

**MOBILE MONEY SERVICES AND THE SAVING BEHAVIOUR OF
FISHING COMMUNITIES: A STUDY OF SMALL SCALE
FISHERIES IN MBITA DIVISION OF HOMABAY COUNTY,
KENYA**

BY:

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DEDICATION

I dedicate this study to my son, Master Ivan Don Osore. May this work inspire you to understand that nothing can stop you from achieving the desires of your heart, as long as you submit to diligence and discipline.

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ABSTRACT

Access to formal financial services has been a challenge to low income earning people in Kenya. Mobile money services continue to prove its potential as alternative in providing financial access to both the banked and unbanked populace. This study sought to determine how mobile money services influence the saving behaviour of people who suffer exclusion from formal financial service; specifically the fishing community in Mbita Division in Kenya. The study addressed three research objectives; to find out the saving methods used by residents of the study area; second was to determine the general effects of mobile money services on access to formal financial services by people in Mbita Division; and finally was to determine the influence of mobile money services on saving behaviour of people in the study area.

The study adopted qualitative and quantitative research designs on the target population. Data was collected from a sample 80 households using questionnaires; further, interviews were held with seven key informants. The findings revealed that fishing communities used mobile money services for different purposes ranging from sending and receiving money, paying bills, saving money and buying airtime. Majority choose to save money using mobile money services as they were accessible, easy to use, reliable, secure, secretive, convenient and cheap (low charges). Further, findings indicated as well that mobile money services were more appropriate for saving small amounts of money, and have also improved their access to formal financial institutions.

The study recommends that in order to make gain of the milestones achieved with mobile money services thus far; challenges related to the security of the mobile money services as well as regulation require attention. Noted also is that the mobile money accounts do not necessarily increase the number of bank account holders in the country, their contribution to financial inclusion is limited to improving payments, money saving (storage) and money remittance. Based on its findings, the study thus recommends the need to pursue avenues for enhancing the role of financial institutions and other key stakeholders in the opening of mobile accounts that can attract proper and crucial banking services such as credit.

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LIST OF ABBREVIATIONS AND ACRONYMS

MMS	Mobile Money Services
FAO	Food and Agricultural Organization
M-PESA	Mobile- PESA (Whereby PESA is the Swahili word for money)
CBK	Central Bank of Kenya
FSD	Financial Sector Deepening-Kenya
CGAP	Consultative Group to Assist the Poor
GSMA	Global Satellite Mobile Association
KCB	Kenya Commercial Bank
ATMs	Automated Teller Machines
SACCOs	Savings and Credit Corporative Organizations
DTMs	Deposit Taking Micro-Finance Institutions
MSEs	Micro and Small Enterprises
KMFRI	Kenya Marine and Fisheries Research Institute
IFC	International Finance Corporation
DFID	Department for International Development
ICT	Information and Communication Technology
ROSCA	Rotating Savings and Credit Association

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Adequate access to financial services has been a derailing issue concerning the growth and development of communities in many developing and underdeveloped countries for years. For instance, it is noted that mainstream financial institutions have been reluctant to design appropriate services for low-income earning people because of the belief that it is not only costly but also risking the possibility of loss making to administer services to low income category of earners (Beck et al, 2008).

This kind of approach to provision of financial services has been an impediment to overall growth and wellbeing of low income earning people. In Kenya, despite of the financial services industry making positive improvements, adequate access to financial services is still a challenge to many rural communities (CBK and FSD, 2009). However, the introduction of new platforms for financial access such as mobile money services is increasingly being seen to have somewhat overturned the situation as far as access to financial services is concerned.

Mobile money services in Kenya has stood out as a new platform that has aided harnessing of savings in the form of phone-based money transfer and storage; this is being led by the M-PESA system introduced by Safaricom Ltd in the year 2007 (Mbiti and Weil, 2011). Mobile money services consist of electronic money accounts that are accessible through mobile phones (GSMA, 2009).

Mobile money services, also variously referred to as mobile payment or mobile wallet; generally are payment services operated performed via a mobile device (Rasmussen, 2010). Instead of paying using cash, cheque, or credit cards, a consumer can use a mobile phone to pay for a wide range of services and digital or hard goods (Morawczynski, 2011). The introduction of mobile money services thus seems to have opened up new frontiers for access to formal financial services (Jack and Suri, 2011).

At the close of the 1990s, less than 3 percent of Kenyan households owned a telephone, and fewer than 1 in 1,000 Kenyan adults had mobile phone service (Mbiti and Weil, 2011). By the end of 2011, 93 percent of Kenyan households owned and regularly used a mobile phone (Ngugi et.al. 2010). Additionally, 23 percent of that number use mobile money at least once a day (Mas and Radcliffe, 2010). Currently, over 82 percent of Kenyan mobile phone users are mobile money customers. Today, over 20.2 million Kenyans transfer over Kshs. 5.6 Billion to each other daily with over 3.2 million transactions per day (CBK, 2013). This is an indication that mobile money services are taking up a key role in bridging the financial services access gap.

Today formal financial services providers in Kenya; such as banks, SACCOs and Micro Finance Institutions are actively seeking partnerships with mobile money services providers in order to improve their outreach to as many people as possible through branchless banking (CBK and FSD, 2009). For example, nearly all banks have already made M-PESA linkages to their customers' accounts such that account holders can now make deposits and withdrawals to and from their accounts via M-PESA. In addition, a good number of SACCOs and MFIs are now using mobile money services such as M-PESA to receive deposit from their members (Johnson and Arnold, 2011).

Mobile money transfer services in Kenya has become a much acclaimed global case study; it has been projected to have the potential of occasioning a revolution in financial services access especially for low income earners like people living in Mbita Division who have been suffering from formal financial services isolation (Ngugi *et.al.* 2010). According to the Central Bank of Kenya, the M-PESA mobile money service that introduced in Kenya in March 2007 by Safaricom is already showing a huge potential of use as a saving platform (CBK and FSD, 2009). Although designed as a money transfer service, an FSD-Kenya study of over 3000 Kenyan households indicates evidence that mobile money services are actively being adopted to store money; especially by households who were excluded from access to financial services prior to the introduction of mobile money services (GSMA, 2009; FinAccess, 2013).

Adequate access to saving services for all is one of the indicators of proper access to financial services (FinAccess, 2013). Evidence from several studies already indicate that mobile money services are already being used to harness savings by large financial institutions such as banks and smaller institutions such as SACCOs, MFIs, ROSCAs and cooperative societies. However, it is important to study and document the extent to which new platforms for access to saving services (financial services) have bridged the financial access gap for individuals at the level of the low-income earning category. This study, therefore, sought to examine how mobile money services have influenced the saving behaviour of the fishing households in Mbita Division of Homa-Bay County, Kenya.

In addition, the study focused on investigating the effects of mobile money services on access to formal financial services by fishing households in Mbita Division of Homabay County, Kenya. In looking into these issues, the study focused on examining whether the introduction of mobile money services has occasioned an evolving saving behaviour amongst the fishing households in terms of their saving choices or methods.

1.2 Problem Statement

Poor access to financial services continues to be a setback to the growth and development of low-income households in both underdeveloped and developing economies. On its part, Kenya has also had a majority of her people suffer low access to affordable financial services over the years (FinAccess, 2013). Mainstream financial institutions like banks have been reluctant to design appropriate financial services products for low-income earning individuals out of the perception that it is highly costly to administer financial services to this category of people (Beck et al, 2008; CBK, 2013).

It has become evident that formal financial service providers are now seeking to broaden their customer base by spreading accessibility to services using emerging alternative platforms beyond physical outlets in urban and sub-urban areas (Mbiti and Weil, 2011). According to Jack and Suri (2011), one of the most visible new platforms for improved access to financial services is mobile money services due to both its rapidly spreading geographic reach and easy to use features.

Previous studies on mobile money services have focused on the broad economic aspects of the service since its introduction. For instance, Mbiti and Weil (2011) argue that M-PESA service in Kenya has shown increased financial access and faster money transfer amongst the previously financial excluded segments of the society. Very little is known on how specifically the introduction of mobile money services has influenced change in the various aspects and indicators of financial inclusion such as saving. This study attempts to develop a comprehensive linkage that investigates and documents how mobile money services have influenced the saving behaviour of low-income earning households such as the fishing households in Mbita Division of Homabay County in Kenya.

1.3 Research Questions

The three questions that guided this study were:

- i. What are the saving methods used by fishing communities in Mbita Division?
- ii. What are the effects of mobile money services on access to formal financial services for people in the fishing communities in Mbita Division?
- iii. What influence has mobile money services had on the saving behaviour of people in the fishing communities in Mbita Division?

1.4 Research Objectives

The specific objectives of this study were:

- i. To find out saving methods used by fishing communities in Mbita Division.
- ii. To determine the effects of mobile money services on access to formal financial services by people in the fishing communities in Mbita Division.
- iii. To determine the influence of mobile money services on saving behaviour of people in the fishing communities in Mbita Division.

1.5 Justification of the Study

Although this study was carried out among the fishing communities in Mbita Division, the findings can be used to explain the savings potential of mobile money services to other low income households in the country, MSEs, rural and urban poor and generally

people occupied in the so called informal sector who have suffered similar financial exclusion.

The study sought to generate new knowledge by giving forth new literature on mobile money services; especially on its potential in bridging the access gap for financial services such as savings services. The study also aimed at informing development practitioners in policy formulation especially for policies that relate to financial deepening. Financial institutions, treasury and other financial sector players would through this study identify opportunities that lie in using money mobile services to increase financial inclusion through services such as mobile banking.

The study is a source of reference materials for future researchers and students on related topics owing to depth of its findings on the same. Further, academicians and students will find this study useful in learning how mobile money services have influenced low income earning people's saving behaviour.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The development of information and communications technology is opening up the opportunity for providing essential financial services to most people. Indeed use of mobile money service is currently spreading rapidly across the world. According to the World Bank, poor financial infrastructure coupled with highly costly financial services have continued to deny low income earning sections of society basic financial services such saving services.

This chapter enters into a review of what literature portrays of the relationship between mobile money services and saving especially for low income earning people in Kenya. Divided into three sub-sections; the first sub-section gives a theoretical background of the subject under study, the second sub-section contains the empirical review which gives scholarly works done in the same area of study in terms of how it was done and what the findings were. The third section provides a summary of the entire review of chapter two.

2.2 Theoretical Literature

2.2.1 Mobile Money Services and Access to Financial Services

The supply of quality financial services such as saving institutions to all people who can use them; combined with a regulatory framework and client knowledge levels that enable the safe and informed use of those services is important for economic growth (Robinson, 2004; Atieno, 2004). Access here means ability to use a comprehensive set of quality financial services that include savings, credit, insurance, and payments to enable people to increase and manage their income, carry out investments as well as hedge them against financial risk. In most developing countries, more than half the population does not have a bank account; worldwide, only one billion of the world's 6.5 billion people have bank accounts, yet about three billion have mobile phones (Rasmussen, 2010).

Globally, financial institutions have generally focused on providing credit to foster enterprise development. However, growing evidence highlights that for poor households,

savings is a much higher priority than borrowing, as savings build assets and can help to address risks as well as planned lifecycle events. As documented in *Portfolios of the Poor* (Collins et al, 2009), traditional places where the poor save money are often at risk of theft or temptation. Access to a functioning bank branch network is considered one of the main differences between the Western and the developing world. In developing countries, banks' branch networks are for a large part poorly developed and expensive, causing people to rely on other savings mechanisms.

Established financial institutions have not done much to improve financial services access for low-income earners; these people live in environments characterized by lack of basic infrastructures necessary for financial service provision and hence the belief that serving them can only bring forth losses. However, this is rapidly changing as has been shown by recent developments of various financial service products (Delvin, 2009). It is evident that in the face of stiff competition, formal financial service providers are now seeking to broaden their customer base by spreading accessibility to services using emerging alternative platforms beyond physical outlets in urban and sub-urban areas (Mbiti and Weil, 2011).

In developing countries, banks' branch networks are for a large part poorly developed and expensive, causing people to rely on other saving mechanisms. Whereas having a bank account is integral in the economic life for most people in the West, quite a large part of the population in the developing world remains to suffer exclusion from any viable financial service. The services are mostly too expensive and too far away; yet quick, safe and uncomplicated access to financial resources has the chance to reduce the poverty rate of individuals and a society significantly (Must & Ludewig, 2010). Recent literature however indicates that mobile phone penetration has the potential of reducing the transaction costs and costs of financial intermediaries including formal commercial banks' branches, microfinance institutions and co-operatives by increasing the flexibility of financial services provision business (Dahlberg *et.al.* 2008). Mobile phones can improve access to credit and deposit facilities, allowing efficient allocation of credit,

facilitate financial transfers, and boost financial inclusion: in turn, this would stimulate private investment, and hence economic growth.

