HOUSEHOLDS’ SAVING DECISIONS IN KENYA

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NOVEMBER, 2011
DECLARATION

This thesis is my original work and has not been presented for the award of a degree in any other university.

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This work is dedicated to my mum and dad.
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SSA    Sub Saharan Africa
TONGTINs Rotating Savings and Credit Associations in Cambodia
UNCTAD United Nations Conference on Trade and Development
USAID United States Agency for International Development
OPERATIONAL DEFINITION OF TERMS

*Financial assets:* Savings held in monetary form in financial institutions.

*Financial Deepening:* Increased provision of financial services with a wider choice of services geared at all levels of society.

*Financial institution:* An institution that accepts deposits from savers and/or undertakes lending activities and it is used interchangeably with a financial intermediary.

*Formal financial institutions:* Economic entities engaged in financial transactions that are directly amenable to control by key monetary and financial policy instruments.

*Gross national saving:* Gross national saving is calculated as the difference between the gross national income (GNI) and public and private consumption plus net current transfers.

*Gross National Savings rate:* Total domestic savings emanating from households, firms and government as a proportion of gross domestic product.

*Household:* Group of people under the same roof or compound sharing basic facilities and making decisions about their lives together.

*Informal financial institutions:* Economic entities engaged in financial transactions that are not directly amenable to control by key monetary and financial policy instruments.
**Micro finance institutions:** A micro-finance institution can be broadly defined as any organization; credit union, down-scaled commercial bank, financial non-governmental organisation, or credit cooperative that provides financial services for the poor.

**Non financial assets:** Savings held in non-monetary assets such as land, animals and other durable forms.

**Semi-Formal Financial Institutions:** A combination of savings credit and cooperative organizations, and microfinance institutions.
ABSTRACT

Household’s financial Savings form an integral part of a nation’s savings level. Financial institutions mobilize the households’ savings and allocate them to the most efficient investments. Studies conducted in developing countries, Kenya included, indicate that most households save in informal financial institutions. Low savings in formal financial institutions limit the amount of funds available for long term investments. This study sought to examine the underlying factors determining a household’s choice of saving in formal, semi-formal and informal financial institutions using a separate bivariate logistic model for each of the institutions. In addition, the study examined the determinants of households’ level of financial savings using weighted ordinary least squares method. Correlation between decision to save in formal, semi-formal and informal financial institutions was identified through pair wise correlations. Major hindrances to ownership of bank accounts were also identified. The study utilized secondary data collected from a sample of 6598 Kenyan households. In each of the three forms of financial institutions, the level of financial information held about the financial institution, credit availability in the financial institution and the level of a household income were the most significant variables in a household’s decision to save in a particular financial institution. The level of household income, perceptions of high interest rates on savings held in financial institutions and the main financial service provider being a formal financial institution significantly increased the level of household financial savings. Positive correlations were found between savings in all the financial institutions although they were stronger between savings in formal and semi-formal financial institutions. Resource constraints in a household were the major hindrance to ownership of a bank account. The ministry of finance should collaborate with the banking sector to introduce financial education programmes to enlighten the public on the benefits of saving in formal and semi-formal financial institutions to enhance long-term finance. In addition, the government, through the relevant ministries, need to introduce measures to enhance incomes especially among households who derive most of their income from the informal sector. The increased incomes would not only increase the probability of households saving in formal and semi-formal financial institutions but would also increase the households’ level of financial savings. The ministry of finance should encourage the growth of the microfinance industry which has strong positive correlations with the formal financial institutions. Informal financial institutions, especially women groups, should be encouraged to open bank accounts and join semi-formal financial institutions either individually or as groups. This would strengthen the linkage between savings in informal and semi-formal and formal financial institutions and boost overall household savings.
CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

An adequate supply of domestic savings is a core national policy objective, both because of its direct growth effect and also due to the fact that a high national savings ratio in line with an economy's investment needs reduces the economy's vulnerability to unexpected shifts in international capital flows. In addition, as international financial integration continues to expand, high domestic saving helps to ensure macroeconomic stability. According to the neo-classical growth models (Ramsey, 1928; Solow, 1956; Cass, 1965; Koopmans, 1965), and the endogenous growth models (Harrod, 1939; Domar, 1946; Frankel, 1962; Romer, 1986; Barro and Sala-i-Martin, 2004;), savings play a major positive role in economic growth by financing higher levels of new capital formation.

One of the most fundamental strategies for long term economic growth and development is mobilization of savings so as to generate enough investments (Rostow, 1960). Increased investments can be financed domestically through an increase in the domestic savings level or through foreign funding that can come in the form of foreign aid (grants and loans) or through foreign direct investments. Although Africa receives a large proportion of foreign aid in comparison to other world regions, the foreign aid’s impact on investments has been relatively low in the region. According to Serieux (2009), 35 percent of the financial aid in Sub Saharan Africa (SSA) was used for financing
reverse flows (repayment of debt, capital flight and reserve accumulation), 41 percent for purchasing consumer goods (part of which was imported), and only 24 percent was used to increase investments.

Foreign direct investments suppress domestic entrepreneurship due to their dominance on the domestic markets. They use superior knowledge, high level advertising, and due to enjoyment of economies of scale, they succeed in driving out local competitors and suppress the growth of small scale enterprises. A study conducted by Maxwell (1994) in 11 developing countries in the Pacific, showed that higher foreign direct investments led to lower domestic investments, lower national savings, increased current account deficits and lower economic growth rates. In addition, they lowered domestic savings and investment rates through their cut throat competition and led to collapse of domestic industries.

For economic growth to be self-sustaining, savings should be mainly composed of domestically generated savings (Republic of Kenya, 1965). Domestically generated savings are composed of household savings, corporate savings and government savings. Increases in public sector savings through higher taxes lead to decrease in household and corporate savings and consequently a decrease in productive investments. The marginal propensity for the government to spend is high due to its inability to resist political pressure to spend; hence it may not be relied upon to generate national savings directly. The households and the firms have a crucial role to play in savings generation.
The role of savings in the process of economic growth and development was emphasized early by Rostow (1960), who argued that economic growth evolves in three stages. The first stage is characterized by low savings rate of 5 percent of gross domestic product (GDP) or less. The second stage, which is the take off stage is characterized by savings rate of between 10 percent and 30 percent. The final stage is the maturity stage which is marked by declining savings rates. Breaking out of the initial phase is the most important step towards economic development.

Savings play a major role in improving economic growth through its provision of resources needed for investments. According to the absolute income hypothesis (Keynes, 1936), savings is an increasing function of the gross domestic income, hence increases in economic growth improve savings levels. Policies that improve the saving level, especially the part of savings that end up in the hands of the investors, would improve economic growth.

Developing countries have registered different saving rates over the years. The disparities have been closely reflected in growth performance. With higher savings rates has come higher income growth. The East Asian economies, which were famous for their high levels of investments in physical capital and economic growth from the early 1960’s to date, have been characterized by high gross domestic savings of over 30 percent of GDP (World Bank, 1993; Economy watch, 2010). In contrast, savings rates in South Asia, Latin America, SSA and the highly indebted countries have remained generally low at below 20 percent. In 2009, gross national savings as a percentage of GDP
was 43.5 percent in developing Asian economies, 32 percent in newly industrialized Asian countries, 31 percent in emerging and developing economies, and 20.3 percent in SSA (Economy watch, 2010). Some of the reasons for high gross savings rates in East Asian economies have been rapid economic growth, rapid demographic transitions that led to a high proportion of prime age workers, maintenance of macroeconomic stability and policy fundamentals in the form of regulatory supervision of banks, targeted interventions in the form of restrictions to consumer credit, forced savings plans and also their saving culture (World Bank, 1993).

Some of the disincentives to domestic savings mobilization in Africa include low level of financial deepening, low per capita incomes, high dependency ratios, poor terms of trade, highly fragmented financial markets, and high transaction costs for economic agents. In rural areas, saving mobilization is very costly due to higher level of dispersion of bank branches (Mwega, 1997; Nissanke and Aryeetey, 1998). Citizens in some developing countries have been known to save as much as 30 percent of their income. However, due to lack of access to financial services for most of them either due to demand side constraints or supply side constraints, most of the savings are locked up in form of fallow land holdings, cattle, jewelry or cash under the mattress, which are unavailable for on-lending to entrepreneurs and businesses (Kapoor, 2009). The locked up savings are not productively deployed and this depresses growth and potential tax revenues. The private and public sectors do not have access to this pool of savings, hence they may be forced to excessively depend
on external sources of finance in the form of aid, foreign borrowing and private capital flows (Kapoor, 2009).

Mobilizing savings is costly in terms of the transaction costs involved and also the cost of overcoming the informational asymmetries related to ensuring savers are convinced of postponing their consumption to a future date. Financial intermediaries have to convince the savers of the suitability of the investment by improving their reputation and ensuring they adhere to legal and regulatory requirements (De Long, 1991). Improved savings mobilization can improve resource allocation and enable adoption of newer and better technologies, hence improving economic growth (McKinnon, 1973).

The financial sector in an economy plays a crucial role of matching savers and investors by providing a meeting point where the terms of the loan can be agreed upon. Although this can occur in the absence of financial institutions (among family and friends), the presence of banks, stock markets and venture capitalists facilitate the matching of funds in a more efficient manner. Financial institutions generate and distribute financial information and allocate credit efficiently by ensuring that funds are channeled to the investments with highest returns (Todaro and Smith, 2005). Mobilization of savings involves agglomeration of capital from various savers for investment. Without access to funds from several savers, production processes would be limited to economically inefficient scales. Mobilization also involves creation of small denomination instruments, which enable households to hold diversified portfolio, invest in efficient sized firms and increase asset liquidity. In the
absence of financial institutions, households would have to buy or sell entire firms, which may be impossible. By improving the risk diversification, liquidity and size of feasible firms, financial institutions enhance resource allocation. The financial system affects capital accumulation by altering the savings rate and by reallocating savings among different capital producing technologies (Romer, 1986; Rebelo, 1991).

The willingness of the society to save in financial assets is affected by the functioning of the financial markets. The presence of well developed and functional financial markets is important in ensuring that household savings are responsive to changes in interest rates in the economy. Increasing access to diversified instruments, well regulated, supervised and sound financial institutions in the country can increase cash savings in the financial instruments, while the opposite reduces savings (UNCTAD, 2007). In developed countries, credit and money markets are highly organized, economically interdependent and function efficiently. Financial intermediaries in the developed countries are able to mobilize private savings and efficiently allocate them to most productive uses that are critical in economic growth (Todaro and Smith, 2005). By contrast, developing countries operate a dual monetary system; a small and often externally controlled organized money market, and a large amorphous unorganized and unregulated money market. The organized money market mainly caters for the financial requirements of the middle and upper income class and businesses in the modern industrial sector, while the financial needs of the lower income classes are often catered
for in the unorganized, unregulated and sometimes illegal money market (Todaro and Smith, 2005).

Much of the economic activities in developing countries come from small scale producers and enterprises, whose demands for financial services are unique and sometimes outside the coverage of traditional commercial banks’ lending. The commercial banks are sometimes ill equipped and reluctant to meet the needs of these small borrowers due to the high transaction and administration costs of handling so many transactions, and also the lack of collateral to secure formal loans (Aryeetey, 1995). Most borrowers, therefore, rely on unorganized and unregulated informal financial sector to meet the short term and often small financial needs.

Most studies conducted on savings ignore household savings but place emphasis on government, corporate and aggregate savings performance (Sinha and Sinha, 1998; Sinha, 1999; Salz, 1999; Anoruo and Ahmad, 2001). Household savings make up the largest part of aggregate savings in market oriented economies. A study conducted in seven countries in Asia showed that household savings make up one-half to two-thirds of total national savings (United Nations, 1962). Household savings data for India for the period 1950 to 2000 also showed that household savings constituted between 68 percent and 82 percent of the gross national savings, confirming that household savings are an important part of the total national savings. In Africa, household savings dominate national savings, but are not channeled to
productive use because most of it is held in non-financial assets that may not be available for on-lending (Aryeetey and Udry, 2000).

1.2 Types and Forms of Households’ Savings

Households’ savings are an important component of individual’s and society’s well being. Households save owing to the following reasons: to build a reserve against unforeseen contingencies (precautionary motive); for smoothing consumption at different stages in life cycle due to income fluctuations (life cycle motive); to enjoy interest and appreciation (inter-temporal substitution motive); and to enjoy a gradually increasing expenditure (improvement motive). In addition, they save to enjoy a sense of financial freedom and independence (independence motive); to secure finance to carry out speculative or business project (enterprise motive); to bequeath a fortune (bequest motive); to satisfy pure miserliness (avarice motive); and finally, to accumulate deposits to buy houses, vehicles and other durables (down payment motive) (Keynes, 1936; Ando and Modigliani, 1963).

Households’ savings in financial institutions take the form of savings account, treasury bonds, corporate bonds, shares and stocks, mutual funds, cash value of life insurance, retirement plans and in non-financial assets such as land, houses, vehicles and other real property. Household savings in non-financial assets can be partly explained by the lower transaction costs of acquisition as compared to financial assets, and also households’ perceptions that real assets have higher real rates of return as compared to bank deposits (Carpenter and Jensen, 2002). In addition, real assets can help households to hedge against
domestic inflation (Kiiza and Pederson, 2002). Financial savings can be held in formal institutions such as banks, in semi-formal financial institutions such as Savings and Credit Cooperative Societies (SACCOs) and Micro Finance Institutions (MFIs), and in informal financial institutions such as rotating savings and credit institutions (ROSCAS). The place where savings are held has a great impact on their transformation into productive investments.

1.2.1 Formal Financial Institutions (FFI’s)

Formal financial institutions (FFI’s) include commercial banks, specialized development banks, insurance firms, cooperatives banks and any other institutions that fall under the control of the central bank. FFIs charge lower rates of interest on loans as compared to those charged in informal financial institutions though higher than those charged in savings and credit cooperative societies. Any surplus deposits collected by the FFIs that have not been lent out in form of loans are invested in various forms such as treasury bonds. They have regular funds for loaning, which enables them to lend at any time of the year. They keep good records of their activities, are sometimes subsidized by the government and may receive funds from donor agencies. The FFIs can offer financial services to widely disperse rural clientele and the small scale enterprises in a better way, though they rarely provide the services (Germidis et al., 1991). FFIs are beneficial to both the individual savers and the economy at large. Formal financial institutions are required by the central monetary authority to insure deposits held with them. Hence individuals who save with FFIs have a lower risk of losing their deposits. To the economy at
large, the funds intermediated through the formal financial sector can be lent over a larger geographical area, which helps to equalize the marginal product of investment within the economy and enhances efficiency in the capital market. Another benefit of the formal financial market is that the success of the monetary policy relies on the central bank’s control over the banking system (Germidis et al., 1991).

The formal financial institutions are perceived to have bureaucratic and complex administrative procedures. They sometimes have complex loan application procedures, high transaction costs, high collateral requirements, and are usually selective when choosing their clientele to avoid having clients who make small deposits. They mainly focus on large scale, well off and literate clientele, who are able to understand their procedures and meet their requirements. Sometimes they do not cater for the needs of small scale enterprises, low income households and small scale farmers who may be unable to satisfy and understand their procedures. FFIs do not have a good network for disseminating information on the services they offer especially in rural areas. Some of the FFIS do not offer savings facilities to the rural population and small scale enterprises, and if they do, the real deposit interest rates are low or even negative, keeping off potential savers (Germidis et al., 1991).
1.2.2 Informal Financial Institutions (IFIs)

Informal financial institutions (IFIs) are heterogeneous and are made up of many types of individuals and intermediaries. They include institutions involved in small loans and deposits that are short term transactions operated without physical collateral and take place close to where the client resides (Adams and Fitchett, 1992). The informal institutions include the Rotating Savings and Credit Associations (ROSCAS), mobile bankers, money lenders, and accumulating savings and credit associations (ASCRAs). IFIs are more prevalent in the low income countries and are able to meet specific financial needs. They mobilize savings and provide credit facilities to small scale farmers in rural areas, to low income households and to small-scale enterprises in urban areas (Carpenter and Jensen, 2002; Kiiza and Pederson, 2002; FinAccess, 2009).

