UNIVERSITY OF NAIROBI

SCHOOL OF COMPUTING AND INFORMATICS

"MOBILE PHONES USAGE IN RURAL KENYA FOR BUSINESS A SURVEY STUDY IN MACHAKOS DISTRICT"

By

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DECLARATION

This research project is my original work and has not been presented for a degree programme in any other university.

Signed: _____ Date: 03/09/2010

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ABSTRACT

ICT has been cited as a factor for increased business income among the rural poor. As such it is expected that mobile would increase growth in income levels among the rural poor.

In the course of the past ten years mobile penetration has gone from a few elites in Nairobi to 89% service coverage nationwide and 10 million estimated subscribers (CCK, 2009). Mobile phones are the most popular form of ICT among the poor. The Kenya Bureau of Statistics (2009) estimates that close to half of Kenyans (46 %) currently live below the poverty line sustained by less than a dollar per day.

The levels of income are expected to rise as the use o mobile phone continues to increase in rural areas. It is assumed that mobile phone usage directly increases income levels, there still appears to be mixed feelings on the perceived benefits of mobile phones especially at the bottom poor.

This research abandons all such assumptions of the impact of use of mobile phones on income levels and seeks to find out how phone users in Rural Kenya, Machakos District perceive the relationship between mobile phones and business income. This research sought to investigate mobile phone usage patterns among the poor; what the phones are used for, the source of income for mobile running expenses, use of mobile phones for business and information access.

Questionnaires were administered to the respondents in Machakos district. The main questions asked addressed mobile phone usage and how this makes it easier to do business in rural areas and whether or not it contributes to business income among the rural poor

Findings from the research indicated that mobile phones are supporting small scale business and peasant farmers in marketing and selling their products thereby increasing the income levels of the rural community. Mobile phone as an ICT tool is supporting the rural communities especially the women to get more customers and carry out business transactions effectively.

88% of the women interviewed accepted that mobile phones increase business income and make it easier to carry out business in the rural areas, while 91% of the men interviewed accepted that the mobile phone is supporting rural people in Kenya to carry out business easily and it improves levels of income among the rural people.

The mobile phone has been well received and is perceived as a tool that will enhance development. It is therefore recommended that this ICT tool should be exploited to transform the rural areas.

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ABBREVIATIONS

GDP- Gross Domestic Product

GSM – Global System for Mobile Communication

ICT – Information Communication and Technology

SMS - Short Message Service

SIDA – Swedish Development Agency

VAT- Value Added Tax

GOK – Government of Kenya

CCK – Communications Commission of Kenya

KIPPRA - Kenya Institute for Public Policy Research and Analysis

CHAPTER 1

1. INTRODUCTION

Lack of sufficient income is a major social and economic concern in Kenya. Since independence, one of the principal goals of Kenya's development effort has been to reduce poverty (KIPPRA, 2002). One of the key components within the Kenya Vision 2030 is investing in telecommunications so that the entire country will be firmly interconnected (GOK, 2008).

Mobile phones are rapidly increasing the telecommunications infrastructure especially in areas where phones were once nonexistent (Duncombe and Heeks 2007). Many developing country governments and developing agencies are focusing on extending telecommunications services into rural areas, as they seek to alleviate poverty, encourage economic and social growth, and overcome a perceived 'digital divide'. However, relatively little is known about how rural communities benefit from modern telecommunications services and what impact it is having on their lives and livelihoods. (Rhodes 2002: 220), quoted from (Waverman etal 2005). This paper endeavors to redress the balance, by examining the role of mobile telephones in sustainable poverty reduction among the rural poor.

With the proliferation of cheaper mobile phones and lowering costs for network connections mobile phones in particular appear to drive affordability of Information and Communications enabling technology among the rural poor (Diga, 2007). The effect of ICT use on rural communities is speculative and the formulation of ICT policy decisions targeted at the poor may be missed.

Although mobile phone usage started among the elites in the major cities, the service has quickly spread in rural areas as well, wherever the network is available. Apart from the expanded mobile phone usage, there has also been an increase in the number of network providers. Increased competition among network providers has resulted in reduction of costs for mobile phone users.

To the extent that mobile communications are reaching some rural areas with little or no fixed line availability, rural people are better able to stay in contact with family members and business contacts. Mobiles are also improving the flow of information available from urban centers, government agencies and non- governmental organizations.

The recent introduction of mobile phone telephony in rural Kenya brings great change to its citizens. The country shows phenomenal uptake rates and the government is maturing in policy development and research in telecommunications. Even with universal service obligations, the question remains if the most vulnerable are able to participate in the new knowledge economy and what other familial barriers are hampering the outreach of communications to the poor. With many of Kenya's positive conditions for telecommunication policy, further research needs to address how the mobile phone industry affects rural household livelihoods.

The impact of ICTs on poverty differs greatly, depending on which technology is used. Radio and telephony are rather cheap; their use requires few skills while in terms of context and language, they enjoy great flexibility. Access, through radio, to relevant and timely information can make a difference in the sustainable livelihoods of people living in poverty. Empirical evidence about the fast developing modern ICTs, mainly the Internet, however, is still quite limited (Jensen, 2007) .The added value of the Internet to the poorest has yet to be conclusively demonstrated. - ICTs can enhance the transparency and accountability of governments; contribute to an enabling environment of good governance

The Information and Communication Technology (ICT) has an important implication for the growth of Kenyan economy. Currently ICT is not only a host to new industries and services but also an enabler that is central to business just like roads, ports and electricity among others.

Innovative use of ICT therefore offers enormous potential benefits for communities and local economies. Development of ICT Sector in Kenya is posed to open new job opportunities, improve access to information and services, increase efficiencies for business and transform our government to be more responsive. (CCK, 2008)

Growth of ICT in Kenya should therefore be seen as a foundation of economic and social revolution to all industries which are likely to take up the advantage of opportunities and efficiencies that comes with it. Currently, ICT Sector is composed of six inter-related sub-Sectors that include Information and Communications, Kenya National Bureau of Statistics, Department of Resource Survey and Remote Sensing, Directorate of E-Government, Government Information Technology Services and the Department of Immigration.

The government through the ICT policy has made it clear that it will remain a facilitator through legislation, regulation and standardization, reducing administrative and regulatory barriers, negotiating for favourable trading arrangements and developing policies that are conducive to business environment. (CCK, 2008)

The Government's key objective is to transform the Kenyan economy through ICTs by promoting and facilitating the private Sector to serve as the driver for economic development through innovation in the ICT Sector (CCK, 2008)Another long-term commitment is to have Kenya develop into a globally competitive ICT outsourcing destination as well as a base for the development, production and sale of information, knowledge, and technology products and services. The programme also involves the modernization of equipment and facilities within the Sector and; strengthening data collection, storage and retrieval (CCK, 2008)

1.1. STATEMENT OF THE PROBLEM

This study aims at discovering the impact of mobile phone ownership on income poverty among the rural poor in Machakos District in Kenya. Emphasis is placed on how poor people use mobile phones and whether or not they use their mobile phones for marketing their products, gathering market information, accessing the internet, m banking, and mobile money transfers. The study is aimed at substantiating whether mobile phones can be said to reduce or increase income poverty in rural areas of Kenya.

The dramatic growth in the use of mobile phones has increased accessibility of Information and Communications Technology (ICT) to the rural areas and the mobile phone is viewed as a potentially productive tool in economic development. Access to mobile communication has been argued to contribute to economic development. It is a common presumption that use of mobile phones will reduce the level of poverty and reduce the digital divide.

However among the bottom poor may have mixed feeling on perceived economic benefits of using a mobile phone. This study abandons every supposition and investigates how mobile users in the rural areas of Eastern Kenya, Machakos District perceive the relationship between the use of mobile phones and income poverty.

Given the unprecedented growth of affordability and coverage of mobile telephony services and its increasing importance as a means of two way communication, the scope of this paper is limited to the role of mobile telephony in sustainable rural poverty reduction in developing countries.

1.2. JUSTIFICATION OF THE STUDY

The effect of ICT use on rural communities is speculative and the formulation of ICT policy decisions targeted at the poor may be missed. Governments in developing countries and non-governmental organizations who seek to implement ICTs within their national poverty

reduction strategy frameworks can justify investments in technology by referring to conclusive research on the effects of ICT on the poor.

The focus on mobile telephony is further justified by the following facts:

- Mobile phones save time and enable efficiencies in business operations by enhancing communication.
- Mobile phones are one of the cheapest forms of ICTs and are extensively used in rural areas. The many pricing models offer affordability and choice, even for very low-income customers (cheap handsets, micro prepayments, top-up cards). Innovative ways of mobile phone access, which allow sharing of phones through SIM cards and payments for air time through micro-prepayment with some companies offering credit units of as little as five shillings, promote even more rapid adoption by the poor.
- For the companies offering mobile services, establishing mobile masts is a relatively inexpensive way of serving large & remote rural areas, compared to last mile cable for fixed line telephony
- Use of mobile phones is very flexible. Mobiles phones compared to other forms of ICTs can be used for text and voice and are two-way communications, can also be used to access internet, FM radio and banking services.
- Getting a mobile phone and SIM card is very easy as compared to the traditional fixed telephony that required setting up of cables and headsets. In response to factors above, mobile has become the most easily accessible and ubiquitous communications device in rural areas. Easy availability of low priced new handsets with basic features and emergence of secondary markets for used devices, whose prices are even lower, make them within reach for even the poorest of the poor.
- Short Message Service (SMS - also known as text messaging) is a text-based system which allows GSM mobile phone users to send and receive text messages. SMS is gaining popularity due to its convenience and affordability. Government agencies can use SMS can be used to deliver a wide range of information to mobile phone users.
- Different methods of using the mobile phone such as "missed calling" or "beeping" are used to communicate a message such as "please call me, I don't have sufficient funds"

or "I am waiting for you" etc. Beeping is a common method because to the user it is absolutely free.

The importance of studying mobile phones and rural poverty are justified by the following factors:

- Reduction in information poverty is normally viewed as very important by economist in the reduction of poverty among rural communities. Information about market prices, market demand and government policies generally assist poor people make decisions that will impact positively in income poverty reduction.
- Other forms of ICTs such as computers, radios, televisions have taken time to penetrate the rural areas because of low population density and remoteness, illiteracy, lack of basic computer literacy, low awareness, low disposable income, poor health and living conditions, and constant struggle for survival.
- ICT is not an area that has been well-integrated in rural poverty reduction strategies: often narrowly defined as modern technologies (e.g., computers & the internet) and the more traditional technologies (e.g., fixed line telephone, radio & television) have not yet themselves been fully exploited.

The improved flow of information evidently reduces price inequalities in agricultural markets especially non-commodity markets such as perishable fruits, where prices are not already published in newspapers. The impact of an improved information flow thanks to better telecommunications ought to be apparent in the dispersion of prices for the same product in different parts of the same national or regional market.

The combination of mobile with Internet and IP-based technologies, and the integration of fixed and mobile technologies, raises a host of possibilities for technology to be readily available to mobile phone users in rural areas. Most mobile phones which are available at a price of Ksh 2000 have several features such as internet access, FM radio, camera, recorders etc. (CCK, 2008)

Mobile phones have easily substituted for fixed lines in developing countries. Many countries with under-developed fixed-line networks have achieved rapid mobile telephony growth with much less investment than fixed-line networks would have needed or required.

The lack of affordable access to relevant information and knowledge services among the rural poor has been a concern to development economists for some time. Traditionally, information is regarded by economists as a critical element in the efficient functioning of markets. For example, the first fundamental theorem of welfare economics (i.e., competitive equilibria are Pareto efficient) and the law of one price (i.e., the price of a good should not differ between any two markets by more than the transport cost between them) are based on the assumption that economic agents have the necessary information (Jensen 2007).

Moreover, access to information is essential for the emergence of global information and knowledge based economy and has the ability to empower poor communities, enhance skills, and link various institutions involved in poverty reduction. Despite this being widely recognized, access to information has been limited in reality and very few empirical studies exist which assess the impact of investments aimed at providing access to information.