With the spread of mobile phones in the developing world, adoption of modern mobile technologies now helps to extend formal financial inclusion. As at their introduction, these services mainly concentrated on transferring money from person to person through a mobile phone, but now, the expansion attracted a wide range of different players seeking a business opportunity. As a result, the accumulation of funds with the help of mobile phones such as mobile savings is brought more into the focus (Demombynes and Thegeya, 2012). Savings form an interesting topic especially in the developing world where poverty rates are still high. Accumulated money can help people to stabilize the ordinary household expenses, develop opportunities to improve their condition in the future and help people mitigate shocks such as bad weather conditions (Ravi and Tyler 2012; Mas and Mayer, 2011).

The adoption of mobile phones has occurred at perhaps the fastest rate and to the deepest level of any consumer level technology in history. The fixed line telephone the predecessor to mobile phones took 100 years to reach only 80 percent of the population, even in developed countries. Meanwhile, the adoption of mobile phones for various uses has been more than five times as fast worldwide, and has significantly decreased communication costs in many parts of the developing world.

Nowhere is the benefit and impact of widely available mobile phone technology more apparent than in Africa; a continent where alternatives to mobile phones such as networks of both fixed line communication and physical transportation infrastructure are often inadequate, unreliable, and dilapidated. The adoption of mobile phone technology in Africa has increased from 3 percent in 2002 to 51 percent today, and will likely reach 72 percent by the end of 2015. However, the positive impact of the adoption of cellular technology has not been limited to the communications or information technology sectors of developing countries. In fact, the successful development of mobile money services in Kenya provides a unique and interesting case study of how access to mobile phones can

revolutionize and democratize the financial and banking industries of developing nations. Currently, more Kenyans prefer owning a mobile phone to having access to a bank account (Johnson and Arnold, 2011).

Mbiti and Weil (2011) indicate that M-PESA has greatly contributed to financial inclusion all over the world today. They find that the primary use of M-PESA is transferring money from individual to individual rather than as a vehicle for saving, and that its use increases an individual's probability of accessing formal financial services. M-PESA therefore is complementary to the fuller set of financial services offered by large financial institutions. In this sense, M-PESA also serves as a financial linkage service (Mas and Radcliffe, 2010). However, it is important to understand that a number of other underlying factors have made mobile money services successful, relevant and viable for financial inclusion in Kenya. Services, such as M-PESA in Kenya have become success stories because of several factors amongst them being the demographic character of Kenya's consumer population.

According to Mbiti and Weil (2011), in many African economies, those who are in gainful employment relate with their dependents under a dual system. The term dual system is used to describe the continued connection that urban migrants maintain with their rural homes and villages, despite spending a significant amount of time living or working in urban centers, they also send remittances to their relatives. A decade ago, family members in different parts of Kenya had a very limited scope of communicating with relatives in distant parts of the country, and they faced even greater difficulties in sending or receiving remittances. Today, even appeals for relief assistance can easily get resource responses through instant transfer of money; M-PESA for instance has enabled small businesses to expand and grow due to increase in the circulation of money in rural communities.

The impact of mobile money on reducing the use of cash has less to do with the underlying technology and more with its convenience. Mobile money customers can use their own mobile devices to initiate transactions or check the status of their account

wherever they have mobile coverage. If they need to deposit or withdraw cash, they know there is a store next door where they can make the conversion. If the experience is consistent over time and across different outlets, it will contribute to the creation of trust that is necessary to increase the use of electronic instruments and mobile money. Essentially, mobile money is more about distribution and accessibility to financial services than technology (Delvin, 2009).

2.2.2 Mobile Money Services and Saving

Demombynes and Thegeya (2012) distinguish between two main types of mobile savings “basic mobile savings” and “bank integrated mobile savings”. Their common feature is that both offer an account that is accessible through a mobile phone. The first type, basic mobile savings, is defined by funds that can be stored securely in an electronic money account without the benefit of additional financial services. Whereas the other type, bank-integrated mobile savings goes beyond the storage feature and introduces benefits such as interest or access to a loan.

Savings are typically not the first products provided over mobile phones. Mostly, mobile phones are used to move money over distances in form of people to people or government to people (G2P) transfers or for bill payments. For several reasons, saving accounts are not as popular for mobile money providers. Sometimes it is just because of regulatory prohibitions or the lack of interest to expand the product range (McKay & Pickens, 2010). A second reason can be that the brand of the provider is not strong enough (Mas, 2010). A third limitation can be that people are not willing to pay a lot for the possibility of savings and this makes it hard for the providers to establish a profitable economic model (Goss et al. 2011). Additionally, Mobile Network Operators launch most mobile systems; thus, providing comprehensive mobile money services with various money transfers and saving options are not their core business (McKay & Pickens 2010). However, the mobile money industry has increased significantly in size and scope in the last few years and this expansion continues to attract a wide range of different players seeking a business opportunity and brings mobile saving more into the center of attention.

There is a considerable body of research proposing necessary features of a savings product and usual characteristics of providers to better fulfill the specific needs of poor people. According to Zollma and Collins (2010), low entry barriers and transparent fees are of great importance. Users want to be able to test the product and as such continually build up trust in the service and the provider. Ideally, savings services should be available conveniently and where people live and work. Additionally, users want to transact in low amounts at reasonable costs whenever they have the possibility to put money aside. Moreover, the provider has to be trustworthy so people can be sure that their money is available when needed (Mas 2010; Mas & Almazán 2011).

Poor people mostly work without a contract, leading to erratic income streams. Most of the time, they are engaged in economic activities with very little or no productivity growth and are exposed to shocks such as illness or bad weather (Dittus & Klein 2011; Christen & Mas 2009; Chandy & Kharas 2012). Thus, putting money aside has three main purposes. First, savings are required to stabilize the ordinary household expenses. Secondly, savings are required so that people can develop opportunities to improve their conditions in the future. Thirdly, savings are there to mitigate shocks (Ravi & Tyler 2012; Mas & Mayer, 2011). To fulfill these needs, people rely on three types of saving mechanisms: Formal mechanisms such as commercial banks and pension funds; Semi-formal mechanisms like Microfinance Institutions (MFIs) as well as Savings and Credit Co-operatives (SACCOs). Informal mechanisms such as accumulating savings and credit associations, rotating saving and credit associations or simply ‘saving under the mattress’ (Mas, 2010) are also adopted among peasants.

Informal savings arrangements tend to be risky for several reasons. The major threat is that value might get stolen. For instance, 99% of customers in Uganda who save through informal mechanisms report to have lost money (Wright 2010). In some cases, the savings are illiquid for example when invested in jewelry or animals. Moreover, all informal mechanisms are within the local community where people live and work. Thus, there is a lack of privacy in saving (Mas, 2010). Due to the severe disparity between urban and rural wages, many laborers and household breadwinners migrate from rural

centers to urban areas without their families in search of more lucrative employment opportunities in urban areas or around fishing zones. As a result, many rural households rely on remittances from urban centers for survival; the two societies become interconnected as a matter of economic necessity. This need for regular remittances by urban workers to their rural dependents is amongst the drive behind the rapid growth of mobile money services in Kenya.

There is evidence that the introduction of mobile money transfer services in Kenya has come along with a huge potential to improve access to saving services by the poor (CGAP, 2009). According to Mbiti and Weil (2011), increased use of M-PESA lowers the propensity of people to use informal savings mechanisms such as ROSCAs, but raises an individual's probability of accessing formal financial services. In Kenya mobile money services have increasingly been used as a financial linkage service; whereby financial linkage refers to any mutually beneficial partnership between a formal and a less formal institution that result in the expansion of rural financial services (Johnson and Arnold, 2011).

The introduction of mobile money services in Kenya, led by M-PESA from Safaricom has occasioned improvement in the level of financial inclusion for low income earning Kenyans like the rural poor. The widespread cellular communication and M-PESA's ability to transfer money instantly, securely, and inexpensively are some of the features that have made mobile money services to be very popular with Kenyans especially the low income-generating segment. Mobile money services can therefore increase the level of financial inclusion for people in the low-income segment by playing a role in ensuring increased savings. Morawczynski and Pickens (2009) observe that users often keep a balance on their M-PESA accounts, thereby using the system as a rudimentary bank account despite the fact that the system does not provide interest. Some individuals store money in M-PESA due to safety considerations, especially when travelling across the country.

Since M-PESA allows the safe transfer and storage of money, rural Kenyans no longer need to make lengthy trips to urban areas to make monthly payments for basic services. This saves not only time that would have otherwise been directed toward economically productive activity, but also money (on average US \$3 per transaction) that can be more usefully spent on food or placed into long-term savings. M-PESA also has the potential to increase net household savings by facilitating inter-personal transactions that improve the income allocated to savings across households and businesses.

2.2.3 The Life Cycle Theory of Saving

Various factors motivate people to save or not to save. The **Life Cycle Theory** suggests that individuals will attempt to smooth lifetime consumption by building up their savings while they are earning and running down their savings once in retirement (Modigliani, 1986). It takes into account uncertainty about lifespan, earnings, and interest rates as factors that make consumption smoothing more difficult.

Proponents of this theory argue that there are many motives to saving; the life-cycle motive aims to provide for anticipated future expenses during old age, when individuals will not be able to rely on earnings and their income is likely to have decreased. This includes pension saving, as a particular type of long-term saving. The precautionary motive focuses on the need to save in order to cover unforeseen events or to provide a buffer against events like job loss, illness, relationship breakdown, or accidental damage to household goods.

There is also the improvement motive that aims to use savings to help an individual enjoy a gradually improving lifestyle. This can include short term saving for consumer durables, holidays, or gifts, or longer-term saving for, say, a child's education or wedding. The enterprise motive is the saving that intends to accumulate enough money to carry out speculative or business activity that leads to saving to generate more money. Lastly is the bequest motive, whereby some people save with no intention of using the money in their lifetime they put money aside, or keep assets, explicitly to pass on to

children or other family members. The bequest motive explains why people save more in old age.

A macroeconomic approach to explaining saving behaviour cannot be accurate given that the economic units on the aggregate level may not necessarily be the same as on an individual level (Rasmussen, 2010), saving behaviour should be identified from household or individual utility level. Delvin (2009) argues that personal attributes such as level of income, level of education, age, gender, the size of household, main source of livelihood determine saving behaviour. Institutional characteristics such as interest rate on savings and loans, distance from financial institutions, collateral for loan, time required for processing a loan, loan repayment method, restrictions on loan use, and maximum loan amount equally influence saving behaviour.

Mobile money services have unique features that make it relate well with the motive and attributes of saving. Mobile money services thrive on the widespread cellular communication; additionally, the ability to transfer money instantly, securely, and much less expensively are also some of the features that have made mobile money services such M-PESA very popular in Kenya especially with low-income earners.

In an attempt to make an analysis of the life cycle theory, Delvin (2009) enlists levels of income, levels of education, age and gender as some of the motives and personal attributes that determine saving behaviour. The Washington Journal of Law, Technology and Arts (2013) brings into perspective a number of factors that are relevant to the viability of mobile money services for financial inclusion in Kenya; one important factor is the demographic character of Kenya's consumer population. It is relevant to note that Kenya is home to approximately 39 million people, which is about average for an African nation.

Kenya is a relatively young country; over 42 percent of its population is under the age of fourteen. It is also important to note that more than 85 percent of Kenya's population is literate and has had experience with mobile phone technology. The majority of Kenyans

would most likely be able to adjust to using M-PESA's text message services without much difficulty. Based on the analysis by the Washington Journal of Law, Technology and Arts (2013) the role of personal attributes such as age and level of education in adoption of mobile money services as a platform for financial services access brought into perspective.

2.2.4 Agency Theory and Mobile Money Services

Agency theory addresses the relationship where in a contract 'one or more persons [the Principal(s)] engage another person (the Agent) to perform some service on their behalf which involves delegating some decision making authority to the agent' (Jensen and Meckling, 1976). This happens because of the separation of ownership and control, when the owner of the company or the board of directors (the Principals) have to employ managers (Agents) to run the business and need to monitor their performance to ensure they act in the owner's interest. In the case of mobile money services, the Principal is mobile network operators such as Safaricom and Airtel Ltd; while the Agents are M-Pesa Agents, Airtel Money Agents and Banking Institutions amongst others. A well-managed agent network can help operators build brand awareness, educate customers, and meet system-wide liquidity demands, all of which builds confidence among users in a service that is initially unintuitive. A poorly managed one, by contrast, will be characterized by widespread low-quality customer experiences, which in turn erode trust and drive away business (Demombynes and Thegeya, 2012).

Agents, on behalf of the mobile operator mostly manage mobile money services; M-Pesa for instance owes its huge success to an elaborate agency structure in place between Safaricom and its M-Pesa agents (Mas and Mayer, 2011). It is notable that Safaricom had market dominance prior to introduction of M-Pesa. Safaricom had a dominant market position, invested large sums in marketing, and had taken its time to develop its pilot. Looking at sustainability with a long-term lense, it was able to listen to its customers and iterate the product to suit its needs. The 'Send Money Home' tag became its primary use case after failed attempts to use M-PESA as a microfinance institution (MFI) loan repayment tool. Higher education levels and literacy rates, coupled with good

infrastructure in Kenya are some factors that credited Safaricom successful launch of M-PESA. To date, M-PESA has over 18.2 million mobile money subscribers and almost 80,000 agents across Kenya; making it the most successful mobile money deployment the world has ever seen (Demombynes and Thegeya, 2012).