The IFIs operate with simple and straightforward procedures that are mainly informed by the cultures and the customs in the area of operation. They operate at times and days that are convenient to the members, accept any amount of deposit, have simple and direct processing of loan requests that is non-bureaucratic, collateral is based on local conditions easily observable and debt scheduling can be done if a member has repayment problems that are genuine. IFIs are flexible, convenient and have got high loan recovery rates despite the fact that their interest rates on loans are higher than in formal banks. The interest rates on loans given by IFIs is higher than the one for FFIs, whereas the interest rate paid on deposits is higher compared to the one paid by
FFIs (Germidis et al., 1991). IFIs have an effective information network at the grassroots level; hence they are able to overcome information asymmetries such as adverse selection and moral hazard that are very prevalent in FFIs. Most informal groups are localized, hence participants of these groups share some common social bond and due to members desire to maintain the capital embodied in those bonds, it helps to minimize the voluntary default (Germidis et al., 1991; Carpenter and Jensen, 2002).

Despite the advantages prevalent in IFIs, they do not exploit economies of scale because of being much localized and also vulnerable to local economic shocks that are likely to affect all group members (Carpenter and Jensen, 2002). The amount and availability of funds in IFIs have got high seasonal fluctuations, leading to higher interest rates on loans as compared to FFIs. In addition, most IFIs have no investment opportunities for excess funds that have not been lent. Some IFIs do not keep good records on their deposit and lending activities, which can be a source of conflict. Unlike the FFIs, IFIs rarely get access to government subsidies or donor agencies. The savings and credit mechanisms in IFIs are not geared towards accumulating funds before the peak season when loan requests are higher. As a result, they are unable to take advantage of profitable opportunities (Germidis et al., 1991).

Although informal finance activities are found in various forms, they tend to have little impact on financing of crucial aspects of investments. The savings emanating from IFIs are usually used to smooth consumption patterns over short periods of time, for short term investments and sometimes kept as idle
balances in the form of cash, jewelries and inventories (USAID, 1989; Aryeetey, 1995). A large informal sector compromises the ability to intermediate funds and the success of monetary policy, since they are not controlled by the central bank. For financial development, there is need to have higher levels of financial savings mobilized in the FFIs as compared to what is mobilized in the IFIs or alternatively strengthen the linkage between the two types of financial institutions.

1.2.3 Micro Finance Institutions (MFIs)

Microfinance is the supply of loans, savings and other basic financial services to the poor and involves small amounts of loans and savings (Helms, 2006). The term micro finance helps to distinguish the services with those provided by formal banks, which are normally designed to meet the needs of those clients who already have financial assets and hence may not accommodate the financial needs of the poor. Microfinance is considered as a tool for socio-economic development and can be clearly distinguished from charity. Charity funds should be given to families who are destitute or so poor such that they are unlikely to be able to generate the cash flow required to repay a loan (Helms, 2006).

The birth of micro finance institutions (MFIs) dates back to 1950s when governments and donors started to subsidize agricultural credit to small and marginal farmers in an effort to raise their productivity and incomes (Robinson, 1994). Nobel Prize winner, Mohammad Yunus, became the father
of microfinance in the 1970s, and started up by identifying a group of 42 poor entrepreneurs in Bangladesh and freeing them from bondage and exploitation by informal money lenders. His efforts gave birth to Grameen Bank, which offers financial services to the poor in Bangladesh using the group based lending system (Muhammad, 2008).

In the 1980s, most micro enterprise credit concentrated on giving loans to women engaged in micro and small enterprises to raise their incomes and welfare. This gave rise to emergence of many non-governmental organizations (NGOs) which mainly provided financial services to the poor (Helms, 2006). In the 1990s, some MFIs transformed to formal banks and were able to mobilize savings and lend them to their clients (Case of K-REP Bank in Kenya).

Micro finance is normally offered by four different categories of providers. First, there are informal service providers who include the money lenders, pawn brokers, savings collectors (for example, SUSUs), ROSCAs, ASCRAS, and input supply shops. The providers and the clients know each other well, live together, understand each other’s financial circumstances, and can offer very flexible, convenient and fast services. However, the services can be very costly and clients have limited choices that are of a short term nature. Second, there are member owned organizations such as the SACCOS, self-help groups, credit unions and financial services association. They are small and local, hence members understand each other which enables them to be flexible and convenient. Their costs of operation are small, management may have low
level of skills and unless they are regulated and supervised, the managers can mismanage them.

Third group of MFI providers are the NGOs, which spread all over the developing countries from the 1980s. They can be very innovative and they pioneered the banking techniques, solidarity lending, village banking and mobile banking. These NGOS have fragile governance structures, which may not cater for the needs of the clients or the customers. They can be overly dependent on donors. The last but not least group of microfinance providers are the formal financial institutions, which include the commercial banks, state banks, savings banks, rural banks and non-bank financial intermediaries. The FFIs are regulated and supervised and can extend all over the country and even internationally. They are reluctant to adopt social missions as they offer micro finance services. Their costs of operations are high and they may not deliver services to the poor or to remote populations. If there is appropriate regulation and supervision, each of the institutional types can bring leverage to solving micro finance problem. Self help groups can be linked to commercial banks and SACCOs can be networked to achieve economies of scale and scope (Turner et al., 2008).

MFIs help the very poor to meet basic needs and protect them against risks, improve household economic welfare and improve enterprise stability and growth, promote gender equity by empowering women who are the main beneficiaries of most MFI loans, help to make the poor more resilient, smooth consumption and reduce the need to sell assets to meet basic needs. The world
bank estimates that there are over 7000 MFIs serving some 16 million poor people in developing countries, with a total cash turnover worldwide of US$ 2.5 billion and still have potential for new growth (Helms, 2006). The presence of high transaction costs and low returns from funds lent makes microfinance services expensive to provide. The constant transaction cost per loan irrespective of the loan amount translates to higher interest rate on microcredit as compared to that of normal loans. This is because when loan sizes get very small, transaction costs loom larger because the costs cannot be cut below a certain minimum.

Most of the savings generated by MFIs are compulsory and act as security (or collateral) for loans. Clients have to deposit a specific amount of money at set interval and there are penalties for failing to do so. The MFI holds the saving as long as the client has not finished repaying the loan, hence clients can not withdraw them. However, some clients make voluntary savings and may continue saving even after they are through with repaying the loans. MFI savings schemes are often appealing to poor people due to the fact that they are able to safeguard their savings from trivial expenditure by locking them in those MFIs. Some clients save to finance major expenditures such as purchasing land, building, paying for wedding ceremonies and school fees. The appeal of MFIs to the poor can be tapped to improve mobilization of domestic savings in developing countries by enacting suitable laws to govern them and enable them to mobilize savings which are not specifically tied to loans (Helms, 2006).
1.3 **Linkages among Financial Institutions**

Financial products from formal and informal institutions may not be similar or identical, but the utility derived from them is comparable. In financial markets in Africa, homogeneity of products and perfect knowledge are non-existent, hence lenders and borrowers cannot take advantage of every opportunity offered by price changes to increase profit and utility respectively, implying that efficiency cannot be achieved (Aryeetey, 1995). Although formal financial institutions, semi-formal financial institutions, and informal financial institutions offer similar products to customers seeking for safe, liquid and yield bearing ways to hold savings, informal financial mechanisms are becoming importantly more useful as recipients of customers savings funds.

Despite the knowledge of the existence of the informal financial sector, policy makers tend to direct economic policy without consideration of the potential impacts of the informal sector activities on the effectiveness of such policies. If the informal financial sector continues to be ignored in financial and monetary policy matters, it can hinder the development of an efficient financial system. From the high use of informal finance, it is clear that the informal sector plays a crucial role in savings mobilization. There is need to establish strong links between the formal and informal segments of financial sector for effectiveness of financial and monetary sector policies (Aryeetey, 1995). This can be accomplished by ensuring that savings mobilized in the informal sector are channeled to the formal sector for onward lending for long-
term investments, and also FFIs extend lending to those saving in informal financial institutions (Chandavarkar, 1989).

There are several reasons why the linkage in the financial sector is important. First, the major hindrance to savings mobilization is the fragmented nature of the economy’s financial system (Aryeetey, 1992; Todaro and Smith, 2005). This fragmentation discourages realization of comparative advantage of various segments in the process of financial intermediation, since functions of savings mobilization and credit allocation are observed to be unrelated among many segments. Second, the volume of lending undertaken by the financial system is not directly related to how much savings could be mobilized, hence no incentive for continued savings mobilization. Poor and incomplete information is a significant problem facing the formal lenders in allocating resources. The existence of an integrated financial system for mobilizing savings, where information amongst segments is unhindered, can enable each segment to use the information collected and analyzed by other segments, and this would reduce the individual and collective risks (Aryeetey, 1995).

Third, informal institutions involved in mobilizing savings are involved in very low lending of a short term nature. On the other hand, those involved in lending such as the money lenders have low involvement in deposit mobilization. The interaction between the informal deposit takers and money lenders with the banking system has a potential for effective savings mobilization and financial intermediation as it brings together surplus and
deficit units with differing comparative advantage in specific financial intermediation aspects (Aryeetey, 1995).

Finally, informal financial units are still used for deposits in spite of the presence of banks. There is considerable evidence that saving informally is more popular than saving with formal FFIs in most developing countries even as the number of banks increases (Aryeetey, 1992; Aryeetey, 1995; Kiiza and Pederson, 2002; FinAccess, 2009). Adams and Fitchett (1992) note that informal financial sector does not wither away as formal financial markets expand. The services offered in the informal financial sector operate in a complementary manner to formal financial services (Dupas and Robinson, 2009). Therefore, instead of trying to remove the informal financial sector, the government should look for ways in which the linkages between the financial institutions can be strengthened to improve financial intermediation.

In the developed countries, the formal financial sector serves majority of the population. Formal financial services access is 99 percent in Denmark, 96 percent in Germany and France, and 91 percent in the United States of America (Fernando, 2007). Pooled savings are channeled into bank loans, which are the major financing mechanism for most economic activities in an economy. In developing countries, only 20 percent of the population has access to formal financial services (World Savings Banking Institute, 2004), hence even if they save, the savings are not pooled together for onward lending to the entrepreneurs. The lack of access cannot be explained totally by market failure but by existence of demand and supply side constraints. These
constraints vary across regions depending on their stage in financial sector development and perceptions of financial institutions regarding provision of financial services to the excluded. The financial policy, regulatory framework and the institutional composition of the financial system can also hinder access to financial institutions. Absence of formal financial institutions in the proximity is one of the supply side constraints, especially in rural areas where such institutions are far off, forcing households to rely on the informal institutions.

In the past, some financial institutions felt that the low income group had a low profit potential, making them uneconomical to service, hence they were mainly excluded from formal financial institutions. However, the widely held view has been proved wrong by financial institutions such as Grameen Bank in Bangladesh and Equity Bank in Kenya, that have challenged the existing multinational banks through their strategy of targeting the lower end of the market (Muhammad, 2008; Republic of Kenya, 2009). The two banks have been success stories which have proved that the poor can also save if given a chance. When majority of the population in an economy are excluded from formal financial services access, there is a compromise on the efficiency of allocation of financial and physical resources in the entire economy (Fernando, 2007).

One of the useful channels that can be used to improve financial intermediation, improve access to financial services and build up stronger linkages between the formal and informal financial institutions is the use of
semi-formal financial institutions. This would require building permanent local institutions and integrating the financial needs of poor people into a country's mainstream financial system. The government can facilitate this by enabling financial services through provision of a regulatory framework and building of strong institutions. A good regulatory framework is necessary to enhance savings mobilization by SFFIs whose services appeal to the poor.

1.4 Domestic Savings Mobilization in Kenya

In Kenya, the role of domestic savings in the process of economic development was recognized at the onset of independence in 1963 (Republic of Kenya, 1965). At independence, per capita income in Kenya was still low for people to finance their living and be left with something to save to finance investments and pay taxes. The government, therefore, borrowed from foreign governments and international institutions to stimulate domestic investments. However, it recognized the need to maintain a rapid rate of growth with less dependence on foreign capital by stimulating domestic savings, investing them internally and introducing compulsory savings (for the employed) through establishment of National Provident Fund (currently, National Social Security Fund) (Republic of Kenya, 1965; 1974).

In all the national development plans that have been prepared in Kenya since independence in 1963, the role of domestic savings has been emphasized to enhance increased investments and maintenance of rapid rate of economic growth (Republic of Kenya, 1966, 1974, 1979, 1984, 1989, 1994, 1997, 2002).
Between 1964 and 1973, Kenya achieved a growth rate in investment of 19.7 percent, one of the highest growth rates of capital formation in the world by then, and in order to sustain it, the government recognized the need to decrease consumption spending and reduce the country’s indebtedness so as to promote greater investment financing from within the country (Republic of Kenya, 1974). Targets set were to bring banking to the people, especially in rural areas, make them more credit conscious and awaken them to the opportunities of operating within a modern credit economy. The commercial banks and other savings institutions were encouraged to accept deposits on terms that promoted the savings of low income earners. By the early 1990s, there was more reliance on domestic savings to finance capital formation, especially due to reduced inflows of overseas development assistance after suspension of donor aid. Despite the government policies to improve financial access to all, most banks concentrated on small corporate clientele and were hostile to small savers and borrowers, hence excluding bulk of potential savers and investors. The main reason was the high transaction cost of serving many low income earners and high risk involved in lending to them.

The banking sector has grown from 9 banks in 1964, 23 in 1987 and to 51 banks by 1999. By 1997, the largest four banks were controlling 81 percent of deposits, with their main focus being short term lending to finance commercial activities. The government made targets to support establishment of new locally owned banks, facilitate and strengthen growth of existing banks to enable them take up the role of providing the much needed long term
financing required for industrialization. The Ministry of Finance and the Central Bank of Kenya introduced incentives to all financial institutions to open mediation channels for the emerging informal sector self employed individuals and low and middle income earners by December 1997. This saw the introduction of accounts targeting small scale enterprises and low income earners in most of the major banks in the country from the late 1990s (Republic of Kenya, 1997).

In Kenya’s 1999-2001 Development Plan, Kenya made targets to increase investment levels to 25-30 percent of GDP, which was a benchmark for most of the newly industrialized countries at their take off stage. Domestic savings were targeted to increase to over 25 percent of GDP by the end of the planning period, but this was not achieved as the savings rate declined from 17.6 percent in 1999 to 10 percent in 2001. Some of the impediments to achievement of target saving rate was high taxation levels, high levels of government debts, low deposit rates and inadequate framework for capital markets instruments and limited diversity of savings instruments. In order to bring financial intermediation within the reach of majority of Kenyans, tax incentives to rural branch network expansion was introduced. The government recognized the need to eliminate operational inefficiencies in the financial system to ensure adequate intermediation.

In the 2002-2008 Development Plan, the government recognized the need to lower the marginal propensity to consume and increase the savings rate because it had run the risk of under investing and excessive reliance on foreign
savings. Table 1.1 presents the gross national savings and gross national investments as a percentage of gross domestic product in Kenya from 1964 to 2000.

Table 1.1: Gross National Savings and Gross National Investments as a percentage of GDP in Kenya from 1964-2000

<table>
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<tbody>
<tr>
<td>Gross National savings</td>
<td>19.7</td>
<td>17</td>
<td>17</td>
<td>16.2</td>
<td>11.8</td>
</tr>
<tr>
<td>Private savings</td>
<td>16.3</td>
<td>14.8</td>
<td>18.4</td>
<td>17.8</td>
<td>10.6</td>
</tr>
<tr>
<td>Public savings</td>
<td>0.9</td>
<td>2.2</td>
<td>-1.4</td>
<td>-1.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Foreigners savings</td>
<td>2.5</td>
<td>6.8</td>
<td>7.1</td>
<td>3.8</td>
<td>5.8</td>
</tr>
<tr>
<td>Gross National Investment</td>
<td>19.7</td>
<td>23.8</td>
<td>24.1</td>
<td>20</td>
<td>17.6</td>
</tr>
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</table>

Source: Republic of Kenya, 2002

The gross domestic savings had declined continuously from 17.2 percent in the period 1964-1973 to a low of 11.8 percent in the period 1996-2000. The foreign savings had risen from 2.5 percent of GDP in the period 1964-1973 to 5.8 percent of GDP in the period 1996-2000, The government noted that the impediments to financial intermediation included high level of non-performing loans, depressed level of long term investment due to high levels of interest rates on loans, poor risk management and internal controls within financial institutions, poor physical infrastructure, information, education and technological communication in financial sector, and inadequate legal and policy framework for financial services supportive of small borrowers.
The trend in the gross national savings in Kenya was impressive in the 1960s, 1970s and 1980s, and averaged 17 percent. Private savings made the largest contribution to gross national savings over that period averaging 16.5 percent. However, gross domestic savings started to decline from 1990 and reached an average of 16.2 percent of GDP between 1990 and 1995. This could have been caused by high inflation rates that rose from 15.6 percent in 1990 to a high of 46 percent in 1993, low gross domestic product growth that averaged 1.8 percent from 1990 to 1995, and low real rates of interest on deposits that fell from 5.3 percent in 1990 to negative 22 percent in 1993. Gross domestic savings declined further to 11.8 percent of GDP for the period 1996 to 2000. Since then, gross domestic savings have continued to fluctuate over the years as shown in figure 1.1.

