held for investment purposes. Research shows poor people hold more assets than liabilities, however majority of this is channeled into investments as compared to liquid assets. To help cater for emergencies, low-income individuals keep some liquid savings but also keep lines of credit open by maintaining relationships that might help provide funds when needed. Savings are intentionally held in devices that enable accumulation of lumpsums to invest in growing their businesses, improving their homes, and paying for school fees and that discourage disuse of the funds. (Financial Sector Deepening et al. 2014).

Formal institutions offer different products with varying liquidity levels such as transactional accounts where cash can easily be deposited and withdrawn and target savings/fixed deposit accounts where the depositor cannot withdraw cash without incurring penalty with different

levels of maturity with as low as 1 month and as high as one year. Mobile based saving products such as M-shwari offer a lock savings account, that allows customers to save for a defined purpose and for a specified amount of time. This offers discipline since customers can set longer maturity dates to avoid misuse of funds. Savings groups require members to place a deposit at each meeting and minimum contribution per member in each meeting is fixed with fines for not making contributions (Goss et al. 2011). The group meets regularly, for instance weekly or monthly and access to funds is limited in between meetings.

2.3.5 Reliability

Savings products need to be reliable, safe and provide privacy. The CBK regulates the formal financial institutions in Kenya via prudential rules to increase public confidence. Statistics from the CBK show that as of March 2014, the mobile money customer base stood at 12 million users with 30 million transactions through mobile money on a daily basis (CBK, 2017). Funds saved in mobile money accounts by customers are held in trust by mobile operators and thus pooled into a commercial bank account that is subject to prudential regulations, thus subjected to the same risk level as that of banks.

Mobile money services are regulated by the CBK to ensure tariffs and charges are fair based on the nature of service being offered and that the product designs remain customer centric. Since transactions charges are both publicly available and displayed electronically prior to conducting each transaction, customers can verify that the mobile services are reliable. Mobile agents explain how the products work and support customers with challenges encountered.

Furthermore, mobile money offers the users with privacy as they save their money unlike when they will have to physically visit the agent network.

Benefits of saving are expected to be visible and immediate. Money put in a ROSCA is instantly tasked by lending it to other members who can use this to grow their business (Financial Sector Deepening et al. 2014). Customers who are not blacklisted creditors are assigned a credit limit and are able to take out loans in M-shwari based on their assigned limits. In savings groups, saved balances are typically annually returned to members who immediately see the benefits of their savings. They however meet periodically, do not offer consistent services compared to formal institutions, are not connected to each other and this limits the nature of services members can access (Goss et al. 2011).

2.4 Empirical Literature Review

Osore (2015) conducted a study on the effect of mobile services on the savings patterns of fishing communities in Mbita division. The study was informed by the Life Cycle Theory of saving whereby precautionary motive drives individuals to save to cover for unforeseen events in future whilst improvement motive drives individuals to save in order to enjoy a lifestyle that is gradually improving such as short-term savings for consumer durables and longer-term savings for the education of dependents. In total, 80 participants were sampled out and covered by the inquiry from a total of 340 fishing households that had been targeted. Descriptive statistics were used to summarize relationships in the form of frequency tables and cross-tabulation. Mobile financial services in fishing villages increased access to formal financial services. Fishing villages had saved substantial amounts of their weekly income by using a combination of

traditional and advanced means of asset accumulation such as purchases of livestock, SACCOs, Micro-Finance Institutions, savings clubs and banks. Those who save on mobile services saved on M-Shwari and their M-pesa accounts and transfer daily revenue from their phones to banks or SACCOs. This objective of this study was broad resulting in a greater understanding of the savings behaviour of low-income households.

Ng'ang'a (2013) studied mobile banking and the savings culture using a case for inhabitants of Molo. Models of branchless banking included the Bank-led model whereby mobile operators and retail outlets are agents who aid in provision of banking services to end customers. In the non-bank model, consumers neither have to interact with a bank nor have to keep an account because either a mobile service company or a pre-payment card issuer is involved with retail agents acting as customer contact points. In total, 300 participants were sampled out and covered by the inquiry from a total of 542,103 residents of Molo town that had been targeted. The study examined the effect of mobile banking on saving culture among individuals living in Molo using multiple regression model. Based on the opinions of participants from first-hand sources, the connection between mobile banking and the saving culture has been demonstrated to be direct and important and improving enabling mobile bank customers to perform banking services at all times and at all places.

The connection between mobile and micro and small business savings was studied by Wamaitha in Gikomba on the Nairobi City County market in Kenya (2016). The research was influenced by the idea of innovation diffusion, which suggested that the use of mobile banking may expand formal banking to the unbanked population. TAM was used to demonstrate that a technological system affects a user's purpose and perceptions of its functionality or ease of use. Out of 1330

micro- and small enterprises licensed by the Nairobi County Council Licensing Department in the Nairobi Market, 133 had been sampled. Correlation analysis in the research was utilized. Deemed legitimacy and perceived financial costs were more important than perceived utility and perceived simplicity of use on customers' desire to acquire and utilize mobile banking services. Mobile banking features significantly impacted the mobile savings of respondents in terms of savings convenience. There was reduced spare income for respondents because they were involved in mobile banking despite improved revenue, due to savings.