The Kenyan market was also ready for alternative platforms for access to financial services, hence allowing the agency model adopted by Safaricom for M-Pesa roll out to be successful. Prior to M-PESA, there were limited means of transacting and conducting payments. Previous methods of doing bus transfers were unreliable, and using commercial banks was expensive and out of reach for the low-income market segment. In addition to having limited means of sending money, it is notable that the political violence in 2008, which catapulted use of the M-PESA service (Plyer et al, 2010). The violence led to the disruption of normal transportation and the shutdown of formal financial services, such as ATMs; the only way for people to send money was through M-PESA.

The regulator on its part offered Safaricom a ‘no-objection’ letter that allowed the company to innovate, to pilot or test its service without the confines of strict regulation. Nowadays, it is not easy to find a regulator as open to this approach as the Central Bank of Kenya was. Most regulators across the globe have issued some form of e-money regulation that gives some guidance, to serve as a risk management measure for providers but also to prohibit certain actors from engaging in the market.

2.3 Empirical Literature

2.3.1 Suitability of Mobile Money Services for Financial Inclusion

InterMedia Foundation conducted a yearlong tracking study to understand mobile money awareness, use, the drivers and barriers to mobile money’s expansion among Tanzanian adults. The research undertook measurements and analysis from nationally representative surveys, focus group discussions with mobile money users and non-users, in-depth interviews with mobile money agents, and mystery shopping exercises in agent shops. The study found that between September 2011 and October 2012, mobile money use

nearly doubled, reaching 45 percent of the Tanzanian adult population. Use differs by demographics, with poor, rural women the least likely to use mobile money services, and urban men above the poverty line the most likely to use the services. Awareness of mobile money has reached saturation, with 99 percent of Tanzanian adults able to name or recognize at least one service provider. Insufficient understanding of how to use mobile money and take advantage of its potential benefits remains a barrier.

The study also established that prior to introduction of mobile money services; Tanzanians had a number of options for local remittance services. These services included commercial banks, post offices, forex bureaus, bus companies, and friends and family. However, almost all of these options were either unavailable to the majority of Tanzanian consumers or were extremely unreliable, expensive and insecure. The most commonly used remittance services informal friend, family networks and courier services provided by bus companies have risks of lost or stolen funds and, occasionally, require the payment of prohibitively high fees.

In an empirical survey of the prospects of mobile money for financial inclusion, Aziz and Abdelghani (2013) present results of a study they conducted in Egypt. The study is in four parts: First, the nature and functioning of mobile money is explained: the types of transactions, the banking and insurance products it can lead to, its important role in widening financial inclusion, and evidence from usage studies. Second, the market growth, profitability and other market characteristics are discussed, and the implications of cheaper smartphone technology. Third, the macro-economic and micro-economic effects of mobile money are examined, followed by a consideration of data measurement issues, and then a survey of selected empirical studies of the economic impact of mobile money. Fourth, regulatory and contractual issues are examined: the design of network agency structures and agency contracts, and the impact of evolving regulation on the development of mobile money systems.

The survey concludes with an acknowledgement of the beneficial impact of charities, donors and international agencies on the growth of mobile money, and suggestions for

future research. The study further finds aspects of economic influence of mobile money from both a micro and a macro perspective on low income groups in the country; this is evidenced by existence of quantitative records of household and business expenditure through mobile money payments.

Plyer et al (2010) studied the economic effects of M-PESA in Kenya at the community level. The study intends to help fill a gap, since to them the sustainability of M-PESA could depend on achieving community wide impact yet several studies that exist on M-PESA focus on examining the effects of M-PESA at the household level and aggregate the household effects to make conclusions about community effects. These studies seldom extend the inquiry to capture spillover and ripple effects caused by the adoption and use of M-PESA to understand its effects on communities. This study captured community effects that occurred via direct and indirect economic effects realized by the users of M-PESA and that accrued to non-users through the presence of M-PESA and users of M-PESA. In other words, the study focused on community-wide economic effects caused by the presence and use of M-PESA for all residents in the community.

The study by Plyer et al (2010) also captured social effects to the extent they influence economic effects. To address the study questions, the researchers used inductive methods to gather primarily qualitative information and a very limited amount of quantitative data; this information was used to explore the possible direct effects and externalities that can occur for a community due to M-PESA. The study was conducted in three districts: Kibera in Nairobi, Murang'a in Central Province and Kitui in Eastern Province. The districts were chosen to represent Kenya's population, economic activities and M-PESA agent distribution as well as for logistical considerations. The findings of the study indicated that M-PESA's economic effects at the community level are now observable for both users and non-users of M-PESA, through direct effects and externalities, respectively. The four overarching economic effects at the community level are in the areas of local economic expansion, security, capital accumulation and business environment.

2.3.2 Suitability of Mobile Money Services for Saving

A study by Drake and Karthik (2014) to examines the intention of the Tanzanian customers to adopt mobile money for saving, as well as the factors that may lead to it. The study employs descriptive statistics, one sample t-test and multiple regressions. Four hundred questionnaires were randomly distributed to the Tanzanian banks and mobile money customers. The findings indicate that the customers have the willingness to adopt mobile money for saving. Furthermore, the results show that complexity, relative advantage, compatibility, and trial ability are good predictors of the intention to adopt more usage of mobile money in Tanzania. In a related study, Robert Jensen's study on the fisheries market is perhaps one of the most influential papers that, from a microeconomic perspective, analyses the impact of mobile phones transactions on peoples welfare. Through a weekly survey applied in three districts in Kerala during six years, Jensen finds a significant positive impact of adoption of new information technologies in the financial interactions of people in these areas characterized by poorly developed financial services. He finds that the addition of mobile phones has reduced price dispersion, waste and increased fishermen's profits, increased their savings and consumer welfare (Jensen, 2007).

One of the first studies to be conducted on mobile money in Somalia is a 2014 survey by Hassan and Saayid (2014). The study uses an upgraded version of technology acceptance model and it reports significant findings based on this approach. The main purpose of this survey was to study the perception and willingness of Somali customers to adopt mobile money, based on an upgraded version of technology acceptance model. The questionnaire used in this study was distributed to 100 Somali customers, and the data gathered were then analyzed using multiple regression and one sample t-test. The results indicate that perceived ease of use has a significant positive influence on the perceived usefulness of mobile money. Moreover, perceived usefulness and security were found to have a significant positive influence on attitude. Finally, social influence together with perceived usefulness both have significant positive influence on the Somali customers' intention to adopt mobile money.

In a study conducted in 2011, Mbiti and Weil examine how M-Pesa is used as well as its economic impacts. Analyzing data from two waves of individual data on financial access in Kenya, they find that increased use of M-Pesa lowers the propensity of people to use informal savings mechanisms such as ROSCAs, but raises the probability of their being banked. Using aggregate data, they calculate the velocity of M-Pesa at roughly four person-to-person transfers per month. In addition, Mbiti and Weil (2011) find that M-Pesa causes decreases in the prices of competing money transfer services such as Western Union; while they find little evidence that people use their M-Pesa accounts as a place to store wealth, the results of their study suggest that M-Pesa improves individual outcomes by promoting banking and increasing transfers.

For the first time in the year 2014, GSMA conducted the Mobile Money for the Underbanked global adoption survey. The study used qualitative insights on the performance of mobile financial services based on the GSMA's mobile money for the unbanked program engagement with the industry over the past year. This study explored how many mobile money customers have a positive balance in their mobile money account, as well as the average balance on those accounts. In the survey, 47 mobile money services reported this figure, showing 54.5% of mobile money accounts with a positive balance. In fact, 42% reported average balances above USD 10, which is the average balance held in Kenya's highly successful M-Shwari savings and credit service.

That suggests that many customers are using these services to store value, either for short-term money management, for pending transactions or savings. With the results from the 2014 survey, GSMA concludes that mobile money services are a powerful tool for bringing unbanked and underbanked people into the formal financial sector. With an estimated 2.5 billion people in the world still lacking access to formal financial services, mobile phones are being adopted for mobile money services and this has improved access to financial services including payments, transfers, insurance, credit and savings.

2.3.3 Summary of Theoretical and Empirical Literature

A review of theoretical literature shows that established financial institutions have not done much to improve financial services access for low income earning segments of society; these people live in environments characterized by lack of basic infrastructures necessary for financial service provision and hence the belief that serving them can only bring forth losses. However, this is rapidly changing as has been shown by recent development of various financial service products such as mobile money services.

Mobile money services have unique features that make it relate well with the motives and attributes of saving. Mobile money services thrive on the widespread cellular communication; additionally, the ability to transfer money instantly, securely, and much less expensively; these features have made mobile money services such as M-PESA very popular in Kenya especially with low-income earners.

Empirical literature reveal that the mobile phones use has transformed people's lives, providing not just telecommunications but also platforms for basic financial access in the form of phone-based money transfer and storage, led by the M-PESA mobile money service introduced by Safaricom Ltd in 2007. In this sense, mobile phone has become a tool for access to financial services to many Kenyans who hitherto did not have any access to financial services. There is evidence that the introduction of mobile money transfer services in Kenya and the rest of the world has come along with a huge potential to improve access to financial services by the poor especially for services such as saving. This study attempts to develop a comprehensive linkage that investigates and documents how mobile money services have influenced the saving behaviour of low-income earning households such as the fishing households in Mbita Division of Homa-Bay County in Kenya. The study findings are adopted in explaining the opportunities offered by mobile money services for saving and other forms of financial inclusion to the low income earning segments in the country, MSEs, rural and urban poor and generally people have suffered financial exclusion over the time. This will be vital for policy formulation and implementation.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Study Site

The study was conducted in Mbita Division, located in former Suba District, Homa-Bay County of Western Kenya. Mbita Division was selected on several grounds. First, it has a people who share a communal cultural orientation and kinship ties in which the residents have been living together for several centuries with many of them deriving their livelihoods from fishing activities. Secondly, the geographical position of Mbita Division on the shores of Lake Victoria presents a unique and interesting area of research: the division is physically the link between the mainland parts of Homa Bay County and the several Lake Victoria islands such as Rusinga and Mfangano islands. It is in Mbita Division that the famous Mbita Causeway is in construction; the division has thus thrived for a long time as a cross-border trade channel between Kenya and Uganda in fishing activities.

Mbita Division was also chosen because in spite of being a high revenue earner from fisheries resources, the area has suffered from research biases especially on topical issues of fishermen investment and saving behaviour; this is attributed to poor resource accessibility and poor infrastructural development. The site was, therefore, suitable for this study to enable an in-depth understanding of current saving patterns of Kenyan fishermen in the wake of the introduction of modern methods of financial inclusion such as Mobile Money Services.

3.2 Research Design

The study adopted both qualitative and quantitative research designs. The choice was informed by the nature of the issues that were to be addressed in the study. Data collection was conducted through two main methods, which included household interviews and key informant interviews. The methods were important in providing rich data that ensured the achievement of the study objectives. Furthermore, the use of both methods helped in checking biases that were likely to occur in either of the two methods.

Qualitative approach involved gathering in-depth information from questionnaire respondents and the key informants who interviewed. The key informants were selected based on their expertise on issues the study sought to address. They provided data on the opinions of different stakeholders on issues relating to the study area. They further helped the researcher to identify sub-locations and beaches with high concentration of fishing activities.

3.3 Population and Sampling Design

The study population for the research was fishing community (households) of Mbita Division while the unit of analysis was the individual households. Communities in Mbita Division derive their livelihoods mostly from fishing and a bit of subsistence agriculture. Therefore, in order to get data that answered the study questions, the study used a combination of sampling techniques to enable data collection.

3.3.1 Sampling Procedure

The study employed the use of probability and non-probability sampling methods. This was done in three stages:

Stage One: Sampling of Locations and Sub-locations

Mbita Township Division is divided into four administrative locations. They include Rusinga East Location, Rusinga West Location, Gembe East Location and Gembe West Location. In order to sample the four locations, the researcher used a simple random sampling method of all the sub-locations. The researcher first requested for a list of all the sub-locations from the District Officer's office. The researcher was then able to list down 340 fishing households from the four sampled sub-locations: Nyagina-104, Waware-66, Gembe East-44 and Rusinga West-126 (*See table 3.1*).

Sample Sub-locations were then purposively selected based on their proximity to the lakeshore and concentration of fishing activities, fish trading and mobile money transfer services as the researcher was informed by the local administrators and beach officials. It

is from these sub-locations that the researcher was able to generate a list of key informants and fishing households for interviews.