**Figure 1.1: Gross domestic Savings as a percentage of GDP in Kenya 2000-2009**

Between 2000 to 2002, the gross domestic savings at market price declined from 12.9 percent to 8.1 percent. It increased continuously from the year 2002 to 2006 from 8.1 percent to 14.9 percent, and this corresponded to the period
when Kenya achieved increased economic growth from a low of 0.2 percent in 2002 to 6.3 percent in year 2007. Gross domestic savings then declined to 13.7 percent in 2007, rose to 15.5 percent in year 2008, before declining again to 11.1 percent in 2009.

In Kenya’s new long term development blueprint ‘VISION 2030’ that covers the period 2008-2030, the Kenyan government aims to transform the economy from a low income country to a newly industrialized middle income country by the year 2030. This will see the gross national income grow at the rate of over 10 percent per annum from 2012 and thereafter to 2030. One of the challenges that the government envisioned was the raising of the level of investments that was 20 percent of GDP in 2007, to above 30 percent of GDP by 2030. The government identified six key sectors that will help Kenya achieve the targeted growth rate of 10 percent, that is, tourism, agriculture, manufacturing, wholesale and retail trade, business process outsourcing and financial services (Republic of Kenya, 2007).

The financial sector is very crucial in the transformation of each of the sectors in the economy by providing high level of financial capital that is required. In 2009, financial sector contributed 4 percent of GDP and provided assets equivalent to 40 percent of GDP. The financial services sector helps to promote a high level of savings for financing Kenya’s investment needs. Financial markets are supposed to be deepened by raising institutional capital from pension funds, expanded bond and equity markets, and tapping international sources of capital. The gross national savings in Kenya is
targeted to rise from 13.7 percent of GDP in 2007, to about 30 percent by the year 2030. To reduce dependence on foreign savings, the bulk of the investment effort is expected to be funded by domestic resources. Public savings are targeted to increase from 1.6 percent of GDP in 2006/07 to about 3.8 percent by 2030. Private savings are expected to increase from 14 percent of GDP in 2007/08 to 23 percent by 2012/13, and to 26 percent of GDP by 2030 (Republic of Kenya, 2007). The foreign savings are targeted to decrease from 4 percent of GDP in 2006/07 to 3 percent of GDP by 2030.

To achieve the targeted level of gross national savings (of 30 percent), the government expects to build a stronger financial sector through deeper penetration of banking services in rural areas and ensuring private sector players in financial sector reach the unbanked but bankable population. Informal financial institutions, savings and credit cooperative organizations, and microfinance institutions suffer from lack of an effective regulatory framework, leading to poor governance. The government aims at streamlining them by implementing a market finance law.

Kenya is characterized by low penetration and limited supply of long term finance (Republic of Kenya, 2007). Long term finance can emanate from high use of formal financial services and also higher utilization of government forced savings schemes in the form of national social security fund. In Singapore, government forced savings are 40 percent of an employee’s wage, where employee contributes 20 percent while the rest 20 percent is contributed
by the employer (Mohan, 2006). This could help to explain the high level of saving rate of 50 percent of GDP in Singapore.

The low supply of long term finance in Kenya can be explained by the higher utilization of informal and semi-formal financial institutions as compared to formal financial institutions. In addition, there is low use of government forced savings schemes. Studies conducted in Kenya show that use of national social security fund by households increased from 2.7 percent in 2006 to 2.9 percent in 2009, which is still low. This could be partly as a result of low employment level in the formal sector. Access to formal financial services was 18.9 percent in 2006 and had increased to 22.6 percent in 2009. Access to informal and semi-formal financial services had increased from 42 percent to 44.7 percent over the same period. Households who reported saving in the formal financial instrument were 27.7 percent in 2006 and 36.1 percent in 2009. Those who reported to save in informal financial instruments were 34.7 percent in 2006 and 39.5 percent in 2009, while those who reported saving in semi formal financial institutions decreased from 14.3 percent to 12.1 percent over the same period (FinAccess, 2009).

In Kenya, the micro finance industry is still young and constitutes a diverse range of practitioners, practices and body of knowledge (Hospes et al. 2002). The commonly accepted definition of micro finance as another means of providing a variety of financial services to the poor based on market-driven and commercial approaches does not strictly fit what is commonly regarded as constituting micro finance in Kenya. Microfinance services are provided by
banks, NGOs, SACCOS, welfare associations and informal financial institutions (Hospes et al., 2002). For a long time, organizations offering microfinance services were unregulated unless they voluntarily joined the Association of MFIs and some were accepting deposits from the public fraudulently (Omino, 2005), which saw the public lose a lot of money when some of them such as AKIBA micro finance institution collapsed.

In an attempt to protect the public from unscrupulous micro finance institutions, the microfinance institutions bill, which regulates MFI operating within geographical boundaries of Kenya, was introduced and passed by Parliament in January 2007. The Act enables Deposit Taking Microfinance Institutions licensed by the Central Bank of Kenya to mobilize savings from the general public, thus promoting competition, efficiency and access of saving services to the low income earners. The microfinance industry is expected to play a pivotal role in deepening financial markets and enhancing access to financial services and products by majority of the Kenyans.

A vibrant micro-finance sector considerably contributes towards a country’s equitable development because of availing financial support to under-served and marginalized members of the society. Since the passing of the bill, MFIs are subject to mandatory audits from Central Bank of Kenya and they can be fined if they violate regulations (Republic of Kenya, 2007). FAULU Kenya became the first deposit taking MFI in May 2009, which enabled it to offer both credit and saving products to over 250,000 clients. The micro-finance
sector has expanded and most major banks in Kenya today have a micro-finance section to offer credit for business expansion.

Informal financial institutions are inefficient in financial intermediation. Resources generated in the informal financial sector are not usually available for financing of long term investments (Aryeetey, 1995; Carpenter and Jensen, 2002). However, their continued use in most developing countries, Kenya included, is evidence of their importance in offering financial services to the households who utilize them. The widespread existence of IFIs point to supply side constraints in accessing financial services in the formal financial institutions especially among the low income earners.

There is a considerable potential to improve the depth and breadth of Kenya’s financial sector. This can be achieved through expansion of the banking sector, the insurance and capital markets which would ensure the much needed long term finance is available for investments. The high use of informal finance clearly shows the crucial role played by the informal sector in savings mobilization. Increased long-term finance can be best achieved if there is a link between formal and informal savings mobilization units and if absent, policy makers should explore the potential to foster such linkage through monetary and financial sector policy tools (Chandavarkar, 1989). This study sought to identify the demand side factors underlying the households’ choice to save in formal, semiformal and informal financial institutions and determinants of the level of financial savings were identified in order make
policy recommendations that would increase the financial savings and financial deepening in the Kenyan economy.

1.5 Statement of the Problem

The Kenya government aims to improve the rate of annual economic growth to over 10 percent by 2012 and thereafter to year 2030, which will enable the economy to transform into a newly industrialized middle income country. For an economy to realize sustainable economic growth, gross capital formation should be mainly financed from domestically generated resources which call for an increase in national savings to at least 30 percent of GDP (Republic of Kenya, 1965; 1974). Unfortunately, Kenya’s gross national savings is low at 11.1 percent of GDP in 2009, as compared to 32 percent in newly industrialized economies and 20.3 percent in Sub-Saharan Africa in 2009 (Economy Watch, 2010).

The Kenya government plans to increase gross national savings to 30 percent of GDP by year 2030, and private savings are expected to increase to 25.5 percent of GDP (Republic of Kenya, 2007). Households’ financial savings form a large proportion of the private savings and can be mobilized in formal, semi-formal or in informal financial institutions. The financial institutions where savings are mobilized can determine the amount of gross national savings and their availability for onward lending to investors. In Kenya, the proportion of households who save in FFIs and SFFIs is low at 25 percent and 12.1 percent compared to 74 percent of the households saving in informal financial institutions and non-institutionalized forms (FinAccess, 2009).
Studies conducted in Africa and other parts of the world show that savings generated in the informal financial markets are mainly used for short term purposes such as smoothing consumption and providing working capital (Miracle, et al., 1980; Aryeetey, 1995; Carpenter and Jensen, 2002). Such savings are rarely available for long term financing necessary for business growth and funding of long term investments because of their small amounts and in addition, the poor link between IFIs and capital-deficit units.

Understanding the nature of household savings behavior is critical in designing policies to promote savings and investments, more so when a country targets a certain level of growth. There is need for the government and the financial sector policy makers to implement policy measures that will promote higher level of household savings and increase the use of formal financial savings instruments. Alternatively a better link between the markets where savings are mobilized and where the investment funds are demanded can be established. Significant increases in savings mobilization may not occur if factors attracting potential savers to financial institutions and the factors that determine their level of savings are not considered. For this to happen there is need for knowledge on what affects household’s choice to save in a specific type of financial institution (formal, semi-formal or informal) and the level financial savings in the financial institutions. This led to the following research questions:
1.6  Research Questions

i. What factors affect a Kenyan household’s decision to save in formal, semi-formal and informal financial institution?

ii. What factors affect the level of a household’s financial savings?

iii. What are the existing correlations between household saving in formal, semi formal and informal financial institutions?

iv. What are the possible hindrances to ownership of a bank account by a household?

v. What policies should be implemented to increase the financial savings especially in formal financial institutions?

1.7  Objectives of the Study

The general objective of this study was to investigate the factors affecting households’ decision to save in financial institutions.

The specific objectives were to:

i) Examine the factors affecting a Kenyan household’s decision to save in formal, semi-formal and informal financial institution.

ii) Determine the factors affecting the level of a household’s financial savings.
iii) Analyze the existing correlations between households’ savings in the formal, semi-formal and informal financial institutions in Kenya.

iv) Identify the major hindrances to ownership of a bank account by a household in Kenya.

v) Make policy recommendations on how financial savings could be improved.

1.8 Significance of the Study

This study has contributed to a greater understanding of what influences a household’s choice of financial institution to save in. Households who mainly save in FFIs and SFFIs save more compared to those who save in IFIs. This study will help to inform policies on how household savings can be improved in Kenya. The study added knowledge on existing household’s saving literature, which is crucial for policy designs.

Many studies on savings have concentrated on the factors that affect the national savings level. The national savings level is made up of the micro savings from the households and firms. This study offers information on what affects the level of savings at the household level. A micro study of households was important in that it is the savings generated from individual households that make up the aggregate savings in the economy.

Kenya has targeted to become a middle income country by year 2030. To achieve this it will need to increase its level of private savings, more so what is
generated from the households. From the reviewed literature, no known study has been conducted to estimate the national household saving function in Kenya. This study contributes to household savings literature on what influences the savings decisions and levels among Kenyan households.

1.9 Scope and Organization of the Study

The objective of the study was to analyse the savings decisions among Kenyan households. In the light of this, cross sectional household financial data collected from households in all the provinces in Kenya was utilized in the study to ensure information analysed was reflective of households from all over Kenya. Formal savings included savings in banks, savings in investment products offered by insurance companies, savings in pension funds and in stocks and shares. Semiformal savings included savings in SACCOs and MFIs while Informal savings included savings in rotating savings and credit associations, accumulating savings and credit associations and savings in groups.

The thesis is organized in five chapters. The foregoing chapter introduced the study by highlighting its principal objectives. Chapter two is devoted to reviewing the relevant theoretical and empirical literature and ends by presenting the overview of literature. Chapter three highlights the research design and methodology used in the study, chapter four presents the study findings and discussions, while chapter five presents the conclusions, policy implications, and areas for further research.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is divided into three sections. The first section is the theoretical literature which reviews the existing theories of savings. The second section reviews empirical literature on choice of formal and informal savings mechanisms. The final section gives an overview of existing literature, showing the research gap that was filled by the current study.

2.2 Theoretical Literature

Savings as a subject has received immense publishing from different authors and schools of thought. Savings and consumption are normally considered together in most of the theories of savings, due to the fact that if a household makes a decision to consume, it is in effect making a decision not to save the consumed amount. Several theories of consumption and savings are discussed in the sub-sections that follow.

2.2.1 Theories of Consumption and Savings

Individuals are assumed to be rational, maximizing utility and minimizing expenditure. In economics there exists little difference between income and assets as both are economic resources that can be used to finance consumption. Individuals make choices between the current and the future consumption. A person’s choice reflects her/his preferences for the present
versus the future consumption and her/his income and wealth. Economists generally agree that household expenditure is a function of household income. However, they do not agree on which income, whether absolute or relative income, current or expected future income, short run or long run (permanent) income or income cycle over life time. There are several theories of consumption/ savings reflecting consumption under certainty and also under uncertainty.

2.2.2 Absolute income hypothesis

Keynes (1936) was the first to develop a systematic theory of aggregate consumption expenditure by households. He assumed consumption expenditure to be a function of current disposable income. Keynes absolute income hypothesis is based on the psychological law, which states that “men are disposed, as a rule and on average, to increase their consumption as their income increases but not as much as the increase in their income” (Keynes, 1936). The marginal propensity to consume out of disposable income is positive and less than one. Household’s current consumption expenditure is a positive function of real current disposable income. As the income increases, the increment is partly consumed and partly saved for purposes of financial security in periods of unemployment, illness, death of bread winner or for investment so as to enhance future income. The absolute income hypothesis is a short run theory and makes the assumption that marginal propensity to consume (MPC) is between zero and one. MPC declines with increase in income, implying that marginal propensity to save increases as income
increases. The implication of this is that low income families save a lower percentage of their income as compared to high income families.

The proposition of the absolute income hypothesis that MPC is positively related to income was at first accepted, but empirical studies have shown that MPC is stable over time (Kuznets, 1946). Available data on aggregate consumption and savings over time does not support the proposition that MPC is less than average propensity to consume (APC), and that marginal propensity to save grows over time as aggregate income increases. However, the constant slope of the consumption function does not alter the basic proposition of absolute income hypothesis which postulates that consumption is an increasing function of disposable income.

2.2.3 Relative Income Hypothesis

Relative income hypothesis is another consumption theory that was proposed by Duesenberry (1949). After the Second World War, due to the apparent contradictions of absolute income hypothesis and observed facts, economists carried out studies to resolve the contradictions. According to relative income hypothesis, a household’s consumption expenditure is a function of the relative income of the household. The relative income can be the average income of households in the neighborhood where the household resides, or it can be the highest income that the household has attained in the near past. When a household’s income falls, the household dis-saves or borrows in order to prevent a large fall in their living standards and also to maintain their living
standards at par with their peer groups. This is an important distinction between absolute income hypothesis and relative income hypothesis. The short run APC is greater than the long run APC according to relative income hypothesis. This implies that the short run average propensity to save is smaller than the long run average propensity to save.