Despite the increasing rural demand for relevant and timely information and market knowledge and recent advances in information and communication technologies (i.e., their declining costs and increasing speed, efficiency and user-friendliness) that opened a wide range of opportunities to meet this demand and to improve the livelihoods of rural poor, the benefits from ICT investments have been unevenly distributed between and within countries resulting in what has become to be widely known as the digital divide and information poverty. Most of the beneficiaries of the ICT revolution have been those with resources and skills leaving out the majority of the rural poor

ICTs have potential to make major contributions both at the level of the individual (training, access to information), the economic environment (improved market access and linkages), and integrating the two levels (aiding local government and local economic development planning).

Of course ICTs are not the only input that can help to achieve this, nor can they accomplish this in isolation, but it is argued that they will have an increasingly important role to play in poverty alleviation projects and their success.

ICTs may even offer some of their greatest benefits in rural areas where the majority of the world's poorest people reside. For many rural dwellers, information transfer currently requires geographical proximity. Information on market price, credit and financing opportunities, and access to new technologies or government services is difficult to procure. For these people, access even to the most basic ICTs can make a significant difference.

1.3. THE MOBILE INDUSTRY IN KENYA

Mobile penetration increased by 4.6 % in the period 2008 compared to an increase of 5.3 % in the same period 2007. The increase in mobile penetration can be attributed to increase in the number of mobile operators, increased mobile coverage and availability of low denomination calling cards (CCK, 2009). Currently some mobile operators offer calling cards of denomination for as low as Kshs. 5 which continues to provide affordable reach to most low income users. The intention of the operators to increase the number of users and capture new market niches has allowed penetration of the services in the very low socioeconomic levels with lower income to increase significantly.

Prices of mobile devices that are subsidized by operators have allowed access to second generation mobile telephone at a value of less than thirty dollars added to the prepayment model which makes them extremely affordable.

The government's move to exempt VAT on all telephones for cellular and wireless networks in this year's budget was a significant development in the telecommunications market. This move is expected to promote affordability subsequently increasing penetration and reducing the cost of customer acquisition.*

* Communications statistics report 4th Quarter 2008/09 viewed from www.cck.go.ke

The mobile services continued to be the most popular means of communication in the country. The four licensed mobile operators had a combined subscriber base of 17.4 million at the quarter ending June 2009 against 17.1 million subscribers in the quarter ending March 2009, representing 1.8% growth.

As shown in the chart below, mobile penetration was 45.9% in the quarter ending June 2009 compared to 45% in the quarter ending March 2009. The stiff competition among the mobile service providers has brought the tariff rates down with special offers on price reduction on SMS and voice communication from time to time.

Give the current stats as of the latest

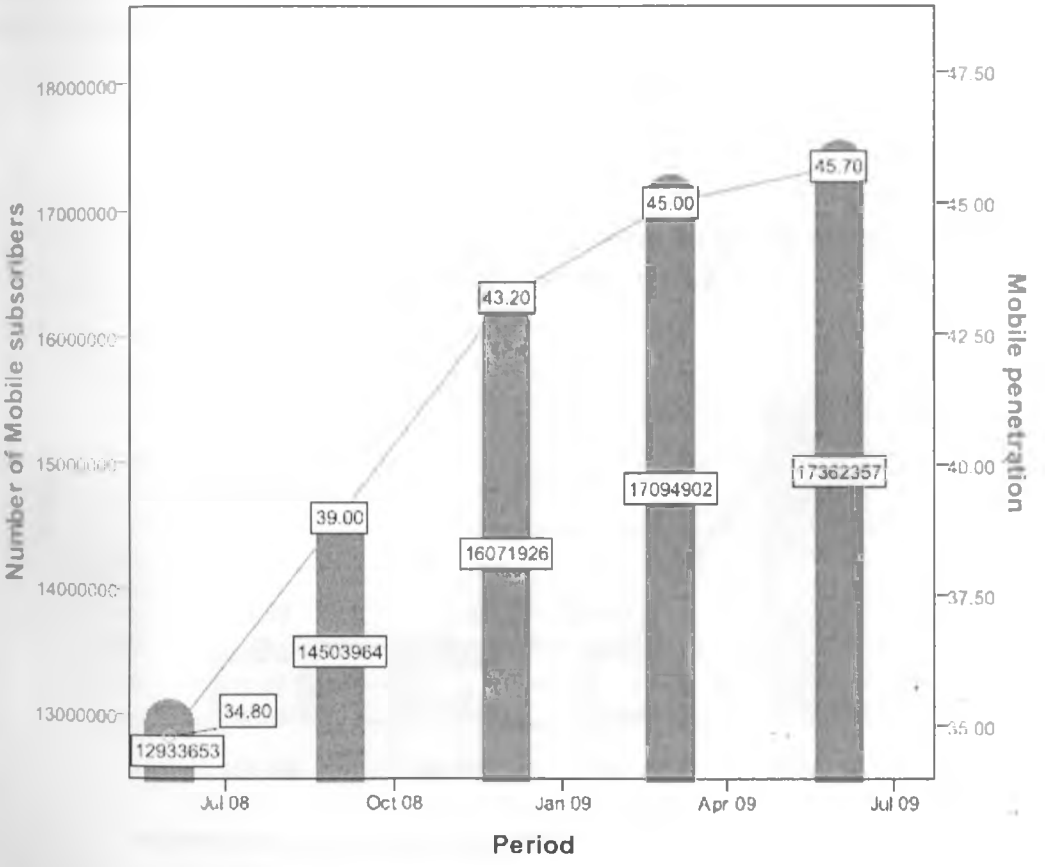

Figure 1: Chart showing mobile subscriber growth (Source: www.cck.go.ke)

1.4. MOBILE COVERAGE IN KENYA

By end of the end of June 2009 the mobile coverage had reached 84% from 83% reported in the quarter ending March 2009 whilst the land coverage was 33% compared to 32% in the previous quarter. This is as shown in the table below.

Indicator	June-08	Sept-08	Dec-08	March-09	June-09
Population coverage	81%	83%	83%	83%	84%
Land coverage	30.8%	31%	32%	32%	33%

Table 1: Table showing mobile coverage in Kenya(Source: www.cck.go.ke)

Mobile data/ Internet made the greatest contribution to internet penetration in the period ending June 2009. More and more people are using the mobile phone to access the internet or mobile data services organizations.

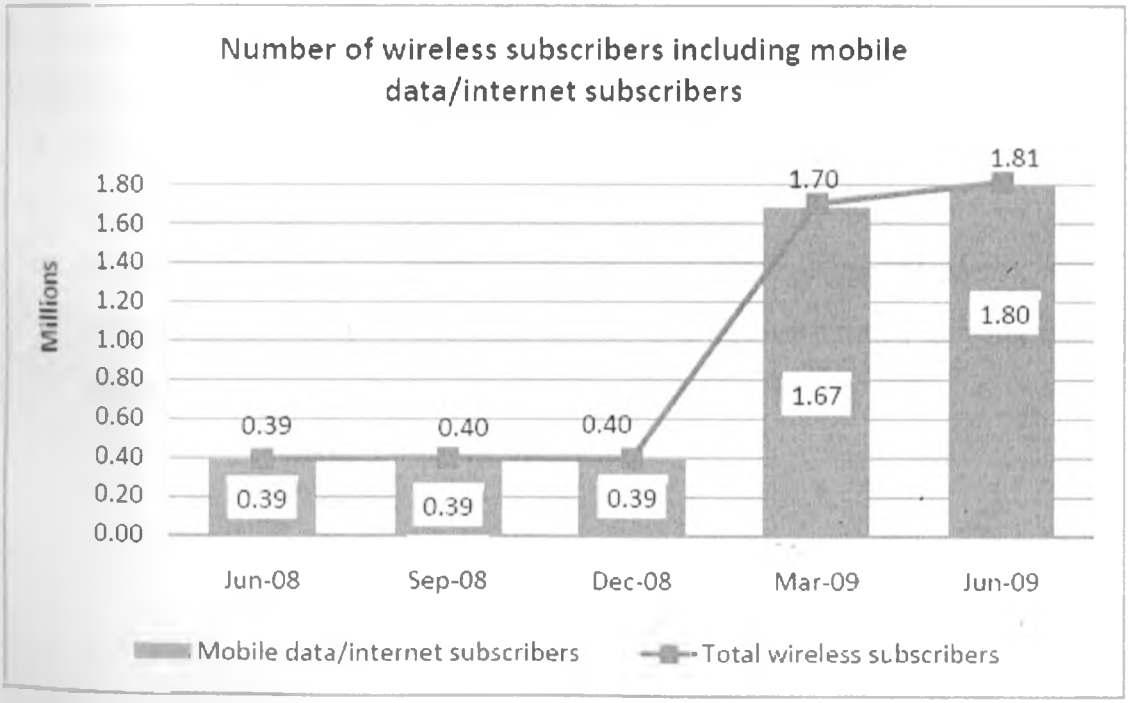

Figure 2: Chart showing mobile data/internet subscribers (

Source: www.cck.go.ke)

1.5. RESEARCH OBJECTIVES

The emphasis of this study is to examine if mobile phones reduce income poverty from a point of view of the poor in rural areas. This study has the following specific objectives:

- To compare people's income levels and the cost of using and maintaining mobile phones through:
    - Determine if mobile phones are used to market and sell products by the poor in rural areas.
    - To investigate whether mobile phones have increased the owners' income.
    - To find out whether mobile phones are being used to access internet for information pertaining to health, marketing, farming technologies, scholarships etc
- To investigate whether mobile phones are being used for M- Banking and Mobile Money transfers like MPesa[†] or ZAP[‡].

1.6. RESEARCH HYPOTHESIS

The following hypothesis will be tested by this study. A set of questions were used during the survey to find out if the following suppositions are true or false.

- Having a mobile phone reduces increases business income
- Costs of running a mobile phone are comparable to its benefits
- Mobile phones are contributing to income generation among the poor.
- Younger people tend to use their mobile phones more for M banking and access the internet compared to older people.

[†] This is a mobile money transfer offered by Safaricom Ltd in Kenya
[‡] This is a mobile money transfer offered by Zain Ltd in Kenya

CHAPTER 2

2. LITERATURE REVIEW

2.1. MOBILE PHONES AND POVERTY

There are now several studies documenting the improvement in prices received by farmers as a result of better access to telephony in general and mobile in particular, in developing countries in Asia, Africa and Latin America.

Perhaps the strongest evidence about the impact of mobile telephony on poverty comes from Jensen (2007), whose research tracked five years' worth of prices for sardines at various landing ports on India's Keralan coast. He found that the arrival of mobiles brought significant and immediate reductions in the variability of price and the amount of waste in the fishing system. Armed with better information, fishermen—most of whom purchased mobiles as soon as they could afford them—are more able to choose to land at a port with buyers willing to purchase their catch. Abraham (2006) too found clear benefits, mostly around reduced price volatility and increased responsiveness, to these fishing communities.

The use of mobile phones may reduce information asymmetries, enabling users to access arbitrage, market or trade opportunities that they otherwise would have missed out on. Jensen (2007) in the study of fishermen in the Kerala state in India has shown that the use of mobile phones by fishermen in Kerala to arbitrage over price information from potential buyers and coordinate sales has helped them to increase incomes and reduce wastage. Since the use of mobile phones in 1997, there has been noticeable impact on reduction in price variation (mean coefficient of variation declined from 60-70% to 15%), which ensured price stability for the consumer and a nearly perfect spatial arbitrage replaced a collection of autarkic fishing markets. (Jensen 2007)

The survey of 300 sardine fishing units was conducted every Tuesday, from September 3, 1996 to May 29, 2001. Data on: amount of fish caught; costs of operation; sale conditions (market, price, quantity, time, etc.); weather conditions and whether they used a mobile phone were

obtained. The survey found that phones were bought by the largest boats first as they could get the largest possible arbitrage gains and could afford the $100 phones. This study concluded that the use of mobile phones: (a) increased consumer surplus (by an average of 6%); (b) increased the fishermen's profits (by an average of 8%); (c) reduced price dispersion (by a decline of 4%) and reduced waste (which was averaging 5-8% of daily catch, before the use of mobile phones).

Another study carried out by Jonas Myhr on 'livelihood changes enabled by mobile phone' in Tanzania demonstrated that increased access to information through the use of mobile phones by fishermen in Tanzania resulted in empowering them through increased bargaining power, knowledge about market opportunities. There were little or no negative effects (Myhr 2006).

2.2. MOBILE PHONES AND THE ECONOMY

A London Business School study shows that, in developing countries, an increase of ten mobile phones per hundred people boosts the economy's growth rate by 0.6%. At its simplest, a mobile phone allows farmers and fishermen to find out the prices in various markets, and allows a handyman to travel to nearby villages only when he is told by phone that there is a job available. In Kenya and Tanzania mobile phones are improving healthcare provision, where doctors use them to diagnose patients living in remote communities.

Samuel, Shah and Hadingham (2005) quoted from Donner, 2007 also contribute to the Vodafone report called Africa: The Impact of Mobile Phones. They conduct a survey in both South Africa and Tanzania. In South Africa, they interview 252 people and in Tanzania 223 people. A summary of their findings is shown in the table below.

Impact	South Africa	Tanzania
Prompted Responses*		
Improved relationships	78.7%	85.3%
Call rather than travel to family and friends	77.4%	91.1%
Un-prompted responses*		
Easier communication with family and friends	72.2%	84.6%
Useful in emergencies	25.8%	27.1%
Assists in job search	15.5%	2.7%
Access to business information/business purposes	7.2%	34.0%
Saves money	5.7%	1.6%
Can send cheap messages using SMS	2.6%	0.5%
* These impacts were identified through specific questions, while the rest of the impacts identified were offered by the respondents without a specific question being asked.		

Table Showing Impact of Mobile Phones (Source: www.vodafone.com)

The main unprompted impact identified by the surveys related to easier contact with family and friends. In both Tanzania and South Africa, many people move away from their home to find work, and mobile phones are now an important means of keeping in touch with families. In the survey sample, 91 percent of respondents in Tanzania called friends and relatives rather than travelling to see them. In South Africa, 77 percent of mobile users called rather than visited. (These response rates were to prompted questions.) Indeed, for many families surveyed the costs of travelling to see relatives would be prohibitive, especially in the poorest rural communities, and mobile therefore represented the only option of maintaining contact.

Mobiles can also help to improve services in rural areas. For example, shared taxi drivers operating in Mango Parish, Tanzania, used their mobiles to request additional taxis to come to the taxi stand when there were lots of people waiting for transport, thus reducing their customers' waiting time and increasing their own income.

The responses revealed mobile phones to be important for job search in South Africa. Altogether, 16% of respondents volunteered this as an impact and 24% of owners or users also said they had made or received a call about an employment, business or training opportunity. Mobile phones enabled job seekers to ring for information about employment, and enabled them to be contacted by potential employers. This was particularly important in South Africa, where fears about crime would stop many employers visiting potential employees at their homes.

In Tanzania, 34% used mobile phones to access business information and for business reasons. This could reflect the importance of agriculture in the economy, with phones being used to get accurate market price data and order supplies. For example in Mafia Island one person running a small fuel supplies operation used his mobile to place an order for more stocks of fuel when his reserves were running low, and to get a specific date for shipments from the mainland. He said he was also now able to source fuel from more suppliers than before.

Business and employment opportunities are an area where network effects play an important role. Two-way communication is important in instances where potential employers or clients would like to contact a prospective employee or supplier. According to the field observations, mobile phones were essential for job search, not only for getting information and making an application, but also as a means of being contacted by potential employers.

Aker (2008) finds that in Niger the introduction of mobile phones is associated with a 20% reduction in grain price differences across markets, with a larger impact for markets that are farther apart and those that are linked by poor-quality roads. Cell phones also have a larger impact over time: as more markets have cell phone coverage, the greater the reduction in price differences. This is primarily due to changes in grain traders' marketing behavior: cell phones lead to reduced search costs, more market information and increased efficiency in moving goods across the country.

An extended report by the Gamos consultancy (Souter et al. 2005), looks at the impact of mobile use on rural livelihoods in Africa and India, again finding more use for emergencies and connections with friends and family than for dedicated economic activity.

Heeks (1999) asked: "Can information and communication technologies (ICTs) help to alleviate poverty in low-income countries?" Heeks suggests that ICTs play a role mainly as communications technologies rather than as information-processing or production technologies. Among his priorities for the development agenda are: the poor need knowledge to access, assess and apply existing information and need resources for action more than they need access to new information; the poor need access to new, locally-contextualized information more than access to existing information from an alien context; the information needs of the poor may be met by more informal information systems than by formal ICT-based systems; the poor will reap the fullest benefits of ICTs only when they know and control both the technology and its related know-how. Heeks (1999)

According to Forestier et al (2002), Kenny, One measure of the perceived opportunities and benefits provided by mobile or by telecommunications in general is the amount consumers are willing to spend on services. The available evidence is that telecoms services are very highly valued. In all developing countries, the average spent on telecommunications is 2% of monthly expenditure. In a sample of Indian villages, the average was 3% of household income.

In Chile poor people spend more of their incomes on telecommunications than on water, and even the average household spends more on telecoms than on water and electricity combined. Navas-Sabater (2002), Wellenius (2000); Blattman et al (2002); De Melo cited in Forestier (2002) indicate that however; estimates of the price elasticity of demand are typically quite high, which implies that high call charges could inhibit mobile penetration and usage in some developing countries. Income elasticities are also high: one study in India Grajek (2003), ITU (2003); Blattman et al (2002), quoted by Waverman, Meschi, and Fuss (2005) found a 1% rise in household income almost doubled demand for telecommunications. also confirm that price and income eleasticities of demand are high.

Waverman (2005) and Heeks (1999) believe that ICTs are simply a channel for information exchange and dissemination. Hence, the principal focus should be directed at 'information' per se. However, the researchers argue that information exchange and dissemination are both critical. For this reason, one is not more important than the other. The availability of information sources for the poor is an area that has been addressed for years.

In a paper appearing in a Vodafone report called *Africa: the Impact of Mobile Phones* (2005), Waverman, Meschi, and Fuss (2005) also take the macro view, reporting that higher levels of mobile penetration lead to higher rates of GDP growth, particularly among low-income developing countries.

According to the paper mobile telephony has a positive and significant impact on economic growth, and this impact may be twice as large in developing countries compared to developed countries. Mobile networks had significant value-added in the developed world. The growth dividend of increasing mobile phone penetration in developing countries is therefore substantial. A developing country which had an average of 10 more mobile phones per 100 populations between 1996 and 2003 would have enjoyed per capita GDP growth that was 0.59 percent higher than an otherwise identical country.

2.3. MOBILE PHONES AND BUSINESS INCOME

Despite the a growing number of mobile users in the developing world, their use patterns sometimes receive only a brief mention within broader reviews of the impacts of mobile phones in society. The promise of a sudden spread of mobiles into places where currently there are not many telephones, might be as much of a mention as the developing world gets (Lochoee, Wakeford, and Pearson 2003; Critical Friends of Technology 2003).. (Quoted form Donner 2004)

Donner, 2004, In a report titled "Microentrepreneurs and Mobiles: An Exploration of the Uses of Mobile Phones by Small Business Owners in Rwanda by small scale business owners in Rwanda" found that one perspective sees it as a device for the pursuit of *instrumental business goals*. A second perspective uses mobiles to satisfy emotional or intrinsic needs. Two other perspectives mix instrumental and intrinsic elements, seeing mobiles as productivity enhancers, or as simply indispensable.

Donner, 2009 In a report titled" A review of the research on mobile use by micro and small enterprises (MSEs)", suggest that there is currently more evidence for the benefits of mobile use accruing mostly (but not exclusively) to existing MSEs rather than new MSEs, in ways that amplify existing material and informational flows rather than transform them. The review presents a more complete picture of mobile use by MSEs than was previously available to ICTD researchers, and indentifies priorities for future research, including comparisons of the impact of mobile use across subsectors of MSEs and assessments of use of advanced services such as mobile banking and mobile commerce.

A research in Bangaladeh by Grameen Bank, 2006 The lead to two basic conclusions: first, pursuance of pragmatic policies can turn telephones into production goods, especially through lowering transaction costs, and second, the services originating from telephones in villages are likely to deliver (even) more benefits to the poor than to the non-poor. The Village pay phones(VPPs)also seem to have perceptible and positive effects on the empowerment and social status of phone-leasing women and their households. For villagers in general, phones offer additional non-economic benefits such as improved law enforcement, more rapid and effective communications during disasters, stronger kinship bonding, etc. GB's style of managing communications can help significantly to expand access to this vital information input for all segments of the population, reduce inequality and thus enhance the broad-based, pro-poor orientation of rural development activities.

In another report by Grameen Bank, 2006 in Bangaladeh ,"Talking back! Empowerment and mobile phones in rural Bangladesh: a study of the mobile village phone scheme of Grameen Bank" found that the dominance of mobile networks in many LDCs does not really contribute to

rapid take-up of Internet in rural areas. Internet access is increasingly seen as important for developing countries and the disenfranchised to participation in the information society. The trend in the developed world and in some emerging markets is to include Internet in the Universal Access/Service definition, if not as an obligation then at least as a goal. Whereas mobile service provision can be considered as a leapfrogging opportunity now, it might restrict the uptake of Internet later. The study found that at the individual level, the Village has indeed contributed significantly to income generation. Economically, it has increased business transactions and dissemination of information.

Look for this and cite it- (Qiang 2009):: I think it says something like ----10% increase in mobile phone subscriptions in low-income countries associated with a 0.8% increase in growth rate

CHAPTER 3

3. RESEARCH METHODOLOGY

Machakos district has been selected as a *random sample* of a district with rural poverty of at least forty six percent which is the national rate of poverty according to the National Bureau of Statistics by 2009. The research was conducted using questionnaires for data collection. The questionnaire items consist of questions on mobile phone usage in relation to income poverty aspects. The questionnaire was administered to a number of people in Machakos District during market days

The people interviewed owned or had access to a mobile phone and were within mobile phone network coverage. In social research the following formulae can be used to determine the sample size. The sample size that was interviewed in Machakos district was determined using the formulae below (Mugenda and Mugenda, 2003:43).

$$N= Z^2PQ/D^2$$

Where:

N is the desired sample size

Z is the standard normal deviate at the required confidence level (Estimated at 2)

P is the proportion of target population estimated to have the characteristics being measured (60%)

Q is 1-P

D is the level of significance set (Estimated at 0.05)

Using the formulae above the sample was estimated at 392.The methodology was based on fieldwork consisting of thee hundred and ninety two interviews in rural communities. In those communities, owners of a mobile telephone were interviewed. The questionnaires were in English, but we provided assistance for those who needed help in filling up the questionnaire.

3.1. QUESTIONNAIRE DESIGN

The questionnaire aims at finding out whether or not mobile users feel that mobile phone ownership has positive impact on their income. The questionnaire has open ended questions, closed- ended questions, attitude perception (Likert Scale). The questionnaire contains a demographic (General information like age, gender occupation and residence).

The questionnaire contained a general information part (age, gender, marital status, occupation, and residence) and six categories of other questions, concerning 1) reasons for purchasing mobile phone, 2) sources of income for maintaining mobile phone, 3) maintenance costs, 4) other non-income benefits, and 5) what were their general comments about mobile phone and income poverty. In addition, there were more statements with which the respondents were required to rate their agreements on a Likert scale. The statements were:-

- Having a mobile phone reduces income poverty
- Cost of running mobile phone are comparable to benefits
- Having a mobile phone helps me get more income from my business
- Mobile phones make it easier for people in rural areas to do business
- Using a mobile phone has increased the number of my customers
- Mobile phones helps one to access market information (prices)
- Mobile phones are making easier for business people to receive payments through MPESA, ZAP etc

3.2. RESEARCH STRATEGY

Several forms of research methodologies were used. The survey was one of the methods used. A survey is an attempt to collect data from members of a population in order to determine the current status of that population with respect to one or more variables (Mugenda and Mugenda, 2003:165). This research used the survey technique to establish the impact of the mobile phone on the rural poor.

A case study is an in depth investigation of an individual, institution or phenomenon. Most case studies are based on the premise that a case can be located that a case can be located that is typical of many other cases. The case study is viewed as class of events or group of individuals. The investigation makes a detailed examination of a single subject, group or phenomenon (Mugenda and Mugenda, 2003:173). The research used Machakos District as a case study. According to a report titled "Geographic Dimensions of Well-Being in Kenya".The district has a population of rural population of 60% (World Bank, 2009).

The research also used interview schedules which were used t o conduct semi structured interviews. An interview schedule is a set of questions that the interviewer asks when interviewing. An interview schedule makes it possible to obtain data required to meet specific objectives of the study (Mugenda and Mugenda, 2003:86).

Research assistants who were familiar with Machakos District were taken through the questionnaire. The questions were tested and changed. The respondents were assured that the information given will be used for purposes of the study only and handled confidentially. The respondents remained anonymous.

CHAPTER 4
4. RESEARCH RESULTS

4.1. ANALYSIS

Using the selective coding, data were analyzed according to the number of coding procedures which seemed to follow one another in the degree of intensity. The following procedures were followed in organizing and categorizing those data:

- All recorded questionnaires were transcribed exactly
- The completed transcriptions were carefully analyzed according to selective coding.
- Categories were developed to reflect the responses of the respondents, and also cover the various themes present in the questionnaires.
- Core categories were then identified and analyzed

Simple descriptive statistics such as cross tabulation and correlation analysis were used for quantitative data. Charts and graphs were used to give a summary of the research findings.

4.2. PARTICIPANTS

Three hundred and ninety two interviewees were selected. They were all from villages that have mobile coverage and they owned a mobile phone. The participants were identified during market days at Machakos District. The respondents were from the following villages:

Village	Frequency	Percent
Katanga	5	1.3
Katelembo	33	8.4
Katheka	40	10.2
Kathiani	10	2.6
Kiasa	84	21.4
Kithini	68	17.3
Kyemuthale	38	9.7
Kyumbi	50	12.8
Makutano	23	5.9
Mukuyumi	5	1.3
Vota	36	9.2
Total	**392**	**100.0**

Table 3: Respondents village distribution

As shown in the table below of the respondents, 46.4% were male and 53.6% were female.

Gender	Frequency	Percent
Female	210	53.6
Male	182	46.4
Total	**392**	**100.0**

Table 4: Male and Female Respondents

Most of the respondents were small scale business people. Peasant farmers constituted 23.5% of the respondents. There were 70 salary men or salary women, 92 peasants, 225 businessmen or businesswomen, and 5 students.

		Marital Status				Total
		Married	Separated	Single	Widowed	
Gender	Female	136	0	46	28	**210**
	Male	118	8	51	5	**182**
Total		**254**	**8**	**97**	**33**	**392**

Table 5: Cross tabulation of marital status and gender of respondents.

35.2% are female headed homes with widowed or single women. Most of the respondents were married and own a business as shown in the table below.

Occupation	Frequency	Percent
Own Business	225	57.4
Peasant	92	23.5
Salaried	70	17.9
Student	5	1.3
Total	**392**	**100.0**

Table 6: Occupation of respondents

		Occupation				Total
		Own Business	Peasant	Salaried	Student	
Gender	Female	137	39	29	5	**210**
	Male	88	53	41	0	**182**
Total		**225**	**92**	**70**	**5**	**392**

Table 7: Cross tabulation showing occupation and gender of the respondents.

65% of the female respondents were women involved in small scale business. This may suggest that several women are involved in small scale business. On the other hand 81.5% of the men interviews were peasant farmers.

4.3. MAIN REASON FOR PURCHASING THE MOBILE PHONE

Most of the respondents indicated that the main reason for purchasing the mobile phone was to keep in touch with business contacts especially customers. This is a clear indication that the mobile phone is being used extensively by small scale business people in rural areas to communicate with customers both within and outside their businesses.

The results suggest that mobile phones are viewed as key to success in business because it makes it easy to keep in touch with customers. Many respondents agreed that the mobile phone has contributed to an increase in customers orders. Peasant farmers are able to keep in touch with their customer.

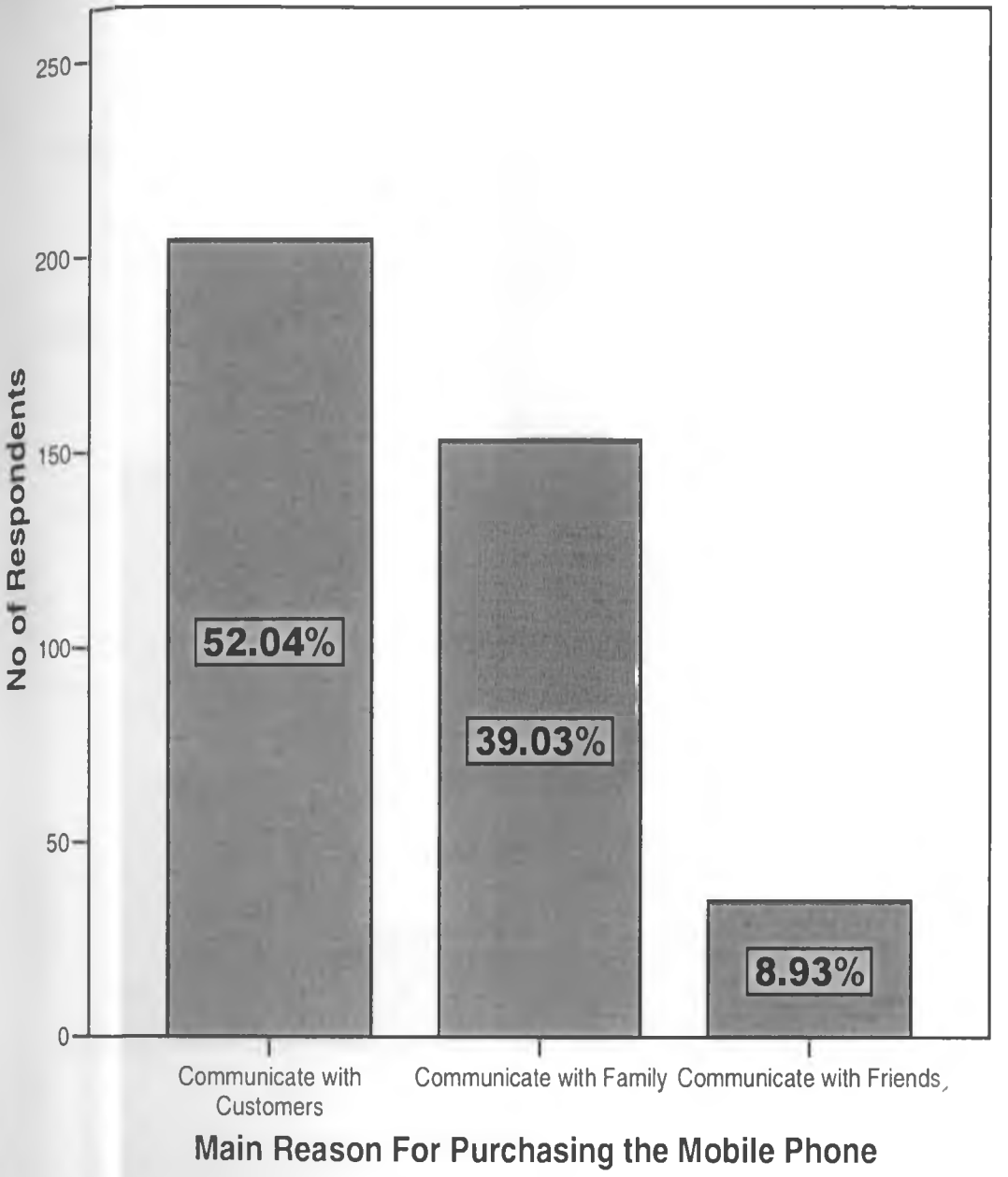

Figure 3: Chart Showing Main Reason for Purchasing the Mobile Phone.

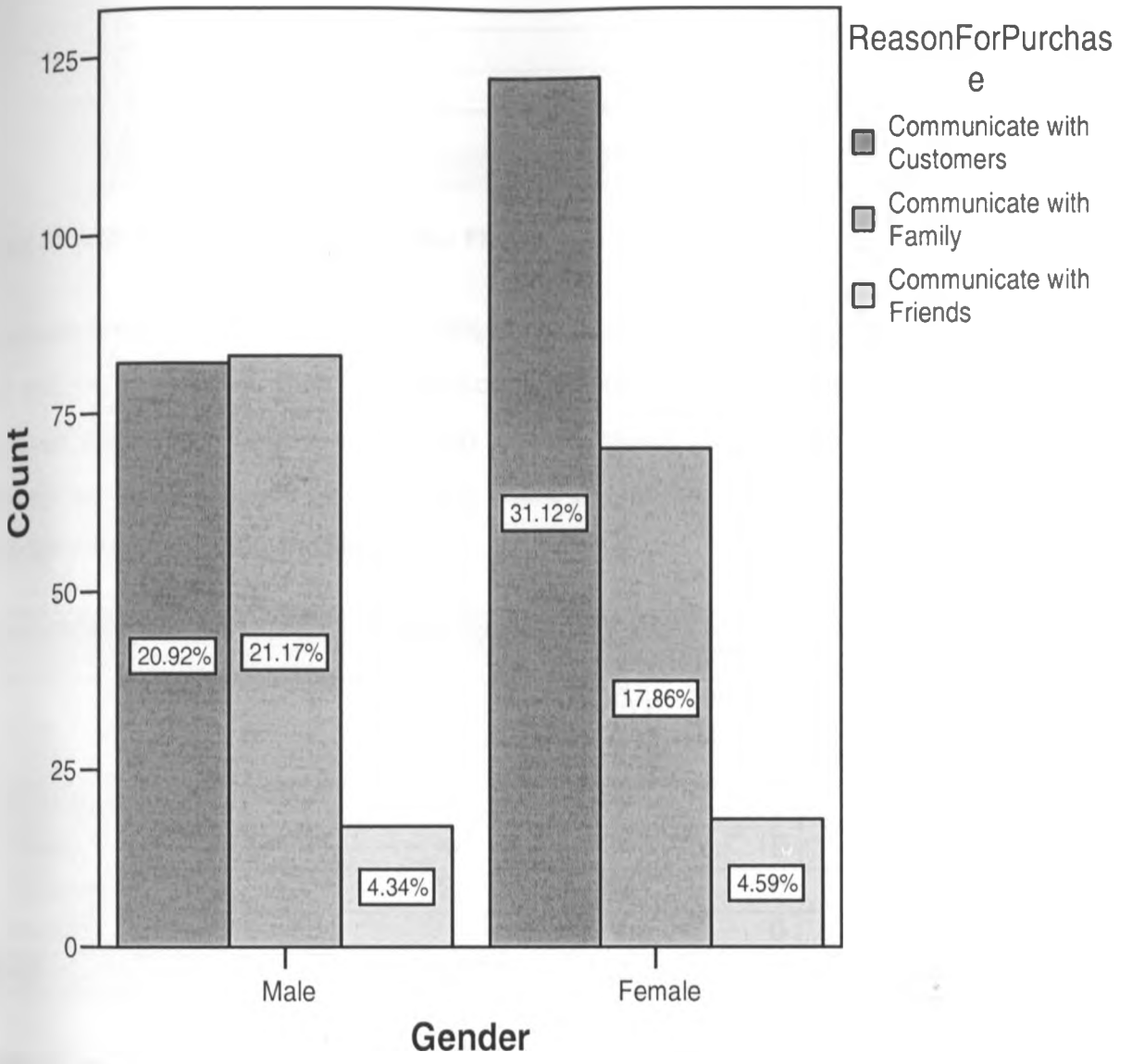

Figure 4: Chart Comparing Male and Female Reasons for Purchasing the Mobile Phone

According to figure 4 the female gender are keener to use the mobile phone for purposes of business transactions. Men tend to communicate more with family as compared to women.

4.4. COST OF MAINTAINING THE MOBILE PHONE

Majority of the respondents (45.9%) spend at least Ksh. 500 per month on the mobile phone. Another 31.9% spend a maximum of Ksh. 1000 on their mobile phones per month.

Monthly Cost (Ksh)	Frequency	Percent
0-500	180	45.9
501-1000	125	31.9
1001-1500	38	9.7
1501 and Above	49	12.5
Total	**392**	**100.0**

Table 8: Cost of maintaining the Mobile Phone

The table below illustrates that most 78% of the business owners use a maximum of Ksh 1000 per month to maintain their mobile phones. As many as 104 respondents out of the 225 business people use as little as Ksh. 500 on their mobile phones. About 50% of the peasant farmers use up to Ksh. 500 on the mobile phone per month. Most of the respondents who are salaried spend Ksh. 1500 and above.

Occupation	Monthly Running Cost for the mobile phone (Ksh.)				Total
	0-500	501-1000	1001-1500	1501 and Above	
Own Business	104	72	28	20	**225**
Peasant	48	34	10	0	**92**
Salaried	28	18	0	24	**70**
Student	5	0	0	0	**5**
Total	**180**	**125**	**38**	**49**	**392**

Table 9: Cross Tabulation Showing Occupation and Cost Of running the Mobile Phone for Month

Gender	Monthly Running Cost for the mobile phone (Ksh.)				Total
	0-500	501-1000	1001-1500	1501 and Above	
Female	95	95	0	26	210
Male	20	20	38	23	182
Total	**180**	**225**	**38**	**49**	**392**

Table 10: Cross Tabulation Showing Occupation and Cost Of running the Mobile Phone For Gender

Although women are using most of their mobile phone running costs on business related purposes, more than 50% of the women interviewed, use a minimum of Ksh. 1000 per month as running costs for their mobile phones.

Disadvantage of Mobile Phones

Most of the people who participated in the survey indicated that the cost of maintaining the mobile phone is quite expensive for them. The question asked was "What is the main advantage and disadvantage of using the mobile phone?" Other responses include:

- Break relationships
- Get lost easily
- Require to be charged
- Difficult to budget for

The main advantage that was given by the respondents is that the mobile phone has greatly improved the ease in communication in the rural areas.

The results are shown in the graph below:

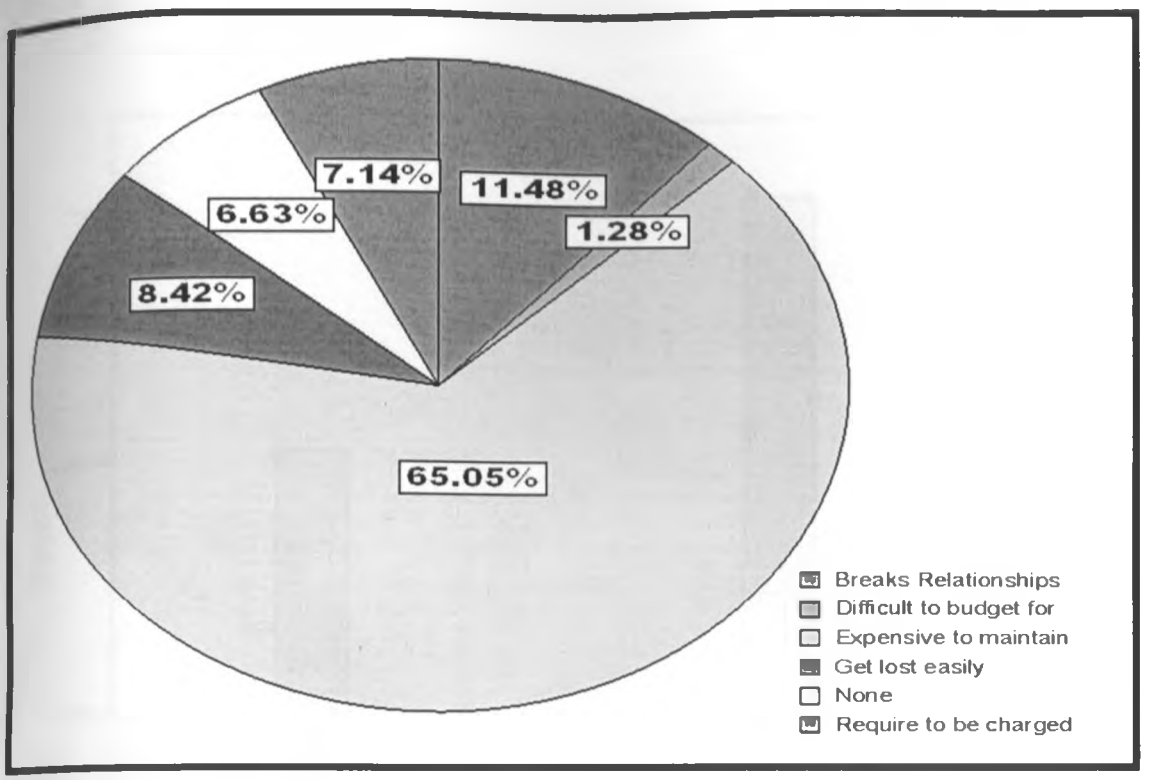

Figure5: Chart Showing Main Disadvantage of using the mobile phone

65% of the respondents indicated that the mobile phone is expensive to maintain. The government should subsidize the cost of "airtime" to ensure that the benefits derived from the mobile phone are maximized among the rural poor.

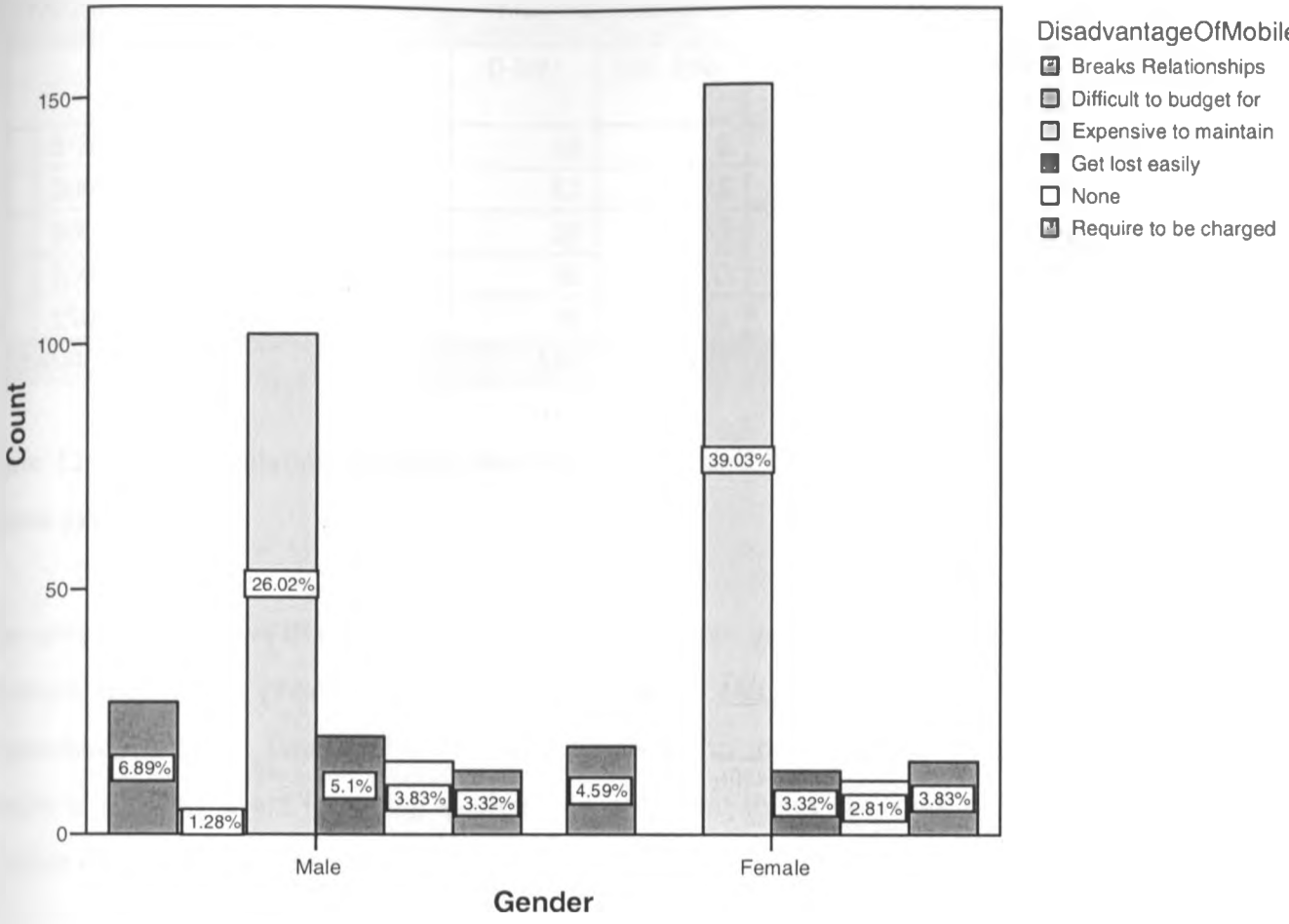

Figure 6: Chart Comparing Main Disadvantage of using the mobile phone for Male and Female

30% female respondents as compared to 26% of the male respondents when asked what the greatest disadvantage of mobile phones is indicated that it was very expensive.

Monthly Income	Running Cost of the Mobile phone(Ksh)				Total
	0-500	501-1000	1001-1500	1501 and Above	
0-2000	18	0	0	0	**18**
2001-5000	87	28	0	0	**115**
5001-10000	20	39	0	0	**59**
10001-15000	40	20	28	23	**111**
15001 and Above	15	38	10	26	**89**
Total	**180**	**125**	**38**	**49**	**392**

Table 11: Cross Tabulation Showing Monthly Income and Cost of Maintaining the Mobile Phone per Month

The table above shows that 180 (46%) of the respondents use Ksh. 500 or less per month to maintain the mobile phone. The pie chart shown as Figure 5 indicates that 65% of the respondents felt that mobile phone is very expensive to maintain. This suggests that poor people in rural areas are foregoing spending on important things like food, health, education, clothing etc to maintain the mobile phone.

4.5. ACCESSING INTERNET USING THE MOBILE PHONE

Age	Access Internet		Total
	No	Yes	
18-25	37	**121**	**158**
26-35	32	**50**	**82**
36-45	28	**13**	**41**
46-55	81	**0**	**81**
56 and Older	30	**0**	**30**
Total	**304**	**88**	**392**

Table 12: Table showing cross tabulation of internet access and age

Younger respondents are using the internet more to access internet as opposed to older people. Most of the respondents who access internet said that they are able to get marketing information and better farming techniques from the internet.

Figure 7 Chart Comparing Use of Mobile Phone Internet for Male and Female

4.6. USING THE MOBILE PHONE FOR M-BANKING

M- Banking		Frequency	Percent
	No	161	**41.11**
	Yes	231	**58.9**
	Total	**392**	**100.0**

Table 13: Table showing the frequency of using M Banking

Majority of the respondents, 58.9% have used the mobile phone to access their bank account. This is popular especially because it saves many users a trip to the bank to get information. Apart from M Baking many of the respondents indicated that the use mobile money transfers to do business transactions like paying suppliers and receiving payments through the mobile phone. The mobile phone has not only enhanced communication but also increased the efficiency in business processes. As shown in the figure below the women are using the mobile phone for m banking more as compared to the men

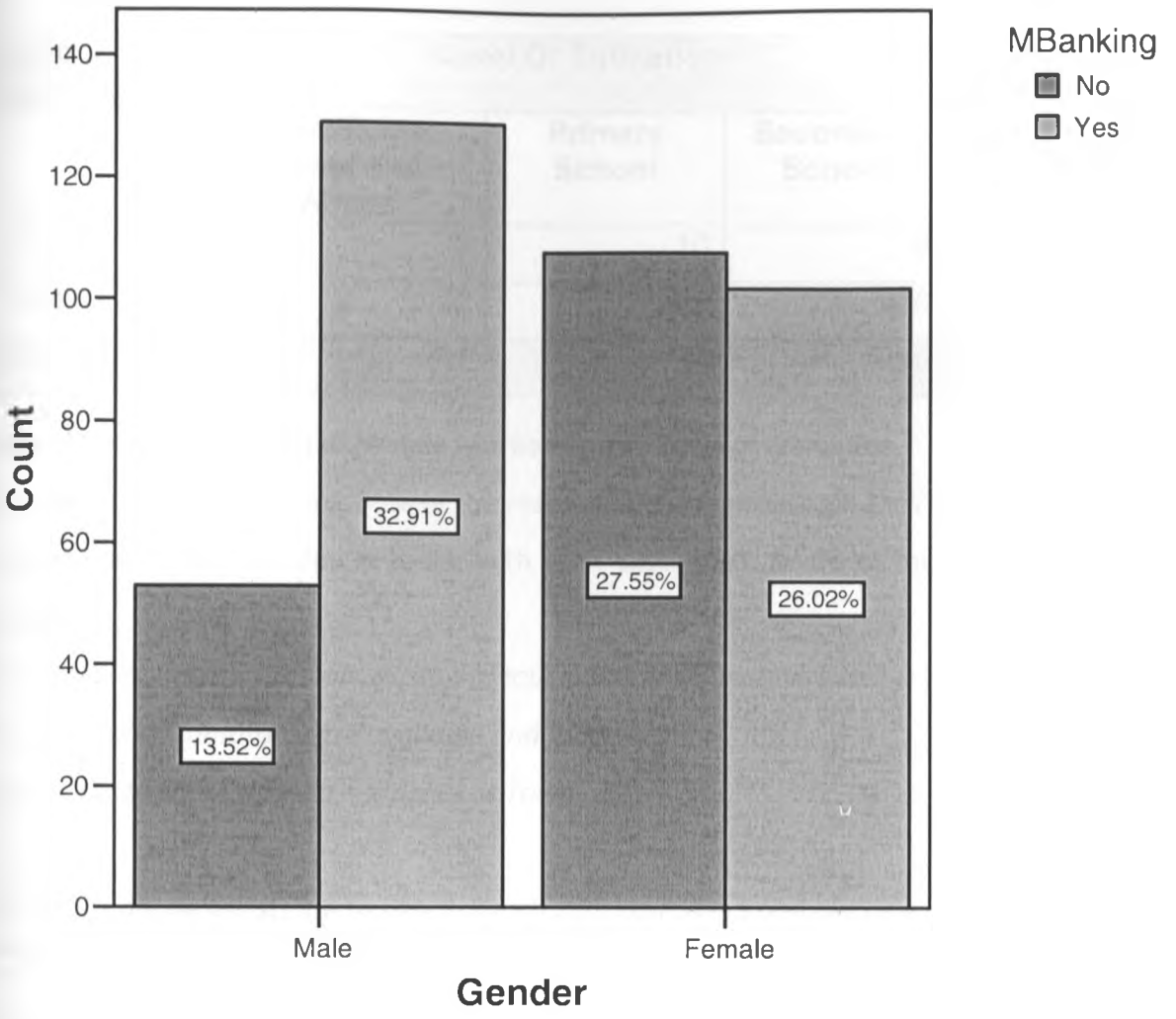

Figure 8: Chart Comparing Use of M Banking for Men and Women

Mobile Marketing	Level Of Education			Total
	Certificate Level and Above	Primary School	Secondary School	
No	9	10	0	**19**
Yes	72	65	236	**373**
Total	**81**	**75**	**236**	**392**

Table14: Cross Tabulation of Mobile Marketing and Level of Education

As shown in the table above, 95% of the respondents use mobile phones to market their goods and services as well as stay in touch with their customers. Some of the responses are listed below:

The mobile phone enables me to stay in touch with my customers and communicate with them the vegetables (tomatoes) are available and fresh.

Small scale business woman – Machakos Town

The mobile phone assists me to stay in touch with customers and get new customers who are given my phone number by the existing customers.

Second hand clothes vendor – Machakos Town

M Banking		Level Of Education			Total
		Certificate Level and Above	Primary School	Secondary School	
	No	46	46	69	161
	Yes	35	29	167	231
Total		**81**	**75**	**236**	**392**
Percentage (Yes)		**43.21**	**38.67**	**70.76**	

Table 15: Cross Tabulation Showing Level of Education and the use of M Banking

The survey revealed the level of education may be significant in the use of m banking services. The respondents who are at primary school level have the lowest percent, 38% using m banking

services. Many of the respondents were not sure whether the banks offered m banking services or not and how to access the services.

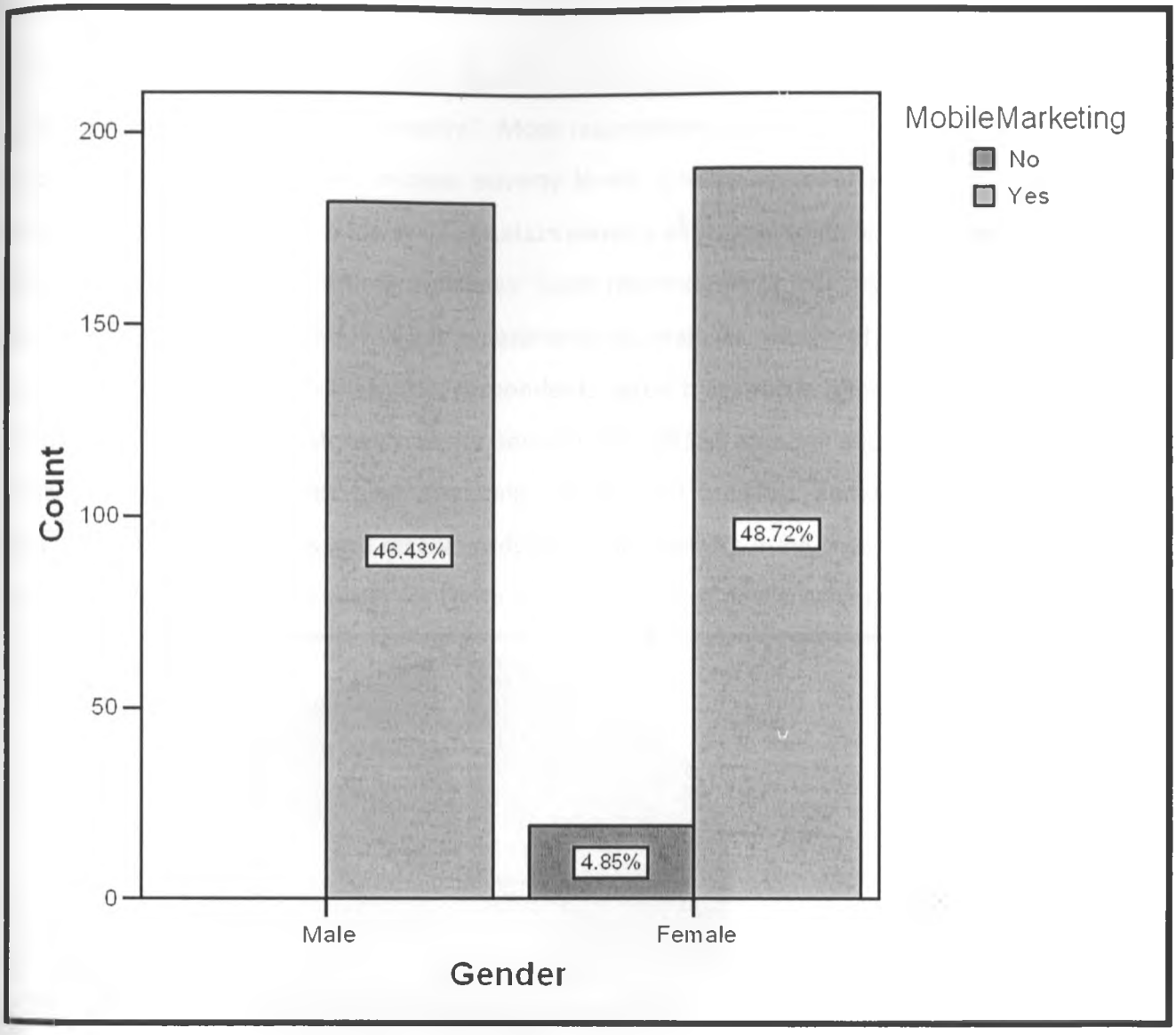

Figure 9: Chart Comparing Use of Mobile Marketing for Men and Women

All the men interviewed said that they use their phones for mobile marketing being used as a Customers Relationship Management System.

4.7. RESPONSES GIVEN TO THE LIKERT SCALE QUESTIONS

4.7.1. HAVING MOBILE PHONES INCREASE BUSINESS INCOME

As many as 77% of the respondents agreed or strongly agreed with the statement "having mobile phones reduce income poverty". Most respondents had a positive view on how the mobile phone is impacting on income poverty levels. Enhancing communication has helped most people in rural areas to lower information poverty especially to do with accessing market information, prices and government policies. Some respondents (2.3%) strongly disagreed with the statement because of they felt it is expensive to maintain the mobile phone.

The figure below illustrates that most respondents agree that mobile phones are helping poor people get more income. Money transfer services like MPESA and ZAP allow customers to pay easily if when they are not near physically. Small scale business people are able to keep contacts of their customers and receive orders from customers using their mobile phones. The mobile phone also makes it easier for those in business to get new customers.

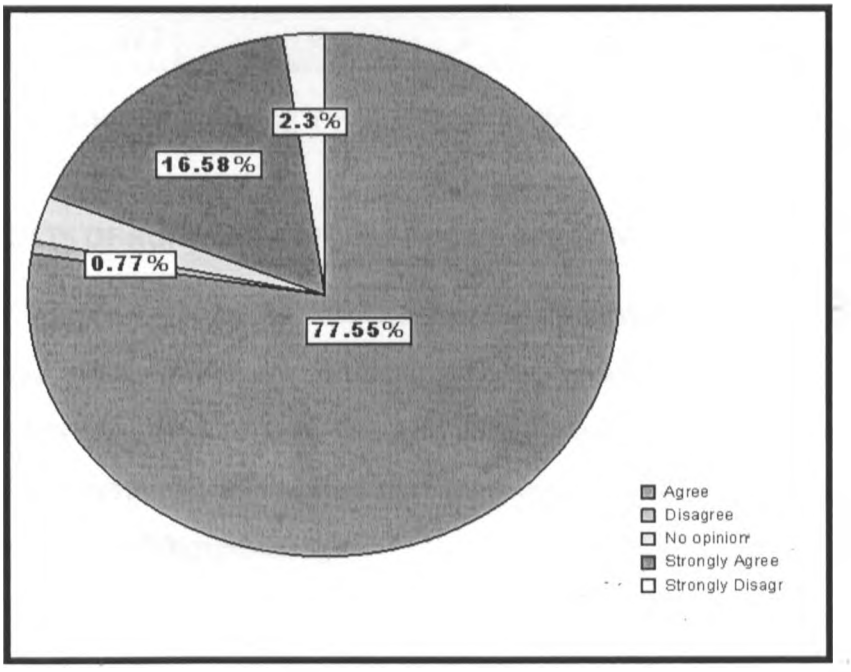

Figure 10: Chart Comparing Use of Mobile Phones and Business Income

As illustrated in figure few of the respondents disagreed with the statement that mobile phones contribute to the increase in business income while 16% strongly agreed that the use of mobile

phones contribute to increase in business income. More customer orders will directly translate to increase in income reducing income poverty among the rural poor. This means that mobile phones are contributing to increase in business volume and therefore business income.

Mobile phones are very a convenient form of communication in rural areas because of the rough terrains and the remote areas which are not easily accessible making communication slow. The mobile phone has helped to bridge the digital divide for peasant farmers and business people in rural areas and advantages of the use of ICT technology can be achieved easily as compared to the use the traditional telephone and post office used to transfer information.

Gender	Increase Income					Total
	Agree	Disagree	No Opinion	Strongly Agree	Strongly Disagree	
Female	183	1	1	24	1	**210**
Male	144	1	1	35	0	**182**
Total	**327**	**2**	**2**	**59**	**1**	**392**

Table 16: Cross Tabulation Showing Level Use of Mobile Phones, Increase in Income and Gender

4.7.2. COSTS OF RUNNING A MOBILE PHONE ARE COMPARABLE TO BENEFITS

As illustrated in figure 4.2, 1% of the respondents disagreed with the statement that costs of owning and using a mobile phone are comparable to the benefits gaining from the phone. The mobile phone is basically used to keep in touch with business contacts, family members and friends. Most of the responders indicated that their main source of income to maintain the mobile phones is from their business.

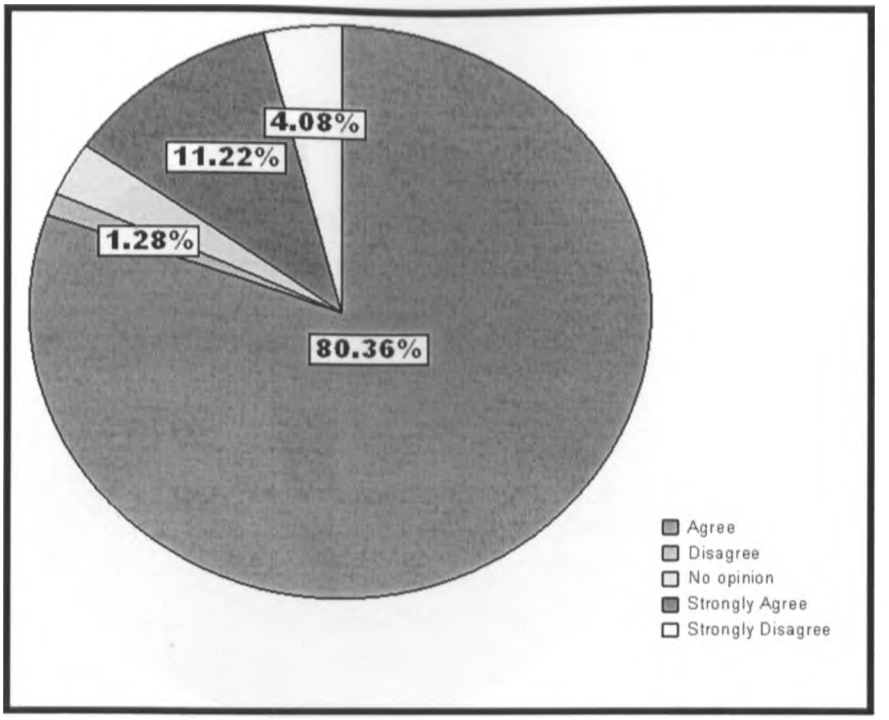

Figure 11: Chart Comparing Use of Mobile Phones, Costs and Benefits

4.7.3. MOBILE PHONES MAKE IT EASIER TO DO BUSINESS

As illustrated in figure 18% of the respondents strongly agreed with the statement that mobile phones make it easier for one to do business. The mobile phone has made it easier for business people in rural areas to communicate with suppliers, customers, and other people enhancing business communication and saving on transport costs.

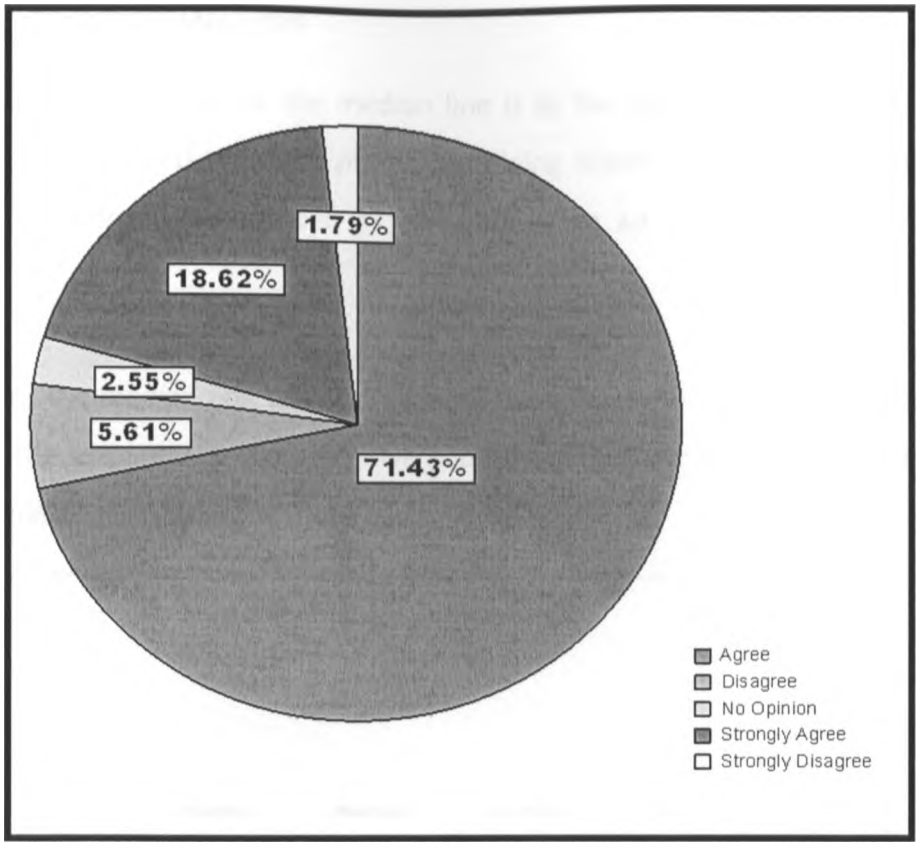

Figure 12: Chart Showing How Mobile Impact on Business

Most of the respondents indicated that through use of the phone they are able to know market prices in good time especially for the peasant farmers. The respondents also indicated that the phone is being used for marketing through informing customers on products available at a given time.

	Increase Customers						Total
Gender		Agree	Disagree	No Opinion	Strongly Agree	Strongly Disagree	
Female	5	152	1	7	32	13	2
Male	8	119	3	6	31	15	1
Total	**13**	**271**	**4**	**13**	**63**	**28**	**3**

Table 17: Cross Tabulation Showing the Use of Mobile Phones, Increase in Customers and Gender

4.7.4. BOX PLOT ANALYSIS

As shown in the box plot below the median line is at the agree (3). This means that most of respondents agree that the mobile phone is helping them to get market prices and other relevant market information as well as contributing to an increase in customers for their business.

The location of the median line can also suggest skewness in the distribution if it is noticeably low. Most of the respondents were positive about how they use their mobile phones to access market information and acquiring more customers

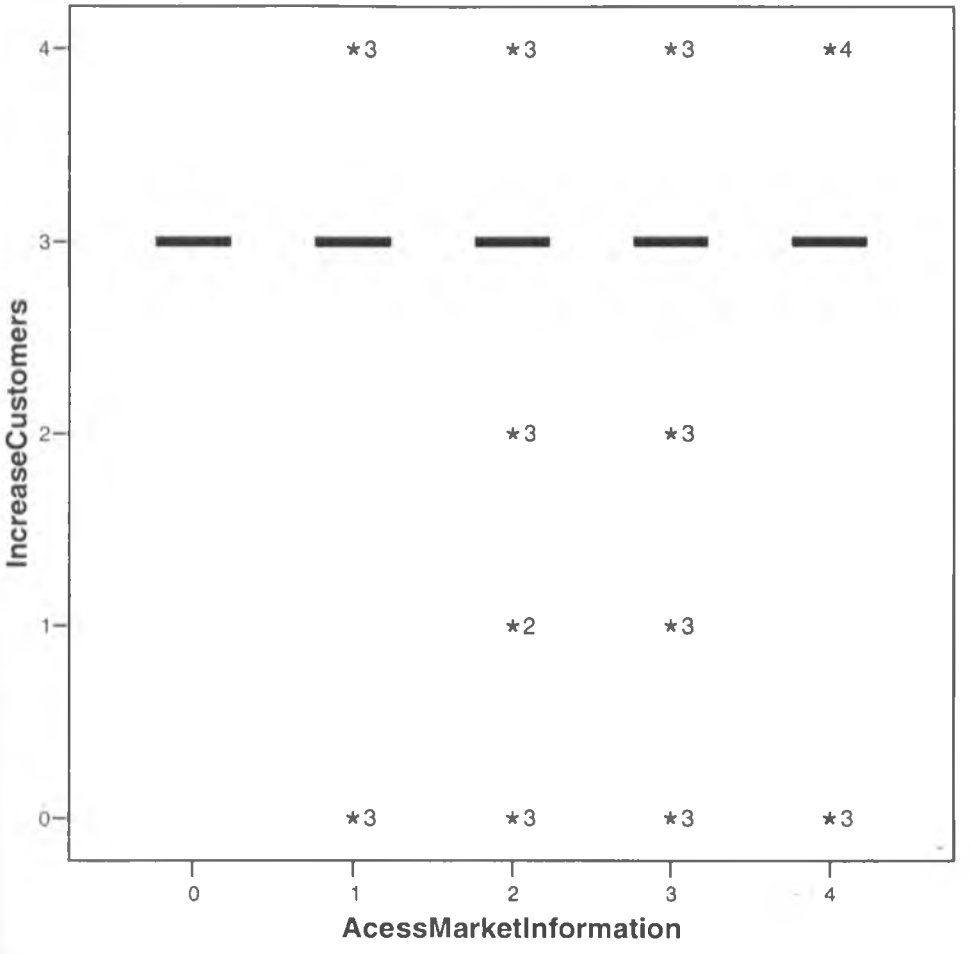

Figure 13: Box Plot showing the relationship between increasing customers and accessing market information

CHAPTER 5
5. DISCUSSION

5.1. MARKET INEFFICIENCIES

The use of mobile phones has also corrected other market inefficiencies or rather supply market efficiencies to redress the balance. For example, affordable access to information is a way of correcting this market inefficiency. The poor livings in rural areas are characterized low population density and remoteness, illiteracy, lack of basic computer literacy, low awareness, low disposable income, poor health and living conditions, and constant struggle for survival. The terrain is rough and remote.

Information doesn't flow as easily in the rural areas as compared to urban areas. The key to eliminating the middle man and access market information largely depends on the mobile phone for the poor peasant farmers. Help line services for farmers can be introduced to ensure that information is disseminated early and accurately to the rural poor. Such information will

- prevent exploitation by middlemen
- provide employment opportunities (particularly for rural women)
- reduce information gaps
- save cost and time
- Strengthen access of service providers to rural people.

Many of the respondents (70.66%), indicated that the mobile phone for the rural poor is a very important tool in gathering market information. The respondents, who access the internet, indicated that they get information about prices and farming techniques using the mobile phone

5.2. TRANSPORT SUBSTITUTION

One interesting side-effect of the use of mobiles is the reduction of transportation costs household expenditure drops and consumer surplus increases. The study revealed that improvements in the information flows between buyers and sellers allow for the efficient trading of information without the traveling. This is particularly significant in rural areas, where

traders would have needed to travel to urban areas to check for demand and negotiate on price, this business is now conducted on the mobile. Traders are able to ensure demand exists for their products, before setting out on a journey. Moreover, in certain circumstances, mobile phones can allow the 'middle man' to be cut out.

Mobile phones contribute to:

- a more supportive and cohesive social environment;
- more secure access to, and better management of, natural resources;
- better access to basic and facilitating infrastructure;
- more secure access to financial resources; and
- a policy and institutional environment that supports multiple livelihood strategies and promotes equitable access to competitive markets for all.

The impact of the use of mobile phones among the poor when evaluated using shows an increase in:

- More income and increased economic sustainability among the poor
- Reduces vulnerabilities to market surplus, brokers and price variations
- The mobile phone mainly contributes to social and physical capital

The use of mobile phones among the poor boosts the social capital through:

- Enhancing economic relations
- Facilitate innovations and sharing of knowledge
- Market information is shared to reduce vulnerabilities to middle men and brokers.

Through the increase in telecommunication infrastructure, the poor are better informed of:

- Opportunities in business,
- Farming techniques
- Health facilities
    - Employment opportunities
    - Scholarships etc

The introduction of voice telephony to a growing number of Kenya's rural areas for the first time via mobile technology is likely to expand the opportunities available to entrepreneurs, farmers, schools, and hospitals in these areas This may allow for more extensive price and market information systems to be made available, reduced communication costs via the use of e-mail, new business opportunities along the lines of the Poverty alleviation institutions should perhaps be considering how their funds and project interventions could be used to unlock this potential.

5.3. CONCLUSION

The most important findings in the research were that mobile services:

- Assist poor people in rural areas to get more income from peasant farming and small business.
- Eliminate market inequalities (farmers are able to enquire prices)
- Extend communications to members of society with poor education and literacy.
- Promote cohesion in families and society.
- Stimulate local content, for example, information on healthcare availability, farming techniques, availability of funds from small micro- enterprise programmes and banks
- Allow for easy access to internet and M-Banking services

The study adds the evidence that age group of 18-25 and 26-35 are the groups that most own/use mobile phones in Kenyan rural areas. Interestingly, the study has revealed that majority own/use mobile phones for mainly economic or business purposes than being used for maintaining relationships. According to the findings, the sources of money for buying mobile phones are mainly from small scale business/Agribusiness.

This leads to forgoing other important things which could reduce income poverty. However, the running costs of those mobile phones is a burden to the users/owners as it reveals that, these costs consume more than 20% of their monthly income.

- The findings revealed that most mobile phone users/owners (98.25%) of respondents live near basic infrastructure including electricity in Machakos district. They then don't require walking long distances seeking for services of their mobile phones. Consequently, most of the economical or business activities are carried out more efficiently
- It can be argued that mobile phone is very important in conducting economic and business activities that contributes towards development and income poverty reduction. Communities in rural Kenya who live in areas where there poor infrastructure owning/using mobile phone reduces income poverty.
- The mobile phone gives a point of contact for potential customers and employers for people living in rural areas.

The women in rural areas are embracing this technology positively. They are actively using the mobile phones for business transactions and to make their work easier. More women indicated that the main reason for purchasing their mobile phone was to communicate with their customers.

CHAPTER 6
6. .REFERENCES AND BIBLIOGRAPHY

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4.2. APPENDIX

APPENDIX 1: Questionnaire

UNIVERSITY OF NAIROBI - SCHOOL OF COMPUTING AND INFORMATICS

Questionnaire

MOBILE PHONES AND POVERTY ALLEVIATION: A SURVEY STUDY IN RURAL KENYA

Ng'ethe J. W.

September 2, 2010

SECTION A: DEMOGRAPHIC QUESTIONS (Tick Appropriately)

1. What is your age?

18- 25 years	26- 35 years	36 – 45 years	46 – 55 years	56 and Older

This study investigates how mobile users in the rural areas of Eastern Kenya, Machakos District perceive the relationship between the use of mobile phones and income poverty.

2. What is your gender?

Male	
Female	

3. What is your level of education?

None	
Primary School Level	
Secondary School Level	
Certificate Level and above	

4. State your marital status

Married	**Single**	**Separated/ Divorced**	**Widowed**

5. What is your occupation?

Salaried	**Peasant**	**Have Own Business**	**Student**	**None**

6. State your residence

Near Electric Power	
Far From Electric Power	

7. Which village do you come from _____

SECTION B: REASONS FOR PURCHASING MOBILE PHONE

1. What is your main reason for purchasing the mobile phone?
   (Tick Appropriately)

Main Reason	**Tick One (✓)**
Communicate with business contacts	
Communicate with business family	
Communicate with business friends	

Others specify	

2. What are your sources of income for using and maintaining your mobile phone?

Sources of income	Tick One(✓)
Income from my business	
Income from salary	
Income from my family and friends	
Others specify	

3. What is the cost of using and maintaining your mobile phone month?

Income in (Ksh)	Tick One(✓)
0-500	
501-1000	
1001 -1500	
1501 and Above	

4. What is your monthly income?

Income in (Ksh)	Tick One(✓)
0-2000	
2001-5000	
5001 -2000	
2000 and Above	

5. In your view what is the main advantage of the mobile phone to you?

6. In your view what is the main disadvantage of the mobile phone to you?

7. Who do you communicate with most of the time? (Family members, friends, business contacts, emergencies, doctors, schools, etc)

8.

Communicate with	Tick One(✓)
Business Contacts	
Family members	
Friends	
Doctors, emergencies, school, etc	

9. Has the mobile phone made it easier for you to access government services?

Government Services	Tick One(✓)
Yes	
No	

10. Do you send and receive money from your business contacts using the mobile phone? (ZAP, MPESA)

Mobile Money Transfers	Tick One(✓)
Yes	
No	

11. Do your customers send you orders for products through your mobile phone?

Mobile Money Transfers	Tick One(✓)
Yes	
No	

12. Do you use the mobile phone to access the internet

Mobile Money Transfers	Tick One(✓)
Yes	
No	

13. If yes what information do you access from the internet?

Mobile Internet	Tick One(✓)
Market Information	
Export Opportunities	
Prices of products	
New farming techniques	
Access to funding (Help the business to grow)	

14. Do you use your mobile phone to access your bank account?

M Banking	Tick One(✓)
Yes	
No	

15. Do you save money on trade travel expenses by using your mobile phone to do business?

Travel Expenses	Tick One(✓)
Yes	
No	

SECTION C: EFFECTS OF MOBILE OWNERSHIP (Tick Appropriately)

	Strongly Agree	Agree	Strongly Disagree	Disagree	No Opinion
Having a mobile phone assists me to get more income from my business					
Having a mobile phone assists me to get more customers' orders					
Mobile phones make it easier for me to receive and make payments to my business contacts					
Having mobile phones makes it easy for people in rural areas to do business					
Benefits of owning a mobile phone are greater than the costs					
Having a mobile phone reduces income poverty					

APPENDIX 2: SUMMARY OF RESPONDENTS

MARITAL STATUS

Marital Status	Frequency	Percent
Married	254	64.8
Separated	8	2.0
Single	97	24.7
Widowed	33	8.4
Total	**392**	**100.0**

LEVEL OF EDUCATION

Level Of Education	Frequency	Percent
Certificate Level and Above	81	20.7
Primary School	75	19.1
Secondary School	236	60.2
Total	**392**	**100.0**

PERCENTAGE OF RESPONDENTS USING PHONES FOR MOBILE MONEY TRANSFER (95.2%)

Mobile Money Transfer	Frequency	Percent
No	19	4.8
Yes	373	95.2
Total	**392**	**100.0**

PERCENTAGE OF RESPONDENTS LIVING NEAR ELECTRIC POWER (91.6%)

Residence	Frequency	Percent
Far From Electric Power	33	8.4
Near Electric Power	359	91.6
Total	**392**	**100**

PERCENTAGE OF RESPONDENTS WHO USE THE MOBILE PHONE MAINLY FOR BUSINESS (51.5%)

Use Mobile For	Frequency	Percent
Business	202	51.5
Family	130	33.2
Friends	60	15.3
Total	**392**	**100.0**

PERCENTAGE OF RESPONDENTS USING M-BANKING (58.9%)

M-BANKING	Frequency	Percent
No	161	41.1
Yes	231	58.9
Total	392	100.0

Rural Poverty Rates Summary Table

Province/ District/ Division	Number of Divisions	Number of Locations	Poverty Incidence (Percent of Individuals below Poverty Line (std. error)
CENTRAL	34	171	31 (2)
KIAMBU	5	36	22 (3)
KIRINYAGA	4	22	36 (3)
MARAGUA	4	16	37 (3)
MURANG'A	4	17	30 (3)
NYANDARUA	6	26	34 (3)
NYERI	7	34	30 (3)
THIKA	6	20	35 (3)
COAST	28	140	61 (3)
KILIFI	7	36	72 (3)
KWALE	5	37	63 (3)
LAMU	3	23	55 (4)
MALINDI	5	16	65 (4)
TAITA TAVETA	6	28	58 (4)
EASTERN	101	435	58 (2)
EMBU	5	15	57 (3)
ISIOLO	6	21	52 (4)
KITUI	8	51	70 (3)
MACHAKOS	11	57	60 (2)
MARUBENI	16	60	62 (2)
MARSABIT	6	27	53 (3)
MBEERE	4	15	63 (3)
MERU CENTRAL	10	46	43 (3)
MERU NORTH	15	53	53 (3)
MOYALE	4	15	71 (3)
MWINGI	8	31	63 (3)
NITHI MERU	5	24	59 (3)
THARAKA	3	16	63 (3)
NYANZA	65	320	64 (2)
BONDO	4	19	71 (3)
GUCHAISI	7	20	61 (4)
HOMA BAY	25	5	71 (3)
KISII	6	27	62 (4)
KISUMU	4	21	63 (4)
KURIA	5	23	79 (3)
MIGORI	8	46	48 (5)
N.KISIINYAM	5	22	69 (3)
NYANDO	5	29	61 (3)

Source: World Bank

Poverty Gap as Percent of Poverty Line (std. error)	Number of Individuals '000 (1999 Census)*	Estimated Number of Poor Individuals '000 (std. error)	Poverty Incidence Range** (%): Division - Level	Poverty Incidence Range** (%): Location - Level
9 (1)	3,224	1,003 (17.3)		
7 (1)	661	145 (17.5)	10 to 44	17 to 32
11 (1)	417	193 (12.5)	24 to 53	31 to 43
11 (1)	367	135 (11.9)	30 to 56	33 to 44
9 (1)	336	99 (9.4)	21 to 41	26 to 33
10 (1)	417	149 (12.8)	17 to 44	29 to 39
10 (1)	575	174 (14.4)	13 to 56	26 to 38
11 (1)	494	160 (13.9)	26 to 55	30 to 44
24 (2)	1,568	910 (25.2)		
31 (3)	462	332 (15.2)	52 to 80	55 to 84
24 (2)	420	264 (12.4)	34 to 82	41 to 74
19 (2)	107	56 (4.2)	13 to 77	20 to 64
25 (3)	214	140 (8.5)	38 to 74	63 to 67
23 (2)	203	116 (7.3)	46 to 78	53 to 73
22 (1)	4,233	2,488 (40.1)		
21 (2)	237	135 (6.8)	37 to 67	44 to 62
19 (2)	67	35 (2.3)	12 to 78	20 to 71
29 (2)	490	345 (14.1)	24 to 81	63 to 74
22 (2)	810	465 (20.1)	14 to 74	30 to 69
24 (1)	728	454 (15.8)	42 to 79	52 to 72
19 (2)	100	53 (3.3)	16 to 79	39 to 70
26 (2)	166	104 (5.5)	40 to 80	56 to 71
14 (1)	436	187 (13.8)	28 to 57	37 to 53
18 (2)	579	304 (19.2)	28 to 74	34 to 69
28 (2)	58	27 (1.1)	36 to 81	67 to 72
25 (2)	289	161 (8.3)	43 to 77	55 to 70
22 (2)	198	115 (4.9)	44 to 76	57 to 64
23 (2)	100	63 (2.9)	49 to 75	58 to 66
25 (1)	3,826	2,439 (43.5)		
28 (2)	217	155 (6.2)	55 to 77	67 to 73
22 (3)	458	269 (19.1)	51 to 69	57 to 64
31 (2)	243	173 (7.1)	19 to 77	64 to 72
23 (2)	491	277 (17.2)	40 to 74	59 to 72
25 (2)	298	186 (11.0)	23 to 76	58 to 75
34 (3)	137	109 (4.2)	67 to 86	72 to 82
16 (2)	443	210 (21.6)	34 to 57	44 to 52
27 (2)	467	322 (14.8)	51 to 77	64 to 73
22 (2)	255	154 (8.5)	37 to 78	52 to 64

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