A study was conducted by Lema (2017) with a focus on the key factors that inform the unbanked population to utilize mobile financial services. The study was largely informed by the technology acceptance (TAM) model theory. It was that perceived usefulness and costs and social influence were seen to be the key factors determining the way people adopt the use of mobile financial services. The factors that inform consumers in Tanzania to adopt mobile financial services were analyzed by Abdinoor and Mbamba (2017) as guided by the TAM theory. It was shown that the level of awareness at the individual level, perceptions on the usefulness and the benefits do determine the adoption of mobile financial services. Cost perceptions were reversely associated with the usage of mobile financial services. Fanta, Mutsonziwa, Goosen, Emanuel and Kettles (2016) examined the function of mobile money and its financial inclusion in the context of Madagascar. The study noted that popularity of the mobile money platforms would influence their use. The study further noted that low level of information and low education all limit the knowledge concerning mobile money. To this point, the study suggested the need for financial education programs for people to have an understanding of the mobile financial services.

Research done by John (2016) focused mainly on evaluating the major variables that influence the uptake of mobile money as a payment platform by use of evidence from Tanzania. The main variables mentioned in the research include knowledge of mobile money services, access to mobile cash services, ease of use of platforms, transaction prices and security attitudes of individuals utilizing Ethiopia as a referral. This research was based on the diffusion of innovation hypothesis, and its related characteristics were evaluated. It was found that service quality, trialability and trust all have a direct connection with people's inclination to utilize mobile money services. The choice to embrace technologies such as mobile money was mostly influenced by the mindset of different users. The study carried out in Ghana by Mpiani (2017) focused on mobile money and the intention of customers to make savings. A total of 350 registered customers were targeted with the views being gathered as supported by the questionnaire. It was shown that deposits and withdrawals are key issues of mobile money services that increase the intention of customers to make savings. Focusing on Sub-Saharan Africa, Ruh (2017) studied mobile money and the ability to save. The inquiry relied on the survey carried out in 2015 in Tanzania, Kenya and Uganda. The study noted existence of the link between reliability and convenience of mobile money and the ability to save among the end users.

2.5 Summary of Literature and Gaps

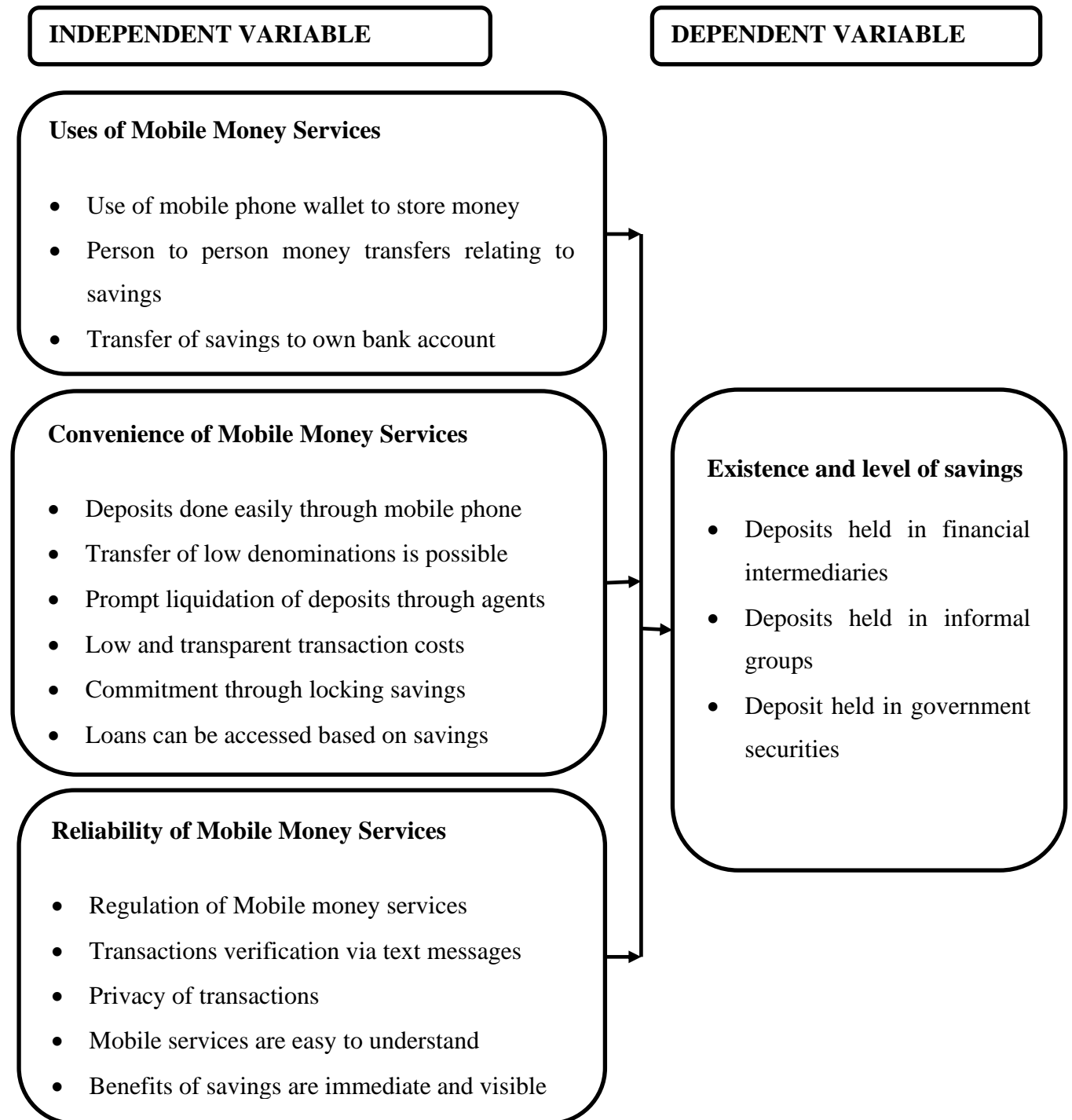
This section examined the literature on variables influencing the usage of mobile money. However, the studies reviewed create some gaps that the present study will seek to fill. Some of the studies were done in other different countries other than Kenya. For instance, the study by Chogo and Sedoyeka (2014) was conducted in Tanzania and not in Kenya. The study conducted

by Mensah et al. (2020) largely focused on Ghana. This leads to the contextual gaps that will be filled in the current research.

Some of the examined researches were guided conceptually by the technological adoption model and the diffusion on innovation theory. For instance, Lema (2017), Omol, Abeka and Wauyo (2016) and Abdinoor and Mbamba (2017) were all informed by TAM theory. On the other hand, the study by John (2016) was majorly informed by the diffusion of innovation theory. These studies therefore were empirical in nature as they were only limited to testing of these theories. The current research will take some of the characteristics of these theories to look at whether they affect the usage of mobile money.

2.6 Conceptual Framework

Figure 0.3: Conceptual framework of the study



CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter deals with study design, population goal, sample size, data collecting and analysis.

3.2 Research Design

The research used descriptive case studies to identify the variables influencing mobile money savings. The case study was used since the study focused on Kibera Slum and this allowed the study to get in-depth understanding of mobile money and the saving patterns of the low-income people in Kibera slums. The descriptive design ensured that relevant data is collected and summarized on use of mobile money to save.

3.3 Target Population

The study targeted mobile money subscribers of M-pesa, Airtel Money, T-cash and Equitel in Nairobi County. The statistics from CAK (2021) indicate that there were about 750 users of mobile money services within Toi market and its surrounding within the larger Kibera slum. Thus, the study targeted all these users' mobile money as summarized in Table 3.1.

Table 0.1: Target Population

Mobile Money Platform	Registered Active Users
M-pesa	450
Airtel Money	150
T-cash	70
Equitel	80
Total	750

Source: CAK (2021)

3.4 Sample Size

Burmeister and Aitken (2012) recommend a sample of more than 100 respondents for social research. According to Mugenda and Mugenda (2003) a representative sample of 10-30% is acceptable in descriptive research. Hence, a sample size of 100 which is 13% of the target population was used for this study. The research used stratified random samples to choose the 100 respondents as shown in Table 3.2.

Table 0.2: Sample Size

Mobile Money Platform	Population	Sample Proportion (%)	Sample Size
M-pesa	450	$450/750*100=60\%$	$60%*100=60$
Airtel Money	150	$150/750*100=20\%$	$20%*100=20$
T-cash	70	$70/750*100=9.3\%$	$9.3%*100=9$
Equitel	80	$80/750*100=10.7\%$	$10.7%*100=11$
Total	750		100

Source: CAK (2021)

3.5 Data Collection

The research gathered primary information via a questionnaire split into three parts. Questionnaire was used because it allowed the study to gather a substantial amount of information from the respondents over a limited time period. Section A of the was general information of the respondents and was used to capture their demographics. Section B covered information on saving culture of respondents and an interval scale was used to capture level of

saving. Section C had information on the indicators of mobile services that are expected to influence their savings behaviour and a likert scale was used to measure respondents' behaviour and attitudes where 5 means a strong affirmative response whilst 1 meant a strong negative response.

3.6 Data Analysis

The gathered material was cleansed using excel before being transferred to the SPSS analysis tool. Descriptive statistics on frequencies and percentages were used for this research. Furthermore, the research utilized the following regression analysis using the model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Y = Average amount of savings

X₁ = Usage of mobile money services

X₂ = Convenience of mobile money services

X₃ = Reliability of mobile money services

β₀ = Constant term

β_{1,2,3} = beta coefficients of the independent variables

e = Standard error

The model helped to comprehend the dependent variable value that changes if any of the independent variables vary, while other independent variables remain constant. It helped determine which factors are connected to the variable and evaluate the forms of this relationship. SPSS was utilized in analyzing quantitative data which was displayed as tables. To test the significance of the regression model, F-statistics were used. The calculated F-statics were compared to the critical statistics. F-calculated that is greater than the F-critical implies that the model fits the data. T-test was used to determine importance of each individual independent variable. The p values of each independent variable was compared with 0.05; and if the p values are less than 0.05, it indicated statistically significant association between the variables of the study; else the relationship was unimportant.

Table 0.3: Summary of methodologies to be adopted in the study

Variable	Indicators	Scale	Data Collection	Data Analysis
Mobile money services	Usage of mobile money services	Nominal scale	Questionnaire, Section C	Descriptive Statistics
	Convenience of mobile money services	Likert scale	Questionnaire, Section C	Correlation, regression analysis
	Reliability of mobile money services	Likert scale	Questionnaire, Section C	Correlation, regression analysis
Saving culture	Average monthly savings	Interval scale	Questionnaire Section B	Descriptive Statistics

Source: Author (2021)

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter discusses the interpretation and presentation of the findings obtained from the field. The chapter presents the background information of the respondents, findings of the analysis based on the objectives of the study. The study aimed to assess how mobile money services affect the culture of saving among individual small business owners in Toi Market, Nairobi County.

4.1.1 Response Rate

Table 4. 4: Response Rate

	Questionnaires Administered	Questionnaires filled & returned	Percentage
Respondents	100	93	93.0

From the data collection, from the 100 questionnaires administered, 93 of them were duly filled and returned. This gave a response rate of 93%. This response rate is excellent as Mugenda and Mugenda (2003) indicates that a response rate of 70% and above as excellent. Based on the assertion, the returned questionnaires are enough to make relevant conclusions on the objectives of the study.

4.2 Background Information

The researcher sought to describe the respondents based on their demographics. They related to gender, age, education, and source of income.

Table 4.5: Gender of the respondents

	Frequency	Percent
Male	45	48.4
Female	48	51.6
Total	93	100.0

The study sought to establish the gender of the respondents. According to the findings, 51.6% were female while 48.4% were male. This means that majority of the individual small business owners in Toi Market are females and there is thus gender disparity in financial access due to this.

Table 4.6: Age of the respondents

Years	Frequency	Percent
18-30	59	63.4
31-40	25	26.9
41-50	9	9.7
Total	93	100.0

The research sought to know the age of the respondents. According to the research 63.4% are aged between 18-30 while 26.9% were aged between 31-40 years and 9.7% were aged between 41-50. This implies that young people are the majority of the individual small business owners in Toi market.

Table 4.7: Level of Education

	Frequency	Percent
No formal education	1	1.1
Primary school education	13	14.0
Secondary school education	73	78.5
College Education	6	6.5
Total	93	100.0

According to the research, 78.5% of the respondents had secondary school education while 14% of the respondents had primary school education. However, 6.5% indicated college education with 1.1% having no formal education. That means that small business owners in Toi market had at least secondary school education which would enable them to use mobile money services and make savings from their businesses.

Table 4.8: Source of Income

		Frequency	Percent
Own business	Yes	90	96.8
	No	3	3.2
	Total	93	100.0
Casual work	Yes	14	15.1
	No	79	84.9
	Total	93	100.0
Employed	Yes	13	14.0
	No	80	86.0
	Total	93	100.0
Agriculture	Yes	2	2.2
	No	91	97.8
	Total	93	100.0
Unemployed	Yes	1	1.1
	No	92	98.9
	Total	93	100.0

Diverse income sources result in multiple streams of income which would boost potential disposable income available for saving. 96.8% of respondents indicated that they got income from their own businesses. 14% got income from casual work whilst 13% also have employment income. Agriculture was the least popular source of income whilst those who were unemployed largely lacked a source of income. This means majority of the small business owners in Toi

market sourced their income from their own businesses. The relatively low level of diversification may indicate that the business income is considered reliable by respondents.

Table 4.9: Average Monthly Income

	Frequency	Percent
Less than 500	2	2.2
501-2,000	5	5.4
2,001-4,000	10	10.8
4,001-10,000	32	34.4
10,001-20,000	25	26.9
Over 20,000	19	20.4
Total	93	100.0

The study sought to establish monthly income among the individual small business owners in Toi market. The findings show that 34.4% of the respondents had an income of between 4001-10,000, 26.9% had an income of between 10,001-20,000, 20.4% of the respondent had an income of over 20,000 and 10.8% of the respondent had an income of between 2,001-4,000. however, 5.4% had an income of 501-2000 and 2.2% had an income of less than 500. This shows that over 50% of the individual small business owners in Toi market had a monthly income below 10,000 shillings. Less than 18% of respondents have income below one dollar a day and thus majority would have income available for savings.

4.3 Saving Culture

This section looks at the saving culture among individual small business owners in Toi market.

Table 4.10: Whether had any savings

	Frequency	Percent
Yes	87	93.5
No	6	6.5
Total	93	100.0

The study sought to establish whether the small business owners in Toi market had any savings currently. According to the study, 93.5% of respondents had savings while 6.5% had no savings. This indicates that majority of the individual small business owners in Toi market currently actively practice asset accumulation in various devices.

The respondents were asked whether as individuals they currently had funds saved in various means. From the findings under Table 4.8 below, majority of respondents (78%) had savings in their mobile money accounts demonstrating that this savings instrument was by far very popular amongst the respondents. This was followed by savings groups where 37.4% of respondents held savings, thus respondents utilized both formal and informal financial services. Mobile services enabled respondents to deposit low value, irregular income and accumulate savings in mobile money accounts as and when the funds have been received. Saving groups enabled respondents to accumulate lumpsums which could be used for long term objectives such as growing their businesses.

Table 4.11: Means of Savings

I have savings in		Frequency	Percent
Bank or microfinance bank	Yes	28	30.8
	No	63	69.2
	Total	91	100.0
Mobile money account	Yes	71	78.0
	No	20	22.0
	Total	91	100.0
SACCO	Yes	13	14.3
	No	78	85.7
	Total	91	100.0
Savings group	Yes	34	37.4
	No	57	62.6
	Total	91	100.0
Insurance (including NHIF)	Yes	14	15.4
	No	77	84.6
	Total	91	100.0
Cash	Yes	15	16.5
	No	76	83.5
	Total	91	100.0
Government treasury bonds	No	91	100.0
Other physical items	Yes	5	5.5
	No	86	94.5
	Total	91	100.0

Table 4.12: Amount saved in a Month in Kenya Shillings

	Frequency	Percent
Less than 500	10	10.8
500-1000	19	20.4
1,001-3,000	27	29.0
3,001-5,000	21	22.6
Above 5,000	16	17.2
Total	93	100.0

Regarding the average amount saved in a month by the individual small business owners in Toi market, 29% of the small business owners saved between Ksh 1,000 and Ksh 3,000 on a monthly basis. Over 60% of respondents had monthly savings of more than Ksh. 3,000 demonstrating the active saving of business income received resulted in majority of individual small business owners saving more than one dollar a day putting them above the international poverty line. Given majority of this was saved in mobile money, this shows that respondents find mobile money useful in helping them to make savings as and when the cash is received.

4.4 Mobile Money Services

The respondents were asked to indicate whether they owned a mobile phone. From the findings under Table 4.10 below, a majority of 98.9% owned a mobile phone while 1.1% indicated that they owned no phone. This indicates that majority of the small business owners in Toi market own mobile phones. From the findings, all the respondents who had a phone used mobile money services.

Table 4.13: Whether respondents owned a mobile phone

	Frequency	Percent
Yes	92	98.9
No	1	1.1
Total	93	100.0

Table 4.14: Mobile Money Services Registered In

		Frequency	Percent
Safaricom M-pesa	Yes	90	96.8
	No	3	3.2
	Total	93	100.0
Airtel Money	Yes	13	14
	No	80	86
	Total	93	100.0
Orange Money	No	93	100.0
Telkom T-Cash	No	93	100.0
Mobile money account linked to my bank account	Yes	16	17.2
	No	76	82.8
	Total	92	100.0

The study sought to establish the specific mobile money services the small business owners in Toi market were registered in. From the findings, 96.8% which is the majority of respondents indicated that they were registered in Safaricom Mpesa. This was followed by 14.1% who had

registered in Airtel money. 17.4% had their mobile money accounts linked to their bank accounts. None was registered in orange money and Telkom cash.

Table 4.15: Savings through Mobile Money Services

		Frequency	Percent
Deposit money in my mobile phone wallet and store it there	Yes	81	87.1
	No	12	12.9
	Total	93	100.0
Transfer money to my savings group	Yes	29	31.2
	No	64	68.8
	Total	93	100.0
Transfer savings to my bank/microfinance account	Yes	17	18.3
	No	76	81.7
	Total	93	100.0
Transfer savings to my SACCO account	Yes	10	10.8
	No	83	89.2
	Total	93	100.0
Transfer funds to purchase government treasury bonds	No	93	100.0
Pay for insurance e.g. Life insurance NHIF	Yes	12	12.9
	No	81	87.1
	Total	93	100.0

The respondents were asked whether they used various means to make savings through use of Mobile money services. According to the findings, 87.1% deposited money in their mobile

money wallet and stored it there. This shows that respondents prefer to convert business income received in cash into electronic value that can be stored in their mobile phone wallet. On the other hand, 31.2% transferred money to their savings group with 18.3% transferring savings to their bank/microfinance accounts demonstrating that mobile services were used to facilitate savings in other devices. None of the respondents transferred funds to purchase government securities demonstrating a possible need to redesign government securities issues traded via mobile money to suit broader income groups.

Table 4.16: Convenient to Use for Making Savings

	N	Minimum	Maximum	Mean	Std. Deviation
Deposits are easily done through a mobile phone	93	2	5	4.5484	.61708
It is possible to make savings in small denominations	93	1.00	5.00	4.3763	.73594
Deposits can be easily withdrawn from an agent	93	2.00	5.00	4.6129	.57165
Transaction charges of making transfers are low	93	1.00	5.00	3.7419	1.06223
Transaction charges of making transfers are easy to understand	93	1.00	5.00	3.9892	1.01612

Based on the features of mobile money services that made it convenient to use for making savings, the respondents were asked to indicate the extent to which these characteristics influenced their savings. From the findings the respondents strongly agreed that deposits could

be easily withdrawn from agents and that they could easily make deposits through a mobile phone as shown by the mean of 4.6129 and 4.5484 respectively. The widespread availability of mobile service agents and the simple features of mobile money services that make it easy to convert cash to electronic value had a greater impact on respondents' savings behavior compared to the level and ease of understanding transaction charges. The standard deviations support the mean as the standard deviation is less than 2 (Julious, 2005).

Table 4.17: Reliability of Mobile Savings

	N	Minimum	Maximum	Mean	Std. Deviation
Transactions are safe since mobile money services are regulated	93	1.00	5.00	4.1613	.97010
All transactions can be verified through text messages	93	3.00	5.00	4.5914	.51576
I can easily understand how to use mobile transfer services	93	2.00	5.00	4.5054	.61897
I can easily understand how to use mobile savings services	93	3.00	5.00	4.3978	.62797
Mobile services are present 24 hours	93	1.00	5.00	4.2903	.97335

On the agreement on statements relating to reliability of mobile wallet, the respondents strongly agreed that transactions could be verified through text messages; and that they could easily

understand how to use mobile transfer services as shown by mean of 4.5914 and 4.5054 respectively. Respondents place a high value on the power given to them by mobile money services to independently track their savings and this impacts on their ability to save. Respondents also agreed that they were able to use mobile money to save since they could easily understand how to save on mobile money and that this service was available at any place and time. The standard deviations support the mean as the standard deviation is less than 2 (Julious, 2005).

Table 4.18: Saving of funds in Mobile Wallets

	N	Minimum	Maximum	Mean	Std. Deviation
I can save for a specific goal	93	1.00	5.00	4.1398	1.06925
Avoids unnecessary expenditure	93	1.00	5.00	3.9892	1.10822
I can quickly access a mobile loan because of my savings	93	1.00	5.00	3.7957	1.09900
I have no worry of someone getting to know deposits held in my mobile wallet	93	1.00	5.00	3.8387	1.23614
When saving on my mobile wallet, the benefit of earning interest is evident and immediate	93	1.00	5.00	3.6237	1.21507

The study sought to establish the extent of agreement on several statements on saving of funds in mobile wallets. From the results, the respondents said they could save for a specific goal as shown by a mean of 4.1398 and that saving funds in mobile wallets helped them avoid unnecessary expenditure as shown by mean of 3.9892. Privacy and interest income offered by mobile money seemed to have a less impact on savings with a mean of 3.8387 and 3.6237 respectively. The standard deviations support the mean as they are less than 2 (Julious, 2005).

4.5 Regression Analysis

The relationship between the average amount saved and the independent variables usage of mobile money services, convenience of mobile money services and reliability of mobile money services was obtained by regression analysis using SPSS.

Table 4.19: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.688 ^a	.473	.455	1.09768

a. Predictors: (Constant), Usage of mobile money services, Convenience of mobile money services, Reliability of mobile money services.

From the model summary, the correlation coefficient (R) was 0.688. This indicates that the predictor variables have a strong relationship with savings among small business owners in Toi Market. Therefore individual small business owners in Toi market concur that mobile money services have had an impact on their savings behaviour. The model had a coefficient of determination (R^2) of 0.473. This implied that 47.3% of the variations on amount of savings

among small business owners in Toi Market is accounted by use of mobile money services, convenience of mobile money services and reliability of mobile money services.

Table 4.20: Average amount of savings and Mobile services Analysis of Variance^b

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	27.043	3	9.014	7.481	.000 ^a
Residual	107.236	89	1.205		
Total	134.280	92			

a. Predictors: (Constant), Reliability of mobile money services, Usage of mobile money services, Convenience of mobile money services

b. Dependent Variable: Average amount of savings

From the ANOVA statics, the study established the regression model had a significance level of 0.00% which is an indication that the data was ideal for making a conclusion on the population parameters as the value of significance (p-value) was less than 5%. This is an indication that use of mobile money services, convenience of mobile money services and reliability of mobile money services all have a significant effect on amount of savings among individual small business owners in Toi market. The calculated value (7.481) was greater than the critical value (2.707). This shows that the model fits the data.

Table 4.21: Average amount of savings and mobile services Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-10.745	1.789		-6.005	.000
	Usage of mobile money services	.583	.133	.428	4.385	.000
	Convenience of mobile money services	.409	.163	.406	2.509	.014
	Reliability of mobile money services	.268	.082	.259	3.267	.002

a. Dependent Variable: Average amount of savings

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

$$Y = -10.745 + 0.583X_1 + 0.409X_2 + 0.268X_3$$

From the fitted equation, holding Usage of mobile money services, Convenience of mobile money services and Reliability of mobile money services constant the amount of savings among small business owners in Toi market would be -10.745. From the equation, a unit increase in usage of mobile money services would increase the average amount of savings by 0.583 with a significance value of 0.000. On the other hand, a unit increase in convenience of mobile money services (X2) would increase the average amount of savings by 0.409 with a significance value

of 0.014. Finally, a unit increase in reliability of mobile money services (X3) would increase the average amount of savings by 0.268 with a significance value of 0.002. This indicates that usage of mobile money services, convenience of mobile money services and reliability of mobile money services have a positive and significant effect on the amount of savings among individual small business owners in Toi market.

4.6 Discussion of Findings

Our findings show that users mainly hold savings in their mobile money accounts. This concurs with Osore's (2015) study on the impact of mobile money services on the savings pattern of fishermen in Mbita Division which found that mobile money services were a strong replacement for informal means of saving such as physical cash. Our findings confirm that Mobile money services have been widely adopted and in terms of their relationship to savings, they are used to store value to most users of the service. Moreover, majority of respondents who held savings in other devices such as savings groups, bank accounts, SACCOs and insurance also used mobile services to a great extent to transfer savings to those devices. This supports TAM theory since users find that mobile services enhance their ability to save and are perceived to be useful. This was also in line with Osore's (2015) study which showed that mobile money services complemented traditional financial institutions such as banks by facilitating money transfer to and from the accounts of fishermen, thus increasing level of deposits held. From the regression analysis, increase in usage of mobile money services would thus increase the average amount of savings. This may be possible since once income is received, mobile services easily avail to users the option of saving money in their mobile wallet as opposed to consumption of the funds.

Based on the features of mobile money services that made it convenient to use for making savings, the respondents agreed that deposits could be easily withdrawn from agents. They further agreed that it was possible to make savings in small denominations; and that transaction charges of making transfers were easy to understand. They finally agreed that transaction charges of making transfers were low. The ease with which deposits can be withdrawn from agents and the simplicity of the design of mobile money services that make is easy for users to understand how to make deposits make mobile services convenient for use in making savings. This is in line with TAM theory since users find it easy to make savings through mobile services due to the convenience attribute. Developers of new savings products, such as government securities traded via mobile money should thus focus on making the products convenient to use by mobile since a unit's increase in convenience of the service would result in 0.409 increase in savings. Agents can be used to explain to users how these products work and assist them make their first transactions, whilst responding to customer queries to drive uptake of these innovative products. The process of setting up an account as well as placement and withdrawal of deposits should also be simplified to be understandable by users. Transaction charges of mobile services are a less important to users in making savings.

Reliability attributes of mobile services are all important factors that impact on savings with all having a mean score greater than 4. The ability to verify mobile transactions through text messages was the most important followed by the ease of understanding mobile transfer and savings services. Since an increase in a unit of reliability attributes would result in an increase in savings by 0.268, reliability of mobile services would impact level of savings, however to a lesser extent than the use and convenience of mobile services. Developers of savings products

would however still need to ensure the services are reliable for users to adopt these service in the first place.

With regards statements on saving funds in a mobile wallet, users agreed that they can save for a specific goal, with the statement having a mean of 4.1. This was followed closely by the statement that unnecessary expenditure was avoided, with a mean of 4. Privacy and the benefits of being able to access mobile service loans based on savings held in mobile wallet were less important with a mean of 3.8. These findings indicate that users mainly save on mobile phones because its easy to make the savings and that the services are trustworthy such that saved funds cannot be lost. Users are also able to also save for a specific goal which slightly contradicts Osore's (2015) study which found that mobile money services have nevertheless repercussions as a safeguards platform because savers could quickly access their funds and reverse previous savings patterns such as the usage of savings clubs. Given that majority of respondents use mobile money services to save as compared to other savings devices, this shows that the services meet their saving needs including the discipline aspects since they can lock in savings.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of the findings, conclusions, recommendations, and areas for further research.

5.2 Summary of Findings

The study aimed to assess how mobile money services affect the culture of saving among individual small business owners in Toi Market, Nairobi County. The study found a strong positive relationship between average savings and mobile money services with a correlation coefficient of 0.688. The coefficient of determination was 0.473 which means that 47.3% of variation in savings among small business owners in Toi Market could be explained by interaction with mobile money services. Thus, the study concluded that mobile money services have an impact on saving culture. Regression of average savings against the independent variables found that average savings are dependent on use of mobile money services, convenience of mobile money services and reliability of mobile money services.

The findings highlight the impact mobile money services have had on savings since over 78% of individual small business owners in Toi market placed their savings on their mobile wallets. Funds were also transferred to other saving devices using mobile money services showing that the services are an important part of placement of savings. A key driver of this impact was the convenience mobile services offer through widespread availability of agents that enabled

conversion of cash to electronic value and the fact that mobile money services are easy to use. Reliability was also important but had a lesser impact on average savings compared to use and convenience of mobile services. The income of individual small business owners comes in small and irregular streams and mobile money services' ability to accumulate a large volume of low value transactions in small denominations results in it being the most efficient way for them to accumulate savings.

Users of mobile services according to the study value the ease with which they can perform transactions compared to the transaction costs or how easy it is to understand these costs. Though funds can be liquidated easily, users can still save for specific goals and can avoid unnecessary spend. Hence by using mobile money services to make savings users can avoid consumption and still lock in savings by choosing to be disciplined despite it being easy to liquidate funds saved. The ability to access loans through mobile money services and the interest benefit of saving on mobile wallets also had a lesser impact on average savings. Privacy offered by mobile money services was important but also had a lesser impact on average savings of individual small business owners.

5.3 Conclusions

The study concludes that mobile money services have a strong and positive impact on saving culture. There is not only a high level of saving on mobile money accounts but also a high usage of mobile money services to place savings in other devices. There is therefore a strong case for developers of asset accumulation products such as savings, investment and insurance products to integrate the systems on which their products run with mobile money services. The study further

highlights the significant contribution mobile money services have had on the level of savings given the uptake of mobile money services has increased the level of saving thus the services have continued to increase financial deepening.

5.4 Recommendations for Policy and Practices

The study has highlighted the importance a broad network of agents played in facilitating individuals to make savings via mobile phones and it would be critical for developers of new mobile based asset accumulation products to consider involving agents as part and parcel of their product design. Agents not only enable conversion of cash to electronic value but would also explain how the service works and answer any questions users may have. The study shows that none of the respondents placed any savings on government security through use of mobile money services. It would be critical to research the roll out of the securities and consider the use of agents to drive up product uptake. Developers of insurance-based products should also consider the involvement of agents in the product design.

The ease of use of the product has been underscored by the study. It is thus critical that developers of asset accumulation products market test their products to ensure users can easily place deposits since this is a critical success factor. Developers should ensure customers are empowered as much as information by providing access to information on the transactions being carried out since users have indicated that the ability to verify transactions through text messages has had a positive impact on their savings.

Users have indicated that they can use mobile money services to save for specific goals but the mean of 4.1 is slightly below other attributes relating to usage and convenience of mobile money

services. This may indicate a need to develop products that enable longer term asset accumulation using mobile money services given how popular the services are among users. Majority of the users were below 30 years of age and this shows an opportunity to develop completely new mobile based products that enable users meet longer term objectives such having a retirement plan as well as insurance plans including for them and their families. This would be especially useful for individual small business owners who are self-employed and have no other retirement or insurance plans but still face the same challenges during old age as those who are employed. There is opportunity for development of a broad range of mobile based insurance plans for longer term needs such as education, illness, death and other shorter term needs such as health related needs. These could be developed to meet the needs of the unemployed with mobile money agents being involved in education of users regarding the products.

Ability to avoid unnecessary expenditure had a mean score of 3.9 indicating a potential for mobile service providers to either enhance existing savings products or develop new savings products that can enable users to better lock in savings. There is therefore an opportunity to inbuild discipline in the product design in order to assist users to not liquidate and consume more of the funds saved.

5.5 Limitations of the study

To a large extent, the study was successful. However, the scope and depth of the study was limited since the impact of the independent variables on the level of savings was only assessed as of the time of the study. It would be useful to conduct the study over a period of time in order to better assess impact of the independent variables on saving culture.

Mobile financial services that enable placement of savings in mobile wallets have been largely successful in Kenya. Few studies have been conducted both in Kenya and abroad on the impact of mobile money services on level of savings and this limited the amount of secondary data available on this topic.

The study was limited by the variables adopted. The study was also limited to assessing the impact of usage, convenience, and reliability attributes of mobile money services on level of savings which together contribute to 47.3% in the variation of savings. The study was limited to mobile money services and saving culture with other variables expected to give different outcomes. In order to obtain a bigger picture of other factors that impact on savings, it is important to conduct further studies as this will be necessary to understand whilst developing asset accumulation products.

The study was based on individual small business owners in Toi market. Involvement of other groups such as the employed may give a different outcome. The study was also limited by the primary data used in the research. The use of secondary or mixed data may give a different perspective or outcome.

5.6 Recommendations for future studies

The study was limited to assessing the impact of mobile money services on saving culture without including other variables affecting the level of savings. Further studies may be done to establish the effect of mobile money services on saving culture but including other variables that affect saving culture.

The study used amounts of deposits held by respondents as a measure of level of saving. Further studies can be done using other measures to quantify saving culture. The measures could for instance include level of assets held and this could be assessed against the level of liabilities held thus providing a balance sheet of respondents which would give a wholistic picture of the individual's saving culture.

The study was limited by the primary data used in the research. The use of secondary or mixed data may give a different perspective or outcome. Future studies should use secondary data for a similar study. The study was based on small business owners. This study recommends that future research involve customers and the employees for similar research. The study was done in Toi market. Other researchers need to undertake a similar study based on other markets in other counties for comparison of outcomes

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APPENDICES

Appendix I: Questionnaire

SECTION A: GENERAL INFORMATION

1. Gender

- a) Male []
- b) Female []

2. Age (years)

- a) 18-30 []
- b) 31-40 []
- c) 41-50 []
- d) Above 50 []

3. Level of education (*Please tick one*)

- a) No formal education []
- b) Primary school education []
- c) Secondary school education []
- d) College Education []
- e) Undergraduate Degree []
- f) Post graduate degree []
- g) Other (Specify).....

4. Source of income (*Tick appropriately, you may tick more than one*)

- a) Own business []
- b) Casual work []
- c) Employed []
- d) Agriculture []
- e) Unemployed []

5. Kindly indicate your average monthly income (*Please tick one*)

- a) Less than 500 []
- b) 501-2,000 []
- c) 2,001-4,000 []
- d) 4,001-10,000 []
- e) 10,001-20,000 []
- f) Over 20,000 []

SECTION B: SAVING CULTURE OF THE LOW INCOME INDIVIDUALS

6. Do you as an individual currently have any savings? (*Please tick one*)

- a) Yes []
- b) No []

7. If Yes to question 6 above do you as an individual currently have funds saved in any of the below means (*Tick appropriately, you may tick more than one*) ?

- c) I have savings in a bank or microfinance bank []
- d) I have savings in my mobile money account []
- e) I have savings in a SACCO []

- f) I have savings in a savings group
- g) I have savings in insurance (including NHIF)
- h) I have savings in cash
- i) I have savings in government treasury bonds
- j) I have savings in other physical items (specify).....

8. On average, how much do you save in a month in Kenya Shillings? *(Please tick one)*

- a) Less than 500
- b) 500-1000
- c) 1,001-3,000
- d) 3,001-5,000
- e) Above 5,000

SECTION C: MOBILE MONEY SERVICES

9. Do you own a mobile phone? *(Please tick one)*

- a) Yes
- b) No

10. Do you use mobile money services? *(Please tick one)*

- a) Yes
- b) No

11. In which of the below mobile money services are you registered? *(Tick appropriately, you may tick more than one)*

- a) Safaricom M-pesa

- b) Airtel Money
- c) Orange Money
- d) Telkom T-Cash
- e) Mobile money account linked to my bank account

12. Do you use the below means to make savings through use of Mobile money services? (*Tick appropriately, you may tick more than one*)

- a) Deposit money in my mobile phone wallet and store it there
- b) Transfer money to my savings group
- c) Transfer savings to my bank/microfinance account
- d) Transfer savings to my SACCO account
- e) Transfer funds to purchase government treasury bonds
- f) Pay for insurance e.g. Life insurance, NHIF

13. Below are some of the features of mobile money services that make it convenient to use for making savings. Please indicate the extent to which these characteristics influence your savings.

Key: (1) Strongly disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly agree

Statement	1	2	3	4	5
Deposits are easily done through a mobile phone					
It is possible to make savings in small denominations					
Deposits can be easily withdrawn from an agent					
Transaction charges of making transfers are low					
Transaction charges of making transfers are easy to understand					

14. Below are some of the features of mobile money services that make it reliable to use for making savings. Please indicate the extent to which these features influence your savings.

Key: (1) Strongly disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly agree

	1	2	3	4	5
Transactions are safe since mobile money services are regulated					
All transactions can be verified through text messages					
I can easily understand how to use mobile transfer services					
I can easily understand how to use mobile savings services					
Mobile services are present 24 hours					

15. Below are several statements on saving of funds in mobile wallets. Please indicate the extent to which these influence you to save in your mobile wallet.

Key: (1) Strongly disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly agree

	1	2	3	4	5
I can save for a specific goal					
Avoids unnecessary expenditure					
I can quickly access a mobile loan because of my savings					
I have no worry of someone getting to know deposits held in my mobile wallet					
When saving on my mobile wallet, the benefit of earning interest is evident and immediate					

THANKS FOR YOUR PARTICIPATION