According to the relative income hypothesis an increase in income is always proportional to the increase in household consumption expenditure irrespective of whether the increase in income is small or large. However, empirical evidence suggests that exceptionally large and unexpected increases in incomes are often associated initially with a less than proportionate increase in consumption. According to the relative income hypothesis, consumption standards are irreversible in the short run, but not in the long run because people cannot go on dis-saving or borrowing to maintain their living standards, as it is not sustainable if incomes continue to decrease. According to this consumption theory, incomes and consumption change in the same direction, which implies that recession is always accompanied by decreases in aggregate consumption expenditure. This was contradicted in the United States of America between 1948 and 1949, after the Second World War when consumption expenditure was rising while the disposable income was decreasing. The relative income hypothesis was a significant improvement over the absolute income hypothesis.
2.2.4 Permanent Income Hypothesis

The permanent income hypothesis was proposed by Friedman (1957) and it relates the current consumption to a measure of permanent or lifetime disposable income. According to this theory, current income could not explain a household’s current consumption decisions due to lag effects; hence there was need for a better measure of income. The permanent income was considered as the average income of all the incomes expected by a household in the long run. It is estimated by approximating all the incomes expected from all human (labour) and non-human wealth (capital). The theory assumes that household’s objective is to maintain a perfectly stable or smooth consumption path by allocating its lifetime resources equally among each period of life. The amount consumed by the household in each period is equivalent to its permanent income, which is the annuity value of the sum of assets held by households and the discounted present value of expected future income. The permanent income is the level of income that gives the household the same present value of its lifetime resources as that implied by its actual inter-temporal budget constraint. The difference between the current income level and the present value of the permanent income is the transitory income that can be positive or negative. Savings is the transitory component of current disposable income. The transitory income can be positive, negative or zero, hence in the long run, the expected transitory income is zero.

In the permanent income hypothesis, permanent income is the primary determinant of a household consumption. The consumption levels of a
household respond to changes in permanent income but not to transitory income. There is no correlation between transitory and permanent incomes. Saving and borrowing is therefore used for consumption smoothing purposes. The differences in household savings reflect differences in relative shares of permanent and transitory income (Friedman, 1957).

Although the time pattern of income is not important to consumption, it is critical to savings in that a households’ savings in period $t$ is the difference between current income ($Y_t$) and current consumption expenditure ($C_t$). Consumption is determined by the expected lifetime resources; hence savings over short periods of time reflect departures of current income from the average life’s resources. Transitory short term changes in income have little effect on consumers spending patterns. Households consume a constant proportion of permanent income. This implies that the low income earners have a higher MPC as compared to the high income earners. This indicates that the marginal propensity to save is higher among the high income earners.

The theory assumes that APC is equal to the MPC throughout the time periods. For cross sectional data, this would mean that the rich and the poor consume the same proportion of income. This has been questioned by researchers such as Friends and Kravis (1957), who have noted that low income households have got higher APC than the high income households. The MPC reduces as permanent income increases. The theory assumes that the transitory income and transitory consumption are not related, meaning that MPC is equal to zero for transitory income and equal to one for permanent
income. This contradicts the notion that MPC and APC are constant. If an individual loses money through theft, they are likely to cut down on consumption expenditure, hence the argument that transitory income and consumption are not related may not be valid. Mayer (1966, 1972) used strong empirical evidence to refute the proportionality of average propensity to consume and marginal propensity to save across time periods. Although the arguments against permanent income hypothesis could be valid at the micro level, they were not strong enough to invalidate permanent income hypothesis at the macro level. Permanent income hypothesis has been considered a better policy guide to achieve economic goals than both absolute income hypothesis and relative income hypothesis in that any government policy to reduce taxes that is viewed as permanent by households would spur consumption immediately and would increase national income over a longer period through the multiplier effects (Modigliani and Steindel, 1977).

2.2.5 Life Cycle Hypothesis

The life cycle hypothesis is one of the major neoclassical theories of savings, which represent consumption under certainty. It is very similar to the permanent income hypothesis except in its definition of lifetime income. In the life cycle hypothesis, consumption and savings level reflects the age of a person or his/her stage in the life cycle. The theory was proposed by Modigliani and Brumberg (1954) and Ando and Modigliani (1963). It proposes that individuals smooth consumption over time by taking into account anticipated changes in their resources induced by education and age as
well as movements in the expected rate of return on savings. The resources consist of the existing net wealth and the present value of all his current and future labour incomes. A rational consumer plans consumption expenditure on the basis of all the resources available and allocates them to consumption over time such that he/she maximizes the total utility over his life time. According to this theory, there is little connection between the current income and current consumption. The consumption expenditure is constant over time.

In the early years of a typical individual’s life, earnings are relatively lower while consumption is high, hence consumption exceeds earnings and to finance the deficit, individuals borrow. During the early years of life, individuals also build up their human capital, hence increasing the probability of higher earnings in later years. In the middle age, a person would have built up higher levels of human capital, which helps to improve earnings that are higher than consumption expenditure. It is in middle age that an individual pays off debts acquired earlier in life and also saves for old age, hence savings are positive. As years progress, income starts to decline, especially if the individual was employed and has retired. At this stage, the income often goes down and would be lower than consumption, leading to a stage of negative savings. An individual continues to adjust expenditure downward and dis-save until death, in order to maintain consumption close to the ability to pay for it.

In any given population, the young save relatively less as they anticipate increases in their future incomes. Middle aged individuals who are nearing the
peak of their earnings tend to save the most as they pay earlier debts and accumulate savings due to the anticipation of relatively low incomes after retirement. Generally, the elderly have low or even negative saving rates, but a desire to leave a bequest or cover for contingencies of living longer than expected can motivate them to save even after retirement.

The policies implications are that aggregate savings rate tend to fall in response to increase in either youth-dependency ratio or the ratio of the elderly to the working population. The marginal propensity to consume out of wealth increases with the time horizon. Younger agents with their longer time horizons have a lower marginal propensity to consume out of assets than older generations. At the aggregate level, the distribution of assets between the young, middle aged and the elderly matters for consumption and saving patterns. The larger the share of total wealth held by the middle aged individuals in any given country, the higher the savings rate and the higher the growth rate in income. Demographic factors are likely to explain the long-term trends in savings, not the short term fluctuations in the propensity to consume. The high gross savings rates in East Asian economies associated with rapid demographic transitions that led to a high proportion of prime age workers supports the life cycle hypothesis (World Bank, 1993).

Life cycle and permanent income hypothesis assume that households have a perfect vision of their future income flows, their consumption levels and their lifespan and in addition they behave rationally and with self-control as they prepare for retirement. However, “the life cycle decision is extraordinarily
complex, in that it requires an individual to contemplate labour earnings, investment strategies, macroeconomic trend and a vast assortment of risks, all over a very long time frame. It would be surprising if the average individual in isolation, with no practice and little or no training, would act as a perfectly rational, farsighted utility maximize” (Bernheim and Scholz, pg.87, 1993). Low income households are likely to have limited financial information; hence, they are likely to make sub-optimal long term decisions on consumption and savings. In order to smooth lifetime consumption, a household income in the middle age or during their working life should exceed their consumption expenditures. In addition, they should have access to credit or have some savings to finance extra expenditure when incomes are low (Friedman, 1957; Ando and Modigliani, 1963). The presence of imperfect credit markets and uncertainties of future incomes constraints the household borrowing, hence consumption is sub-optimal (Beverly, 1997). Most low income households are faced with low and irregular incomes, hence they are credit constrained. Most of the households rarely have incomes that exceed their consumption needs. Household consumption is more sensitive to current or transitory income rather than the permanent income as suggested in the permanent income hypothesis. Any predictable changes in income affect both the savings and the consumption, contrary to life cycle and permanent income hypothesis (Wilcox, 1991).
2.2.6 Overlapping Generation Model

The model assumes that a person lives for two periods and consumes in both periods. However, the individual works in the first period, retires in the second period and dies by the end of that second period. A period is assumed to be 30 years and it is equivalent to a generation. The model assumes that the government and other household members (of other generations) do not make any transfer payments to a person, hence a person has to pay for the second period’s consumption by saving in the first period. A cohort born in time “$t$” is referred to as generation “$t$”. The person is young in period $t$ and old in period “$t+1$”. In period “$t$”, generation “$t$” overlaps with the old generation “$t-1$”. In any period, there are only 2 generations alive (Diamond, 1965).

Every person maximizes lifetime utility, which is a function of the consumption level in the two periods. It is assumed that a person does not care what happens after death, is altruistic towards children and hence does not provide bequests or transfers to members of other generations. The model assumes that a person born in period “$t$” has no assets and supplies one unit of labor inelastically when young and receives a wage “$W_t$”. The person does not work when he is old (i.e. in period “$t+1$”). Hence, to provide for the consumption expenditure in “$t+1$”, the person saves an amount equivalent to “$S_t$” in period “$t$”. The total wage ($W_t$) is spent on consumption ($C_{1t}$) and on savings ($S_t$). In period “$t+1$”, the consumption expenditure ($C_{2t+1}$) is financed by the value of savings from period “$t$” ($S_t$) plus accrued interest. Assuming
the interest rate is “r” per time period, the future value is given as: \( C_{2t+1} = (1 + r_{t+1}) S_t. \)

If individuals are allowed to borrow in the first period, such that “\( S_t \)” is negative, then there is a constraint that one has to repay the borrowed money before he/she dies. According to overlapping generation model, savings are held for purposes of smoothing consumption in the second period when a person has stopped working.

### 2.2.7 Random Walk Hypothesis

According to permanent-income/life-cycle hypothesis, the shape of a consumer’s time path of consumption should be independent of the shape of his or her time path of income. That means that the trend of individual current consumption does not depend on the trend of consumer’s current income. Rather, the consumption path depends only on the present value of lifetime income. When there is uncertainty on income flows, there is need for modification on the standard life cycle hypothesis and permanent income hypothesis to incorporate the uncertainty.

If a household’s income in period “\( t \)” is higher than it was expected to be, this would change the household’s expectation of the present value of its lifetime wealth, so that it would cause the household’s planned consumption path from that time forward to shift upward or downward to reflect that change. Consumption in period “\( t \)” is the first part of the higher or lower anticipated consumption path, but it is the only one that is actually observed. It is only the
unexpected changes in income that would cause the consumption path to shift. Changes in income at time “t” (relative to “t-1”) that are correctly anticipated at “t-1” would not cause changes in consumption at time “t” relative to the anticipated path formulated at “t-1”. According to the random walk hypothesis, consumption changes are independent of expected changes in income. The random-walk hypothesis is not a separate theory of consumption; rather it is an implication of the neoclassical model that was first explored in a seminal study by Hall, (1978).

Assuming rational expectations, the expected value of consumption in all future years equals the level of consumption in period one. This simple result implies that the consumer chooses a perfectly flat consumption path from years “1” through “T”. It is so simple because of the assumptions that both the interest rate and the rate of time preference are zero. But even when this assumption is relaxed, the main idea still holds: changes in consumption from one period to the next do not depend on correctly anticipated changes in income. Changes in expectations of income (even if they are changes that are expected to happen in future periods) cause the household to revise its consumption path and make second period consumption differ from first-period consumption. Change in consumption occurs only because of unanticipated change in income. The random walk hypothesis does not say anything about the relationship between household savings and consumption level.
2.2.8 Psychological and Sociological Theories

Psychological and sociological theories of savings assume that consumer’s tastes and expectations are not fixed but rather are affected by economic or social stimuli and conditions. Change in the environment and the information received affects the response and decision of the household. Savings are affected by the ability to save and the willingness to save. Some households are less able to save due to their low economic resources and special consumption needs. For those households that can afford to postpone consumption, they must have the will power to save. According to these theories, the decision to save in a household is determined by consumer’s expectations and sentiments, families, peers and past savings experiences (Duesenberry, 1949; Katona, 1975; Furnham, 1985; Cohen, 1994).

2.2.9 Behavioral Theories

Households are expected to respond and create their own behavioral incentives and constraints to savings. The behavioral life cycle hypothesis (Shefrin and Thaler, 1988) is one of the behavioral theories of savings. An individual can be seen as a planner and a doer. As a planner, the individual is concerned with lifetime utility, while as a doer the person behaves like a one period person who is both selfish and myopic. For the doer to exhibit some self-control, preferences must be altered, modified and in a way constrained. The individuals often adopt rules that constrain their opportunities to spend that
can be internally or externally imposed. For example, an individual can save voluntarily for education, Christmas parties or in pension funds that are imposed by the state. Restrictions can also be imposed on borrowing unless it is for specific expenditures. Household’s savings are therefore as a result of self-imposed welfare-improving constraints on spending (Maital and Maital, 1994). In this study, the role of compulsory savings especially in pension schemes in influencing saving decisions was explored.

2.2.10 Institutional Theories

Household’s savings are affected by the institutional processes through which savings occur (Sherraden, 1991). Asset accumulation is as a result of institutionalized mechanisms involving explicit connections, rules, incentives and subsidies. The subsidies can be in the form of housing and retirement related tax benefits, deferment and exclusion of capital gains on sales of principal residences, exclusion from employment-sponed pension contribution and earnings. All these mechanisms of asset accumulation receive preferential tax treatment or some form of subsidies, hence rational households with access to them accumulate assets. The institutional theory of savings (Sherraden, 1991) is more useful in explaining the savings behavior in low income households. The relatively limited access to institutional saving opportunities and incentives among low income households leads to low asset accumulation and low savings rates (Beverly, 1997). The institutional theory of saving is yet to be tested but many scholars suggest it is more useful than the traditional theories of savings (Kotlikoff, Spivak and Summers, 1982;
Bernheim and Shoven, 1988; Shefrin and Thaler, 1988; Thaler, 1990; Bosworth, et al., 1991). In this study, the role of institutional factors in explaining decision to save in different forms of financial institutions was examined.

2.3 Empirical Literature

This section reviews studies conducted on households’ saving in different financial institutions.

In developing economies, only a low percentage of low income households hold savings or investments (Hogarth and O’Donnell, 1999) mainly due to lack of access to mainstream financial institutions for savings and appropriate financial instruments (Sherraden, 1999). They do not have the same incentives and financial subsidies for asset accumulation available to high income earners. Such incentives include mortgage interest deductions, pension contributory schemes and information needed to make sound investment decisions. A social support network is required to encourage them to save in the form of community development financial institutions. This can be done by improving access to financial institutions and ensuring appropriate savings instruments are available. Financial educators can join hands with the community development credit unions to enhance development and delivery of financial education on savings.

In the standard models of savings, total savings decrease due to improved access to credit. This is because when a household is able to acquire credit
during emergencies, for investment purposes and for purchasing household durables, the need to save for precautionary purposes, accumulating for investments and household purchases, respectively, become less important. However, Rogg (2000) noted that increased access to credit induces borrowers to shift their savings from traditional assets to deposits accounts with positive returns. When micro-entrepreneurs access credit, they develop an understanding of and confidence in various operations and services of financial sector.

Rogg (2000) conducted a study among micro-entrepreneurs in Ecuador, Paraguay and Salvador to analyze the impact of access to credit on saving behavior of micro-entrepreneurs. The study used a probit model to look at factors affecting individual’s decision to save regularly. The variables included in the model were: age, age squared, gender of the micro-entrepreneur, number of children in household, marital status, level of education, other incomes, type of business, length of time in business, value of business, ownership of business premises, access to credit from commercial banks and access of credit from micro-finance institutions. In all the three countries, age, education and other income were found to be statistically significant in increasing the likelihood of saving regularly. Micro-entrepreneurs who had access to credit in the three countries were found to save more than those without access to credit. In addition, they were more regular savers compared to non-borrowers.
There was found to be a positive relationship between obtaining credit and saving regularly in MFIs and FFIs. Borrowers from MFIs always exhibited more regular savings in response to credit compared to borrowers from FFIs. This was because borrowers from FFIs could have already been regular customers for a longer period hence they could have borrowed credit for long and also used other financial services in the FFIs. Access to credit raised deposit savings as micro entrepreneurs who were credit constrained got opportunities to interact with FFIs.

Overall the savings could fall when credit was extended but the share of savings held in deposit accounts could rise due to indirect impact of introducing micro-entrepreneurs to FFIs. Most recipients of loans had been excluded from other services provided by the FFIs. When micro entrepreneurs were given loans, they made regular repayments to the financial institutions. The repeated interactions with FFIs as they repaid loans introduced them to FFIs, increased their understanding on operations and services offered by FFIs and they also gained confidence in the FFIs. This increased the probability that funds that would have been kept in cash and in other illiquid assets were deposited in the FFIs. The loans could also raise the income of borrowers hence enabling them to save more.

Rogg (2000) found that micro-entrepreneurs rarely deposited savings in FFIs citing high minimum deposit requirement, liquidity, high transaction cost, inconvenient banking location and opening hours, unfamiliarity with savings products as the major hindrances. They also noted that the banks were not
offering them the whole range of services that were enjoyed by wealthier clients. In addition, savings in banks was discouraged by economic and political instability, and high levels of inflation. The study noted that the low income households relied on informal financial institutions for their savings and credit needs. The IFIs only acted as a substitute for some of the financial services offered by FFIs. Hence, the low income households were unable to smooth consumption efficiently and conveniently.

Rogg (2000) looked at the effect of credit availability on the level of financial savings in two types of financial institutions, MFIs and FFIs in Ecuador, Paraguay and Salvador. The current study examined the effect of credit availability and other independent variables on the decision to save in three financial institutions, FFIs, SFFIs and IFIs in Kenya.

Kiiza and Pederson (2002) conducted a study in Uganda seeking to identify factors that influenced decision to open a savings deposit account and factors affecting the net savings of a household. Cross sectional data was collected from central, eastern and western regions of the country in 1996 and 1997, covering a total of 370 households. Households were seen to make two separate decisions. The first decision was to choose to acquire or not to acquire a deposit instrument such as a savings account or a certificate of time deposit at a financial institution, which represented choice between financial and non-financial assets. This was modeled using a logistic function. The second decision was to choose how much to save once a saving instrument had been acquired given the minimum deposit requirement of the financial
institution. This was modeled by specifying and testing the household net saving deposit function.

The study presumed that a household choice to acquire a saving deposit instrument was affected by attributes of saving deposit that included the level of information available to the household on banking activities, proximity of the institution and number of banks in the household’s locality (bank density). In addition, the choice was also affected by the characteristics of the head of the household that included the level of income of the household, type of occupation of household head, age of household head, work experience of the household head and the education level of household head. A logistic function was used to predict the probability of a household opening a saving deposit account in a financial institution.

The results of the study indicated that the level of education of the household head was significant in improving the probability of acquiring a deposit instrument. Household heads who were well informed about the financial institutions were more likely to acquire a savings deposit instrument than those who were not. The transaction cost, measured by the place of residence, was shown to play a major factor in influencing acquisition of saving deposit instrument. Those in urban areas and cities, representing lower transaction costs due to higher bank density, were seen to have a higher probability of acquiring a deposit instrument as compared to those in rural areas and small towns. Increase in bank density increased the likelihood of acquiring a saving
deposit account, whereas reduced physical accessibility of banks reduced the likelihood of households opening a savings deposit account.

Institutional accessibility was affected by availability of financial information. Probability of a household in acquiring a saving deposit increased with increase in information about the banking services. Availability of financial information was a major catalyst in increasing household savings mobilization. A household’s probability of acquiring a saving deposit increased dramatically when households were well informed on banking sector. They recommended that for savings mobilization to be effective, households needed awareness on financial investment opportunities available. They observed that advertising and other forms of communication on financial services were crucial in increasing mobilization of savings among households. In addition, they noted that financial institutions could influence choice to save and amount saved through appropriate incentives, instruments and improvements in accessibility to their services.

The study also estimated the net savings deposit function for the household using the weighted least squares regression method. The regression results indicated that the net savings deposit were affected positively by proximity of financial institution, availability of credit facility, quality of services rendered and the level of permanent and transitory income of the household. An increase in real rates of return on other investments had a negative impact on net deposits of a household. The study found that the marginal propensity to save out of permanent income was low at 3 percent, indicating that permanent
income did not play a major role in forming net saving deposits, maybe due to the relatively low levels of saving deposit rates. On the contrary, marginal propensity to save out of transitory income was higher at 11 percent. Households who were conveniently located to financial institutions and those with credit facilities from a financial institution consistently held higher deposits compared with those who did not have access to credit. Net savings deposits were seen to increase with increase in quality of financial services. Increases in real rental rates of commercial properties had significantly lowered the net deposits held in financial institutions.

The study concluded that rural and urban households could acquire more saving deposit instruments if they got appropriate incentives and accessibility. Most of the formal financial institutions had an urban bias that limited physical accessibility. The study recommended that the government needed to give a one-time subsidy to innovative financial institutions to offset start up costs that brought services closer to rural and small town populations. There was need for more rural infrastructure in terms of roads, electrical and telecommunications. They also recommended exploration of potential and immediate linkages between formal financial institutions and semi formal/informal financial institutions.

The study by Kiiza and Pederson (2002) looked at factors influencing a decision to save in a bank account only. In addition it did not include the income and age of the household head in estimating the probability of acquiring the deposit instrument. In their study, it was observed that
advertising and other forms of communication on financial services were crucial in increasing mobilization of savings among households. The study recommended exploration of potential and immediate linkages between formal financial institutions and semi formal/informal financial institutions. This study intends to fill this gap within the Kenyan set-up.

Carpenter and Jensen (2002) examined the factors relevant to individual choice of formal and informal saving instrument in Pakistan, a country whose financial system is governed by the Islamic Shari’ah law. They considered the factors that affect household decisions to save in the banks and BISIs, a type of ROSCA. They used data from Pakistan integrated household survey, which sampled a total of 4800 households using multistage stratified random sampling. The study used both descriptive analysis and regression analysis. They used a general reduced form bivariate probit for participation in each of the methods. They assumed that choice of formal or informal saving institution was affected by level of income, variability of income, education level of head of household, sex composition of household, age of the head of household and locality of household.

The study in Pakistan found out that 30 percent and 18 percent of urban households used BISIs and banks, respectively, while 10 percent and 15 percent of rural households used BISIs and banks, respectively. Higher access of BISIs in urban areas could be due to better organization and lower transaction costs. Contrary to most findings, bank use was higher than use of BISIs in rural Pakistan, maybe due to higher dispersion of households, making
it more difficult to organize BISIs. Seasonality of employment in rural areas could have also made BISIs less sustainable because they require more regular payments.

The study found out that increase in years of education raised the likelihood of having a bank saving deposits. Level of income positively affected the participation in both BISIs and bank. Education level, numeracy and literacy level positively affected the bank use but not BISI use. Greater education implied better understanding of availability and benefits of banks. The use of banks and BISIs was positively affected by the number of female adults in a household, with use of BISIs being greater than use of banks in households that had more women. The BISI use was lower in rural areas as compared to urban areas mainly due to BISI formation being more conducive in urban areas due to regular incomes and more dense households as compared to rural areas. Participation in BISIs and banks increased with increases in income in both rural and urban households, but the increase was higher in rural areas. This could be due to the need of more security when households held large amount of savings. Households with more stable incomes had greater use of BISIs as compared to those without stable incomes. At higher levels of income, long term formal savings mechanisms became more desirable.

Bank use took place even among poor rural households. The low incidence of bank participation and high use of informal saving mechanisms pointed to a large pool of resources that could be mobilized into the formal sector. The study recommended the need to consider the existing forms of financial
intermediation and how they could be transited into formal mechanisms. In the Pakistan study, literacy level in the household was the major hindrance to bank use, hence the need to think of banking structures and technologies that would not require literacy was recommended (Carpenter and Jensen, 2002).

The study was conducted in Pakistan, a country whose financial system is governed by the Islamic Sharia’h law. Much as the Kenya Commercial Bank and Barclays Bank of Kenya and some other two Islamic Banks have introduced Shari’ah compliant banking, the Kenya financial systems operate under different laws and there is need to explore the factors affecting the choice of saving in formal and informal financial institutions, and explore the differences inherent. The study considered savings in banks to represent savings in FFIs and savings in BISIs to represent savings in IFIs. The current study did not only consider savings in banks, but also savings in other types of formal financial institutions. In addition, the study examined determinants of decision to save in all types of informal financial institutions and semi-formal financial institutions.

Carpenter and Jensen (2002) used the level of income, variability of income, education level of head of household, sex composition of household, age of the head of household and locality of household as the independent variables. The current study examined the differences in use of formal, semi-formal and informal savings mechanisms across regions, income groups, sex, age groups, and educational levels, sectors of employment, varying levels of financial information and credit availability among Kenyan households.
Noula (2002) conducted a study to determine factors affecting supply of savings in FFIs and IFIs in rural areas of Cameroon. Data was collected from 60 rural customers, representative financial institutions and developmental organizations operating in the region. The amount of savings was the dependent variable and was assumed to be dependent on socioeconomic and demographic variables; including age of household head, sex of head of household, level of education, family size, dependency ratio, size of land available, cost of agricultural inputs, source of income and level of income. In addition, amount saved depended on relationship between the client and the financial institution, which was represented by distance from clients residence to financial institution, the number and types of financial institutions in the area, the duration of the relationship, cost of transaction per time, whether credit had been received in the previous year, whether client had made any deposits to the financial institution in the previous year, and the frequency of the deposits. Finally, the amount saved was also affected by the characteristics of the financial institution being used, which included interest rate on savings/loans, transparency and liquidity, confidentiality of the transactions and security of funds.

The amount saved in IFIs significantly decreased with increase in age and if the sex of the head of the household was male. An increase in the household size, duration of relationship with financial institution, receipts of loan in the last year, frequency of deposits, liquidity and discretion in the financial transactions were found to significantly increase the amount of savings in IFIs.
On the other hand, the amount saved in FFIs significantly decreased with increase in dependency ratio, total income, distance to financial institution and liquidity of the financial institution. Deriving income from non-agricultural sector and increased duration of relationship with the financial institution significantly increased the amount of savings in FFIs. In the study, the rate of interest was not shown to significantly affect amount of savings in both FFIs and IFIs.

Noula (2002) looked at factors determining savings level in both FFIs and IFIs. The current study focused on factors that determine choice of saving in each of the financial institutions, which are classified into three, FFIs, SFFIs and IFIs and also the determinants of level of savings in the household. Some of the independent variables included in the study by Noula (2002) were also adopted in the current study in analyzing the decision to save in FFIs, SFFIs and IFIs and estimating the savings function.

Amimo et al., (2003) conducted a study in rural Mozambique to examine the potential for financial savings among rural Mozambique households. The study was conducted in a sample of 113 households selected from one of the provinces in the country. The study used ordinary least squares method for estimating the household financial savings function using level of income, physical and financial wealth, size of household, dependency ratio, age of head of household, education level of household head and gender as the independent variables. The income level was found to increase the savings level of a household while the household size, years of schooling and gender
of household being female were found to decrease the level of financial savings in a household. This study was conducted using a small sample, in one of the regions within the country and only a few independent variables were included. The current study was done using a more representative sample collected from households all over the Kenya. The study not only looked at the determinants of savings level but also what influences where those savings are kept.

Aryeetey (2004) conducted a study in Ghana seeking to ascertain the assets kept by households and the relationship between choice of assets and the socio economic characteristics of rural households. In the face of expected income shocks, farming households tried to smooth consumption through diversification of crops and the general set of economic activities that a household engaged in. Non-farm activities provided an important share of household incomes. This technique of diversifying crops was extended by diversifying holding of physical and real assets. In rural areas, households diversified by holding productive and not-so-productive real assets. In urban areas, diversification was in the types of financial assets that were held.

Study findings indicated that the low income earners concentrated their asset portfolio on livestock and farms, middle income earners mainly held land and non-farm enterprises, while the high income earners mostly held financial savings in banks. Non-farm enterprise assets were 47 percent in urban areas and 16 percent in rural areas. The younger people, 11-40 years of age, were seen to own more non-farm enterprise assets as compared to the older 40-60+,
whose portfolio was mainly concentrated on houses and land. This implied that the young had a greater consciousness on rates of return on different assets, hence more involvement in non-enterprise activities. Female headed households tended to concentrate more on non-farm enterprises while male headed households concentrated more on livestock. Women had more loans and fewer saving in their portfolio as compared to men, possibly due to more involvement in non-farm enterprises that required more capital.

The study confirmed study findings in Pakistan (Carpenter and Jensen, 2002) and in Uganda (Kiiza and Pederson, 2002) that households with more educated heads tended to utilize the formal savings mechanisms more as compared to those with less education who tended to concentrate on livestock and susus (a type of ROSCA). The households who had access to major or regular markets had a more diversified portfolio combining agricultural and non-agricultural assets.

Chandararot and Dannet (2007) conducted a study in Cambodia in 2007 using a sample of 801 households spread over eight provinces in the country. The main objective was to identify the savings rate, the savings mechanisms and reason for their use among poor households. Savings were defined as difference between income and consumption spending. Among the 497 households who had positive savings, 67 percent kept their surplus income in cash and gold, 29 percent kept it in livestock, 3 percent kept it in ‘Tongtin’ a type of ROSCA, 0.1 percent kept it in savings groups facilitated by NGOS operating in the country, and only 0.002 percent kept their savings in a bank.
Asked why they did not use formal deposit taking institutions for saving, 89 percent said they had no cash to save, 15 percent said they were not aware of the financial institutions, 4 percent did not trust FFIs, 3 percent felt interest rates were low and withdrawal was difficult, while 1 percent felt the FFIs were far away from home.

Cash and gold was preferred as a means of saving due to its low transaction cost, high liquidity and convenience, and to take care of the uneven income streams. Livestock was preferred as a means of food security, safeguarding against economic downtown and meeting urgent cash flow shortages such as payment of school fees. ‘Tongtins were mainly used to take advantage of future interest earnings and also for purposes of securing string less credit. Saving groups were used for purposes of building wealth and earning interest on savings. The study suggested that for saving products from banks and MFIs to be attractive to poor households, they should be located in convenient locations, establish good infrastructure, be flexible and treat household as one saver so as to take advantage of the various sources of income for household members.

The study looked at what affected choice of saving in each of the informal saving instruments and also in formal banks using descriptive statistics. Only low income households were used in the study in Cambodia and importance of each of the variables in affecting decision to save in informal and formal financial institutions was not estimated. The current study used all types of
households and ensured that the importance of different variables in affecting decision to save in different financial institutions was explored.

Newman et al., (2007) conducted a study to determine factors affecting the decision of a household to save in formal and informal financial institutions and factors that affect the magnitude of financial savings among rural households in Vietnam. Data collected from a household survey was used and analyzed using descriptive statistics. The study found that wealthier households were more likely to save. The average age of household members was found to have negative effects on decision to save in line with the life cycle hypothesis. If the household had suffered an income shock, it was less likely to save. A comparison between savings participation in FFIs and IFIs showed that age had a negative effect on saving in IFIs but no effect on decision to save in FFIs, wealth had non-linear positive effects on savings in IFIs but no effect on savings in FFIs, while education had positive effects on decision to save formally. From the study, different factors influenced savings in FFIs and IFIs. An increase in income increased the amount of household savings. In addition, an increase in household size and receipts of assistance from children reduced the amount of household savings.

Newman et al., (2007) only used descriptive statistics to analyse factors affecting decision of a household to save in FFIs and IFIs. The current study used a logit model, which is a more intensive econometric analysis to examine factors affecting a decision to save in FFIs, SFFIs and IFIs.
Bendig *et al.*, (2009) conducted a study to examine the differences and similarities in the determinants of demand for formal financial loans, savings and insurance in 2008 among the rural households in Ghana. Majority of the low income households were concentrated in rural areas, with over 80 percent of the population engaging in farming activities and other small scale businesses. A total of 350 households were sampled from the central region in Ghana where only 5-6 percent of the population had access to formal financial institutions. The study showed that there was a strong positive correlation between the demand for savings, loans and insurance. The three formal financial products were shown to complement each other.

An increase in household size significantly increased the probability of demanding formal financial savings and loans, and this was explained by the need to build buffers against calamities. An increase in the age of head of household increased the probability of acquiring saving and insurance combined, acquiring all the three combined together, but for savings alone, age was not an important determinant. The probability of saving increased significantly with years of schooling. In addition when the land holding size and the asset index increased, the likelihood of saving in the combined three formal financial products also significantly increased, especially because such households were able to use the assets and land as collateral. Receipts of remittances from relatives/friends increased the probability of saving in FFIs but did not significantly affect the decision to acquire loans or insurance products.
Households headed by females had a lower probability of demanding the savings product and also the other two products. Households deriving their income from the self-employment were less likely to demand formal savings and also loans and insurance, especially due to low and irregular incomes. Interestingly, households in close proximity to financial provider were less likely to demand savings and insurance products. This was explained by the fact that the financial providers did not make concerted efforts to take their outreach programmes to those near the financial institutions and instead took them to those far off. It was not just important to increase the supply of financial institutions, but in addition, there was need to build trust and increase financial literacy as suggested by Bendig et al., (2009). Those with higher exposure to risk were significantly less likely to demand the three formal financial products, possibly because they regarded the acquisition of the formal financial products as an additional risk.

Bendig et al., (2009) focused on the determinants of decision to save, take loans and also acquire insurance at the same time. The current study examined the factors affecting the decision to save in three different forms of financial institutions, FFIs, SFFIs, and IFIs. The variables in the study by Bendig et al.,(2009) that were found to statistically affect the decision to save only, a combination of savings and loans, savings and insurance, and all the three combined were included as explanatory variables in this study albeit with different definitions and measurements. These include age, age², household
size, sex of head of household, education level, sector of employment, place of residence and exposure to risk.

The study by Bendig et al., (2009) was conducted in the rural region of Ghana using only a total of 350 households. The current study utilized data collected from 6598 households located in both rural and urban areas of Kenya; hence it was more extensive in coverage. Bendig et al., (2009) did not include some important variables that have been known to affect the decision to save such as income, financial literacy and rate of return on savings. These variables were included in the current study.

Kibet, et al., (2009) conducted a study in Nakuru, Kenya using a sample of 359 households selected from seven divisions, which included teachers, businessmen and farmers in the area of study. The study estimated a household savings deposit function using ordinary least squares method. The dependent variable was household savings held in financial institution for over two months. The explanatory variables were gross income, dependency ratio, age of respondent, gender of respondent, occupation of respondent, rate of interest on savings, transport cost to and from financial institution of saving and credit access.

The study found out that saving was ranked on sixth among twelve items in the household budget hence it was not a residual as assumed by conventional economic theory. The coefficients of income, credit access, dependency ratio and age of respondent were found to be statistically significant in affecting the savings level. Household’s savings increased with an increase in income while
it was found to decrease as age of household head increased, as dependency ratio increased and as credit access increased. Businessmen were found to save significantly more than the farmers and the teachers. The current study estimated the household savings function using a sample of 6598 households distributed in all the regions of the country across all professions.

Boring (2010) conducted a study to examine motivations behind saving behavior and institutional choice using data collected from a sample of 2774 households in Uganda. The study surveyed the demand, utilization and access of savings in different types of financial institutions. The financial institutions were divided into four; formal, semi-formal, informal and non-institutional financial institutions. The data was analyzed using binomial probit regression model. The study included the following independent variables; place of residence, age in years, status of respondent in household, literacy, sex of respondent, marital status, level of education, primary source of income, presence of consultation when making financial decisions, trust of financial institutions, position in life relative to desired state, and the wealth of household relative to mean for the sample. All the independent variables except age of head of household were binary variables.

A total of five regression equations were estimated; one representing the decision to save or not, and the other four representing the decision to save in each of the four aforementioned financial institution. When making the decision to save or not, age of respondent in years, statistically reduced the probability of saving. On the other hand, respondent being the household head,
literate and with a high education level, deriving income from formal employment, deriving income from entrepreneurial activities, life being close to desired state, and wealth being above the mean for the sample, all statistically increased the probability to save. When making a decision to save in FFIs, the respondent being the household head, married and households’ wealth being above the mean of the sampled households, significantly increased the likelihood of saving in FFIs. All the other variables were not statistically significant.

When deciding to save or not in SFFIs, respondent residing in a rural area, being the household head, married, and households’ wealth being higher than the mean of sampled households, significantly increased the probability of saving in SFFIs. Other variables were not statistically significant. Probability to save in IFIs significantly increased when a household was residing in a rural area, respondent was the household head, was married and if they trusted the informal institutions. The other variables were statistically insignificant. In making a decision to save in the non-institutions, residing in a rural area, respondent being the household head and being married increased the probability of saving in non-institutions.

All the independent variables used in the study by Boring (2010) except age were binary. Some of the variables such as; credit availability, level of financial information, bank density, transaction time to nearest bank branch, size of household, sector of employment, and perception about rate of return
paid in FFIs and SFFIs that have been shown to affect households’ decision to save in a financial institution were not included in the study.

2.4 Overview of Literature

The existing theories of savings do not provide a good explanation for savings among the low income households. Economic theories of savings like the life cycle income hypothesis and permanent income hypothesis assume that households have a perfect vision of their future income flows, their consumption levels and their lifespan, and in addition, they behave rationally and with self-control as they prepare for retirement. But as noted by Bernheim and Scholz (1993), the life cycle decision is extraordinarily complex, in that it requires an individual to contemplate labour earnings, investment strategies, macroeconomic trends, and a vast assortment of risks, all over a very long time frame.

Low income households have got limited financial information; hence, they are likely to make sub-optimal long term decisions on consumption and savings. The presence of imperfect credit markets and uncertainties of future incomes, constraints household borrowing, making consumption sub-optimal (Beverly, 1997). Most low income households are faced with low and irregular incomes and hence are credit constrained. Most of the households rarely have incomes that exceed their consumption needs (Wilcox, 1991). In Kenya, most of the households are in the low income group hence the need to conduct the current study.
Psychological and sociological factors play a minor role in savings decisions of low income households, where majority of Kenyan households fall. Behavioral theories, on the other hand, have devoted little attention to the low income household’s savings. However, like the institutional theories, they note that characteristics of savings mechanisms influence the saving behavior of households. By having commitment savings, a household is able to defer consumption for the future (Beverly, 1997).

Few studies have been done on factors that affect choice of household saving in different financial institutions and the few which are accessible have been conducted in other countries, in rural areas only or among the poor households (Carpenter and Jensen, 2002; Kiiza and Pederson, 2002; Noula, 2002; Amimo et al., 2003; Aryeetey, 2004; Chandararot and Dannet, 2007, Newman, et al., 2007; Boring, 2010). Some of the studies used descriptive statistics to analyse the decision to save in the financial institutions (Noula, 2002; Newman, et al., 2007; Chandararot and Dannet, 2007). There is no known study that has been conducted in Kenya, specifically on factors that affect household savings in financial institutions. Since the financial landscape differs across countries, the current study was crucial to inform policy makers on what affects households saving decisions in Kenya.

Kibet, et al., (2009) conducted a study in Nakuru, Kenya, which is one of the districts within the country using a sample of teachers, businessmen and farmers in the area of study. The study estimated the savings function based on savings held in financial institutions in one of the districts in Kenya. In Kenya
financial institutions are diverse in type and density across districts. The current study estimated the household financial savings function from a sample of households selected from all districts in Kenya, and in addition the study sought to find out the underlying factors affecting the choice of household to save in different types of financial institutions.

Kiiza and Pederson (2002) used a logistic function to examine factors affecting choice of saving in banks, while Carpenter and Jensen (2002), estimated bivariate probit functions for decision to save in banks and BISIs. The current study was broader and examined factors that affect choice of saving in FFIs, SFFIs and IFIs. The operational definition of formal and informal saving instruments was broader. FFIs included savings in banks, insurance investment products, bonds, pension schemes and other long term savings instruments. Informal financial savings included savings in all forms of informal savings mechanisms, while savings in semi-formal financial institutions savings included savings in SACCOs and MFIs. Individual logistic functions were estimated for each type of formal, semi-formal and informal saving institutions.

Kiiza and Pederson (2002) included seven variables as affecting decision to acquire a deposit instrument, and income and age of household head; which have been shown to affect households’ decision to save in financial institutions were not included. Carpenter and Jensen (2002) included six variables as affecting choice of where to save. Credit availability, bank density, level of financial information, perception of rate of interest on savings
in financial institutions, size of household and expectations regarding future economic conditions were not included as independent variables. Boring (2010) used a bivariate probit model to examine motivations behind savings in FFIs, SFFIs, IFIs and non-institutional forms of savings in Uganda, using several binary variables. The study compares highly with the current study, especially in the classifications of FFIs, SFFIs and the IFIs. However, the study was conducted in Uganda whose financial landscape is different from Kenya. The current study used additional independent variables to those used in Boring, (2010) that included; credit availability, level of financial information, bank density, and transaction time to the nearest bank branch, size of household, sector of employment and perception about rate of return paid in FFIs and SFFIs.

The current study was conducted in Kenya using data collected from households in all regions, rural and urban areas, all income groups and sectors of employment. In this study, the factors affecting the decision to save in a financial institution and the level of financial savings in a household were explored. The choice of variables was informed by both theoretical savings literature and the empirical studies that were reviewed. The independent variables included household characteristics and institutional factors affecting choice of financial institution and level of savings.

More intensive econometric analysis was done using the logit model to analyze factors affecting households’ decision to save in each of the three forms of financial institutions. In addition to analyzing factors affecting the
saving decision in financial institutions, the study also estimated the
households financial savings using the weighted ordinary least squares
method.
CHAPTER THREE

METHODOLOGY

3.1 Introduction

The chapter contains the research design, the theoretical framework, model specification, the study hypothesis, definition and measurement of variables, data type and sources, data cleaning and data analysis methods.

3.2 Research Design

The study sought to empirically analyze the determinants of households’ choice to save in financial institutions and estimate the household financial savings function in Kenya. The study adopted a non-experimental research design that entailed analyzing data collected from a cross sectional survey of Kenyan households on household financial services (FinAccess, 2009).

3.3 Theoretical Framework and Model Specification

In this section, the theoretical and empirical models used in estimating the household’s decision to save in each type of financial institution, and in estimating the households’ level of financial savings is presented. The definition and measurement of the variables included in this study are also presented.
3.3.1 Theoretical Framework for Households’ Decision to Save in Financial institutions

The first objective of this study was to analyze the factors that determine a household decision to save in financial institutions rather than general savings behavior. There are several separate decisions that are made by a household. The household decides on whether or not to save in financial assets before deciding on the type of financial institution to save in. The household can save in formal financial institution, semi formal financial institutions, and informal financial institution or have a mix of several financial institutions at the same time. Once the financial institution is chosen, a household makes a decision on which financial instrument to acquire within that form of financial institution. The decision to save in a financial institution is affected by the characteristics of the financial institution and the household characteristics, which reflect both access and preferences of the household.

In the derivation of the theoretical model, the study borrowed from probability choice models used in Kiiiza and Pederson (2002), Rogg, (2000), Carpenter and Jensen, (2002), Bendig, et al., (2008), Boring, (2010) with some modifications informed by the general utility theory. It is assumed that a household is faced by information asymmetry and a variety of financial institutions when making a decision on where to save. The utility function of the household is expressed as:

\[ U_{ij} = U_{ij}(F_{ij}, H_{ij}) \]
Where:

\( U_{ij} \) = utility that household \( i \) would derive if it saves in financial institution \( j \),

\( F_{ij} \) = vector of observable characteristics of financial institution \( j \) as observed by household \( i \)

\( H_{ij} \) = vector of characteristics of the household \( i \) which intends to save in financial institution \( j \).

If the vector of financial institution characteristics \( F_{ij} \) and the vector of household characteristics \( H_{ij} \) are combined and represented by \( X_{ij} \), equation 3.1 can be rewritten as:

\[ U_{ij} = U_{ij}(X_{ij}) \]

The equation 3.2 can be specified as:

\[ U_{ij} = X_{ij} \beta + \epsilon_i \]

Where: \( \beta \) is a vector of coefficients to be estimated and represent the utility weights that a household attaches to household characteristics and the financial institution providing the financial services, \( \epsilon_i \) represents the random error term which was assumed to be independently and identically distributed.

The household’s decision to save in a financial institution is assumed to be dependent on its assessment of the marginal costs and benefits which are associated with the use and non-use of that financial institution. However, due to information asymmetry, the marginal cost and benefits are not observable hence the household’s decision to save is unobservable.
To estimate factors affecting decision to save logistic distribution was assumed. The logistic model was preferred to a multinomial model due to existence of cases whereby households were saving in several financial institutions simultaneously. A household was assumed to make two choices, to save or not to save in a financial institution. For a household $i$, $U_{ij}$ was the utility derived from saving in each of the available financial institutions, where $j=1,\ldots,3$.

For household $i$, let the utility of choosing financial institution $j$ (option 1) be denoted by $U_{ij}$ and the utility of not choosing financial institution $j$ (option 2) be denoted by $U_{ij}'$.

\begin{align*}
U_{ij} &= X_{ij}' \beta + \varepsilon_i - \ldots \ldots - 3.4 \\
U_{ij}' &= X_{ij}' \beta' + \varepsilon_i' - \ldots \ldots - 3.5
\end{align*}

Where $X_{ij}$ is a vector of characteristics and $\beta$ and $\beta'$ are vectors of parameters.

The utilities $U_{ij}$ and $U_{ij}'$ are random variables and the $i^{th}$ head of household would choose option 1 if $U_{ij}>U_{ij}'$. This is given in equation 3.6 as:

\[(X_{ij}' \beta + \varepsilon_i) > (X_{ij}' \beta' + \varepsilon_i') - \ldots \ldots - (3.6)\]

By rearranging the function and letting $\beta$ be equal to $(\beta - \beta')$, equation 3.6 can be rewritten as equation 3.7

\[\varepsilon_i' - \varepsilon_i < X_{ij}' \beta - \ldots \ldots - (3.7)\]
The random terms $\varepsilon_i$ and $\varepsilon_i'$ are independently and identically distributed and are drawn from a log-weibull distribution. The probability $\Pi_1$ that the head of household would choose option 1 was given by a cumulative density of the difference $(\varepsilon_i' - \varepsilon_i)$ to the point $X_i \beta$. The cumulative density function of the difference $(\varepsilon_i' - \varepsilon_i)$ follows a logistic distribution given by a logistic function

$$
\Pi_1 = \frac{\exp\{X_i' \beta\}}{[1 + \exp\{X_i' \beta\}]} - 3.8
$$

This logistic function was estimated using maximum likelihood method (to ensure heteroscedasticity inherent in the model is solved). The likelihood function (L) corresponding with equation 3.8 is given in equation 3.9 as:

$$
L = \ln \left( \frac{\Pi_i}{1 - \Pi_i} \right) = \left( \frac{e^{X_i' \beta}}{1 + e^{X_i' \beta}} \right) \div \left( 1 - \frac{e^{X_i' \beta}}{1 + e^{X_i' \beta}} \right) = \ln \left( e^{X_i' \beta} \right) = X_i \beta - 3.9
$$

The objective of the household is to maximize the likelihood function with respect to the vector $\beta$. In equation (3.9), $i$ denotes the household heads that choose the specified saving mechanism. The variable $X$ is a row vector of characteristics of the head of the household who makes the choice and the characteristics of financial institution that is being chosen. $\beta$ is a column vector of coefficients denoting how the odds log ratio changes when the respective characteristic changes by one unit (Greene, 2003). The odds ratio were converted into marginal effects to get the effect of change of each independent variable on the probability of saving in a financial institution,
3.3.2 Model Specification for Decision to Save in Financial Institution

The empirical model in this study was developed in the theoretical framework. The variables affecting the decision to save in a financial institution was identified from reviewed literature. The logit function that was estimated in this study was presented in equation 3.9 and was given by the likelihood function \( L \), where:

\[
L = X_i'\beta + \epsilon_i - 3.10
\]

More specifically, the function that was estimated was given as:

\[
L = \beta_0 + \beta_1\text{Creditavail (FFI)} + \beta_2\text{Creditavail (SFFIS)} + \beta_3\text{Creditavail (IFI)} + \beta_4\text{Rateretu(FFI)} + \beta_5\text{Rateretu(SFFIS)} + \beta_6\text{LocatHh} + \beta_7\text{AgeHh} + \beta_8\text{AgeHhsquared} + \beta_9\text{Formeduct} + \beta_{10}\text{LevInform(FI)} + \beta_{11}\text{BankDens} + \beta_{12}\text{BankDenslocaHH} + \beta_{13}\text{SectEmploy} + \beta_{14}\text{TransaTime} + \beta_{15}\text{TransaCost} + \beta_{16}\text{Expect} + \beta_{17}\text{Incom} + \beta_{18}\text{Sex} + \beta_{19}\text{Hhsize} + \epsilon_i - 3.11
\]

3.3.3 Definition, Measurement of Variables and Working Hypothesis

Credit availability from formal financial institution (CreditAvail(FFI)):

was a dummy given as one (1) if household had been given a loan by the financial institution and zero (0) otherwise. If credit was available to a household from a formal financial institution, it was expected to have a higher probability of saving in FFI and lower probability of saving in SFFIs and IFIs.
Credit availability from semi-formal financial institution

(CreditAvail(SFFI)): was a dummy given as one (1) if household had been given a loan by a semi-formal financial institution and zero (0) otherwise. If credit was available to a household from a semi-formal financial institution, it was expected to have a higher probability of saving in SFFI and lower probability of saving in FFIs and IFIs.

Credit availability from informal financial institution (CreditAvail(IFI)): was a dummy given as one (1) if household had been given a loan by an informal financial institution and zero (0) otherwise. If credit was available to a household from an informal financial institution, it was expected to have a higher probability of saving in IFI and lower probability of saving in FFIs and SFFIs.

Perception on rate of interest on savings in formal financial institutions

(RateRetuFFI): was a dummy given as one (1) if perceived to be high and zero (0) otherwise. If a household perception that rate of interest on savings in formal financial institution was high it was expected to have a higher probability of saving in formal financial institutions and a lower probability of saving in SFFIs and IFIs.

Perception on rate of interest on savings in semi-formal financial institutions (RateRetuSFFI): was a dummy given as one (1) if perceived to be high and zero (0) otherwise. If a household perception that rate of interest on savings in semi-formal financial institution was high it was expected to have a higher probability of saving in semi-
formal financial institutions and a lower probability of saving in FFIs and IFIs.

*The location of the household, rural or urban (LocatHH):* was a dummy given as one (1) if urban and zero (0) otherwise. The households residing in urban areas were expected to have a higher probability of saving in a FFIs and SFFIs as compared to those in rural areas and a lower probability of saving in IFIs.

*Age of the head of the household (AgeHh:)* was measured in number of years from birth. Young people were expected to have more knowledge on formal financial institutions than older people. As age increased, the probability of saving in FFIs and SFFIs was expected to decrease while the probability of saving in IFIs was expected to increase.

*Age-squared was included to measure the lifecycle effects (AgeHhsquared):* The coefficient of age squared was expected to be negative in the FFI, SFFIS and IFI equations in that as people grow older they continue to save up to a particular point, then savings start to decline due to reduced incomes after retirement, hence the probability of saving also would decline after a certain age.

*The level of formal education of the head of the household (FormEduct):* was a dummy, which took the value 1 if head of household had an education level of secondary and above and 0 otherwise. Households
headed by people who had a secondary level of education and above, were expected to have a higher probability of saving in FFIs and SFFIs and a lower probability of saving in IFIs.

*Level of information about services offered by financial institutions (LevInformFI)*: was a dummy given as one (1) if household had a high level of financial information about financial institution and zero (0) otherwise. Those with high level of financial information on services offered by financial institution were expected to have a higher probability of saving in the financial institution.

*Bank density (BankDens)*: was represented by the number of bank branches in the district of residence. Increased number of bank branches was expected to increase the probability of saving in FFIs and SFFIs and decrease the probability of saving in IFIs.

*Interaction of bank density and location of household (BankDenslocaHH)*: was obtained by multiplying the bank density and the location of the household. The coefficient obtained helped to show the effect of increased bank density in urban areas.

*Sector of employment (SectEmploy)*: It was a dummy given as one (1) if formal sector and zero (0) otherwise. Those working in the formal sector were expected to have a higher probability of saving in a FFIs and SFFIs due to greater accessibility of formal mechanisms such as being paid through bank, the presence of pension schemes and
insurance investment products, and hence a lower probability of saving in IFIs.

Transaction time (TransaTime): was represented by the average time taken to get to the nearest bank branch from household residence in minutes. An increase in transaction time was expected to decrease the probability of saving in FFIs and increase the probability of saving in IFIs and SFFIs.

Transaction cost to bank branch (Transacost): was measured by the average transport cost to a bank branch. An increase in transport cost was expected to decrease the probability of saving in FFIs and increase the probability of saving in IFIs and SFFIs.

Expectation about future economic conditions (Expect): was a dummy given as one (1) if household was optimistic about future economic conditions and zero (0) otherwise. A household that was optimistic about future economic conditions was expected to have a higher probability of saving in FFIs and SFFIs and a lower probability of saving in IFIs.

Level of income (Incom): was measured by the current household expenditure per month in Kenya shillings. Increase in income was expected to increase the probability of saving in FFIs and SFFIs but decrease the probability of saving in IFIs.
Sex of head of the household (Sex): was a dummy given as one (1) if male and zero (0) otherwise. Male headed households were expected to have a higher probability of saving in FFIs and SFFIs due to higher access, and a lower probability of saving in IFIs.

Household size (HhSize): was measured by the number of people in a household. As the number of people in a household increased, the probability of saving in FFIs and SFFIs was expected to go down due to the dependency burden while probability of saving in IFIs was expected to increase.

3.3.4 Theoretical Framework for Household Financial Savings Function

This section presents a two-period life cycle saving model with portfolio allocation, which is developed based on studies by Hanna, Fan, and Chang (1995). The household’s total utility (TU) during period 1 and period 2 is defined as:

\[ TU_i = U(C_1) + \frac{U(C_2)}{(1 + \rho)} \] 3.12

Subject to:

\[ C_{1i} = (Y_{1i} - S_i) \] 3.13
\[ C_{2i} = [(1 + g_i)Y_{1i} + (1 + r_i)(A_i + S_i) - B_i] \] 3.14
\[ r_i = [r_f + a_i * E(r_m - r_f) + a_i * \sigma_m * X_i] \] 3.15

Where:

\[ TU_i \] = Total two – period utility for the ith household
\[ Y_{1i} \] = Real income of household i in period 1
\[ g_i = \text{Real income growth rate between period 1 and period 2} \]

\[ C_{1,i} = \text{Consumption in year 1} \]

\[ S_i = \text{amount of saving in period 1 (negative value means borrowing)} \]

\[ C_{2,i} = \text{Consumption in period 2} \]

\[ A_i = \text{Initial assets carried into period 1} \]

\[ B_i = \text{Proposed assets to be carried over to future periods} \]

\[ r_i = \text{Real interest rate, determined by a household’s portfolio allocation.} \]

\[ \rho_i = \text{personal discount factor} \]

\[ a_i = \text{proportion of wealth allocated by } i\text{th household into the} \]

\[ \text{portfolio of risky asset (which is a combination of all risky assets; stocks, bonds, real estate, etc.)} \]

\[ \sigma_m = \text{standard deviation of the returns on the portfolio of risky assets.} \]

\[ X_i = \text{a random standard normal variate.} \]

\[ r_m = \text{rate of return on risky asset (rate of return on market portfolio).} \]

\[ r_f = \text{the rate of return on the risk free asset} \]

(Treasury – bills are usually used as a proxy).

If the utility function is specified as exhibiting constant relative risk aversion, the optimal saving level for the \( i\text{th household} \) can be obtained through substituting equation (2), (3), and (4) into equation (1) and taking the first order derivative with respect to \( S \). Since \( r_i \) is a function of \( a_i, r_m, r_f, \) and \( \sigma_m \), the optimal level of saving \( (S_i) \), is also a function of \( a_i, r_m, r_f, \) and \( \sigma_m \) ((holding \( g, X, B, A \) and \( Y \) constant). Optimal savings function is given as:
The optimal saving level \( S_i \) could also be obtained by optimizing with respect to \( a_i \), the optimal proportion of the portfolio invested in risky assets. This would give:

\[
ai = \frac{E(r_m - r_f)}{\sigma_m^2 * X_i}
\]

The equations 1 to 6 show the optimal saving-consumption and portfolio allocation levels when the household was assumed to have a constant relative risk aversion.

A constant relative risk aversion utility function was used in the utility maximization framework. The market rate of return is assumed to follow a normal distribution, and consumers are assumed not to be constrained on how much to borrow and when they want to borrow. Other factors that might relate to saving decisions are ignored in this theoretical model; however, they are included in the empirical model specification.

### 3.3.5 Model Specification for Households’ Financial Savings Function

Household savings are affected by the ability of households to save, the willingness to save and the opportunities available. The empirical model is formulated based on the theoretical framework and the literature reviewed. From the theoretical model in equation 3.15, savings function can be specified as:

\[
S_k = \frac{\left[ \frac{(1 + r_i)}{(1 + \rho_i)} \right]^{\frac{1}{X_i}} - (1 + g_i)Y_i + B_i - A_i(1 + r_i)}{\left[ \frac{(1 + r_i)}{(1 + \rho_i)} \right]^{\frac{1}{X_i}} + (1 + r_i)}
\]
\[ S_i = \alpha_0 + \sum_{m=1}^{M} \alpha_m X_{mi} + \varepsilon_i \]

Where:

\( M \) is the number of variables, \( \alpha_m \) is a vector of \( M \) coefficients for \( M \) independent variables, \( X_{mi} \) is variable \( m \) for the \( ith \) household. It represents the demographic variables, household economic variables and financial institutional characteristics and \( \varepsilon_i \) is the stochastic term.

The study estimated the households’ savings function using a total of fifteen independent variables. The estimated function was given as:

\[
HS = \alpha_0 + \alpha_1 Incom + \alpha_2 sex + \alpha_3 Hhsise + \alpha_4 Age + \alpha_5 Age^2 + \\
\alpha_6 PercIntrFFI + \alpha_7 PercIntrSFFI + \alpha_8 Bankdens + \\
\alpha_9 BankdensLocaHh + \alpha_{10} Formeduct + \alpha_{11} LoanRpmt + \\
\alpha_{12} EdctExpendit + \alpha_{13} Sectempl + \alpha_{14} LocaHh + \\
\alpha_{15} MainSevprov + \varepsilon_i
\]

3.3.6 Definition, Measurement of Variables and Working Hypothesis

Household Savings (HS): Household savings measured as level of reported household savings per month in Kenya shillings.

Level of household income (Incom): Measured by the level of reported household expenditure in Kenya shillings per month. Higher household income was expected to increase the level of household savings.
Sex of the head of household (Sex): This was a dummy and took the value of 1 if head of household was male and zero otherwise. Households headed by male were expected to save more than those headed by females.

Household Size (HhSize): measured by the number of people in the household.
If a household had higher number of people, it was expected to save less and vice versa.

Age of household head (age): the number of years from birth of the head of the household. As the age of the head of the household increased, the level of household savings was expected to decrease consistent with the life cycle hypothesis.

Age squared (Age\(^2\)): was the age of the head of the household in years squared. This helped to capture the life cycle effects. The coefficient of age squared was expected to be positive.

Perceptions concerning the rate of interest on savings (PercintrFFI): This was the perception about the rates of interest paid on savings by FFIs. It was a dummy that took the value of 1 if rate was perceived as being high and zero otherwise. Households who perceived the interest rate on savings to be high were expected to save more compared to those who perceived it as being low.

Perceptions concerning the rate of interest on savings (PercintrSFFI): This was the perception about the rates of interest paid on savings by SFFIs. It was a dummy that took the value of 1 if rate was perceived as high and
zero otherwise. Households who perceived the interest to be high were expected to save more compared to those who perceived it be low.

Bank density (Bankdens): was measured by the number of bank branches in the district of residence. Households living in districts that had more bank branches were expected to save more compared to those living in districts that had lower number of bank branches.

Interaction of bank density and location of household (BankdensLocaHH): The variable bank density and location dummy were interacted. This helped to estimate the effect of increased bank density in urban areas.

The level of education (Formeduct): This was a dummy variable that took a value of 1 if education level of head of household was secondary and above and 0 otherwise. Households with heads who had completed secondary education and above were expected to have higher level of savings.

Amount of loan repayment per month (loanrpmt): This was the reported amount in Kenya shillings that the household was repaying for loans earlier acquired per month. Households with higher loan repayments were expected to save less.

Level of expenditure on education (EdctExpendit): measured by the reported household expenditure in Kenya shillings on education per month. Households with higher level of education expenditure were expected to save less.

Sector of employment (SectEmploy): This was the sector where the household was acquiring most of its income. It was a dummy given as one (1) if
formal sector and zero (0) otherwise. Those working in formal sector were expected to have a higher level of saving.

*Location of the household (LocatHH):* was a dummy given as one (1) if urban and zero (0) otherwise. The households residing in urban areas were expected to have lower level of saving due to higher household expenditures per month.

*Main financial service provider (MainSevprov):* This was a dummy that took the value of 1 if IFIs and zero otherwise, 1 if SFFIs and zero otherwise, and 1 if FFIs and zero otherwise. The base group was those who were not using any recognised financial institution. Households whose main service provider was SFFIs and FFIs were expected to save more than those whose main service provider was IFIs.

### 3.4 Data Types and Sources

Secondary data that was previously collected in a national wide household survey in Kenya in 1999 was used in the study. The principal researchers were Central Bank of Kenya and Financial Sector Deepening, Kenya whose findings were reported in FINACCESS national survey, 2009 (FinAccess, 2009). The objectives of the FinAccess financial services survey were to provide information to policymakers on barriers to financial access, provide information to private sector on market opportunities, provide a solid empirical basis for tracking progress in financial services access and provide data for use in academic research. Cluster stratified probability sampling was used in the selection of the regions and the households that were included in
the survey. A sample of 6,598 representative households was used in the survey.

The survey utilized a detailed questionnaire to gather information on financial access. The survey gathered information on access to financial institutions, savings, credit, remittances, insurance and risk, use of technology, financial literacy and financial access among the youth. The relevant data that was utilized in this study was household demographics, income and expenditure, access to financial institutions, savings, insurance and financial literacy.

3.5 Data Entry and Cleaning

This study used data contained in FINACCESS National survey, 2009. The data had been collected to fulfill several objectives that were not identical to the current study. The data was therefore filtered first to gather the relevant information for the current study. Relevant questions in the questionnaire that were used to collect data on specified variables in this study were identified and then the data on specific variables included in this study was sorted.

3.6 Data Analysis

The data was analyzed in several steps. First, descriptive statistics for the variables in the study were computed. Second, diagnostic checks and tests were done to test for statistical problems inherent in the cross-sectional data. Third, regression analyses were conducted using three separate logistic functions to identify factors affecting decision to save in FFIs, SFFIS and IFIs. An additional regression was also conducted using the households’ savings
level as the dependent variable to identify the factors that affect level of savings in a household. Existing correlations between the savings in the three financial institutions were identified using pair wise correlation analysis in order to achieve the third objective. Finally, percentages were used to show relative importance of the various hindrances to opening of bank accounts among households. Findings were interpreted accordingly.
CHAPTER FOUR

EMPIRICAL FINDINGS AND DISCUSSIONS

4.1 Introduction

In this chapter, the empirical findings from both descriptive and regression analyses are presented. To understand the landscape of households included in the study, summary statistics on household characteristics are presented in the first part of this chapter. The first objective of the study was to identify the factors that affect the decision to save in a financial institution. The financial institutions were divided into three categories, formal financial institutions (FFIs), semi-formal financial institutions (SFFIs) and informal financial institutions (IFIs). To fulfill this first objective three separate regression equations were estimated using a logit model. The regression results are presented in the second section of this chapter. The second objective was to estimate the households’ financial savings function. To achieve this objective, regression was conducted using weighted least squares method with level of household financial savings as the dependent variable. The third objective of the study was to identify existing correlations between savings in the three types of financial institutions which was done through correlation analysis. Finally, to achieve the fourth objective, the last section discusses major hindrances to savings in banks.
4.2 Descriptive statistics

To understand the landscape of the households included in the study, descriptive statistics for the variables were obtained. This included percentages for those variables that were qualitative in nature and means, standard deviation, range, mode and median for the variables that were quantitative. The first part in this section discusses the qualitative variables, and later the summary statistics for the quantitative variables are presented.

The study used a total of 6598 households that were drawn from all over Kenya consisting of 71 percent from rural areas and 29 percent drawn from urban areas. Among the households included in the study, 76.3 percent were headed by males while the rest were headed by females. Of the 6598 households, 76 percent derived their earning from the informal sector while 24 percent from formal sector implying that the informal sector has continued to play a significant role in employment creation in Kenya.

Among the households included in the study 25 percent had some form of financial saving in FFIs, 13 percent in SFFIs and 40 percent in IFIs and 34 percent in non-institutionalized forms (with family, secret places). These findings echo statistics presented in a conference by Mas, (2009) that only about one-quarter of households in developing countries have any form of financial savings with formal banking institutions. A study by Aryeetey and Udry, (2000) found that there are a lot of savings in developing countries that are not channeled to formal financial institutions for onward lending to
investors. Majority of the economic activities in developing countries, Kenya included, are in small scale enterprises whose demand for financial services is unique and outside the coverage of commercial banks (Aryeetey, 1995). This could explain the low use of FFIs and high use of IFIs in Kenya.

Among all the households included in the study, 14.8 percent had acquired loans from IFIs, compared to only 5 and 4.8 percent who had acquired a loan from SFFIs and FFIs respectively. This shows that the main source of credit among households was the IFIs which could also explain their high use as a saving mechanism. Of the 6598 households, 76.7 percent and 83 percent did not perceive the rate of interest on savings in FFIs and SFFIs respectively as low. This can imply that the low participation in saving in FFIs and SFFIs was not due to low returns to savings but could be due to other factors.

Most households had a lot of financial information regarding IFIs and less about SFFISs and FFIs as reflected by the fact that 84 percent, 53 percent and 41 percent had a high level of financial information on IFIs, SFFISs and FFIs respectively. Majority of Kenyans are not well informed on FFIs and SFFIs and this could be limiting the level of savings generated in them.

The summary statistics of the quantitative variables is presented in table 4.1 while more detailed descriptive statistics are presented in appendix 1.
Table 4.1: Summary Statistics for quantitative variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of head of household in years</td>
<td>45.76</td>
<td>13.56</td>
</tr>
<tr>
<td>Level of formal Education in years</td>
<td>7.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Number of Bank Branches in district of residence</td>
<td>54.00</td>
<td>111.00</td>
</tr>
<tr>
<td>Transaction time in minutes</td>
<td>21.55</td>
<td>28.00</td>
</tr>
<tr>
<td>Transaction cost to branch in Kshs.</td>
<td>42.90</td>
<td>62.70</td>
</tr>
<tr>
<td>Income level per month in Kshs.</td>
<td>14,250.00</td>
<td>30,670.00</td>
</tr>
<tr>
<td>Level of saving per month in Kshs.</td>
<td>2,570.00</td>
<td>15,370.00</td>
</tr>
<tr>
<td>Number of people in a household</td>
<td>5.00</td>
<td>3.00</td>
</tr>
</tbody>
</table>

The average age of head of household was 45.76 years with a standard deviation of 13.56 years showing that majority of them were still in the economically active age. This shows that potential for household saving mobilization in Kenya is high, because majority of the heads of households are in the middle age, where, according to the life cycle hypothesis, savings are positive (Ando and Modigliani, 1963; Modigliani and Brumberg, 1954). The average number of years of formal education was 7 years, or primary education with a standard deviation of 5 years. The mean number of bank branches in each district of residence was 54 with a standard deviation of 111. Bank density was highly skewed with majority of the branches of major banks located in urban areas especially in the big towns as shown in appendix 2. The average transaction time measured in time taken to get to a branch of a bank
was 22 minutes. Of the 6598 households, the average monthly income per household was Kshs. 14,250 with a standard deviation of Kshs.30669.

The mean monthly savings per household was Kshs.2566 with a standard deviation of Kshs.15367. The average propensity to save was 18 percent. Household income and expenditure data is usually skewed due to the large income disparities amongst the population. This explains the high standard deviations.

The summary statistics were further classified to reflect the differences inherent in use of the three forms of financial institutions. Table 4.2 shows the summary statistics as per use of the three formal financial institutions.

**Table 4.2 Comparison of Means of Quantitative Independent Variables across Use of Different Financial Institutions**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FFIs</td>
</tr>
<tr>
<td>Age of head of household in years</td>
<td>43.24</td>
</tr>
<tr>
<td>Level of formal Education in years</td>
<td>11.00</td>
</tr>
<tr>
<td>No. of bank Branches in district</td>
<td>105.00</td>
</tr>
<tr>
<td>Transaction time in minutes</td>
<td>10.58</td>
</tr>
<tr>
<td>Transaction Cost( Kshs)</td>
<td>77.44</td>
</tr>
<tr>
<td>Savings per month in Kshs.</td>
<td>5940.00</td>
</tr>
<tr>
<td>Number of people in a household</td>
<td>4.00</td>
</tr>
<tr>
<td>Income per month in Kshs.</td>
<td>31,118.00</td>
</tr>
</tbody>
</table>
The age of head of household among those who were saving in FFIs was lower than for those who were saving in SFFIs and IFIs. Access to financial information about SACCOs and MFIs normally increases as one grows older, hence increasing accessibility to SFFIs. Those who were saving in FFIs had a higher level of education compared to those who were saving in SFFIs and IFIs. It is interesting to note that households who were saving in FFIs used more time to nearest bank (higher transaction time) than those who were saving in IFIs, but was less compared to those saving in SFFIs. If a client needs a lot of time to get to the bank, it can act as a hindrance to frequent withdrawals, which in a way can encourage savings. Low physical accessibility to banks and other formal financial institutions can boost savings in SFFIs as reflected by the lower bank density and higher average transaction time to nearest bank branch among those who were saving in SFFIs. This shows a substitutability nature of savings in SFFIs and FFIs.

The level of savings per month in households that were saving in FFIs was higher compared to savings level in households who were saving in SFFIs and IFIs. The study confirms findings in Robinson, (1994) that higher household savings are available to financial institutions that offer financial security. A large household size can deter savings in FFIs as reflected by the higher household size among those who were not saving in FFIs.

Savings in FFIs are boosted by increased incomes as shown by higher average monthly income in households who were saving in FFIs compared to those who were saving in SFFIs and IFIs. IFIs are believed to serve the low income
earners. The relatively limited access to institutional saving opportunities and incentives among low income households leads to low saving levels mainly kept in the IFIs (Beverly, 1997). This confirms findings by Robinson, (1994) that as household income increase; a household saves in a financial institution with more financial security, hence graduate to formal sector with greater income. Further, higher income can increase the demand for other financial services offered by banks, such as check off payment systems hence need for formal saving mechanisms.

4.3 Decision to Save in a Financial Institution

The first objective of this study was to identify factors affecting a household’s decision to save in various forms of financial institutions. Financial institutions were divided into three: Formal, semi formal and informal financial institutions. A separate logistic model on decision to save in each type of financial institution was estimated. The dependent variable was the decision to save in a financial institution.

4.3.1 Household’s Saving Decision in Formal Financial Institutions

Savings in formal financial institutions included savings in bank, insurance and in building societies. Overall the logistic model of the decision to save in FFIs explained 41.38 percent of the variations in the probability to save in FFIs. A total of 5696 observations were included. The results of logistic regression equation of decision to save in FFIs are presented in table 4.3.
Table 4.3: Marginal effects for Decision to save in Formal Financial Institutions

| Independent Variable                                      | Marginal Effect | P>|z| |
|-----------------------------------------------------------|----------------|-----|
| Credit Availability in FFIs                              | 0.586***       | 0.000 |
| Level of financial information about FFIs                | 0.250***       | 0.000 |
| Credit Availability in SFFIs                             | 0.192***       | 0.000 |
| Location of household                                    | 0.154***       | 0.000 |
| Credit Availability in IFIs                              | 0.148***       | 0.002 |
| Sector of employment                                     | 0.109***       | 0.000 |
| Expectations about future economic conditions            | 0.108***       | 0.000 |
| Level of formal education                                | 0.106***       | 0.000 |
| Perception on rate of interest paid on savings in SFFIs  | -0.088**       | 0.017 |
| Number of people in household                            | -0.022***      | 0.000 |
| Household level of income per month                      | 0.013***       | 0.000 |
| Bank density in district of residence                     | 0.004***       | 0.000 |
| Interaction of bank density and location of household    | -0.004***      | 0.000 |
| Transaction cost to nearest bank                         | 0.002***       | 0.000 |
| Transaction time to nearest bank                         | 0.001**        | 0.027 |
| Age of the head of household                             | 0.005          | 0.221 |
| Age of the head of household squared                     | -0.000         | 0.278 |
| Perception on rate of interest paid on savings in FFIs   | -0.036         | 0.387 |
| Gender of the head of household                          | 0.012          | 0.493 |

*** and ** imply coefficient significant at 1 and 5 percent levels respectively.

Pseudo $R^2 = 41.38$ percent, Number of observations = 5696
The availability of loans in all the three financial institutions; FFIs, SFFIs and IFIs was found to be crucial when households are making a decision to save in FFIs as reflected by their statistically significant coefficients all at 1 percent level. Households who had access to credit from FFIs, SFFIs and IFIs had a higher probability of 0.59, 0.19 and 0.15 respectively of saving in FFIs compared to those who had not accessed credit. The results from this study concur with earlier studies that the likelihood of saving in FFIs increase when access to credit increases because households shift from holding savings in cash and near liquid assets to acquiring deposit accounts in FFIs (Rogg, 2000). In addition, households will need to save more due to arrangements in financial institutions whereby the lender requires savings as a form of collateral (Kiiza and Pederson, 2002).

The coefficient of level of financial information about services offered by FFIs was significant at a 1 percent level in affecting the decision to save in FFIs. Households with high level of financial information about FFIs had a higher likelihood of saving in FFIs with a probability of 0.25 compared to those who had lower level of financial information. The findings concur with studies by Kiiza and Pederson (2002), Carpenter and Jensen (2002), Bendig et al., (2009) and Germidis et al., (1991) who found that increase in knowledge on working of financial institutions increased the likelihood of saving in FFIs.

The coefficient of the location of a household was statistically significant at 10 percent level. Household’s residing in urban areas had a higher probability of 0.154 of saving in FFIs compared to households in rural areas. The physical
accessibility of FFIs is higher in urban areas compared to rural areas hence the higher probability of use of FFIs in urban areas (Kiiza and Pederson, 2002). The findings of this study also concur with findings from a study in Vietnam which found out that possibilities of formal savings are generally low in rural areas (Newman et al., 2007). Lack of appropriate incentives and agencies inabilities to grant loans make them ineffective in mobilizing rural savings. Savings in the FFIs are low in rural areas due to low incomes and the fact that costs for rural savings mobilization in FFI outweigh benefits; hence some FFIS do not offer savings facilities to the rural population (Germidis et al., 1991).

The sector of employment was found to be crucial when households were making the decision to save in FFIs and had a statistically significant coefficient at 1 percent level. Households who were deriving their main earnings from the formal sector were found to have a higher probability of 0.11 of saving in FFIs compared to those deriving their earnings mainly from the informal sector. The study findings are similar to results from a study in Benin (Bendig et al., 2009) which found that being self employed reduced the probability of saving in a FFI. Those employed in the formal sector have higher chances of opening bank accounts especially because employers may require them to do so. There are also higher chances of increased target savings through several forms of commitment saving schemes or target savings such as the NSSF and other retirement benefit schemes which
facilitates their savings in the FFIs (Newman et al., 2007; Boring 2010). These opportunities are rare to those working in the informal sector.

An increased level of formal education was found to be positively contributing to savings in FFIs. The coefficient of formal education was statistically significant at 1 percent level. Households who had a formal education of above primary education had a higher probability of 0.11 of saving in FFIs compared to those who had a primary or below level of education. The study results are consistent with studies conducted in Philippines, Vietnam, Uganda, and Pakistan which found that education level had positive effects on the decision to save, borrow and invest in FFIs as it improves the literacy and numeracy levels that are crucial for use of FFIs services (Carpenter and Jensen, 2002; Kiiza and Pederson, 2002; Newman et al., 2007; Bendig et al., 2009; Boring, 2010; Ellis et al., 2010).

Expectations about future economic conditions was found to be crucial in determining decision to save in FFIs as indicated by its statistically significant coefficient at 1 percent level. Households that were optimistic about future economic conditions had a higher probability of 0.11 of saving in FFIs than those who were pessimistic. The findings can be explained by the fact that households who are optimistic about the future save to secure it while those pessimistic may feel no need to save for an uncertain future.

The coefficient of perception on level of rate of interest on savings in SFFIs was statistically significant at 5 percent level. A household that perceived the
interest on savings in SFFIs as high had a lower probability of 0.09 of saving in FFIs cd to those who perceived the rates of interest to be low. The real rates of return on other investments reduce likelihood of acquiring saving deposit accounts in FFIs as households divert their savings (Kiiza and Pederson, 2002).

The number of people in a household was important in influencing the decision to save in FFIs with a statistically significant coefficient at 1 percent level. Increase in household size by 1 person reduced the probability of saving in FFIs by 0.02. When a household size increases, it raises the marginal propensity to consume; reduces the marginal propensity to save hence probability of saving in FFIs reduce. Larger households are more resource constrained hence reduces the probability of saving in FFIs (Newman et al., 2007). In addition a high dependency ratio acts as disincentive to domestic savings mobilization (Mwega, 1997; Nisanke and Aryeetey, 1998). A study using Indonesian data found that sustained growth in private savings in Indonesia was explained by reduction in dependency ratio (Mohan, 2006). The findings from this study contrast findings in Ghana (Bendig et al., 2009) which found that as household size increases, probability of saving in FFIs increases.

The level of income of a household was found to significantly contribute in the decision to save in FFIs. The coefficient of level of income was statistically significant at 1 percent level. An increase in a household’s income by Kshs. 10 increased the probability of saving in FFIs by 0.13. The
study findings concur with findings by Bendig, *et al.*, (2009), Kibet, *et al.*, (2009), Deshpande, (2006), Newman, *et al.*, (2007) and Carpenter and Jensen, (2002) who found that as income levels go up, probability of saving in FFIs increase. The findings from this study support literature that the organized money market caters for the financial requirements of middle and upper income earners (Todaro and Smith, 2005). Increased economic growth; hence higher incomes can help to improve use of FFIs as savings mechanisms.

The coefficient of the number of banks in a district of residence was statistically significant at a 1 percent level. An increase in bank density in district by 1 branch increased the probability of saving in FFIs by 0.004. Higher accessibility of banks increases the number of households who are willing to save in them. The interaction of the variable bank density and location of household, the coefficient was shown to be negative and was statistically significant. Physical accessibility of banks in urban areas was shown to have a negative effect of probability of saving in FFIs. This could be explained by the fact that as banks become more accessible, there may be no hindrance to withdrawals. Hence, households reduce the use of FFIs as saving mechanism.

The coefficients of transaction cost and transaction time to nearest branch of a bank were found to be statistically significant when making a decision to save in FFIs at 1 percent and 5 percent level. According to the results, an increase in transaction cost by Kshs.10 increased the probability of saving in a FFIs by
0.02, while an increase in transaction time to nearest bank branch by 10 minutes increased the probability of saving in a FFIs by 0.01.

The findings are supported by views of several authors of financial literature who note that households save in FFIs as a means of achieving long-term household objectives. They like to limit their withdrawals until they reach a specific goal; therefore they prefer financial services that allow for frequent deposits and infrequent withdrawals (Deshpande, 2006; Ashraf et al., 2005). The time taken to get to nearest bank branch could therefore act as a hindrance to withdrawal and hence facilitate savings. The findings from this study contradicts findings by Kiiza and Pederson (2002) who found that increase in transaction time reduced the probability of saving in FFIs.

The coefficient of perception on level of rate of interest paid on savings in FFIs was positive though it was not statistically significant at 10 percent level. The insensitivity of savings to interest rates in FFIs has been confirmed by another study that noted that households do not necessarily save in banks to earn interest income rather they do it to secure their savings and to ensure they accumulate enough to finance their own investments in the future (Kibet et al., 2009). In addition some households are ready to pay a commission in order to save hence rate of interest on savings in FFIs may not play a significant role in the decision to save in FFIs.

When making the decision to save in FFIs, age of the head of the household was found to have a positive coefficient though it was not statistically
significant at 10 percent level. There was no statistically significant difference in decision to save among households at different age groups. This may be explained by the low standard deviation of age whereby almost all the heads of households were in the economically active age-group (17-67 years). It is worth noting that although the variable age was not statistically significant as age increase, probability of saving in FFIs also increases but at a decreasing rate as reflected by the negative age-squared (age^2) coefficient. This is in tandem with the lifecycle hypothesis that as one gets to the retirement age; he/she starts to de-save (Ando and Modigliani, 1963; Modigliani and Brumberg, 1954).

The sex of head of the household was not found to influence the decision to save in FFIs as implied by its statistically insignificant coefficient at 10 percent level. This indicates that sex of the household was not a limitation to use of FFIs as a savings mechanism.

4.3.2 Household’s Saving Decision in Semi-Formal Financial Institutions

Semi-formal financial institutions included the SACCOs and MFIs. The estimated results from the estimated logistic model of decision to save in SFFIs are presented in table 4.4. The model was estimated using a total of 5696 observations. