THE IMPACT OF MOBILE BANKING: A CASE STUDY OF

M-PESA IN THE KENYAN SOCIETY

BY

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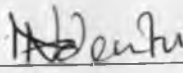**A MANAGEMENT RESEARCH PROJECT SUBMITTED IN PARTIAL**

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DECLARATION

This project is my original work and has not been submitted for a degree in any other University.

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The successful completion of this study would not have been possible without the assistance and cooperation of my supervisor Dr. Muranga Njihia.

Also special thanks to all the people who took their time to fill my questionnaires.

DEDICATION

To my lovely son Douglas.

To my wife Dorcas whose constant encouragement inspired this work in ways unseen

and

to my mother Anna and all my sisters Diana, Patricia and Elizabeth.

I love you all tremendously.

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ABSTRACT

In March 2007, Kenya's largest mobile network operator, Safaricom (part of the Vodafone Group), launched M-PESA, an innovative mobile banking service for the unbanked. "Pesa" is the Swahili word for cash; the "M" is for mobile. Since then the growth of M-Pesa has been explosive and is a clear sign that M-PESA fills a gap in the market.

The purpose of this study is to determine the economic and social impact of mobile banking such as M-PESA to the society in Kenya. The respondents were selected from a representative sample of the close to 10 million M-Pesa registered users (Safaricom Annual Financial Report, 2010) and a number of selected M-Pesa authorized agents. Questionnaires were used to collect the primary data which was supplemented with some secondary data from Safaricom. Various statistical analysis techniques such as descriptive statistics, difference of means and Chi-Square test were used to measure the social and economic impacts M-Pesa has had. From the findings it was revealed that indeed M-Pesa had had a huge impact on the Kenyan society both economically and socially. Also from the research study other interesting findings were discovered that could contribute to improving M-Pesa as a service.

Finally, the research study recommends the need for further studies possibly targeting other mobile banking services across Kenya.

husbands and other contacts in Kenyan cities. Remittances through M-PESA relieve many women in rural areas of the burden of traveling by bus to cities to receive money from their husbands and relatives, a process that for some could take as long as one week. However, on the negative side it reveals that now some men working in the cities have cut back on the number of visits to their rural homes, visits they made more frequently before M-PESA was available in order to deliver funds to their wives and relatives. As a result, some wives fear their husbands may leave them for "city wives," which could lead to a complete stop to remittances or, worse, to competing claims for their homes and land. (Morawczynski, 2009)

1.2   Statement of the Problem

The World Bank estimates that in many countries, over half the population, "the unbanked", has never had a bank account. The poor tend to be terrified of banks, since they are often humiliated or ignored when they try to enter them. That means they cannot leave their savings anywhere safe, pay a bill without walking with the cash to the office, or prove that they are credit-worthy. (Wireless intelligence, 2007)

Studies have been done by Owens, John and Anna Bantug-Herrera (2006) for other countries, specifically South Africa and Philippines. Despite the phenomenal growth of M-Pesa and the major impact it has had in Kenya, they have been no published academic studies done so far in Kenya on the socio-economic impact of mobile banking in Kenya (Gikunju, 2009). It would therefore be informative to analyze the impact of mobile banking, specifically M-Pesa to the society in Kenya and understand perceptions about mobile banking among users and non-users.

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This study therefore seeks to analyze the question: what has been the socio-economic impact of mobile banking, specifically M-PESA to the Kenyan society?

1.3   Research Objectives

The objective of this study is to analyze some of the socio-economic impact of mobile banking, specifically M-PESA to the society in Kenya both positive and negative. Specifically, it seeks to answer the following research objectives:

a) To determine the social impact of M-PESA to the Kenyan society

b) To determine the economic impact of M-PESA to the Kenyan society

1.4 Significance of the Study

This study will be beneficial to the following stakeholders:

a) Industry Players

Telecommunication companies that may wish to venture into mobile payment will have an insight on the significance and impact of the service and how to improve their products.

b) Users

An opportunity to become engaged in the formal banking sector.

To enable financial transactions without the costs and risks associated with the use of cash (including theft and travel to pay in person)

c) Agents

Add business opportunities through the increase in the number of customers coming to their premise.

d) Government and Non-governmental organizations

The product facilitates in the equal distribution of wealth specifically in rural areas hence promoting development. This is in line with the millennium development goal of eradicating poverty in Kenya.

e) Academia

This study will also benefit the academia in better understanding the impact mobile banking has had to the society and how this can be leveraged to further improve the industry through more research

CHAPTER TWO

LITERATURE REVIEW

Introduction

The word mobile comes from the Latin word *mobilis* which means "to move" or "able to move freely or easily" or "able or willing to move freely or easily between occupations, places of residence and social classes" Device, state of being, industry (Oxford English Dictionary).The word mobile device can be described as a mobile, wireless or cellular phone - a portable, handheld communications device connected to a wireless network that allows users to make voice calls, send text messages and run applications.

2.1 Mobile Communications

According to a survey done by the Wireless Intelligence in 2007, within the last decade or so mobile communications became well established in the industrialized nations. A continuous growth of the number of subscribers is anticipated for the foreseeable future. The success of mobile communications is largely because of the interaction of many different technological developments, such as the implementation of specialized coding and modulation schemes, miniaturization of electronic systems, the mathematical simulation of wave propagation and using state of the art switching and wireless technology. Mobile communication today does not only cover terrestrial voice communication but also covers satellite technology and data transmission technology between mobile and fixed user equipment.

Wireless communication permits services such as long range communication that are very difficult to implement with the use of wires. This term is normally used in the telecommunications industry to refer to telecommunication systems (e.g. radio transmitters and receivers, computer networks, network terminals, remote controls etc.) which use some form of energy (e.g. radio frequency, laser light, visible light, infrared light, acoustic energy etc...) to transfer information without using physical wires. Information is transferred in this way over both short and long distances. (Wireless Intelligence, 2007).

2.2   Technology Diffusion and Mobile Commerce

Mobile commerce (also called wireless commerce, or m-commerce) is a fairly new phenomenon, several definitions exist in the academic and practitioner literatures. Tarasewich, (2002, p. 42), for example, defines m-commerce as "all activities related to a commercial transaction conducted through a communications networks that interface with wireless devices." We find that Tarasewich et al.'s definition is too broad and may include the use of wireless devices (e.g., mobile phones) for voice communication. Another definition has been attributed to Forrester Research, and defines m-commerce as "the use of handheld wireless devices to communicate, interact, and transact via high-speed connection to the Internet" (Shuster, 2001, p. 2). This definition is unsatisfactory, too; it may exclude mobile transactions (e.g. short message service, SMS) that are conducted via private networks. According to another study that was by Crawford and Aftahi (2001), there definition stands in contrast to these. It emphasizes three elements of m-commerce: a range of activities, devices, and network types. In our research, we will

define m-commerce as all electronic transactions (e.g., communication, interaction, purchase, payment) that use data-enabled wireless device connections to the Internet or to a vendor's private networks. The extent of the diffusion of m-commerce activities in a country is typically related to the number of mobile phones, which accounted for more than 97% of the worldwide mobile device market in 2000 (Crawford and Aftahi, 2001).

On the other hand mobile banking can be described as the provision and availing of banking and financial services with the help of mobile devices. However the difference between mobile commerce and mobile banking is that the scope of mobile banking is limited to a few services being offered which may include facilities to conduct banking and stock market transactions, to administer money accounts and to even access customised information whereas mobile commerce is much broader and encompasses all transactions done using a mobile device.

The convergence of Internet and mobile communications, has led to the creation of an emerging market for mobile commerce (m-commerce). Although the m-commerce market currently is in its initial stage of development, most observers predict that a critical mass of business and individual users will be reached very rapidly. For example, an article in *Business Week Online* reported that International Data Corporation (IDC) has suggested that the market for m-commerce-related services will reach $21 billion by 2004 (Baker, 2000).

One survey by (Foong, 2001) shows that in particular, some countries (e.g., Finland, Japan, Korea and Hong Kong) evidence a rapid increase in mobile phone penetration, while others (e.g., India, the United States) have seen more gradual increases in mobile phone penetration. Observers point to anecdotal evidence to make claims about the disparate factors that may drive the growth of mobile phone adoption and usage in different countries. The Gartner Group argues that the unique characteristics of Japanese culture, low PC penetration, and high cost of fixed phone line access charges provided the basis for the phenomenal growth of Japan's mobile phone users, which reached 48% of the population in March 2001 (Foong, 2001). Similarly, the business press claims that the strong pan-European regulatory policy in support of a uniform Global System for Mobile (GSM) communications standard has been instrumental in the growth and penetration of mobile phones in several European countries (Baker, 2000; Schenker, 2000).

2.3   Social Impacts and Influences of Mobile Commerce

As m-commerce continues to grow rapidly, it could have significant effects on the structure and functioning of a society at an individual and aggregate level (Granovetter, 1995). The social impacts of these changes are discussed in this section. Revolution in computing and communications of the past few decades, indicate that technological progress and use of information technology will continue at a rapid pace.

One study in particular reveals that the Internet's growth and m-commerce has begun to create fundamental change in government, societies, and economies with social,

economic and political implications (Boulton et al., 2000; McGarvey, 2001). These advances present many significant opportunities but also are having wide-ranging effects across numerous domains of society, and for policy makers. Issues involve economic productivity, intellectual property rights, privacy protection, and affordability of and access to information, among other concerns (Sharma and Gupta, 2001; 2003b). Mobile commerce promises to be the momentum behind a new wave of economic growth (Mariotti and Sgobbi, 2001).

Another study done by Mariotti and Sgobbi (2001) argues that M-commerce has already improved business value by fundamentally changing the ways products are conceived, marketed, delivered, and supported. The relationship and interaction of various stakeholders such as customers, suppliers, strategic partners, agents, and distributors is entirely changed. On the positive side, m-commerce has been creating opportunities for individuals and businesses in the new economy. M-commerce is helping organizations to reduce transaction, sales, marketing, and advertising costs. M-commerce is also helping businesses to reach markets efficiently, all day ever day. Many of the benefits come from improved consumer convenience, expanded choices, lower prices, and the opportunity for better interactions with partners, suppliers and targeted customers for service and relationships.

M-commerce has also improved product promotion through mass-customization and one-to-one marketing. Adoption of new information technologies, particularly m-commerce, is expected to improve firm performance, such as reducing transaction costs and closer

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coordination of economic activity among business partners (e.g., Malone et al., 1987; Mukhopadhyay et al., 1995). M-commerce specifically (especially Business to Business) is predicted to result in lower coordination or transaction costs due to automation of transactions online, as well as productivity and efficiency gains (Amit and Zott, 2001; Lucking-Reileyand Spulbur, 2001; Wigand and Benjamin, 1995). M-commerce also is expected to facilitate entry into new markets and the extension of existing markets (Garicano and Kaplan, 2001), and greater integration of systems with suppliers and customers (OECD, 1999; Timmers, 1999; Wigand and Benjamin, 1995). As m-commerce continues to grow rapidly, it could have significant effects on the social and economic structures of economy. The impacts of these changes are diverse and may even widen the digital divide among nations, alter the composition of trade, disrupt labour markets, and change taxation (Anonymous, 2000).Widespread use of the Internet for m-commerce may have ramifications for intellectual property rights, privacy protection, and data filtering. Therefore, in the digital economy, it is becoming imperative to know how m-commerce affects organizations and society and raises social concerns. Some of these effects of m-commerce are unintentional and create adverse business and personal conditions that could have societal consequences.

Social and economic aspects of ICT have been studied by many researchers and practitioners for over 50 years (Dutton, 1999a; 1999b). However, the influences of m-commerce are expected to be far bigger than were ever imagined before (Sharma and Gupta, 2003b). In the next chapter we will now look at a specific form of m-commerce which is mobile banking.

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Late in 2007, Celtel launched *Sokotele*, supposedly a competitor to M-PESA. Celtel's partners in the development were Packet Stream, a public data network operator, and K-Rep Bank, one of Kenya's leading micro-finance institutions. K-Rep Bank provides the banking expertise, Packet Stream supplies the vending software, and Celtel Kenya's cellular network makes the connectivity possible. Over the last couple of years, several banks have also embraced mobile banking technologies, enabling customers to access their bank accounts via their mobile phones. Leading microfinance institutions in Kenya, including Jamii Bora, K-RepBank and Faulu Kenya, have also introduced services based on SMS (short message service) that let their clients view their balances, request account statements, and transfer money. Michael Joseph, CEO of Safaricom stated:

> Safaricom and Vodafone's M-PESA mobile money transfer service is an example
>
> of Kenya leading the way in the advancement of mobile technology and its uses.
>
> Following the very positive response by consumers to the pilot, we believe that
>
> there is a great deal to be gained for Kenyan consumers as well as for mobile and
>
> financial sector companies. (Joseph, 2008)

2.6.1 Growth of M-Pesa

The growth of M-Pesa in Kenya has been phenomenal. In its one year of operation M-Pesa had enlisted over 2.3 million active customers. Currently we are talking about 9.48 million registered users as of March 2010 (up from 2.08 million in March 2008) and Ksh 28.59 billion transferred person to person in March 2010, up from Ksh. 3.0 billion in March 2008 (Safaricom Annual Financial Report, 2010)

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According to Omwansa, (2009) several factors help explain the phenomenal growth of Mobile Banking, especially in Kenya. The top three are the impressive adoption of mobile phones, the need to access financial services, and the low cost of money transfers through mobile phones. Each of these factors is explained in more detail in the sections below.

a) Diffusion of mobile phones

The growth of Kenya's mobile subscribers has been tremendous. As of December 2008, the number had risen well above 13 million. Meanwhile, the use of land lines grew far less quickly over the same period, from 328,358 to 463,122. In the first quarter of 2006 there were 147.4 million mobile subscribers in Africa; two years later the number had more than doubled, to 301.7 million, representing a penetration rate of 30.4%. (Rosenberg, 2009)

According to a survey done by ITU, Kenya's penetration rate rose from 2% in 2001 to 39% as of the second quarter of 2008. Kenya is the most developed mobile market in East Africa and its penetration rate is forecast to reach 67.5% in 2012. Four mobile service operators are active in Kenya. Safaricom, with well over 15 million subscribers, is the clear market leader with 81% of the total subscriber base. Zain (formerly Celtel) follows with just over 3 million subscribers, and Telkom Orange has about 1 million. Econet, barely a month old, has not released any subscription data. The fact that Safaricom controls such a large percentage of the subscription base has given M-PESA the advantage it needed to penetrate very quickly. Only Safaricom subscribers can operate an

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M-PESA account, though other network subscribers can receive an SMS from an M-PESA subscriber. (Pickens, 2009)

b) The need for access to financial services

A survey that was conducted in early 2007 revealed that 38% of Kenyans had no access to any form of financial services, according to a national survey, and only 19% had access to formally regulated financial institutions such as banks. In the entire country there were only 400 bank branches and slightly over 600 ATMs—and over 10 million mobile subscribers. (Ndungu, 2009)

We could easily say that M-PESA took off so rapidly because of the low penetration of banking services and the public need for them. Though few studies have been done to establish whether the service mostly benefits the un-banked, we have several indications that it has gone both ways. Features such as convenience, speed, and low transaction fees attract significant numbers of those who already use banks. Small businesses are among the greatest beneficiaries in using M-PESA because it lets them go to the bank less often, and spend more time running their businesses. Many unbanked Kenyans can now receive and send money via their mobile phones, wherever they are in the country. In September 2008, Safaricom signed an agreement with Pesa Point Ltd. to allow M-PESA subscribers to withdraw money through PesaPoint ATMs. Registered in 2005, PesaPoint has a vision: to provide all banked Kenyans with easy access to funds in their bank accounts wherever they are in the country. So far it has installed over 110 ATMs across the country. This agreement helps overcome the problem that agents sometimes do not have enough cash to

issue to M-PESA customers who want to withdraw it. This partnership was a major milestone in linking M-PESA to the formal banking system, a confirmation that more financial players are willing to collaborate to improve access to financial services.

In December 2008, M-PESA signed another agreement with Western Union for international cash transactions. Vodafone, Safaricom and Western Union announced that they would partner to pilot a cross-border intercontinental mobile money transfer service between the United Kingdom and Kenya. Ultimately M-PESA subscribers will be able to receive international remittances just like local ones. According to the World Bank, Kenyans received approximately $US 1.3 billion in international remittances in 2007; for some Kenyans, these remittances are a considerable part of their total income. These innovations will certainly improve many Kenyans' lives. (Omwansa, 2009)

c) Low transaction costs

According to the 2007 survey mentioned above, over 70% of Kenyans prefer informal methods to remit funds to their loved ones within the country. Of those interviewed, 55% sent money with friends or family members who would be travelling and 22% used public transport companies. Though such methods are not safe, people prefer them because the transaction fees are lower than those of banks and money transfer companies. (Ndungu, 2009)

M-PESA offers a very competitive package with a very attractive transaction fee. To send KShs. 35,000 (approx US$ 500) using a money transfer company such as Western Union

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would cost about Kshs. 1,200 (approx US$ 17) within the country, but using M-PESA to send the same amount would cost less than a third as much and M-PESA is much cheaper than using a bank account. Given their setup and operational costs, banks and money transfer companies cannot offer such low rates. (Safaricom Financial Report, 2009)

2.6.2 Influence of M-Pesa in Kenya

Cost is another significant attraction for M-PESA users, who find that transactions are 27 percent cheaper than services offered by the postal network, and 68 percent less than sending money by bus companies. (Morawczynski, 2009)

The same research showed that M-PESA users fall into two categories—urban senders, who are usually men, and rural recipients, who are mostly women. Their transactions are generally either small, regular transfers that act as income support for rural members and lump sum transfers, which are often used to pay school fees.

However, the same research revealed that there are some downsides to M-PESA. Urban users say they are sometimes frustrated by failed transactions which are often the result of network problems as M-PESA relies on the same technology that supports text messaging. Because it is often difficult to get through to Safaricom's busy customer care M-PESA support phone number 234, a failed transaction may require the user to turn to the M-PESA agent network, which often struggles to resolve the problem. Rural users complain that agents sometimes lack cash on hand sometimes referred to as cash float. M-PESA customers whose agents cannot meet their withdrawal requests are often forced to travel to the cities to get their money. As a positive, users report increases of 5% to

30% in their incomes thanks to transfers through M-PESA. By making smaller but more frequent transfers, urban migrants on average are sending more money home than ever before. This represents a substantial boost for rural recipients, for whom remittances can represent up to 70% of their household income. (Morawczynski, 2009)

The research also shows that M-PESA is also empowering rural women because it makes it easier for them to solicit and get money from their husbands and other contacts in Kenyan cities. Remittances through M-PESA relieve many women in rural areas of the burden of traveling by bus to cities to receive money from their husbands, a process that for some could take as long as one week. One unexpected consequence is that some men working in the cities have cut back on the number of visits to their rural home, visits they made frequently before M-PESA was available to deliver funds to their wives and relatives. Some wives fear their husbands may leave them for "city wives," which could lead to a complete stop of remittances or worse still to competing claims for their homes and land. (Morawczynski, 2009)

Overall, the research suggests a positive change in savings behavior as a result of M-PESA. In particular, the financial business diaries reveal that many customers are integrating M-PESA with popular savings tools, such as bank accounts and informal savings clubs. The most frequent users who kept financial diaries were making on average 15 to 20 small deposits to their M-PESA accounts each month. Some used these savings to invest in their rural home, for example by purchasing a cow or building a home, while others transferred the money into bank accounts to earn some interest. There is no conclusive evidence given of higher savings and incomes, combined with greater

empowerment of rural women, however the study points to the benefits gained in just two communities in Kenya. The research therefore represents the beginning of a better understanding, using new data sources, of the impact of mobile banking on the lives of the poor.

> It is clear from our research that M-PESA is breaking down many barriers to money transfer, in particular by helping cash reach Kenyan rural communities that often struggle to access traditional banking and financial services ... Additionally, as M-PESA has grown to critical mass, many rural customers are tapping into a growing network of potential remitters and lenders to effectively increase their incomes (Morawczynski, 2009)

The above quote basically summarizes the social impact M-Pesa has had to Kenyans, especially in rural areas.

> One of the most interesting findings is how many low-income Kenyans are using M-PESA to store money. One in five M-PESA users say they keep funds in their M-PESA wallet, like a bank account. This is powerful evidence that Kenyans have more financial needs and are willing to pay when a quality service is made available. (Pickens, 2009)

Similarly, the above statement in a nutshell captures the economic impact that M-Pesa has had on Kenyans, especially among the low income earners.

2.7 Legal and Regulatory Issues regarding M-Pesa

a) Regulatory Issues in Mobile Banking

In any new market, enablement requires a blend of legal and regulatory openness, which creates the opportunity to start up and experiment, with sufficient legal and regulatory certainty that there will not be arbitrary or negative changes to the regulatory framework, so that providers have the confidence to invest the resources necessary. Developing countries with low levels of effective and comprehensive regulation may be very open but highly uncertain, since regulatory discretion may lead to arbitrary action. Countries with greater regulatory certainty may be less open, in that the types of entities allowed to start up are restricted. Especially in a new unknown market sector like mobile banking, where business models are not yet established, enablement in the policy and regulatory sector means a move towards greater certainty and greater openness. (Kinyua, 2009)

Prior to the launch of M-Pesa services in Kenya, Safaricom sought authorization from the Central Bank of Kenya (CBK) to undertake the money transfer service. In evaluating the business proposal, the CBK considered the request on the basis of reliability, safety and efficiency of the service. In addition, some precautionary measures were instituted to ensure that the services did not infringe upon the banking services regulatory framework as provided for under section 2(1) of the Banking Act. The M-Pesa service therefore does not qualify to be a banking service because it does not accept deposits from members of the public, money or deposits that are repayable on demand or at the expiry of a fixed period or after notice. It also does not accept from members of the public, money for current account purposes that is used for payment and acceptance of cheques and lastly,

M-Pesa does not employ money held or any part of the money for purposes of lending and investment or in any other manner for the account and at the risk of the person so employing the money. (Kinyua, 2009)

b) Money Handling with M-Pesa

In M-Pesa, money collected by agents is deposited in a trust account in one of the leading commercial banks in Kenya. This trust account that was created provides the legal protection for the beneficiaries. The money put in this trust account is not under the control of Safaricom and cannot be employed for other purposes such as lending, investing or in any other manner for the account and at the risk of Safaricom as per Section 2(1) of the Banking Act. Legal protection of the money put in this trust account is provided for in the trustee deed. Also various legal instruments pertaining to this service, including the trustee deed have been presented to the Central Bank and reviewed accordingly. In addition to this, funds in the trust account deposited in the designated commercial bank are regulated by the Central Bank of Kenya under Section 2(1) of the Banking Act in Kenya, 2009 (Kinyua, 2009)

Safaricom undertakes to the Trustee (defined as the bank that holds in trust money deposited by the M-Pesa agents) and to the System Participants that it will not issue any new e-Money other than in return for an equal amount in conventional money being paid to and received by the Trustee. Safaricom cannot also effect any transfer of any e-Money from any M-Pesa Account of an amount which exceeds the credit balance of e-Money in the relevant M-Pesa account. (Omwansa, 2009)

c) Other Issues

A number of critical issues and risks that have been reviewed include: liquidity management, settlement risks, the reliability of the system, the registration of users, system audit trail, anti-money laundering measures and consumer protection issues that could compromise the safety, efficiency, integrity and effectiveness of the M-Pesa system. These risks have been mitigated through a number of monetary security measures which the Central Bank and the Communications Commission of Kenya (CCK) monitors regularly. For example, there is no credit risk because M-Pesa agents pre-pay before offering any services to customers. Also Central Bank of Kenya has placed a maximum limit of KShs 50,000 per M-Pesa account per day and a transaction limit of KShs 35,000 per day in order to mitigate against settlement risk. Moreover, Safaricom is part of the Vodafone group, an international and well reputed multinational company in the provision of mobile phone services. The M-Pesa product benefits from the research and development of Vodafone and as such the operational risks have been minimized. The Central Bank of Kenya has continued to oversee the service in line with its Oversight Policy Framework document on payment systems in Kenya which is downloadable at the Bank's official website www.centralbank.co.ke . For example, whereas the system transacted about Kshs. 17 billion in August 2008, the net deposit/residual value per customer (i.e. deposit less withdrawals) was Kshs. 203/- only thus demonstrating that M-Pesa is yet to be regarded as an alternative bank account with sums of money staying in the system.(Omwansa, 2009)

To further provide a sound legal basis for payment systems in Kenya, the CBK and the Treasury have been refining several legal and regulatory measures aimed at promoting safety, efficiency and effectiveness of payment systems in Kenya. One such effort is the review of the Central Bank Act in the year 2003 to include section 4A1 (D) that mandates the CBK to advocate for such policies as to best facilitate the establishment, regulation and supervision of efficient and effective payment, clearing and settlement systems. Currently the Bank has proposed and formulated the enactment of the National Payment System Bill that will strengthen the above mandate by expressly providing for the oversight of all Payment systems including money transfer services. This Bill will soon be tabled in Parliament for enactment into Law (Kinyua, 2009)

Recently the enacted Kenya Communications (Amendment) Act 2008 expanded the functions of the CCK in relation to electronic transactions and provides legal recognition of electronic transactions. This Act not only legalizes electronic financial transactions but it also enables the CBK and CCK to work together and support this system including other such products that may come in future to the market. According to Starita (2009), while 55 percent of adult Kenyans have access to a mobile phone, only 19 percent are banked. There is therefore a huge market that has access to mobile phones but not financial services and M-Pesa was designed to help fill this gap. (Kinyua, 2009)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

To investigate the socio-economic impact of M-Pesa, it was necessary to measure the socio-economic effects before and after M-Pesa was launched. This allowed us to gauge the improvement of the socio-economic status of Kenyans since the launch of M-Pesa. The best way to achieve this was to conduct a random survey of M-Pesa users.

3.2 Population

The population of this study was all M-Pesa registered users who as of March 2009 were estimated to be about 6.5 million registered users (Safaricom Financial Annual Report, March 2009). Also some additional information was obtained from a few selected M-Pesa agents to supplement the information that was gathered.

3.3 Sampling

Determining the sample size is a very important issue because samples that are too large may waste time, resources and money, while samples that are too small may lead to inaccurate results. When sample data is collected and the sample mean is calculated, that sample mean is typically different from the population mean. This difference between the sample and population means can be thought of as an error. The margin of error is the maximum difference between the observed sample mean and the true value of the population mean. Hence the sample size is given by the formula:

$$E = z_{\alpha/2} \cdot \frac{\sigma}{\sqrt{n}}$$

Where:

$z_{\alpha/2}$ is known as the critical value. the positive z value that is at the vertical boundary

for the area of $\alpha/2$ in the right tail of the standard normal distribution.

- is the population standard deviation.

- is the sample size.

- is the calculated sample mean

- is the population mean

- is the margin of error

Solving for the sample size n. A 95% degree confidence corresponds to $\alpha = 0.05$. Each of

the shaded tails in the following figure has an area of $\alpha/2 = 0.025$. The region to the left

of $z_{\alpha/2}$ and to the right of $z = 0$ is $0.5 - 0.025$. or 0.475. In the Table of the Standard

Normal (z) Distribution. an area of 0.475 corresponds to a $z_{\alpha/2}$ value of 1.96. The critical

value is therefore $z_{\alpha/2} = 1.96$.
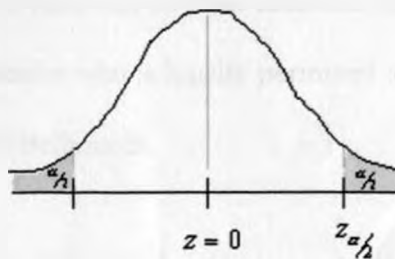
The margin of error $E = 5$ and the standard deviation $\sigma = 50$. Using the formula for sample size, we can calculate:

$$n = \left[\frac{z_{\alpha/2}\sigma}{E} \right]^2 = 385$$

So we needed a sample size of at least 385 randomly selected M-Pesa registered users. With this size of sample we would be 95% confident that the sample mean $\bar{x}$ will be within an acceptable range of the true population of M-Pesa registered users.

For the M-Pesa agents since they are not part of the main study, only fifty were randomly selected based on our judgment from different geographical areas.

3.4 Data Collection

There were two main sources of data. This included secondary data from Safaricom's M-Pesa Department and primary data from M-Pesa registered users and also M-Pesa agents.

The instrument that was used for data collection was questionnaires. The questionnaires were of two types: those targeting M-pesa registered users and those targeting M-pesa agents. An M-pesa registered user is defined as any Safaricom subscriber who has registered with Safaricom at least one M-Pesa account. An M-pesa agent is defined as any authorised Safaricom dealer who is legally permitted to transfer and receive money through M-Pesa on behalf of Safaricom.

Simple random sampling technique was used to collect data within the sample population. The areas from which the data was collected included the central business district in Nairobi and randomly selected residential areas in Nairobi.

As expected some of the respondents were uncooperative and some questionnaires were also not filled appropriately. However, the responses received were reasonably representative considering that the stratum selected was reasonably heterogeneous and the elements in the strata were reasonably homogenous. Randomness of data collection during the survey was strictly observed to avoid bias.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The chapter presents data analysis, findings and discussion of the study in line with the research objective. The research objective of the study was to investigate impact of mobile banking M-PESA in the Kenyan society. To achieve the objective, the research used a number of specific objectives as follows: to establish the social impact of M-PESA to the Kenyan society and to establish the economic impact of M-PESA to the Kenyan society.

4.2 Data Analysis

The responses from the questionnaires were then analysed and the socio-economic impacts of M-Pesa to the Kenyan society were then formulated from the statistics gathered. Descriptive Statistics was used to describe the basic features of the data in the study. This provided simple summaries about the samples and the measures used in the data. This was mainly used to analyze the economic impacts of M-Pesa. Difference of Means was also used to analyse if there was a significant difference in the impact of money transfer services before and after M-Pesa. Chi-Square test was used to determine whether there was a significant difference between the expected frequencies and the observed frequencies in one or more categories.

The software that was used for all the above analysis was Microsoft Excel and Statistical Package for Social Sciences (SPSS).

4.3 Results

4.3.1 Number of respondents

A total of 500 questionnaires (440 for M-PESA users and 60 for M-PESA agents) were issued out. The completed questionnaires were edited for completeness and consistency. Of the 500 questionnaires issued, only 386 were returned and correctly filled for M-Pesa users while only 47 were returned and correctly filled for M-Pesa agents.

4.3.2 Demographic Characteristics of the respondents

The demographic characteristics considered in this study for the M-Pesa users included gender, age, marital status and the average income distribution. While those considered for the M-Pesa agents were gender and age only.

a) Gender

The purpose of this analysis was to establish if there is a significant difference in the usage of M-Pesa between male and female users.

Table 4.1: Gender of the respondents

	M-PESA users	M-PESA agents
Male	42.6%	46.8%
Female	57.4%	53.2%
Total	100.0%	100.0%

Figure 4.1: Gender of the respondents
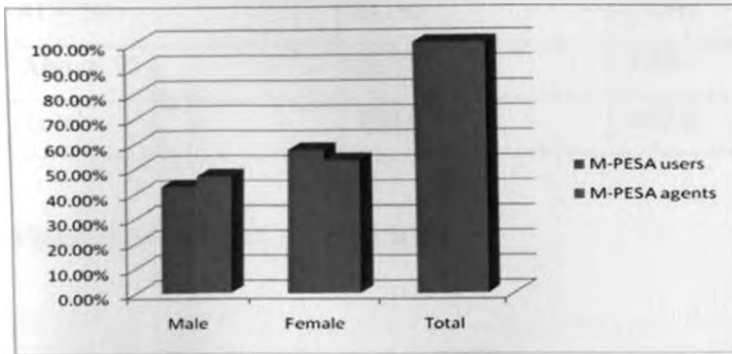
After performing the Chi-square Test for M-Pesa users, we find Chi squared equals 1.96 with 1 degree of freedom and the two-tailed P value equals 0.1615. By conventional criteria, this difference is considered to be not statistically significant. Similarly for M-Pesa agents Chi squared equals 0.360 with 1 degree of freedom and the two-tailed P value equals 0.5485. By conventional criteria, this difference is also considered to be not statistically significant.

This finding implies that both men and women have embraced M-Pesa equally with no significant difference between them.

b) Age

The purpose of this analysis was to establish if there is a significant difference in the adoption of M-Pesa between users of different ages.

Table 4.2: Age of the respondents

	M-Pesa agents(%)	M-Pesa users(%)
Below 20	0.0	9.10
20 – 30	42.60	28.00

31 – 40	23.40	31.30
41 – 50	21.30	25.80
Above 50	12.70	5.80
Total	100.0	100.0

Figure 4.2: Age of the respondents
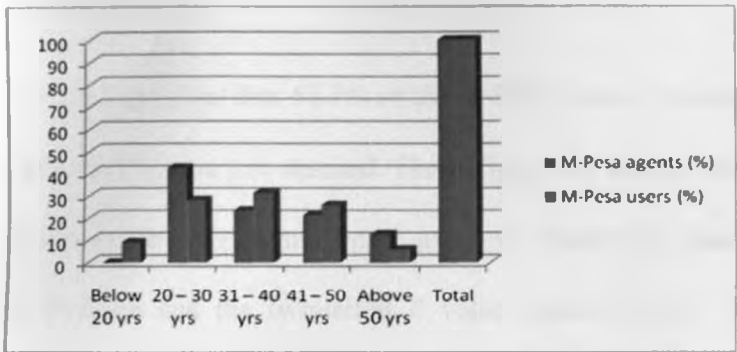
The above finding shows that the M-Pesa agents outlets are mostly manned by people of between 20 to 30 years. However the majority of M-Pesa users range between 20 to 50 years old. This demonstrates that M-Pesa is equally popular among users of widely varying ages from as young as 20 years to as old as 50 years.

c) Marital Status

The purpose of this analysis was to establish if there is a significant difference in the adoption of M-Pesa between users who are married and those that are single.

Figure 4.3: Marital status of M-Pesa Users
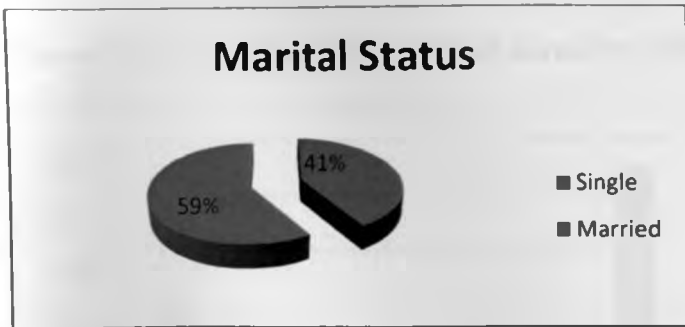
The findings show that 58.7% of the M-PESA users' respondents were married while the other 41.3% were not married. From Figure 4.3 above, after performing the Chi-square Test between married and single users, we found Chi squared equals 3.24 with 1 degree of freedom and the two-tailed P value equals 0.0719. By conventional criteria, this difference is considered to be not quite statistically significant. This implies that M-Pesa has been equally adopted and used by both married and single users.

d) Average Income Distribution

The purpose of this analysis was to establish if there is a significant difference in the usage of M-Pesa between users of varying average income distribution groups.

Table 4.7: Average Income per Month earned by M-PESA users

	Frequency	Percent	Ranking
10,000 - 30,000	161	48.9	1
Below 10,000	64	19.5	2
31,000 - 50,000	39	11.9	3
51,000 - 70,000	39	11.9	4
Above 71,000	26	7.9	5
Total	329	100.0	

Figure 4.9: Average Income per Month earned by M-PESA users
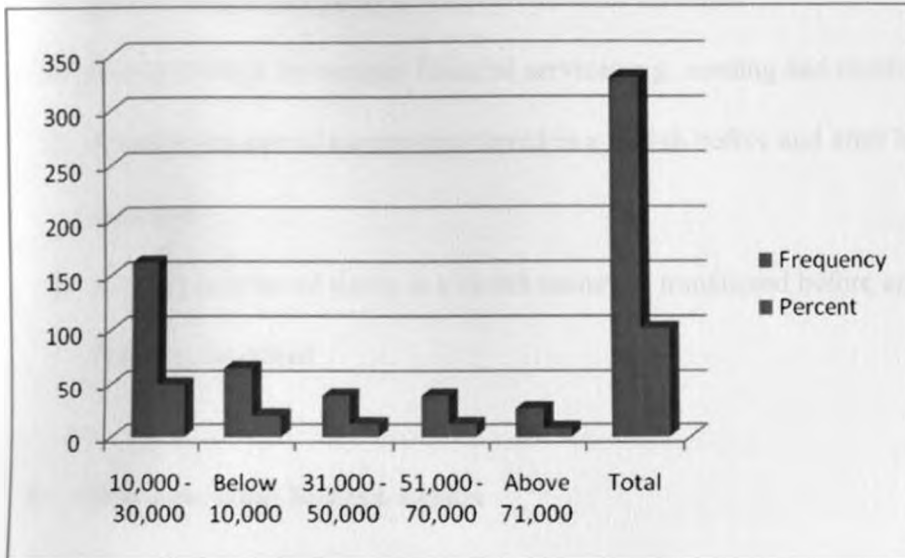
The above findings clearly show that the majority of M-Pesa users actually earn between Kshs. 10,000/- and Kshs. 30,000/- per month which lies in the low income group according to the National Income Distribution of 2009 published by the Kenya Bureau of Statistics. This is a very significant finding as it implies that M-Pesa is significantly more popular among the low income earners compared to the relatively higher income earners.

4.3.3 Economic Impacts

Under economic impacts we considered the following criteria from the M-Pesa agents:

a) Average Number of M-Pesa customers served in a day

b) Average New M-Pesa customers registered in a day

c) Average Pattern of Demand for M-Pesa services

d) Average Income earned before and after adopting M-Pesa as a business

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Similarly, under economic impacts we considered the following criteria from the M-Pesa users:

a) M-Pesa usage compared to commercial bank accounts

b) Use of M-Pesa for various financial services e.g. sending and receiving of money

c) Average amount of money transferred in a month before and after M-Pesa was launched

d) Average number of times in a month money is transferred before and after M-Pesa was launched

I. Response from M-Pesa Agents

a) Average Number of M-Pesa customers served in a day

The purpose of this analysis was to establish the demand of M-Pesa services by measuring the average number of M-Pesa customers served in day by a single M-Pesa agent.

Figure 4.4: Average Number of M-PESA customers served per day

Number of M-Pesa Customers Served in Day

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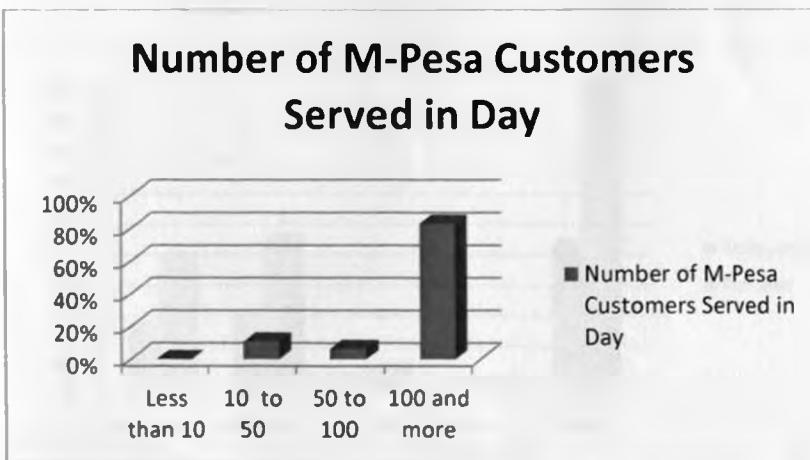
The finding above indicates that 83.0% of the M-Pesa agents serve more than 100 customers per day. This is quite a high number of customers to be served in a single day by a single agent which directly implies that there is a high demand for M-Pesa services in Kenya.

b) Average New M-Pesa customers registered in a day

The purpose of this analysis was to establish if there is growth in demand of M-Pesa services by measuring the average number of new M-Pesa customers registered in day by a single M-Pesa agent.

Table 4.3: Average new M-PESA customers registered in a day

	Frequency	Percent	Ranking
Less than 10	20	42.6	2
10 - 50	23	48.9	1
50 - 100	3	6.4	3
More than 100	1	2.1	4
Total	47	100.0	5

Figure 4.5: Average new M-PESA customers registered in a day

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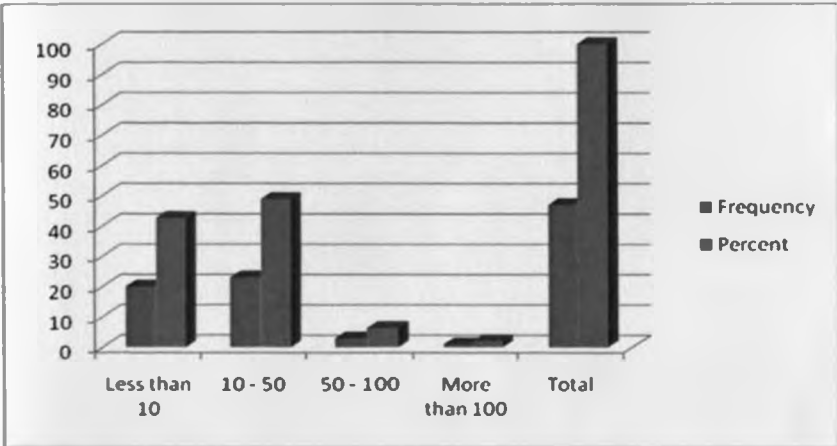
The finding above indicates that almost half the number of agents (48.9%) register between 10 to 50 new customers in a day. This implies there is still growth in demand for M-Pesa services and has not yet reached its peak.

c) Average Pattern of Demand for M-Pesa services

The purpose of this analysis was to establish the average pattern of demand for M-Pesa services to determine if there is even distribution of money transferred throughout a month.

Table 4.5: Period the most money transfers takes place

	Frequency	Percent	Ranking
End month	23	48.9	1
Mid - month	12	25.5	2
Evenly distributed throughout the month	10	21.3	3
Holidays	2	4.3	4
Total	47	100.0	5

Figure 4.7: Period the most money transfers takes place
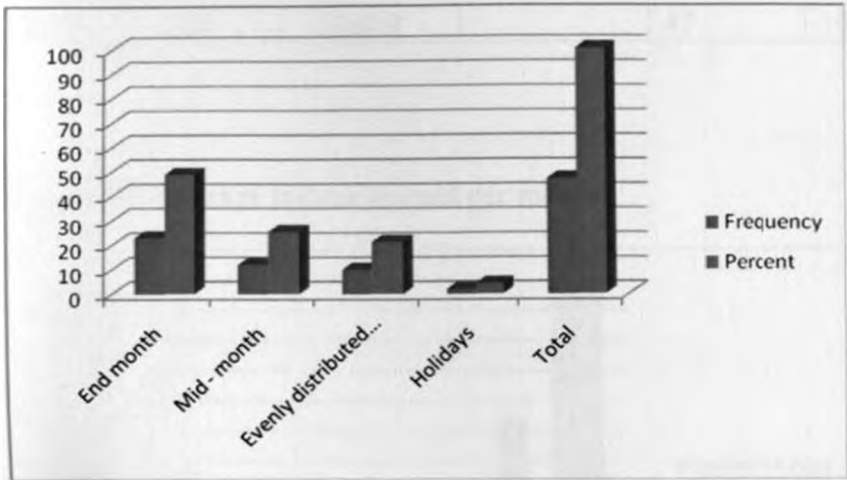
The finding above shows that money transferred via M-Pesa is not evenly distributed throughout the month but instead almost 50% of it occurs towards the end of the month. This is possibly because this is when most users have received their salaries/wages and are able to send money to their loved ones or pay their bills.

d) Average Income earned before and after adopting M-Pesa as a business

The purpose of this analysis was to establish if there is a significant difference in the average income earned by M-Pesa agents before and after adopting M-Pesa as a business.

Table 4.6: Average income earned per month

	Before M-Pesa			After M-Pesa		
	Frequency	Percent	Cumulative Percent	Frequency	Percent	Cumulative Percent
11,000 - 20,000	18	38.3	38.3	1	2.1	2.1
21,000 - 30,000	10	21.3	59.6	2	4.3	6.4
31,000 - 40,000	2	4.3	63.8	13	27.7	34.0
41,000 - 50,000	6	12.8	76.6	5	10.6	44.7

More than 50,000	11	23.4	100.0	26	55.3	100.0
Total	47	100.0		47	100.0	

Figure 4.8: Average income earned per month
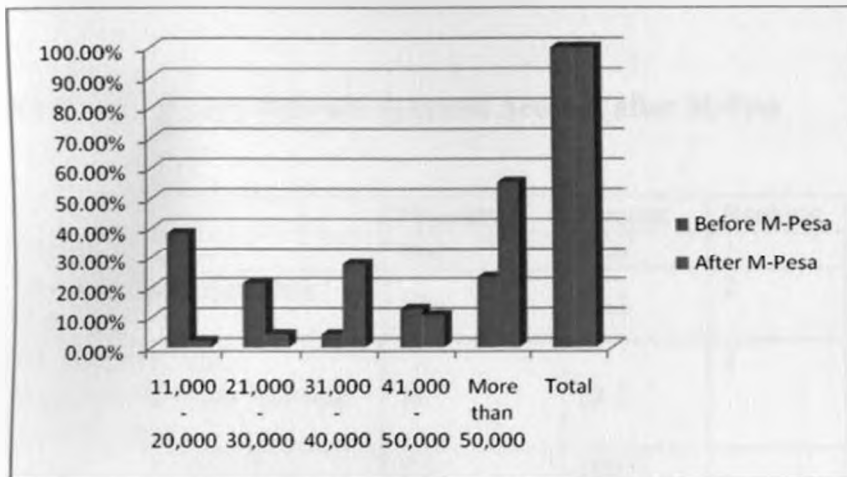
This finding shows that the income earned by M-Pesa agents since taking up M-Pesa as a business is very significant with more than 50% of agents reporting to have earned up to Kshs. 50,000/- compared to only 20% before M-Pesa. From Table 4.6 above, after performing the Chi-square Test for P value and statistical significance, we find Chi squared equals 222.008 with 4 degrees of freedom. The two-tailed P value is less than 0.0001. By conventional criteria, this difference is considered to be extremely statistically significant. This therefore implies that M-Pesa has actually had a huge impact in the income earned by M-Pesa agents and by extension in alleviating poverty in Kenya.

II. Response from M-Pesa Users

a) M-Pesa compared to commercial bank accounts

The purpose of this analysis was to establish if there has been a significant impact to the banking industry after the launch of M-Pesa.

Table 4.8: Primary Account operated Account after M-Pesa

	Frequency	Percent	Ranking
M-PESA	140	42.6	1
Other Commercial Bank Account	116	35.3	2
Do not have other Commercial Bank Account only M-Pesa	73	22.1	3
Total	329	100.0	

Figure 4.11: Primary Account operated Account after M-Pesa
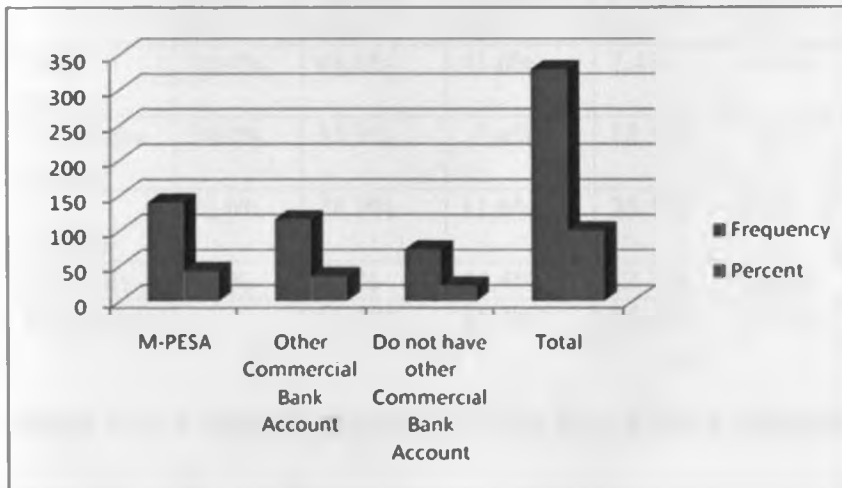
After performing a Chi-square test. Chi squared equals 7.387 with 2 degrees of freedom. The two-tailed P value equals 0.0249. By conventional criteria, this difference is considered to be statistically significant. This finding therefore shows that M-Pesa has

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indeed had a significant impact on the banking industry. It shows that most Kenyans whether banked or unbanked have decided to operate M-Pesa as their primary cash account. This is probably what has led some leading commercial banks to seek partnership with M-PESA to launch new products into the market that can assist them leverage on the dominance of M-Pesa in the market. Examples of this are Equity Bank in partnership with Safaricom recently launched M-KESHO a product that allows M-PESA users gain credit facilities of up to Kshs. 5,000/- through Equity Bank.

b) Use of M-PESA for various financial services

The purpose of this analysis was to establish the impact M-Pesa has had on various financial services.

Table 4.9: Frequency of using M-PESA for various financial services

	Daily (%)	Weekly (%)	Monthly (%)	Rarely (%)	Never (%)	Total	Ranking
Send money	10.0%	41.6%	41.0%	7.4%	0.0%	100.0%	1
Withdraw money	10.0%	35.9%	33.4%	18.5%	2.2%	100.0%	2
Buy airtime	26.6%	28.0%	11.6%	30.5%	3.3%	100.0%	3
Pay bills	4.3%	2.7%	44.4%	12.2%	36.4%	100.0%	4
Buy goods	-	11.2%	15.3%	16.4%	57.1%	100.0%	5

Figure 4.12: Frequency of using M-PESA for various financial services
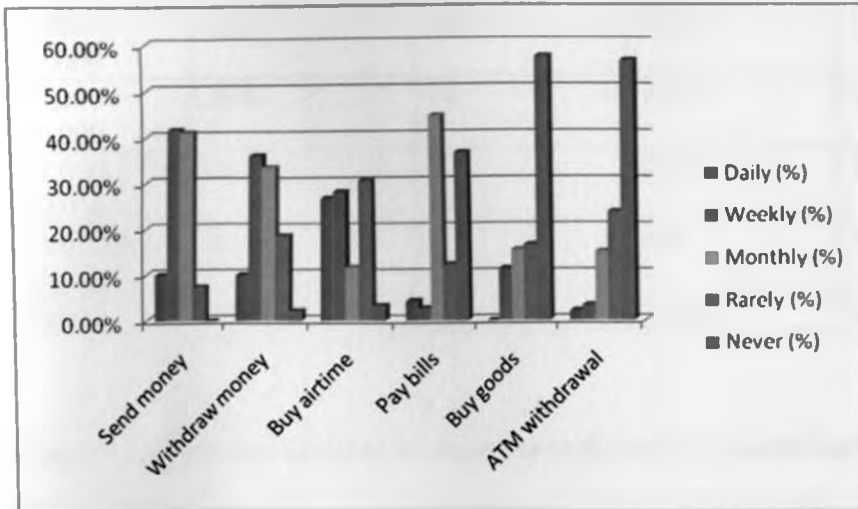
Based on the finding above it is obvious that sending and receiving money combined account for more than half of all M-Pesa transactions which implies that M-Pesa is still primarily used as a money transfer service rather than to buy goods or pay bills. Therefore the latter two represent potential areas that M-Pesa should focus to grow in future in order to capture a wider market.

c) **Average amount of money transferred in a month before and after M-Pesa was launched**

The purpose of this analysis was to establish if there is a significant impact in the average amount of money transferred in a month per user after M-Pesa was launched compared to what was transferred before M-Pesa using other traditional money transfer services.

Table 4.10: Average amount of money transferred in a month before M-PESA

	Sending Money (%)		Receiving Money (%)	
	Before M-Pesa	After M-Pesa	Before M-Pesa	After M-Pesa
Less than 1,000	9.7	13.7	16.1	9.7

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1,000 - 10,000	42.9	60.8	39.8	42.9
11,000 - 20,000	20.4	14	19.1	20.4
21,000 - 30,000	16.4	9.7	20.1	16.4
More than 30,000	10.6	1.8	4.9	10.6
Total	100.0	100.0	100.0	100.0

Figure 4.13: Average amount of money transferred in a month before M-PESA
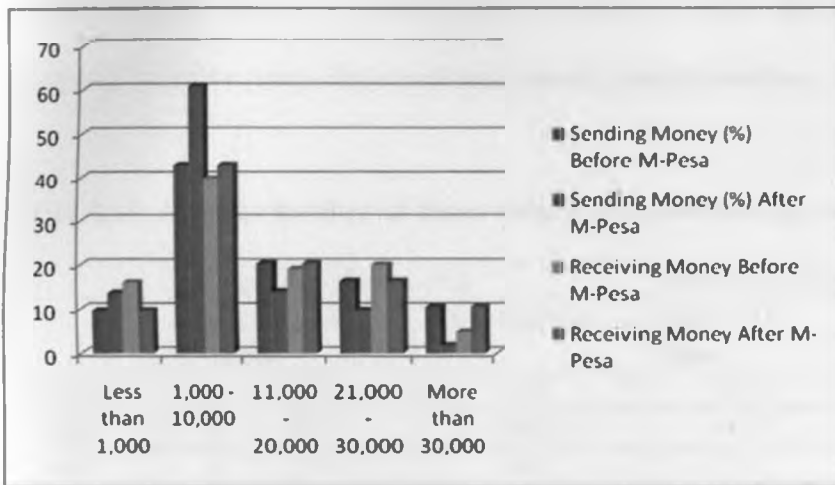
From Table 4.10 above, after performing the Chi-square Test for sending money, we find Chi squared equals 59.896 with 4 degrees of freedom and the two-tailed P value is less than 0.0001. By conventional criteria, this difference is considered to be extremely statistically significant. Similarly for receiving money Chi squared equals 16.364 with 4 degrees of freedom and the two-tailed P value is equals 0.0026. By conventional criteria, this difference is considered to be very statistically significant.

This therefore implies that after the advent of M-Pesa, the average amount of money transferred per month per respondent has significantly increased especially for amounts between Kshs. 1,000/- to Kshs. 10,000/-

a) **Average number of times in a month money is transferred before and after M-Pesa was launched**

The purpose of this analysis was to establish if there is a significant impact in the average number of times money is transferred in a month per user after M-Pesa was launched compared to before using other traditional money transfer services.

Table 4.11: Average number of times money is transferred in a month

	Sending Money (%)		Receiving Money (%)	
	Before M-Pesa	After M-Pesa	Before M-Pesa	After M-Pesa
Never	5.2	1.5	6.7	1.2
Once	52.9	14.9	41.3	13.4
Twice	17.0	16.7	13.1	14.3
Three times	6.7	10.9	17.6	16.1
More than three times	18.2	55.9	21.3	55.0
Total	100.0	100.0	100.0	100.0

Figure 4.14: Average number of times money is transferred in a month
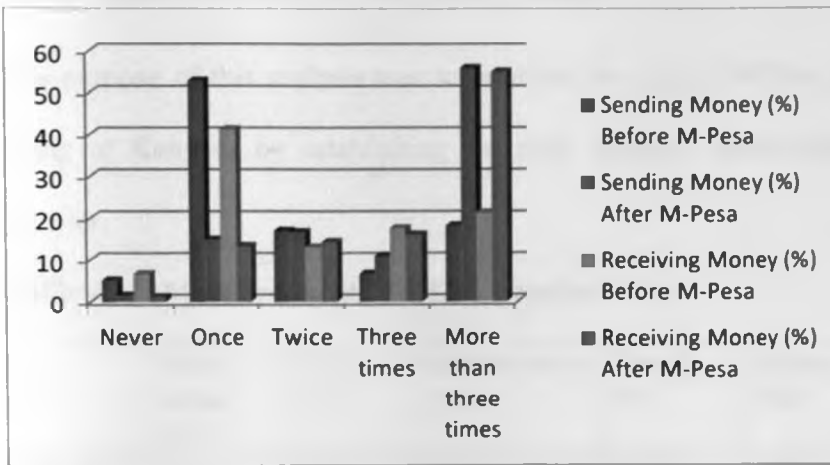
From Table 4.11 above, after performing the Chi-square Test for sending money, we find Chi squared equals 109.287 with 4 degrees of freedom and the two-tailed P value is less than 0.0001. By conventional criteria, this difference is considered to be extremely statistically significant. Similarly for receiving money Chi squared equals 78.543 with 4 degrees of freedom and the two-tailed P value is equals 0.0001. By conventional criteria, this difference is considered to be extremely statistically significant

The results above indicate that the number of times the respondents have transferred money in a month has increased significantly after the introduction of M-Pesa.

4.3.4 Social Impacts

Under social impacts the following criteria were considered:

a) Beneficiaries of M-Pesa money transfers

b) Reasons for using M-Pesa

c) Money transfer methods used before and after M-Pesa

d) Geographical distribution of M-Pesa money transfers

a) Beneficiaries of M-Pesa money transfer

The purpose of this analysis was to establish the impact M-Pesa has had in social well being of Kenyans by establishing the most frequent beneficiaries of M-Pesa money transfer.

Table 4.12: Most Frequent M-PESA Beneficiaries

	Very often (%)	Often (%)	Occasionally (%)	Rarely (%)	Never (%)	Total (%)	Ranking
Parents	30.4	29.5	26.1	6.1	7.9	100%	1
Spouse	25.8	21.9	20.7	11.5	20.1	100%	2
Friends	10.3	11.9	43.8	24.6	9.4	100%	3
Relatives	9.4	9.7	43.5	24	13.4	100%	4
Children	11.6	16.4	19.1	17.9	35	100%	5
Business Partners	5.5	13.4	21.5	24.3	35.3	100%	6

Figure 4.15: Most Frequent M-PESA Beneficiaries
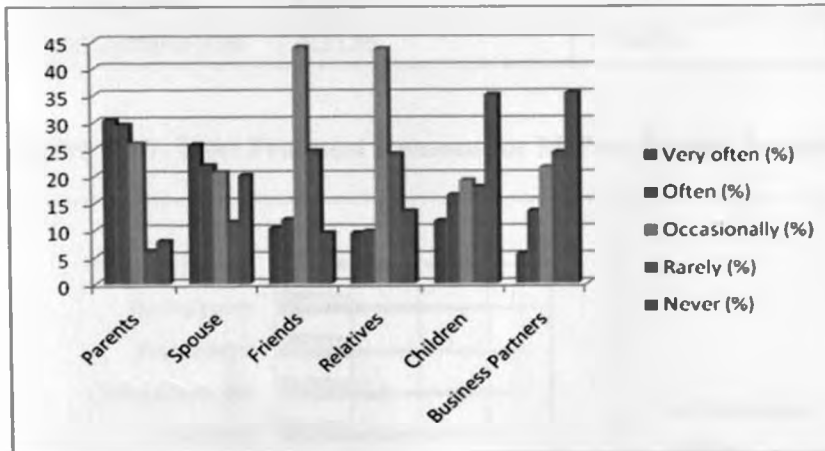
The above finding shows that the most frequent beneficiaries of M-Pesa money transfers are direct family dependents such as parents, spouses and children who perhaps are still

living in the remote rural areas but depend on the respondents to send them money for their economic and social upkeep.

b) Reasons for using M-Pesa

The purpose of this analysis was to establish the most frequent reasons for the transfer of money using M-Pesa.

Table 4.13: Most Frequent Reasons for M-Pesa Money Transfers

	Mean	Std. Deviation	Ranking
Buying Airtime	2.304	1.20922	1
Savings for emergency	3.3435	1.29043	2
Fund raising	3.4195	1.18439	3
Paying Bills	3.6413	1.3086	4
Paying school fees	3.7842	1.49356	5
Paying debts	3.8267	1.23111	6
Buying goods	4.1094	1.22482	7
Paying employees	4.2158	1.20426	8

Figure 4.16: Most Frequent Reasons for M-Pesa Money Transfers
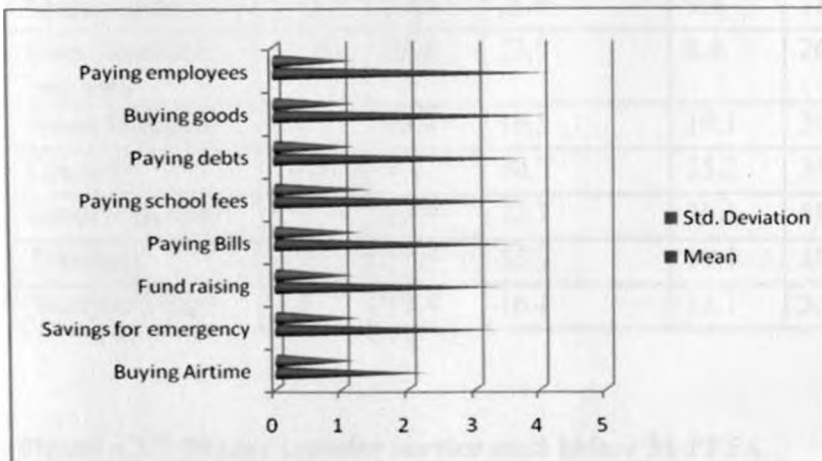
Note: The higher the mean or standard deviation the less the frequency. This means that buying airtime, having savings for emergencies, fund raisings and paying bills were the top reasons for money transfers. This implies that M-Pesa has had an impact in the social lifestyle of many Kenyans who no longer feel the need to physically attend fund raisings, or go to the shop to buy airtime or visit the bank or SACCO to put their savings. They have now resulted to using M-Pesa in the comfort of their homes or work place and still do all the above social activities.

c) Money transfer methods used before and after M-Pesa

The purpose of this analysis was to establish the impact M-Pesa has had on traditional money transfer methods that were used before M-Pesa.

Table 4.14: Money transfer service used before M-PESA

	Very often (%)	Often (%)	Occasionally (%)	Rarely (%)	Never (%)	Total (%)	Ranking
Money order	19.1	24.3	28.9	9.4	18.2	100%	1
Direct deposit into bank	18.2	22.8	23.7	8.8	26.5	100%	2
Buses/Matatus	14	15.8	18.3	19.1	32.8	100%	3
Cheques	10.3	9.1	30.7	15.2	34.7	100%	4
Family/ friends	9.1	22.9	23.7	26.1	18.2	100%	5
Posta pay	7.3	17.9	35.9	19.1	19.8	100%	6
Western Union	2.1	13.4	16.4	13.1	55	100%	7

Figure 4.17: Money transfer service used before M-PESA
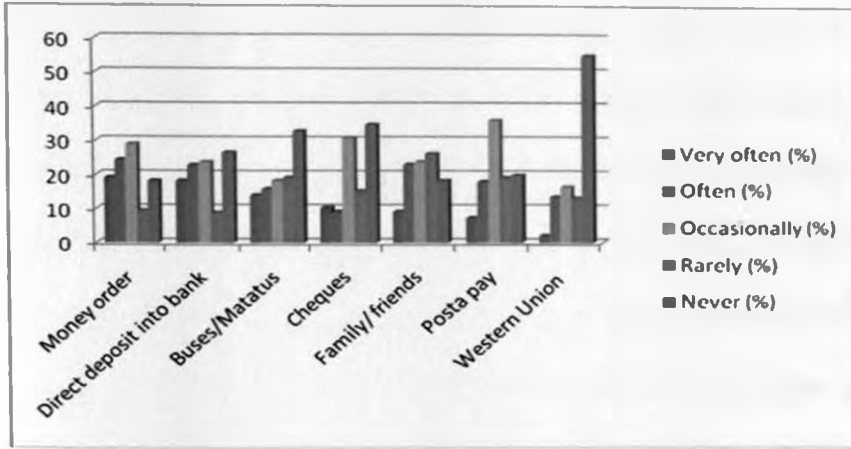
Table 4.15: Money transfer service used after M-Pesa

	Very often (%)	Often (%)	Occasionally (%)	Rarely (%)	Never (%)	Total (%)	Ranking
M-Pesa	66.7	17.3	9.1	3.9	3	100%	1
Direct deposit into bank	18.2	30.4	21.3	8.5	21.6	100%	2
Cheques	7	18.2	31	9.1	34.7	100%	3
Money Order	-	7.3	31	30.7	31	100%	4
Family/Friends	-	11.6	21.3	28.5	38.6	100%	5
Zap	5.8	7.9	17.9	20.7	47.7	100%	6
Buses/Matatus	0.6	10.3	17.7	23.1	48.3	100%	7
Posta Pay	-	4.3	23.1	38	34.6	100%	8
Western Union	12.2	10	4.5	14.3	59	100%	9

Figure 4.18: Money transfer service used after M-Pesa
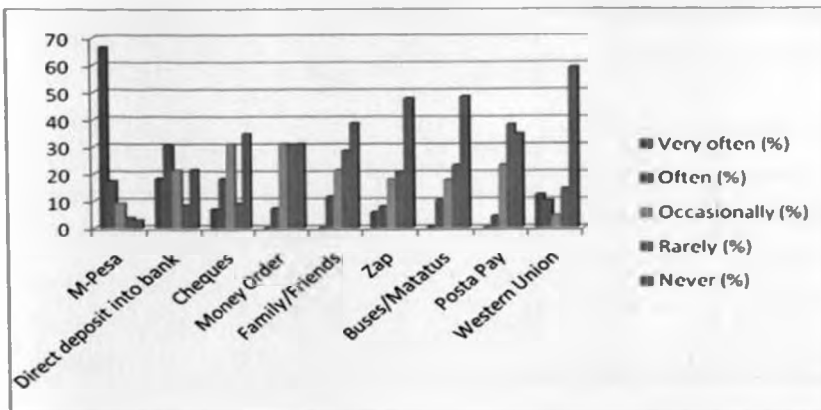
After performing a Chi-square test for the above, the average Chi squared equals 84.668 with 4 degrees of freedom. The two-tailed P value is less than 0.0001. By conventional criteria, this difference is considered to be extremely statistically significant. The social implication of this finding is that indeed M-PESA has revolutionized money transfer services in Kenya and within a short span of time it has become by far the predominant and preferred mode of money transfer compared to all the other modes used previously. We can therefore infer that M-PESA has also dramatically had an impact to the lifestyle of Kenyans in terms of transferring money from one place to another.

a) Geographical distribution of M-Pesa money transfers

The purpose of this analysis was to establish which geographic regions in Kenya have been impacted the most by M-Pesa and also establish if there is a significant difference of M-Pesa money transfers between regions.

Table 4.16: Where money is sent to most often

	Mean	Std. Deviation	Ranking
Within Nairobi	1.8663	1.03021	1
Rift Valley Region	2.0462	1.52525	2
Central Region	2.2584	1.49699	3
Western Region	2.3617	1.46291	4
Coastal Region	2.8207	1.30713	5
Eastern Region	2.8906	1.21482	6
North Eastern Region	4.0638	1.35437	7

Figure 4.19: Where money is sent to most often
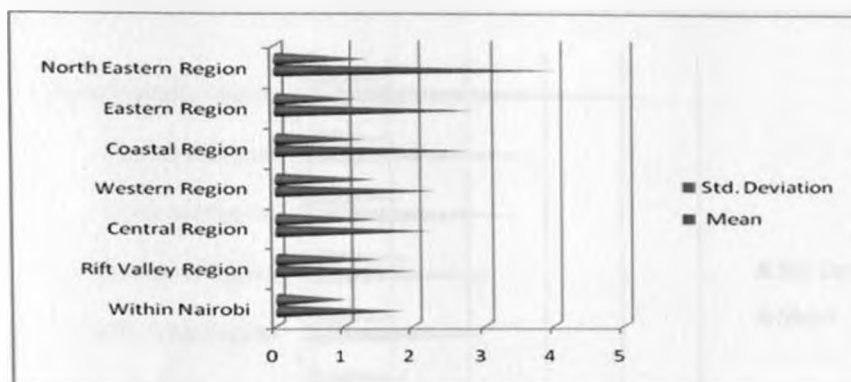
Table 4.17: From where money is received most often

	Mean	Std. Deviation	Ranking
Within Nairobi	1.696	0.97781	1
Central Region	2.3222	1.37691	2
Rift Valley Region	2.3708	1.25761	3
Western Region	2.4316	1.42143	4
Coastal Region	2.8632	1.22828	5
Eastern Region	3.0426	1.13616	6
North Eastern Region	4.4833	1.099	7

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Figure 4.20: From where money is received most often
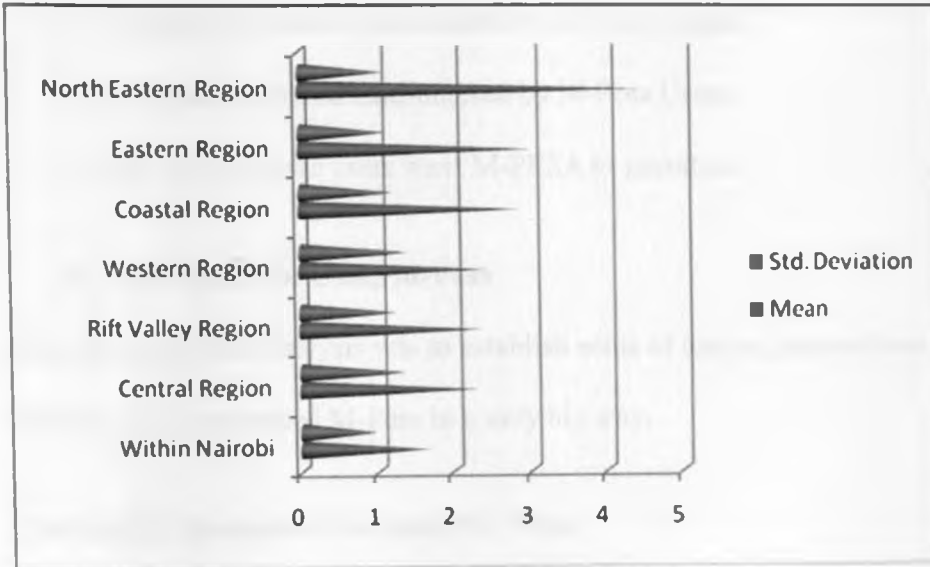
Note: The higher the mean or standard deviation the less the frequency. From Table 4.17 above, after performing a Chi-Square test for both receiving and sending money, the average Chi squared equals 1.500 with 6 degrees of freedom. The two-tailed P value equals 0.9595. By conventional criteria, this difference is considered to be not statistically significant

The social implication of this is that there is no significant difference between money transferred between various geographical regions regardless of population size, distance or any other factor. This implies that M-Pesa is used equally in all geographical regions within Kenya.

4.3.5 Other Findings

Under this section we considered other significant findings that could not be directly attributed to both economic and social impacts. These included:

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a) Motivation for Using M-Pesa

b) Common Problems Encountered by M-Pesa Agents

c) Common Problems Encountered by M-Pesa Users

d) New Services the users want M-PESA to introduce

a) Motivation for Using M-Pesa

The purpose of this analysis was to establish some of the key motivations behind why

Kenyans have embraced M-Pesa in a very big way.

Table 4.18: Motivation for using M- PESA

	Mean	Std. Deviation	Ranking
Convenience	1.4195	.52416	1
Readily available	1.5441	.66169	2
Secure	1.7842	.81090	3
Faster	1.6231	.88907	4
Cheaper	2.0030	1.04034	5

Figure 4.21: Motivation for using M- PESA
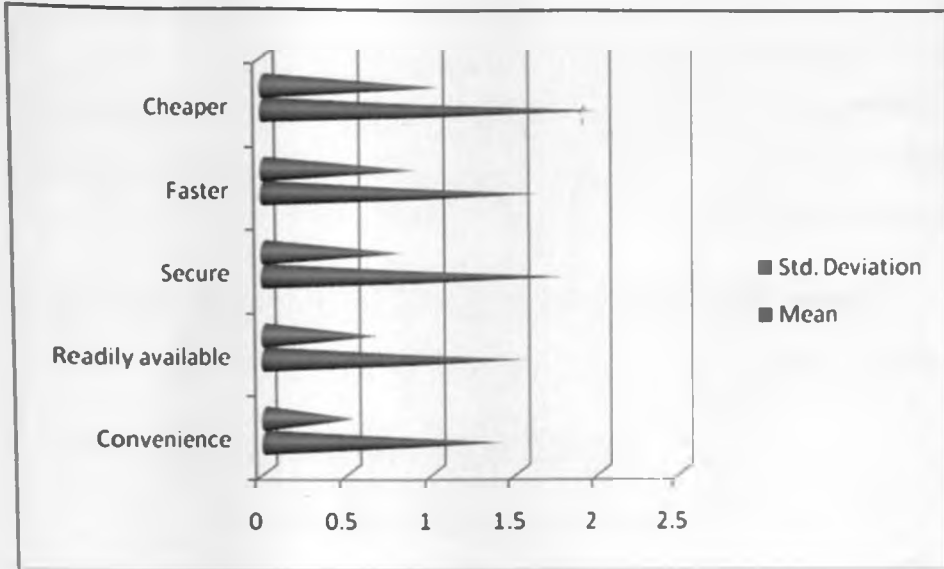
Note: The higher the mean or standard deviation the less the frequency. This therefore means in general the respondents agreed that all the factors put forward to them were some of the reasons as to why they use M-PESA. However interestingly enough convenience came out as the most important reason and cost actually came last which could imply that users would be willing to pay a bit more for the same or even better something which Safaricom could explore.

b) Common Problems Encountered by M-Pesa Agents

The purpose of this analysis was to establish some of the common problems encountered by M-Pesa agents and by so doing identify key areas that would require improvements.

Table 4.19: Most Common Problems encountered by the agents

	Mean	Std. Deviation	Ranking
Technical problems	1.5319	0.65445	1

Customer awareness	2.766	0.7861	2
Tedious record keeping	2.8511	0.72167	3
Security	3	0.72232	4
Cash float	3.4894	0.58504	5
M-PESA agent support	3.8511	0.6248	6

Figure 4.22: Most Common Problems encountered by the agents
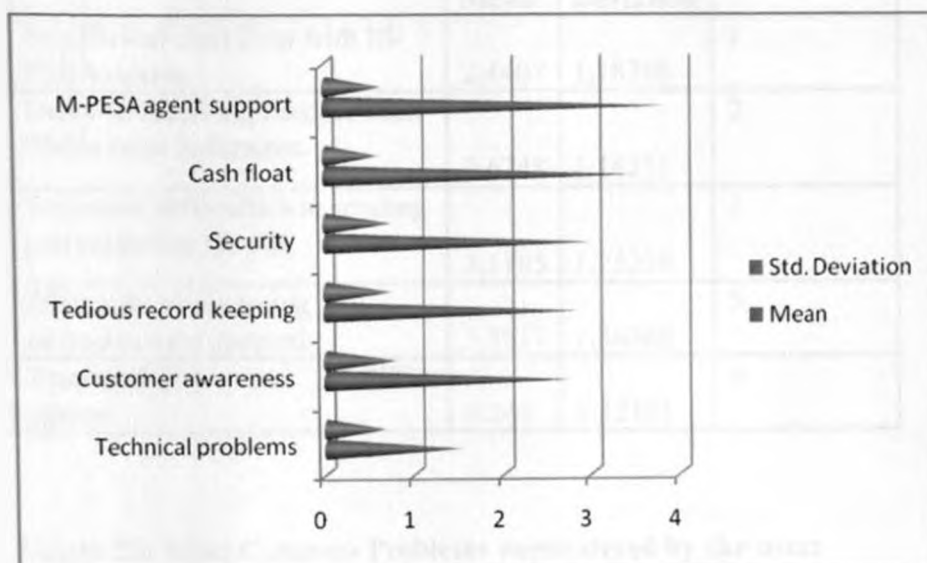
Note: The higher the mean or standard deviation the less the frequency. This implies that mobile banking being a new technology that is fast evolving is still a long way from maturity and hence why it faces a lot of technical problems. Mobile operators, government, research institutions and even universities need to invest more time and resources in researching and developing this highly potential and lucrative technology so that it can mature and bring even greater benefits to all Kenyans.

c) Common Problems Encountered by M-Pesa Users

The purpose of this analysis was to establish some of the common problems encountered by M-Pesa users and by so doing identify key areas that would require improvements.

Table 4.20: Most Common Problems encountered by the users

	Mean	Std. Deviation	Ranking
Insufficient cash float with M-PESA agents	2.4407	1.18308	1
Delay in receiving confirmation SMSs from Safaricom	2.6748	1.16111	2
Technical difficulties in sending and receiving money	3.1185	1.25229	3
Difficulty in accessing customer-care support	3.3617	1.36368	5
Unavailability of M-PESA agents	4.245	1.32183	4

Figure 23: Most Common Problems encountered by the users
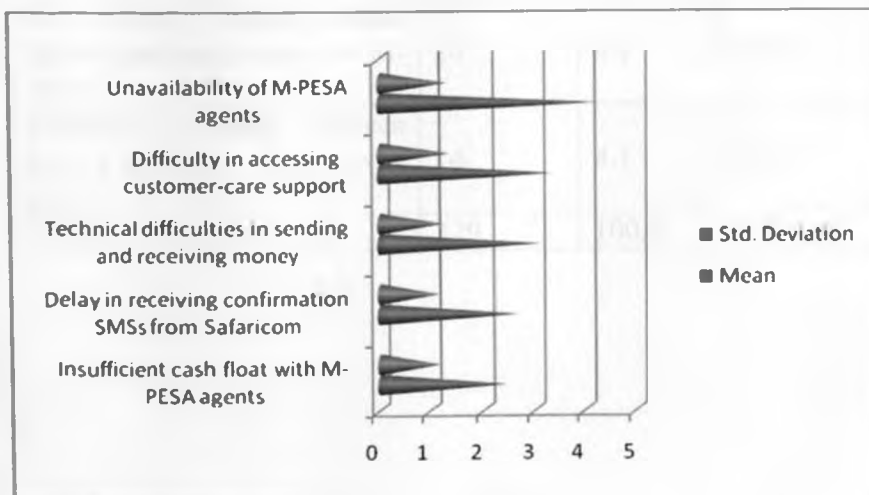
Note: The higher the mean or standard deviation the less the frequency. From the above finding therefore it implies that for M-Pesa users the biggest challenge they face is with

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regard to insufficient cash float with M-Pesa agents which is slightly different from the top challenges that were mentioned by M-Pesa agents above. This implies that Safaricom should look at better ways of increasing the cash float for M-Pesa agents.

d) New Services the users want M-Pesa to introduce

The purpose of this analysis was to find out from M-Pesa customers some of the new services that they would like to be introduced by M-Pesa that they feel would be of great value in their lives.

Table 4.21: New Services the users want M-PESA to introduce

	Frequency	Percent	Cumulative Percent	Ranking
Pay interest on money saved on M-Pesa	117	35.6	90.9	1
Transfer of money from bank account to M-Pesa account	110	33.4	55.3	2
Offer credit facilities	72	21.9	21.9	3
Earn loyalty (Bonga) points for transactions made on M-Pesa	16	4.9	100.0	4
Transfer of money between bank accounts from your phone	14	4.3	95.1	5
Total	329	100.0	100	

Figure 4.24: New Services the users want M-PESA to introduce
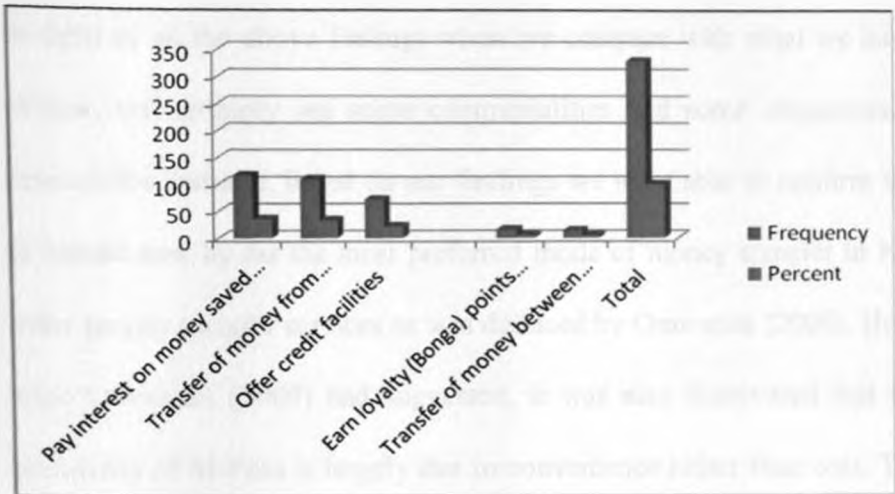
Some of the new services mentioned above have already been addressed by Safaricom in very recent months. The launch of M-KESHO a credit facility in partnership with Equity Bank that now allows registered M-Pesa users to borrow amounts up to Kshs. 5,000/- has already been implemented and as anticipated well received by M-Pesa customers. Another that was recently introduced is Bonga Points that Safaricom launched that allows M-Pesa users to earn loyalty points for every M-Pesa transaction they make. Still other improvements that have been made is the ability to transfer money directly from your bank account from certain banks that Safaricom has partnered with such as Equity Bank, Co-operative Bank of Kenya and Barclays Bank.

4.3.6 Discussion

In light of all the above findings when we compare with what we have in the literature review, we certainly see some commonalities and some disparities. Under economic impacts for instance, based on our findings we were able to confirm that indeed M-Pesa is indeed now by far the most preferred mode of money transfer in Kenya compared to other money transfer services as was deduced by Omwansa (2009). However, contrary to what Omwansa (2009) had suggested, it was also discovered that the reason for the popularity of M-Pesa is largely due to convenience rather than cost. This is a significant finding as it implies that Kenyans are willing to pay more for innovative services such as M-Pesa that can make their lives more convenient. It was also confirmed that M-Pesa indeed has become more popular than even commercial bank services and has had a significant impact on the banking industry. Indeed many banks have since realized this and are finding ways to partner with M-Pesa in order to remain relevant in the market, examples are Equity Bank, Co-operative Bank of Kenya, Family Finance Bank etc...

Also under economic impacts, it was confirmed that M-Pesa has significantly increased the monthly income of those who have adopted M-Pesa as a business with most M-Pesa agents reporting to have earned an average of Kshs. 50,000/- and more from M-Pesa. These earnings are very significant given that according to the National Income Distribution survey done by Kenya Bureau of Statistics estimates that 80% of Kenyans earn less than Kshs. 10,000/- per month. From the findings it was confirmed that by far the majority of M-Pesa users are in the low to medium income bracket which is consistent with what was suggested in the literature review by Morawczynski (2009).

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Still under economic impacts it was discovered that since the advent of M-Pesa the number of person to person money transfer transactions and even the average amounts transferred in month from person to person has significantly increased which implies by extension that M-Pesa has actually contributed to stimulating rapid economic growth in the country.

Under social impacts, from the above findings it was discovered that M-Pesa is just as popularly and widely used in the urban areas like Nairobi as it is in the rural areas, contrary to what was suggested in the literature review by Morawczynski (2009) that most M-Pesa transactions are due to urban workers sending money to their loved ones still living in the rural areas. This is a significant finding as it implies that M-Pesa is not only used to transfer money to families leaving in the rural areas but also as a preferred mode of payment even within the urban areas. However it was also confirmed that indeed the majority of M-Pesa users send and receive money from their direct family members such as parents, spouses and children which is consistent with the study done by Morawczynski (2009) as highlighted in the literature review.

Still under social impacts, the popularity of M-Pesa based on the findings was found to be more or less equally distributed among users of the age between 20 to 50 years. This is contrary to what was suggested in the literature review by Morawczynski (2009) that M-Pesa is mainly popular among the youth, which is generally assumed to be people of the ages 35 years and below. Not mentioned in the literature review, his study also discovered that M-Pesa has been equally adopted by both men and women, whether

single or married with no significant difference in either group. It was also confirmed based on the research done by Omwansa (2009) that most M-Pesa transactions occur at the beginning and at the end of the month when most users have been paid and need to send money to their loved ones which is consistent with the social lifestyle of Kenyans where most economic activities occur during the beginning and the end of the month. Also consistent with the findings by Morawczynski (2009) is that majority of M-Pesa users and even the M-Pesa agents cited lack of adequate cash float and technical problems as the two major challenges they face when using M-Pesa. Safaricom as a company will seriously need to look at addressing these two problems if they are to keep their customers delighted.

New findings were also discovered from this study that are not directly related to economic or social impacts but also have never been previously discussed in other similar academic studies. Some of them include the fact that M-Pesa customers expressed a strong desire to earn interest on their M-Pesa balance, be able to transfer money from M-Pesa to their bank account and also be able to access credit facilities using M-Pesa. Safaricom as a company has already attempted to address two of these needs by partnering with some of the leading banks such as Equity Bank, Co-operative Bank of Kenya and others. Recently Safaricom and Equity Bank launched a joint product dubbed M-KESHO that allows registered M-Pesa users to borrow up to Kshs. 5,000/- using M-Pesa. Safaricom has also introduced the ability to earn redeemable loyalty 'Bonga' points on your M-Pesa account.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

In summary, the objective of this study was to research on the economic and social impacts of M-Pesa on the Kenyan society. This study was able to establish through a survey done via questionnaires to M-Pesa users and M-Pesa agents, that M-Pesa as a form of mobile money transfer service has been a huge success in Kenya and has transformed many lives both economically and socially. The achievements made so far with M-pesa are just the beginning and there is still a lot of potential for growth in mobile banking in Kenya to attain even greater economic and social benefits.

5.2 Conclusion

In conclusion, this study has achieved its objectives to discover the economic and social impacts of M-Pesa on the Kenyan society by surveying a representative sample of M-Pesa users and a number of M-Pesa agents. It was found that M-Pesa is now indeed by far the most preferred and dominant money transfer service in Kenya and has actually had a huge impact in the number and average amount of person to person money transfers. It was also discovered that M-Pesa has had significant economic impact to many low to medium income Kenyans who are able to get some significant additional income by becoming M-Pesa agents and earning commissions from it as a livelihood. It was also found that M-Pesa has had various social impacts as it has enabled many Kenyans to be

able to send money to their loved ones both family and friends regardless of where they live in Kenya meaning they are no longer constrained by distance.

5.3 Recommendations

Safaricom and the banks who they have partnered with to offer services like automatic teller machine withdrawal, buying goods using the service, paying bills and debts should do a thorough market sensitization and advertisement as the customers are not fully aware and familiar with these service. A majority of them do not understand how to use them and some of the numbers which are given by organizations to be used to pay bills are so many such that the customers may confuse the numbers and in the process lose their money.

There should be a ceiling in which the M-Pesa agents should have the cash float (money deposited in the bank to facilitate M-Pesa customer transactions) so that they by the time the float becomes insufficient they will have deposited some money in order to increase their float thus having constant float for the customers to transact. In order for the customers not to lose their money whenever they send their money to the wrong number, the company should work on a legal framework which will ensure that the recipient can be prosecuted it they withdraw the money or whenever they transact in their account, the money is deducted and the other person is refunded.

Safaricom could also make the features of using the service more user friendly so that neither the users nor the agents suffer from the technical problems while using the

service. The company should also introduce other schemes of rewarding the customers for their continued loyalty as suggested by the users like paying interest on money saved on M-Pesa, transfer of money from bank account to M-Pesa account and offering credit facilities

5.4 Recommendations for Further Research

The study confined itself to only one company offering mobile banking although there are other companies in Kenya such as Zain with Zap, Essar with YU Cash and now most recently Telkom Orange offering the same service. This research therefore should be replicated in the other mobile service companies and the results be compared so as to establish whether there is consistency among the mobile service companies. Also this study was confined to a quantitative research but perhaps a qualitative research could also be undertaken.

5.5 Limitations of the study

This study was based on a sample limited to only one mobile banking company. It did not cover other mobile banking companies. The scope and depth of study was also limited by the time factor and financial resource constraints. This put the researcher under immense time pressure. The researcher also encountered immense problems with the respondents' unwillingness to complete the questionnaires promptly. Some of them kept the questionnaires for too long, thus delaying data analysis.

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APPENDICES

M-PESA USERS QUESTIONNAIRE

1. **Sex**   Male ☐   Female ☐

2. **Are you married?** Yes ☐   No ☐

3. **Age**

   ☐ Below 20

   ☐ 20-30

   ☐ 31-40

   ☐ 41-50

   ☐ 50 and above

4. **Place of residence** _____

5. **Place of residence of spouse/children** _____

6. **Income**

   ☐

         Below Ksh. 10,000

   ☐ Ksh. 10,000 – Ksh. 30,000

   ☐ Ksh. 31,000 – Ksh. 50,000

   ☐ Ksh. 51,000 – Ksh. 70,000

   ☐ Ksh. 71,000 and above

7. **Do you operate a commercial bank account?** Yes ☐   No ☐

8. **If yes, which account do you operate more frequently?**

   M-Pesa ☐   Other ☐

9. As an M-Pesa user, what makes you use M-PESA? (Tick one for each choice)

	Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree
Convenience					
Readily Available					
Secure					
Faster					
Cheaper					
Any other (please specify)					

10. How often do you use the following M-Pesa services? (Tick one for each choice)

	Daily	Weekly	Monthly	Rarely	Never
Send Money					
Withdraw Money					
Buy airtime					
Pay Bills e.g. KPLC					
Buy Goods					
ATM Withdrawal					
Any other (please specify)					

11. Whom do you send money to via M-Pesa? (Tick one for each choice)

	Very Often	Often	Occasionally	Rarely	Never
Spouse					
Parents					
Children					
Relatives					
Friends					
Business Partners					
Any other (please specify)					

12. What do you use M-PESA for? (Tick one for each choice)

	Very Often	Often	Occasionally	Rarely	Never
Paying School Fees					
Buying Goods					
Paying Employees					
Paying Bills e.g. KPLC					
Buying Airtime					

Fund raising e.g. funerals. weddings					
Paying debts e.g. bank loan, SACCO, 'chama'					
Savings for Emergency					
Any other (please specify)					

13. **Before** M-Pesa which local money transfer service did you use? (Tick one for each choice)

	Very Often	Often	Occasionally	Rarely	Never
Posta Pay					
Money Order					
Buses/Matatus					
Family/Friends					
Cheques					
Western Union					
Direct deposit into bank account					
Any other (please specify)					

14. **Currently** which local money transfer service do you use? (Tick one for each choice)

	Very Often	Often	Occasionally	Rarely	Never
M-Pesa					
Zap (Zain)					
Posta Pay					
Money Order					
Buses/Matatus					
Family/Friends					
Cheques					
Western Union					
Direct deposit into bank account					
Any other (please specify)					

15. Where do you **send** money? (Tick one for each choice)

	Very Often	Often	Occasionally	Rarely	Never
Within Nairobi					
Western Region					

Central Region					
Coastal Region					
Eastern Region					
Rift Valley Region					
North Eastern Region					
Any other (please specify)					

16. From where do you <u>receive</u> money? (Tick one for each choice)

	Very Often	Often	Occasionally	Rarely	Never
Within Nairobi					
Western Region					
Central Region					
Coastal Region					
Eastern Region					
Rift Valley Region					
North Eastern Region					
Any other (please specify)					

17. <u>Before</u> M-PESA, what was the average amount of money that you transferred in a month? (Tick one for each choice)

	Less than Ksh. 1,000	Ksh. 1,000 – Ksh. 10,000	Ksh. 11,000 – Ksh. 20,000	Ksh. 21,000 – Ksh. 30,000	More than Ksh. 30,000
Sending Money					
Receiving Money					

18. <u>After</u> M-PESA, what was the average amount of money that you transferred in a month? (Tick one for each choice)

	Less than Ksh. 1,000	Ksh. 1,000 – Ksh. 10,000	Ksh. 11,000 – Ksh. 20,000	Ksh. 21,000 – Ksh. 30,000	More than Ksh. 30,000
Sending Money					
Receiving Money					

10. <u>Before</u> M-PESA, what was the average number of times that you transferred money in a month? (Tick one for each choice)

	Never	Once	Twice	Three times	More than Three
Sending money					
Receiving money					

11. <u>After</u> M-PESA, what was the average number of times that you transferred money in a month? (Tick one for each choice)

	Never	Once	Twice	Three times	More than Three
Sending money					
Receiving money					

12. Which problems have you encountered when using M-Pesa? (Tick one for each choice)

	Very Often	Often	Occasionally	Rarely	Never
Insufficient cash float with M-Pesa agents					
Delay in receiving confirmation SMSs from Safaricom					
Technical difficulties in sending and receiving money					
Unavailability of M-Pesa agents					
Difficulty in accessing customer-care support					

Any other (please specify)					

13. Which other services would you wish M-Pesa to introduce? (You can tick more than one)

☐ Offer credit facilities (e.g. Loans)

☐ Transfer of money from your bank account to your M-Pesa account

☐ Pay interest on money saved on M-Pesa

☐ Transfer of money between bank accounts from your phone

☐ Earn loyalty (Bonga) points for transactions made on M-Pesa

Any   other   (please   specify)

_____

_____

_____

_____

14. In your own words, how has M-PESA changed your life?

_____

_____

_____

_____

M-PESA AGENT'S QUESTIONNAIRE

11. Sex   Male [ ]   Female [ ]

12. Age

[ ] Below 20

[ ] 20-30

[ ] 31-40

[ ] 41-50

[ ] 50 and above

13. Place   of   M-Pesa   business   operation

_____

14. On average how many M-PESA customers do you serve per day? (Please tick one only)

[ ] Less than 10

[ ] 10 – 50

[ ] 50 – 100

[ ] More than 100

15. On average how many new M-PESA customers do you register in a day? (Please tick one only)

[ ] Less than 10

[ ] 10 – 50

[ ] 50 – 100

[ ] More than 100

6. What is the frequency of M-Pesa money transfers during the following periods? (Tick one for each choice)					
	Very High	High	Average	Low	Very Low
End Month					
Beginning of the Month					
Mid-Month					
Holidays e.g. Christmas, Easter,					

16. When do most money transfers take place? (Please tick one only)

☐ End Month

☐ Mid-Month

☐ Evenly distributed throughout the month

☐ Holidays e.g. Christmas, Easter, School Holidays etc…

Any other (please specify) _____

17. **Before** M-PESA how much income did you earn on average, per month? (Please tick one only)

☐ Less than 10,000

☐ 11,000 – 20,000

☐ 21,000 – 30,000

☐ 31,000 – 40,000

☐ 41,000 – 50,000

☐ More than 50,000

18. **After** M-PESA how much **additional** income do you earn on average, per month? (Please tick one only)

☐ Less than 10,000

☐ 11,000 – 20,000

☐ 21,000 – 30,000

☐ 31,000 – 40,000

☐ 41,000 – 50,000

☐ More than 50,000

19. What Problems do you encounter when serving customers? (Tick one for each choice)					
	Very Often	Often	Occasionally	Rarely	Never
Technical problems					
Customer awareness					
Cash float					
Security					
Tedious record-keeping					
M-PESA Agent Support					
Any other (please specify)					

20. In your own words, how has M-PESA changed your social lifestyle? If yes, please explain?

_____

_____

_____

_____

_____

_____

_____

_____