Table 3.1: Sub-locations and Population of fishing households

Sub-location	No. of fishing households
Nyagina	104
Waware	66
Gembe East	44
Rusinga West	126
Total	340

Source: Field data

Stage Two: Sampling of Fishing Households

Selection of fishing households involved the use simple random sampling method. Firstly, the researcher sought the help of the area Chief and Assistant Chief, Beach leaders and Village Elders. The names of households from each of the selected sub-locations were written down in separate sheets of paper for clarity. In order to draw a random sample from the list, the study used proportional sampling technique. According to Creswell (2009) proportional sampling is a method of sampling which ensures that variables in the selected sample represent the study population proportionately. The sample frame helped the researcher to draw a sample size of 80 respondents.

Proportional sampling technique was used to determine a sample size of 80. The choice of the sample size was guided by the fact that the four sub-locations were adequately represented in equal proportions. The researcher was also constrained by resources such as time and money for data collection. The sample selection was arrived at based on the researcher's decision to analyze and present data within the stipulated period. The study arrived at the proportions as shown in the table 3.2.

Table 3.2: Proportional Sampling of Fishing Households

Sub-location	Total fishing households in Sub-location	Proportional sample Per sub-location
Waware	66	17
Gembe East	44	6
Nyagina	104	26
Rusinga West	126	32
Total	340	80

Source: Field data

The researcher employed simple random sampling technique to pick names of individual fishing households from the four separate lists. All the names of the households were written in small pieces of paper and folded then put in a container shuffled for each sub-location. The researcher then picked the papers one at a time without replacement until the proportions were represented adequately to form a sample size of 80. The names of the picked households from each of the four sub-locations were recorded separately in a sheet of paper. This formed the sample of individual fishing households that the researcher interviewed.

Stage Three: Selection of Key Informants

Key Informants (KIs) were purposively selected on the basis of their expertise and understanding of the subject under study. A key informant interview guide that took into account details that captured events, experiences and perceptions of the individuals in relation to the subject of study was used. The researcher worked with Location Chiefs to develop a list of key informants from the sampled sub-locations. The key informants included one Beach Management Unit leader, one Fishery Officer, two Mobile Money Services (M-Pesa) vendors, one local bank branch Manager, one local SACCO leader and one local MFI official.

The Fishery Officer provided vital information on fish trading in the area and behavior of fisher folk in terms of how they use available financial services as they go about their

day-to-day businesses. One Chairperson of a beach management unit provided information on the saving behaviours of the fishing community while giving a comparison of the level of access to financial services both before and after the introduction of mobile money services in the area. The M-Pesa vendors provided important information on how residents of the fishing community and using the mobile money services and the level of uptake of the same for saving purposes. The local bank manager, the SACCO leader and the MFI official all provided information on adoption of the use of mobile money services in their service provision and how they have used mobile money services for deposit collection and credit distribution.

3.4 Data Sources

The study gathered data from both primary and secondary sources. Primary data was gathered to find out people's attitudes, opinions, habits, social issues and general behavior towards saving methods through mobile money service, access to financial services and the influence that mobile money services have had in their day-to-day lives. Quantitative data was gathered through a survey of the sampled fishing households. Primary data also assisted the study to establish patterns, trends and relationships from the information gathered, hence giving a detailed understanding and interpretation of issues that the study sought to investigate.

Secondary data was obtained from written sources that included beach management records, reports from mobile money companies, published and unpublished materials, fisheries records, Government records, journals and periodicals, internet, working papers and NGO project documents. Details of these were analyzed and interpreted in reference to the subject matter of the study.

3.5 Methods of Data Collection

The study began by the process of questionnaire construction and testing. This involved a pre-test whereby a sample of ten fishing households and two key informants were purposively selected for the pretest. Mugenda and Mugenda (1999) explain that pre-testing the questionnaire is important because vague questions are revealed hence the

researcher has an opportunity to rephrase the questions until they convey the same meaning to all subjects. It also helped to improve the quality of the questionnaire by noting the inconsistencies and errors in the instrument in order to restructure the questions to address the study objective. The study then applied the following criteria to collect primary and secondary data:

Key Informant Interviews

Direct interviews were held with the identified individuals who have expert knowledge and experience on the issues of saving behaviours of fishing communities and their relations to mobile money services in the area. The researcher carefully filled in the answers as the interviews progressed and provided explanations on the questions that seemed unclear to the informants to enable smooth proceeding of the interviews.

Household Survey

Primary data was gathered by use of structured survey questionnaires. The researcher obtained data from sampled fishing households through face-to-face interviews. The questionnaire had both open and closed-ended questions. Face-to-face interviews were preferred to other methods because they reduced cases of non-response rates. Village elders who introduced himself to the respondents during data collection accompanied the researcher throughout the household survey. The interviews were held with the household head or the spouse; in case either was not present, the eldest member of the family was interviewed. Observations that may not have been captured by the questionnaire were also noted down.

3.6 Data Analysis

Because of the diversity of data that was gathered, both qualitative and simple descriptive data analyses techniques were employed in the study. Quantitative data gathered through structured interviews were first cross-checked and cleaned to iron out inconsistencies in recording and coding before being analyzed. The data from the structured questionnaires was keyed in the computer using the Statistical Package for Social Science (SPSS version

20) which was further used to analyze data using simple descriptive statistics in form of frequency tables, and cross-tabulation to show relationships.

Qualitative data that was gathered mainly through key informants was first organized into sub-themes, put in their categories and then finally arranged according to their patterns and trends. These were then summarized and expressed in form of narratives and statements. The data was corroborated to inform the study findings.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

The main objective of the study was to analyze how mobile money services are influencing saving practices of fishing communities in Mbita Division. The study targeted small-scale fisheries in Mbita Division in Homabay County. Qualitative and quantitative data were analyzed through quantitative analysis and presented in form of graphs, pie charts and tables for clear understanding.

The study targeted 80 respondents who were the fishing households in Mbita Division. From the data collection, 80 sampled individuals responded by filling in the questionnaires. However, two of the questionnaires were not adequately filled and, thus, removed from the main findings. This makes a response rate of 97.5%. The response was, thus, adequate as it conforms to the prescribed level. Mugenda and Mugenda (2003) state that, for generalization, a response rate of 50% is adequate for analysis and reporting, 60% is good and a response rate of 70% and above is excellent. The study also collected the views of seven key informants: one Beach Management Unit leader, a Government Fishery Officer, two Mobile Money Services (M-Pesa) vendors, one Equity Bank branch manager, one SACCO leader and one MFI official.

4.2 Demographic Characteristics of Respondents

This section presents the study findings on the respondents' demographics. It specifically looks at their age, level of education, gender, marital status and occupation. Each of these aspects determine saving behavior of individuals.

The study sought to find out the gender of the respondents. From the findings, 52.6% of the respondents were male and 47.4% were female. This implies that there was a slight gender inequality in financial access as more males than females used mobile money services and were able to save money. This is based on the gender roles in patriarchal African societies where male members of the household were naturally expected to fend

for the family making them participate in more than one economic activity other than in fishing.

Cross-tabulating gender and mobile money services use, the findings revealed that 51.3% of the males used mobile money services while 43.6% females used mobile money services. This depicts that more males compared to females had used mobile money services confirming their diversity in economic activities for income. Fishing is a male dominated activity thus, men are likely to participate more actively in value chain.

Table 4.1: Gender and Mobile Money Services Use

Gender	Mobile Money Service use		Total
	(Use)	(Don't use)	
Male	51.3%	1.3%	52.6%
Female	43.6%	3.8%	47.4%
Total	94.9%	5.1%	100.0%

Source: Field data

Cross-tabulation of gender and saving behavior revealed that 43.6% of the males have a form of saving as individuals. On the other hand, 39.7% of the female respondents had some of savings. This elucidates that more males than females had some form of saving money. Delvin (2009) found that saving behavior is related to ones gender with more males tending to save in patriarchal cultures.

The respondents were asked to indicate their age. Most (38.5%) of the respondents were aged 18-35 years, 34.6% were aged 36 - 50 years old, 19.2% were aged 51 - 65 years, and 7.7% were older than 65 years. This implies that majority (61.5%) of the community members involved in fishing activities were more than 35 years old. Cross-tabulation comparing age of respondent and mobile money services use indicate that those using mobile money transfer services, 37.2% were aged between 18-35 years, 30.8% were 36-50 years old while 19.2% were 51-65 years old. This point to youthful members of the community adopting the use of mobile money transfer services more compared to the

elderly. This can be explained by the need to interact more often in terms of creating networks that could translate into viable economic ventures especially among the youth who are in their active age.

Further, the study found out that the age of respondents relates to saving behavior. The findings show that the respondents who had saved money, 32.1% were aged between 18-35 years followed by 30.8% who were 36-50 years old and 15.4% who were 51-65 years old. This depicts that youthful members of the community save more as compared to the elderly members. Young people are likely to engage in a number of activities that can earn them extra income to save. The youth are also at a better position to utilize diverse opportunities that exist in order to invest in more lucrative enterprises for survival.

Table 4.2: Age of Respondents and Saving Behavior

Age	Saving Behavior		Total
	(Save)	(Don't save)	
18-35 Years	32.1%	6.4%	38.5%
36-50 Years	30.8%	3.8%	34.6%
51-65 Years	15.4%	3.8%	19.2%
Over 65 Years	5.1%	2.6%	7.7%
	83.3%	16.7%	100.0%

Source: Field data

On marital status of the respondents, most of the respondents were married as was shown by 47.4% while 25.6% were single. Widowed respondents comprised 15.4%; the divorced were 3.8%. Thus, most of the fisher community members sampled were married although a significant proportion was single. Using cross-tabulations to show the relationship between marital status and mobile money use, the findings show that 46.2% of the respondents were married and use mobile money services in contrast to 24.4% of the respondents who were single. This illustrates that majority of those using mobile money services were married. The same trend repeated on saving incidences.

The results illustrate that 43.6% of the respondents were married and had some form of savings, 21.8% were single, while 3.8% were either separated or divorced and had savings. This depicts that those married had a higher predisposition towards savings. This could be explained by dependency and need for socio-economic security that necessitated saving behavior within the households.

Table 4.3: Marital Status and Saving Behavior

Marital Status	Saving Behavior		Total
	(Save)	(Don't save)	
Single	21.8%	3.8%	25.6%
Married	43.6%	3.8%	47.4%
Divorced	3.8%	0.0%	3.8%
Widowed	9.0%	6.4%	15.4%
Cohabiting	1.3%	1.3%	2.6%
Separated	3.8%	1.3%	5.1%
Total	83.3%	16.7%	100.0%

Source: Field data

The respondents were asked to indicate whether they have children. The study found out that 74% of the respondents had children while 26% did not. It can, thus, be deduced that majority (74%) of the respondents had children. Cross-tabulation depicts that 69.2% of the respondent with children use mobile money services while 25.6% of those without children used the same. This depicts that respondents who have kids are more likely to use mobile money services.

The study findings show that 61.5% of the respondents with children had some form of savings compared to 21.8% that were childless. Thus, people with children are more likely to save money as opposed to people who do not have children. The study explains this to as driven by need for security for the family. Mbiti and Weil (2011) established that households with children were more likely to save to cater for the children's future needs than those without. The respondents who had children were requested to indicated

the number of children in their households. Findings show that 35% of the respondents had 3 – 4 children, 33% had 1 – 2 children, 22% had 5 - 6 children and 10% had more than 6 children. The maximum number of children of the respondents was 10. Thus, most of the the fisher community, had 3 – 6 children indicating high dependency in the household. Cross tabulation shows that 23.7% of the respondents with three children used mobile money service, followed by those with two children (16.9%), five children (11.9%) then single child (10.2%). This depicts that use of mobile money services decreases with the number of children that fisher communities have.

Cross tabulation shows that 23.7% of the respondents with three children had saved money, followed by those with two children (16.9%), five children (11.9%) then single child (11.9%). This depicts, further, that saving of money by the fisher community decreases with the number of children. Thus, high dependency in the household greatly hampered their saving ability, thus, behaviour owing to high household expenses. Rasmussen (2010) averred that saving behaviour is associated with ones household responsibility or individual utility level.

Table 4.4: Household Size (Number of Children) and Saving Level

Number of children	Saving Level		Total
	(Saving)	(Not Saving)	
One	11.9%	3.4%	15.3%
Two	16.9%	0.0%	16.9%
Three	23.7%	1.7%	25.4%
Four	8.5%	1.7%	10.2%
Five	11.9%	0.0%	11.9%
Six	6.8%	3.4%	10.2%
Seven	0.0%	3.4%	3.4%
Eight	1.7%	1.7%	3.4%
Nine	1.7%	0.0%	1.7%
Ten	0.0%	1.7%	1.7%
	83.1%	16.9%	100.0%

Source: Field data

Further, the study sought to find out the level of education of the respondents. According to the findings, 28.2% of the respondents had completed secondary school education, 14.1% of the respondents had middle college/tertiary education, 11.5% of the respondents were university graduate while the same proportion (11.5%) had not completed secondary school education. Additionally, 7.7% were illiterate, 18% either had incomplete or had completed primary education system. This illustrates that majority of the respondents had attained at most secondary education while education level of a small portion was beyond college diploma or certificate.

On cross-tabulation, the results of mobile money services uses show mixed outcomes across different levels of education. The findings show that 25.6% of the respondents who completed secondary school had used mobile money transfer services, followed by those who had not completed secondary (11.5%), those in middle college/tertiary institutions (14.1%) and university graduates (11.5%). However, majority of the respondents who used mobile money transfer services had at least completed secondary education (60.1%). Jack and Suri (2011) state that adoption of technology such as mobile money service adoption was directly related the populace level of education.

Table 4.5: Level of Education and Savings

Level of Education	Saving level		Total
	(Saving)	(Not Saving)	
Illiterate	5.1%	2.6%	7.7%
Primary School incomplete	5.1%	3.8%	9.0%
Primary complete	7.7%	1.3%	9.0%
Secondary incomplete	11.5%	0.0%	11.5%
Secondary School complete	21.8%	6.4%	28.2%
A-Levels	3.8%	0.0%	3.8%
Some Middle College/Tertiary	12.8%	1.3%	14.1%
University Graduate	10.3%	1.3%	11.5%
Postgraduate	5.1%	0.0%	5.1%
Total	83.3%	16.7%	100.0%

Source: Field data

Crosstabulation results demonstrate that 21.8% of the respondents who had completed secondary education saved money, followed by those in middle college/tertiary educational institutions (12.8%), those who had not completed secondary education (11.5%), and university graduates (10.3%). The mixed results indicate that saving depends also on personal financial discipline, not only on level of education (Ngugi, Pelowski and Ogembo, 2010). However, majority of the respondents with savings had at least completed secondary education (53.8%). Similarly, Delvin (2009) argues that personal attributes such as level of income, level of education, age, gender, the size of household, main source of livelihood determine saving behaviour.

4.3 Saving Methods Used by Fishing Communities in Mbita Division

This section presents the study findings on saving methods used by fishing communities in Mbita Division. A number of factors influence saving practices of individual households. Such factors would include preferences (tastes), sources of income, institutional set-up and accessibility. Fishermen are better placed to choose whichever method of saving that best suit their interests. However, these methods are premised on a number of factors such as affordability, convenience and flexibility. From the findings it was revealed that the respondents saved their money in different forms: banks (39.7%), welfare groups, *Chamaas* or women groups, Merry-Go-Round (80.8%), SACCOs (53.8%), save small amount in form of assets e.g livestock, rental houses (47.4%), MFIs like KWFT and Rafiki (41.0%), Money Transfer Services (MTSs) such as M-Shwari and M-Pesa (82.1%). The higher percentage of people saving money through mobile money services shows higher acceptance rate of the new services and diversion from the old way of savings through *Chamaas*, Women or Welfare Groups and Merry-Go-Round. Mbiti and Weil's (2011) findings show that increase use of M-PESA lowers the propensity of people to use informal savings mechanisms such as ROSCAS. Morawczynski and Pickens (2009) found that majority of M-PESA subscribers use it as a saving instrument.

Table 4.6: Methods of Savings Used by Fishermen

Saving Method	Frequency	
	(Yes)	(No)
Banks	39.7%	60.3%
SACCOs	53.8%	46.2%
Chama, Women or Welfare Groups, Merry-Go-Round	80.8%	19.2%
Save in Form of Assets (Such as livestock and land)	47.4%	52.6%
MFIs like KWFT and Rafiki	41.0%	59.0%
MMSs (M-Shwari/M-Pesa)	82.1%	17.9%

Source: Field data

Findings from key informant interviews indicate that those who do not save have several reasons for that. These included: inability to earn what could meet their basic needs; preferred direct use of money; lack of enough money to save; having high immediate needs; little income; more personal needs; much responsibilities with many dependants within a household; many children within the family to look after in terms of food and education hence little income left to save.

4.4 Mobile Money Services and Access to Formal Financial Services among Fishing Communities in Mbita Division

A number of factors that determine access to financial services means by individuals. For instance, sources and level of income will influence the saving method chosen by individuals. For example, among fishing communities, the amount of income derived from fish related activities may greatly influence the kind of saving an individual may prefer. Other factors that determine saving behaviour include wealth proxies (activities) and exposure to financial services, ownership of mobile phones, mobile money service adoption, cultural orientations (saving practices) and adaptability of individuals to the newly emerging saving methods.

4.4.1 Sources of Income and Saving Practices

More income generating activities are likely to attract more savings. Individuals are able to make informed choices in savings when there exist different sources of income. The study sought to identify sources of income of fishing communities as a link to formal financial services.

The respondents were asked to indicate their source of income. The study findings show that 66.7% were fishermen, 57.7% did some agriculture (crop farming), 51.3% were fish trader, 50.0% were net menders, 46.2% survived on hand out/craftmen, 39.7% did manual work, while 19.2% were boat owners. Thus, most of respondents were mainly involved in fishing activities: fishing, fish trading, repair of fishing nets and ownership of boats or fishing vessels. To some, fishing was secondary to other activities such as agriculture as revealed by the respondents.

Table 4.7: Sources of Income of Fishing Communities

Source	Frequency of saving	
	(Yes)	(No)
Agriculture	57.7%	42.3%
Manual Work	39.7%	60.3%
Hand out/Craftmanship	46.2%	53.8%
Net Mender	50.0%	50.0%
Fisherman	66.7%	33.3%
Fish Trader	51.3%	48.7%
Boat Owner	19.2%	80.8%

Source: Field data

Findings on whether the respondents relied only on one source of income or diversified their income sources indicate that 69.2% of the respondents had diversified their sources of income while 30.8% had not. This illustrates that majority of the respondents had diversified their sources of income probably owing to the seasonality of fish trade. Other sources of income included: boat passenger transport, *boda boda* operations or

ownership, cereal trade/business, horticulture, farming, *kiosk* or shop business, teaching, peasant farmer, land leasing, pub business, other small scale business and social workers. The findings further present the duration that the respondents had depended on their main source of income. The results shows taht 40.3% had depended on their source of livelihood for 6 – 10 years, 36.4% had depended on the same for at most 5 years while 16.9% had depended on their main source of income for more than 15 years. This depicts that majority of the respondents had depended on their main source of income for more than 5 years. This indicates their level of experience, knowledge and reliability of their responses with regards to fishing in Mbita Division.

4.4.2 Sources of Livelihood and Duration of Dependence

Fishing communities depend on different sources of livelihoods. The duration a household may take will be influenced by factors such as reliability of income, individual decision or sustainability of the source of livelihood. in the course of that the level of saving will also change depending on the existing situations.

The findings indicate that the weekly income for 23.1% of the respondents was Ksh501 - 1,000, followed by Ksh100-500 for 20.5% of the respondents, then Ksh2,501 - 5,000 at 19.2% and more than Ksh5,000 for 17.9% of the respondents. This shows that majority (nearly three quartiles) of the respondents sampled earned more than Ksh500 weekly while nearly 50% earned more than Ksh1000 which is slightly above one dollar a day to move beyond absolute poverty level.

The study sought to establish how the respondents communicate with their relatives or friends. From the findings, 92.3% communicate with friends and family through mobile phones, 39.7% through messenger, 29.5% through letters and 43.6% through emails and social media. This depicts that nearly all the respondents communicated through mobile phones as such were exposed to mobile phone use.

The respondents were required to mention whether they own a mobile phone or otherwise. Findings show that 91% of the respondents owned mobile phones while 9%

did not own a mobile phone. Thus, nearly all the respondents, fisher community members, owned at least a mobile phone. Similarly, Ngugi *et al.* (2010) had established that 93 percent of Kenyan households owned and regularly used a mobile phone.

4.4.3 Mobile Money Service Use Among Fishing Communities

Communication has been majorly through use of mobile phones. Thus, the ownership of a phone has a bearing on accessibility of financial services. Fishermen owning phones were likely to use their phones to save their income from fishing. The type of mobile phone also influences the nature of financial service to access. The respondents were asked to state the mobile money service that they use. The study revealed that 82.1% of the respondents used M-Pesa services, 29.5% used M-Shwari, 39.7% used Airtel money services, 20.5% used Orange money, and 7.7% used Yu Money. The findings indicated that majority of the respondents had used M-Pesa services with more than a quarter having, consequently, accessed the M-Shwari component of M-Pesa which allows subscribers to save and borrow money. This conforms to Jack and Suri (2011) study findings that Safaricom dominates 80% of the mobile money transfer services market.

Table 4.8: Mobile Money Services Used by Fishing Communities

Mobile Money Service	Frequency	
	(Yes)	(No)
M-Pesa	82.1%	17.9%
M-Shwari	29.5%	70.5%
Airtel Money	39.7%	60.3%
Orange Money	20.5%	79.5%
Yu Cash	7.7%	92.3%

Source: Field data

Those who had not used mobile money services indicated that they failed to use the services owing to: them finding it easy to access their account and follow up transactions directly; having no one to send or receive money; and, inability to access a phone as an individual.

The respondents were asked to indicate whether they have any form of savings as an individual. The study revealed that 84.4% of the respondents replied affirmatively, while 15.6% replied otherwise. Furthermore, 42.9% of the respondents who saved earned more than Kshs. 1,000 while 6.5% of the respondents did not save. This shows that significant portion of respondents had savings as individuals.

Besides, the study sought to determine the association between amount of money earned per week and the savings of the individual using Chi-square. Chi-square tests the null hypothesis that there is no significant association between one ordinal factor and the other against the alternative hypothesis that there is a significant linear association between the two factors. Should the chi-square significance fall below a p-value of 0.05, the null hypothesis is rejected depicting a significant association. From the findings, a Pearson Chi-square value of 4.334 was established at $p = 0.502$. This depicts an insignificant association between savings and the amount of money earned per week.

Table 4.9: Weekly Income and Savings Rate

Amount	Response		Total
	(Yes)	(No)	
Below Ksh100	5.2%	1.3%	6.5%
Ksh100 – 500	16.9%	3.9%	20.8%
Ksh501 – 1,000	19.5%	3.9%	23.4%
Ksh1,001 - 2,500	10.4%	1.3%	11.7%
ksh2,501 – 5,000	14.3%	5.2%	19.5%
Above Ksh5,000	18.2%	0.0%	18.2%
Total	84.4%	15.6%	100.0%

Source: Field data

The study sought to establish the approximate amount the respondents save out of their weekly income. Findings show that on average, the fisher community saved Ksh819.6, with a maximum amount of Ksh4,000. While the first quartile saved Ksh200 out of their

weekly income, half of the respondents saved at most Ksh500 while the third quartile value was Ksh1,000. Thus, 75% of the respondents saved at most Ksh1,000.

The study findings revealed that often the respondents used mobile money services. Thus, (49.4%) percent used mobile money services daily, 22.1% used the same weekly, 19.5% monthly while 9.0% reported that they used the service a few times in a year. Hence, majority of the respondents used mobile money services very frequently; on a daily basis. This conforms to Mas and Radcliffe’s (2010) findings that 23% of those enrolled in mobile money services used mobile money at least once a day.

4.4.4 Use of Mobile Money and Types of Financial Services

The study sought to find out the type of mobile service respondents used. This was a way of ascertaining whether fishermen saved money through mobile phones. From the findings, 74.4% used mobile money services to send money; 80.8% to receive money; 57.7% to save money; 47.4% to buy airtime; and, 33.3% to pay bill. This depicts that most of the respondents use their mobile money services for varied reasons ranging from sending and receiving money, paying bills, saving money and buying airtime; at least 57.7% used mobile money services to save money with majority (80.8%) using the same for receiving money.

Table 4.10: Use of Mobile Money Services

Purposes	Frequency	
	(Yes)	(No)
Send Money	74.4%	25.6%
Receive Money	80.8%	19.2%
Pay Bill	33.3%	66.7%
Save Money	57.7%	42.3%
Buy Airtime	47.4%	52.6%

Source: Field data

The findings further showed that indicate whether they have ever used their mobile service account to save money. From the study, 85.9% of the respondents replied that they often used their mobile phones for both communication and transaction while only a 14.1% indicated that they rarely used their phones for saving money. The findings conform to Johnson and Arnold (2011) findings that those using mobile money transfers were more likely to save using the medium.

On the respondents' experience in saving using mobile money services, Key informant interviews indicated that 39.7% felt that saving money using mobile money services is easily accessible, while 33.3% felt that it is easy to use compared to other saving platforms. Additionally, 30.8% of the respondents felt that saving using mobile money services is cheap, 1.3% stated that it is not easy to use compared to other saving platforms while none indicated that expensive to the user. This depicts saving money using mobile money services is easily accessible, easy to use and cheap to the user. This explains the high adoption rate of the same.

Those who had not saved money using mobile money services alluded to reasons which included: being ladden with lots of responsibilities; lack of knowledge on how to operate a phone; little income to save anything; ease of withdrawing money anytime and temptation thereof; lack of a phone; and, lack of responsibilities.

The respondents were asked to state how often they use mobile money services for saving in comparison to its other daily/regular uses. It was revealed that 50.0% of the respondents use mobile money services for saving weekly, 22.1% use the same monthly while 19.1% use the same on a daily basis. This depicts that the respondents used mobile money services for saving less than weekly compared to other daily/regular uses.

Besides, the study sought to determine the association between frequency of saving money using mobile money transfer and the amount that the respondents saved weekly using Chi-square. Pearson Chi-square value of 95.221 was established at $p = 0.049$. This depicts a significant association between frequency of saving using mobile money

services and the amount of money saved weekly at 95% confidence level. The finding is similar to Dahlberg *et.al.* (2008) who established that mobile money services increases savings as it reduces the transaction costs and costs of financial intermediaries including formal commercial banks branches.

The study requested those that are already saving using mobile money services to mention which methods they were using to save before the introduction of mobile money services in their community. The respondents mentioned: bank account; micro finance institutions; community SACCOs; saving at home by keeping money under a mattress, wrapping with a piece of clothe, or in polythene bag, closed box and container; post office; and, merry go round or welfare groups.

The study sought respondents' explanations on their experience of saving using money services as compared to other methods of saving that they had used before. They alluded to: accessibility, low charges, cheap, easy and fast to use, makes operations more efficient, easy to save, efficient and easily available, reliable, it is a confidential method as no one can easily access savers' money, it being an alternative to banks, it is easily available with many agents unlike mainstream financial institutions, easy to operate regardless of age compared to banking, its time saving, it is secure, encourages one to save a lot because of accessibility, it is very secretful, mobile phone is flexible compared to post office/ bank, and it being more appropriate for saving small amount of money. However, other stated that mobile money is challenging because those who are not literate may not use it easily and people take use their savings by making unnecessary withdrawals owing to its accessibility. Besides, some respondents still preferred to use their home savings.

On the method used by the respondents to save using mobile money services, 32.9% deposit money in their MMS account, and/or deposit the money and send to another person; 30.0% only deposit money in their MMS account; and, 25.7% deposit the money in the MMS account, send to another person or welfare group leader. Thus, the findings

reveal that the respondents usually deposit money into their MMS account, transfer to another person or their welfare group leader for saving.

Table 4.11: Method of Saving Using Mobile Money Services

Method	Frequency	Percentage
Deposit money in my MMS Account	21	30.0
Deposit money in my MMS account and Transfer to my SACCO	1	1.4
Deposit money in my MMS account and send to another person	4	5.7
Deposit money in my MMS account and send to my welfare group leader	2	2.9
Deposit money in my MMS account and Transfer to my Bank Account	1	1.4
Deposit money in my MMS Account; Deposit money in my MMS account and send to another person	23	32.9
Deposit money in my MMS Account; Deposit money in my MMS account and send to another person; Deposit money in my MMS account and send to my welfare group leader	18	25.7
Total	70	100.0

Source: Field data

The study sought to find out how the respondents use their saved resources. From the findings, 37.2% indicated that they used their saved resources for their children's school fees, 34.6% indicated that they invest back to the business or in other ventures, 10.3% let the money remain in my MMS Account, 7.7% transfer the money through their bank while 5.1% send the money to other people to help them. This shows that most of the respondents used their saved resources to invest back to the business or in other ventures or children's school fees. Very few, however, let the money remain in their MMS

account. On the other use of money saved, the respondents mentioned: domestic purposes, emergency circumstances, personal consumption and investments.

The respondents were asked to indicate how they pay for business related transactions such as supplies, products or materials bought if any. They mentioned cash; barter trade using items like livestock; M-Pesa; combination of cash and M-Pesa; cheques, and through my rent collections. Morawczynski (2011) also found that consumer use mobile money services to pay for services instead of paying using cash.

4.5 Influence of Mobile Money Services on Saving Behaviour of Fishing Communities in Mbita Division

The form of saving used by individuals is influenced by among other factors, availability of financial institutions, conditions of operating an account (flexibility) and nature of one's income. The study found out that there existed different groups and financial institutions that influenced savings of fishermen in Mbita Division.

4.5.1 Membership to Financial Institutions

Conditions that are set by different institutions or groups help facilitate financial service. strictly, there are conditions that are set for existence of a given group. These conditions help individuals to access financial services. the study findings on respondent's membership to various groups show that 56.4% were members of welfare groups, 17.9% were customers of commercial banks, 7.7% were customers of Micro Finance Institutions. This depicts that majority of the respondents were members of welfare groups. Other memberships included family group and merry-go-round.

Moreover, the chi-square test shows the association between amount saved and membership to financial intermediaries. This was with the view to determine whether membership to multiple financial institutions or intermediaries enabled the respondents to save money. A Pearson chi-square value of 65.853 at significance value of $p = .004$. This depicts significant association between the amount of money saved and the number of financial intermediaries the fisher communities were members.

Table 4.12: Membership to the Financial Institutions

	Yes	No	
Commercial Bank	17.9	82.1	
Micro Finance Institution	7.7	92.3	
Welfare Group	56.4	43.6	
SACCO	6.4	93.6	
Chi-Square	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	65.853a	60	.004
Likelihood Ratio	65.503	60	.292
Linear-by-Linear Association	.420	1	.517
Number of Valid Cases	74		

4.5.2 Access to Financial Services

Mobile phones are equipment used to communicate and transact services. They work together with other financial institutions so that the users can access certain services. Among fishing communities, some of the financial institutions are located far off particularly in urban areas or beaches. Thus, poor access to these services. Literacy levels of fishermen may also influence accessibility, marketing strategy, cultural orientations and lack of interest among some individuals contribute to poor access to formal financial services among fishing communities.

The study found that there were several contributing factors to the state of poor access to formal financial services in the community. From the findings, 10.3% alluded to lack of interests from fishermen as contributing to the poor access to formal financial services in the community, 9.0% mentioned lack of knowledge of products, 7.7% stated distances to the formal financial institutions, 5.1% pointed to low literacy levels. Thus, it can be depicted that poor access to formal financial institutions are not brought about by lack of interests from fishermen nor their lack of knowledge of institutions' products, distances to the Institutions, low literacy levels and cultural hindrances.

Table 4.13: Access to Formal Financial Services

Barrier	Access	
	(Yes)	(No)
Low literacy levels	5.1	94.9
Distances to the Institutions	7.7	92.3
Lack of interests from Fishermen	10.3	89.7
Lack of knowledge of Products	9.0	91.0
Cultural Hindrances	1.3	98.7

Source: Field Data

The respondents were asked to state whether services of formal financial institutions were easily accessible to them within the community. From the findings presented, 79% of the respondents were affirmative while 21% replied conversely. Thus, formal financial institutions were easily accessible to the fisher community members. Delvin (2009) established that accessibility of the financial institutions influences saving behaviour.

4.5.3 Preferred Method/ Institution for Saving Money

Fishermen have different preferences in terms of saving. Their choices are also dependent on a number of factors. The study findings on the respondents' preferred method/institution for saving their money showed varied responses. Findings indicate that 33.3% of the respondents preferred M-Shwari, 23.1% preferred mobile money or M-Pesa, 14.1% preferred Microfinance Institutions, 10.3% preferred SACCOs, 9.0% preferred commercial banks. Therefore, the respondents preferred method of saving money was M-Shwari, Mobile Money, Microfinance Institution and SACCOs.

Table 4.14: Preferred Method/Institution for Saving Money

Method	Frequency	Percentage
Commercial Bank	7	9.0
Microfinance institution	11	14.1
SACCO	8	10.3
Mobile Money/ M-PESA	18	23.1
M-Shwari	26	33.3
M-Kesho	2	2.6
Other	6	7.7
Total	78	100.0

Source: Field data

The reason for using the preferred method/institution for saving money included: accessibility when required; availability at any time of the day (agents being everywhere); benefits of loans at lower rates; check off system; easily accessible and available; fast and reliable transactions; ease of use or transaction; low charges too; give large amount of money in form of loans; helps in assisting and improving livelihoods; interest on savings; high security; reliability; serves several purposes; money cannot get lost; no delays; cheap and easy to transfer cash; being that one cannot easily access money until they follow the right procedures thus ability to save more; restrictions on the withdrawal; safe and accessible account at hand; knowledge of the people at personal level; affordable loans in terms of interest; and, time saving based on emergency needs. Beck *et al.* (2008) established that for a long time financial inclusion and savings were low as the mainstream financial institutions like banks did not design appropriate financial services products for low-income earning individuals out of the perception that it is highly costly to administer financial services.

The respondents were requested to indicate whether the availability of mobile money services has changed their saving patterns at a personal level. The respondents elucidated to mobile money: having shattered all the long processes involved in banks since the mobile is at hand; having enabled ease of accessing money without filling a form;

bringing convenience and ability to have multiple sources of income; being more safe; and, enhancing ability to save more even small amount of money. Mobile money has also enabled savings as they don't have to walk long distance to save money as was with banks and queing in order to deposit. Besides, they do not use a lot of cash for transport as they send money at they comfort; due to low rates; easilly accessible.

Mobile money has also enabled accumulation of small amounts of money which would be a challenge for banks. It has also improved trade as customers pay through M-Pesa and elaminate spending of money anyhow. It also keeps money safer than the old methods where money could be misplaced. The respondents depending on their children can easily and readily receive money from their children in far places. It has enhanced security and eliminated misuse of money unlike before. It has, further, enabled people to invest at any moment and avoid impulse buying of goods. Howeevr, others felt that mobile money has not enhanced their saving practices as: their income has reduced; they can control their personal financial managemenet without the help of M-Pesa; and being that money saved in M-Pesa is readily accessibility.

The respondents were asked whether they were aware of any formal financial institutions such as commercial banks, SACCOs or Microfinance institutions within the community that collect deposits or contributions from their members through mobile money services. Findings indicate that 74.4% of the respondents' answers were to the positive while 25.6% replied negatively. The results show that 69.7% of the respondents whose financial intermediaries saved money through mobile money saved money the same way while only 15.8% whose financial institutions never saved through mobile saved money using mobile money services. Therefore, there were formal financial institutions collecting deposits through mobile money services. Mbiti and Weil (2011) established that mobile phone has become a tool for access to financial services. The findings also underscored the importance of formal financial institutions creating avenues of saving money using mobile money services in order to foster saving culture in fisher community.

The respondents mentioned that formal financial institutions included: bus services; banks such as Co-Operative Bank, Kenya Commercial Bank, Equity Bank; SACCOs such as Mwalimu, Nyagina SACCO; MFIs such as Rafiki, Davelink, KWFT and SUTECO; Kang'onda Group; KINDA; Post Bank and Supermarkets.

The study analyzed the association between formal financial institutions products enabling harnessing of saving using mobile money services and records of actual savings realized in financial institutions using the mobile platforms. The results presents a chi-square value of 14.287 was established at $p < 0.001$. This interpreted as an indication of significant association between formal financial institutions and saving practices using mobile money services. This could owe to the formal financial institutions creating products where individuals can save money in bank accounts using mobile phones; the study established this led to actual savings using mobile money services.

The respondents were asked to indicate whether they think there were any observable negative effects that the introduction of mobile money services has had on their saving practices or the saving practices of other people in the community. Findings show that 39.7% indicated that their were negative effect of mobile money services on their savings while 60.3% denied such assertion. This indicate that there were far fewer negative effect of mobile money services on savings.

The repondents mentioned negative effects or impediments, including: being conned through phones; delays when there is slow flow of service; rumours that phones are not good for health; being too tempting in terms of withdrawal; occasional long waiting hours for transaction and movement to M-Pesa agents; money laundry by people; network problem; phone theft; and, high charges to withdraw.

Finally, the study sought to establish the positive effect that mobile money services brought to their saving practices. The respondents mentioned: ease of access from anywhere; cheap and easy to access; easy communication; easy to manage or operate; efficient and accessible at any time; enhanced transactions accessibility; making money

transaction to have limited theft; fast transactions; helping women who have small groups and businesses; enhanced savings; highly efficient; increased interaction and transaction; and, it being timeless. They further stated that M-Shwari as a saving and borrowing platform is reliable, increased confidentiality, enabled more savings in a week, ability to save money at any time, productive since money can be accessed without fear owing to the inherent security. Besides, mobile money services are quick and safe way of money handling and transaction. It is productive since money can be kept safely and enabled customers to pay through M-Pesa that is more secure and readily available for saving.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the analysis of data based on the study objectives. The conclusions and recommendations, thereto, are presented. Thus, the chapter is structured into discussions, conclusions, recommendations and areas for further research.

5.2 Summary

The findings indicate most people in fishing communities derive their living from fishing activities: fishing, fish trading, repair of fishing nets and ownership of boats or fishing vessels; these people had been involved in such activities for more than 5 years. They also had other sources of income such as: farming, cereal trade/business, teaching, boat passenger transport, boda boda operations among others. Majority earned more than Ksh100 a week. These aspects determined the type of saving methods that were used by fishing communities. The findings revealed that all the respondents communicated and owned mobile phones, and used mobile money services. they therefore saved their money through services such as; M-Pesa services, M-Shwari, Airtel or Orange Money.

Majority used mobile money services daily. However, those who failed to use mobile money services cited lack of a phone as the biggest impediment. Majority of the respondents had individual savings with 75% of the respondents saving at most Ksh1,000 a week. They also saved their money in the banks, welfare group, SACCOs, *Chama*, MFIs, M-Shwari, M-Pesa among others. Others saved their money inform of household assets such as livestock. The ones who did not save money gave reasons such as earning little income that barely met their basic needs thus used the money earned, having high and instant needs and having a lot of responsibilities owing to many dependants.

Apart from savings, most of the respondents used their mobile money services for varied reasons ranging from sending and receiving money, paying bills and buying airtime. Majority choose to save money using mobile money services as they were accessible, easy to use, reliable, secure, secretive, convenient and cheap (low charges). The findings

also indicated that mobile money services were more appropriate for saving small amount of money. However, the findings revealed that mobile money services had setbacks as a saving platform as the savers accessed their savings easily. Mobile money services eliminated prior practices of savings such as keeping money under a mattress, wrapping with a piece of clothe, or in polythene bag, closed box and less effective methods such as merry-go-round or welfare groups. The findings show that formal financial institutions were easily accessible to the fisher community members.

However, others stated that use of mobile money services is a challenge because those who are not literate may not use it easily and people use their savings on unnecessary withdrawals owing to its accessibility. Besides, some respondents still preferred to use their traditional home savings methods. While some used the saved money to reinvest into the business and other investments, others used the same for domestic purposes (personal consumption), emergency circumstances, and paying children school fees.

The findings revealed that the fishing community chose saving method based on: accessibility, convenience (availability with regards to time and place), access to loans and at lower rates, transaction speed and reliability (no delays), ease of use or transaction, helping and assisting in improving livelihoods, interest on savings, and high security. Besides, there were far fewer negative effect of mobile money services on savings. This included: being conned through phones including inconveniences caused by phone theft, delays when there is slow flow of service, rumours that phones are not good for health, being too tempting in terms of withdrawal, occasional long waiting hours for transaction and movement to M-Pesa agents, money laundering by people, network problem, and high charges to withdraw.

5.3 Conclusions

Based on the findings of the study, a number of conclusions are drawn. On the saving methods used by fishing communities, fisher communities have been saving significant proportion of their weekly earnings. They have adopted a mix of traditional and modern saving methods ranging from: buying of assets such as livestock, SACCOs, MFIs like

KWFT and Rafiki, *chamas*, banks among others. Other informal saving methods included keeping money in boxes, under the mattress or wrapping the same with a piece of cloth. Those who used mobile money services saved in M-Shwari or in their M-Pesa accounts including transferring to their accounts in other financial intermediaries. On average the fishing community, saved Ksh819 weekly.

The study concludes that mobile money services have enhanced access to formal financial services in fishing communities. The findings reveal that fishing community members are able to transfer their daily income to their banks or SACCOs using their phones. It is also a robust substitute to many informal methods of savings such as keeping money in containers or saving at home. Contrary to financial institutions initial conservative views on mobile money services as potential perfect substitute to banking making them extinct, mobile money services has improved the efficiency and regularity of savings by low income earners. Commercial banks and other financial institutions have adopted platforms where customers use mobile phones to transfer money to and from their accounts including transacting business such as buying goods and paying bills. Besides, making deposits to one's account is made more accessible, easier and cheaper. Mobile money services have served the fisher community need for taking temporary low interest rate loans, such as M-Shwari, to manage consumption shortfalls during periods of income volatility. This has encouraged the fishing community members to use mobile money services for saving.

On the effects of mobile money services on saving methods of fishing communities, the study concludes that mobile money services have improved the capacity of low income users to save in comparison to keeping "cash on hand". Mobile money has also enabled saving of even small amounts of money which would not be the case in traditional brick and mortar setting when savers had to travel to the banks, thus, incurring transport cost. This made saving of small amount unfeasible. With mobile money services, money is simply transferred from one comfort anytime, anywhere. Mobile money has also enabled accumulation of small amounts of money which would be a challenge for banks. Mobile money services have enhanced performance of fisher community businesses by enabling

payment of services or transactional exchange conveniently and securely unlike the traditional methods that were vulnerable to burglary and robbery. Thus, mobile money services have become effective, safe and trustworthy saving instruments for the users. Mobile money has enabled saving as it is less strenuous unlike banks that have long processes including queuing in order to deposit, is convenient, having enabled ease of accessing money without filling a form, enhanced ability to have multiple sources of income as money is easily transferred, and is safe. It has also improved trade as customers pay through M-Pesa and eliminated spending of money anyhow (avoid impulse buying of goods).

5.4 Recommendations

Successful mobile money services require multiple stakeholders with varying interests to work together in all areas. This includes consumers, banks, SACCOs, MFIs, *chamas*, welfare groups. These stakeholders should come up with saving products linked to mobile money transfer services to enable swift exchange of money from fishing stakeholders' possession to their savings account.

The findings revealed that there being fraud-related incidences, there is need for concerted effort to rid mobile money services of such. This would help enhance the fishing community to have faith in the services. These strategic alliances would be aimed at streamlining various laws and regulations that relate to financial institutions, money laundering, mobile operators, electronic commerce and contracting.

Empirical evidence from the findings shows that mobile money services have the potential to benefit fishing community in Mbita. Besides, enhancing money handling from business elderly persons can receive money from their urban and foreign-based relatives at the click of a button, which they may save. Irrespective of the milestones achieved thus far, challenges related to the security of the MMS services as well as regulations still remain. In addition, the mobile money accounts do not necessarily increase the number of bank account holders in the country making their contribution to financial inclusion is limited to improving payments and money remittance. Otherwise,

for the un-banked population, mobile money accounts cannot enable them access other crucial banking services such as credit.

There is a need for enhancing the role of financial institutions in the opening of mobile accounts. The involvement of financial institutions more closely would allow the expertise they possess in KYC guidelines implementation to be exploited to ensure that challenges associated with Money Laundering / Financing of Terrorism are kept to a bare minimum. Furthermore, it would introduce the clientele to the financial institutions and open up the possibilities of these clients opening up bank accounts or upgrading mobile accounts into bank accounts.

5.5 Areas for Further Research

The study suggests that similar studies can be done in other regions of Kenya especially in remote areas that have low financial infrastructure availability such as North Eastern province to determine how mobile money services affect their saving culture. The same study can be replicated in other professions other than fishing, could cover farming as well. This would bring about a holistic view of how mobile money affects saving. Besides, further studies can look at how mobile money services and saving behaviour has influenced poverty alleviation within the area.

REFERENCES

- Anjani, K., Singh, D. and Kumar, P. 2007. *Performance of rural Credit and Factors affecting choice of credit sources*. Indian Journal of Agricultural Economics, Vol.62 No. 3.
- Arora, R. 2010. *Measuring Financial Access*, Economics Discussion Paper No.2010-07. Griffith Business School, pp. 23.
- Atieno, R. 2004. 'Small Scale Enterprises in Kenya. How Important is Access to Credit?' in Wohlmuth, K., A. Gutowski, T. Knedlik, M. Meine and S. Pitamber (Eds) *African Entrepreneurship and Private Sector Development*. Africa Development Perspectives Yearbook 2002/2003. Munster: LIT Verlag.
- ATISG, 2010. 'Innovative Financial Inclusion'. Principles and Report on Innovative Financial Inclusion; from the Access Through Innovation Sub Group (ATISG) of the G20 Financial Inclusion Expert Group.
- Beck, T. and Demirguc-Kunt, A. 2008. *Finance, inequality and poverty: Cross-country evidence*. Policy Research Working Paper 3338. World Bank, Washington DC.
- Beck, T. and Martin B. 2011. *Which households use banks? Evidence from the transition economies*. Working paper 1295, European Central Bank.
- Beck, T., Cull, R., Fuchs, M., Getenga, J., Gatere, P., Randa, J., and Trandafir, M. 2010. "Banking Sector Stability, Efficiency, and Outreach in Kenya", Policy Research Working Paper 5442, Washington: World Bank Group.
- Center for Financial Inclusion, 2011. *Opportunities and obstacles to financial inclusion*. Survey report. Publication 12. US: ACCION International.
- Central Bank of Kenya and Financial Sector Deepening, 2009. *FinAccess National Survey 2009*. Nairobi, Kenya.
- Consultative Group to Assist the Poor (CGAP), 2009. "Financial Access 2009: Measuring Access to Financial Services around the World." Washington, DC: CGAP.
- Dahlberg, T., Mallat, N., Ondrus, J. and Zmijewska, A. 2008. 'Past, present and future of mobile payments research: a literature review'. *Electronic Commerce Research and Application*, Vol. 7 No. 2, pp. 165-81.
- Delvin, F. 2009. "An Analysis of Influences on Total Financial Inclusion" *The Services Industry Journal*, 29:8 1021-1036.

- Dupas, P. and Robinson, J. 2009. "Savings Constraints and Microenterprise Development: Evidence from a Field Experiment in Kenya." National Bureau of Economic Research Working Paper, Cambridge, MA.
- Eriksson, P. and Kovalainen A. 2008. *Qualitative Methods in Business Research*. London: Sage Publications Ltd.
- FAO, 2011. *The State of World Fisheries and Aquaculture*. Fisheries and Aquaculture Department of the Food and Agriculture Organization of the United Nations, Rome, 2011.
- GSM Association, 2008. "Mobile money transfer: introduction to MMT", available at: www.gsmworld.com/documents/GSMA.pdf.
- Jack, W. and Suri, T. 2011. "Mobile Money: The Economics of M-PESA" NBER
- Jack, W., and Suri, T. 2010. "The Risk Sharing Benefits of Mobile Money" MIT Working Paper.
- Johnson, S. and Arnold, S. 2011. *Financial Exclusion in Kenya: Examining the Changing Picture from 2006-2009, Financial Inclusion in Kenya*. Survey results and analysis from FinAccess 2009. FSD Kenya and Central Bank of Kenya, Nairobi.
- Kagwa, R. 2006. *Fingerponds: managing nutrients and primary productivity for enhanced fish production in Lake Victoria wetlands, Uganda*. PhD thesis UNESCO-IHE, Institute for Water Education, Delft, The Netherlands.
- Karlan, D. and Jonathan, Z. 2011. *Microcredit in theory and practice: Using randomized credit scoring for impact evaluation*. Science Journal 332, 1278-1284.
- Kateregga, E. and Sterner, T. 2007. "Indicators for an Invasive Species: Water Hyacinths in Lake Victoria," *Ecological Indicators* 7(2): 362-70.
- Kendall, J., Mylenko, N. and Ponce, A. 2010. *Measuring Financial Access around the world*. The World Bank Policy Research Working Paper, 5253. <http://econ.worldbank.org>
- Kipkemboi, J. 2006. *Fingerponds: seasonal integrated aquaculture in East African freshwater wetlands, exploring their potential for wise use strategies*. PhD thesis, UNESCO-IHE Institute for Water Education, Leiden, The Netherlands.
- Kipkemboi, J., Van Dam, A. and Denny, P. 2006. *Biophysical suitability of smallholder integrated aquaculture-agriculture systems (Fingerponds) in East Africa's Lake Victoria freshwater wetlands*. International journal of Ecology and Environmental Sciences, 32; 75-83

- KMFRI, 2008. *Current status of trawl fishery of Malindi Ungwana Bay*. Report by Kenya Marine and Fisheries Research Institute, Mombasa, Kenya. 97 pp.
- Kombo, D. and Tromp, A. 2006. *'Proposal and Thesis Writing; An Introduction'*. Paulines Publications Africa, Nairobi.
- Mas, I. and Morawczynski, O. (2009) *'Designing Mobile Transfer Services: Lessons from M-PESA Innovations'*. GSM World Annual Report.
- Mas, I. and Ng'weno, A. 2009. *"Three keys to M-PESA's success: Branding, channel management and pricing,"* mimeo, Bill and Melinda Gates Foundation, December 2009.
- Mas, I. and Radcliffe, D. 2010. *Mobile Payments go Viral: M-PESA in Kenya*, Bill and Melinda Gates Foundation.
- Mbiti, I. and Weil, D. 2011. *Mobile banking: The impact of M-PESA in Kenya*. Working Paper 17129. National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge.
- Mitulla, WV. 2000. *Lake Victoria Nile Perch Fish Cluster: Institutions, Politics and Joint Action*. IDS Brighton.y
- Morawczynski, O. 2011. *'Saving through the mobile: a study of M-PESA in Kenya'*, in Ashta, A. (Ed.), *Advanced Technologies for Microfinance: Solutions and Challenges*, IGI Global, Hershey, PA.
- Morawczynski, O. and Pickens, M. 2009. *Poor People Using Mobile Financial Services: Observations on Customer Usage and Impact from M-PESA*, CGAP, Washington, DC.
- M-PESA in Kenya: Initial Findings"* IRIS Center Report, University of Maryland.
- Mugenda, A. 2008. *Social Science Research: Theory and Principles*, Applied Research and Training Services Press, Nairobi.
- Mwangi, H. 2008. *Aquaculture in Kenya; Status, Challenges and Opportunities*. Food and Agriculture Organization of the United Nation, Working Paper.
- Ngugi, B., Pelowski, M. and Ogembo, G. 2010. *M-PESA: a case study of the critical early adopters' role in the rapid adoption of mobile money banking in Kenya*. The Electronic Journal on Information Systems in Developing Countries (2010), Vol. 43, 3, 1-16.

- Okello, J., Edith O., Oliver, M. and Ruth, O. 2010. *Using ICT to integrate smallholder farmers into agricultural value chain: the case of Drum Net project in Kenya*. International Journal of ICT and Research Development, 1: 23-37.
- Omwega, R., Abila, R. and Lwenya, C. 2010. *Fishing and poverty levels around Lake Victoria*. Kenya Marine and Fisheries Research Institute, Working paper.
- Owens, J. 2007. *Leapfrogging access to finance with mobile phone technology: Philippine rural banks offering M-banking & M-commerce services*. Presentation at IFC/CGAP conference 17-19 September 2007, Washington, D.C.
- Plyler, M., Hass, S., and Nagarajan, G. 2010. *Community-Level Economic Effects of*
- Rasmussen, S. 2010. *“Mobile Banking in 2020”* in CGAP Technology Program (Washington: Consultative Group to Assist the Poor).
- Republic of Kenya: Fisheries Department, 2008. *Frame survey report*. Ministry of Fisheries Development, Kenya. Provincial Headquarters, Mombasa, 143 pp.
- Robinson, M. 2004. “Mobilizing savings from the poor: basic principles and practices” <http://www.microfinancegateway.org./content/article/detail/23749>.
- Safaricom, 2012. *Safaricom Half Year Financial Report*. Press Release of June 4th, 2012.
- Samoilys, M., Osuka, K. and Maina, W. 2011. *Artisanal fishing in Kenya: what are the effects?* SWARA Magazine.
- Saunders, M. Lewis, P. and Thornhill, A. 2009. *Research Methods for Business Students, 5th ed*. Harlow: Pearson Education.
- Mugenda, O.M., & Mugenda, A.G. 2003. *Research Methods; Quantitative and Qualitative Approaches*. Nairobi: African Centre for Technology Studies (ACTS) Press.
- Thorat, U. 2007. *Financial Inclusion; The Indian Experience*. In: HMT-DFID Financial Inclusion Conference 2007, Whitehall Place, London, UK (2007).
- Vaughan, P. 2007. *“Early lessons from the deployment of M-PESA, Vodaphones’s own mobile transactions service”* In *The Transformational Potential of M-transactions*, Vodaphone Policy Paper Series, No.6.
- Venkatesh, S. 2006. *Trends in poverty and livelihoods in coastal fishing communities of Orissa State, India*. FAO Fisheries Technical Paper, No. 490. Rome. Working Paper 16721.

World Bank Group, 2006. *Global Development Finance: The Development Potential of Surging Capital Flows*. Volume I: Review, Analysis and Outlook.

Yin, K. 1994. *Case Study Research: Design and Methods*. Thousand Oaks, California: Sage Publications.

APPENDICES

Appendix 1: Interview Guide

Mobile money services and saving practices of fishing communities; A study of small-scale fisheries in Mbita Division in Homa Bay County, Kenya

Issues for Discussion

Names of interviewee:

Organization:

Position:

Date of interview:

1. Find the occupation of the respondent and their general bio-data.
2. Enquire about what the respondents feels is the saving behaviours of fishing community in Mbita Division.
3. Establish what the respondent thinks is the level of access to financial services in the area.
4. Find out what the respondent thinks are the major challenges facing the fishing community in Mbita Division in their quest to access formal financial services.
5. Establish whether there are any forms of social services support from Government or Non-Governmental Organizations to the community in the area in improving access formal financial services.
6. Find out whether the respondent considers mobile money services to be playing a significant role in helping people working in the fishing sector in Mbita Division to access financial services.
7. Find out whether formal financial service providers in Mbita Division are adopting the use of mobile money services in their service provision.
8. Establish their opinion on what could be the obstacle (if any) to adoption and use of mobile money services for saving by fishing community in Mbita Division.
9. Does the respondent think that people in the fishing community in Mbita Division are using mobile money services for saving? In his/her opinion, what could be the factors behind this adoption and use of mobile money services for saving?

Appendix II: Study Questionnaire

Introduction

Hallo. My name is **Jonah Osore**. I am a student at the **Institute of Development Studies, University of Nairobi**. I am conducting a survey on the influence of Mobile Money Services on the saving practices of the fishing community in Mbita Division as part of my academic requirement. I request that you allow me to ask you a few questions. The answers you give will strictly be used for purposes of this study and your identity shall be kept anonymous. I will appreciate if you can be very honest with your answers.

Part A: General Information

Date of Interview: _____

Participant No. _____

Part B: Demographic Information

1. Gender:
 - (1) Male []
 - (2) Female []
2. Age:
 - (1) 18-35 []
 - (2) 36-50 []
 - (3) 51-65 []
 - (4) Over 65 []
3. Marital Status:
 - (1) Single []
 - (2) Married []
 - (3) Divorced []
 - (4) Widowed []
 - (5) Cohabiting []
 - (6) Separated []
 - (7) Other (Please Specify).....

4. Do you have any children? *(Please tick one)*
- (1) Yes []
- (2) No []
5. If Yes, in Question 4.above, how many children do you have?

6. Highest Level of Education Attained:
- (1) None-literate []
- (2) Primary School incomplete []
- (3) Primary complete []
- (4) Secondary incomplete []
- (5) Secondary School complete []
- (6) A-Levels []
- (7) Some Middle College/Tertiary []
- (8) University Graduate []
- (9) Postgraduate []
- (10) Other (Specify).....

Part C: Wealth Proxies and Exposure to Mobile Money Services

7. What is your main source of income? *(Please tick one)*
- (1) Agriculture []
- (2) Manual Work []
- (3) Hand out/Crafts man []
- (4) Net Mender []
- (5) Fisherman []
- (6) Fish Trader []
- (7) Boat Owner []
- (8) Other (Specify).....
8. Is the activity in Question 7. Above your only income generating activity?
- (1) Yes []
- (2) No []

9. If No. in Question 8. Above please specify your other source(s) of income

10. For how long have your occupation in Question 7. Above been your source of livelihood?(*Please tick one*)
- (1) 0-5 Years []
- (2) 6-10 Years []
- (3) 11-15 Years []
- (4) Over 15 Years []
11. How do you communicate with your relatives or friends? (*Please tick one*)
- (1) Letters []
- (2) Messengers []
- (3) Mobile Phone []
- (4) Other (Please specify)
12. Do you own a mobile phone? (*Please tick one*)
- (1) Yes []
- (2) No []
13. Have you ever used Mobile Money Services? (*Please tick one*)
- (1) Yes []
- (2) No []
14. If yes, in Q 13, which one? (*Please tick one*)
- (1) M-PESA []
- (2) Airtel Money []
- (3) Orange Money []
- (4) Yu Cash []
- (5) M-SHWARI []
- (6) Other (Please Specify).....
15. If No. in Question 13. above, could there be any specific reason for this.....

Part D: Use of Mobile Money Services for Saving and access to other Formal Financial Services/Institutions

16. How much is your average weekly income in Kenya Shillings (*Approximately*)?
- (1) Below 100 []
 - (2) 100-500 []
 - (3) 501-1000 []
 - (4) 1001-2500 []
 - (5) 2501-5000 []
 - (6) Above 5000 []
17. Do you have any form of savings as an individual? (*Please tick one*)
- (1) Yes []
 - (2) No []
18. If No. in Question 16. above, could there be any specific reason as to why you do not save? (*Please explain*).....
19. If Yes, which one is it (specify).....
20. Out of your weekly income, approximately how much do you save? (*Please Specify*).....
21. How often do you use mobile money services as an individual? (*Please tick one*)
- (1) Daily []
 - (2) Weekly []
 - (3) Monthly []
 - (4) A few times in a Year []
 - (5) Other (Specify).....
22. Mobile Money Services are enabled to serve several purposes, for which of the following purposes have you ever used mobile money services? (*Please tick appropriately if more than one*)
- (1) Send Money []
 - (2) Receive Money []
 - (3) Pay Bill []
 - (4) Save Money []
 - (5) Buy Airtime []

- (6) Other (Specify)
23. Have you ever used your mobile service account to save money? *(Please tick one)*
- (1) Yes []
- (2) No []
24. If Yes. in Question 21 above, how in the following ways would you describe your experience of saving using mobile money services to be? *(Please tick appropriately)*
- (1) Easy to use compared to other saving platforms []
- (2) Not easy to use compared to other saving platforms []
- (3) Expensive to the user []
- (4) Cheap to the user []
- (5) Easily accessible []
- (6) Other (Specify any other experience).....
25. If No. in Question 21 above, could there be any specific reason for this?
.....
26. If Yes. In Question 21 above: how often do you use mobile money services for saving in comparison to its other daily/regular uses? *(Please tick one)*
- (1) Daily []
- (2) Weekly []
- (3) Monthly []
- (4) A few times in a Year []
- (5) Other (Specify).....
27. If you are currently saving using mobile money services, kindly mention which method(s) you were using to save before the introduction of mobile money services in your community
.....
28. How would you explain your experience of saving using money services as compared to other methods of saving that you have used before? *(Kindly comment)*
.....
.....

29. If Yes to Question 21 above: how would you describe your methodology of saving using Mobile Money Services? (*Please tick one*)
- (1) Deposit money in my MMS Account []
 - (2) Deposit money in my MMS account and Transfer to my SACCO []
 - (3) Deposit money in my MMS account and send to another person []
 - (4) Deposit money in my MMS account and send to my welfare group leader []
 - (5) Deposit money in my MMS account and Transfer to my Bank Account []
 - (6) Both 1& 3 []
 - (7) Use 1, 3 &4 []
 - (6) Other Method (Please Specify).....
30. How do you use your saved resources? (*Please tick appropriately*)
- (1) Invest back to the business or in other ventures []
 - (2) Let it remain in my MMS Account []
 - (3) Send it to other people to help them []
 - (4) Use it for my children's school fees []
 - (5) Transfer through my bank []
 - (6) Other use (Please Specify).....
31. How do you pay for your business related transactions such as supplies, products or materials bought if any? (*Please comment*)
-
-
32. Are you a customer or member of any of the following financial institutions? (*Please tick appropriately*)
- (1) Commercial Bank []
 - (2) Micro Finance Institution []
 - (3) Welfare Group []
 - (4) SACCO []
 - (5) Other (Specify).....

33. If No. in Question 31 above, which of the following reasons do you think are contributory factor to this state of poor access to formal financial services in your community? *(Please tick appropriately)*
- (1) Low literacy levels
 - (2) Distances to the Institutions
 - (3) Lack of interests from Fishermen
 - (4) Lack of knowledge of Products
 - (5) Cultural Hindrances
 - (6) Other (Specify).....
34. As an individual, would you say that services of formal financial institutions are easily accessible to you within your community? *(Please tick one)*
- (1) Yes
 - (2) No
35. What is your preferred Method/Institution for saving your money? *(Please tick one)*
- (1) Commercial Bank
 - (2) Microfinance institution
 - (3) SACCO
 - (4) Mobile Money/ M-PESA
 - (5) M-SHWARI
 - (6) M-KESHO
 - (7) Other (Specify)
36. Is there any reason(s) for your preference of the Method/Institution in Question 34 above?.....
-
37. Has the availability of Mobile Money services changed your saving patterns at a personal level? Please Explain.
-
-

38. Are you aware of any formal financial institutions such as commercial banks, SACCOs or Microfinance institutions within your community that collect deposits or contributions from their members through Mobile Money Services?

(Please tick one)

(1) Yes []

(2) No []

39. If Yes, Please name the institution.....

40. Lastly, do you think there are any observable negative effects that the introduction of mobile money services has had on your saving practices or the saving practices of other people in your community?

(1) Yes []

(2) No []

41. If Yes, in Question 38 above, please comment further in detail

.....
.....

42. If no negative effects state briefly the positives.

.....
.....

THANKS FOR YOUR PARTICIPATION.

Appendix III: Map of Study Area

(The area shaded in green shows Mbita Division).



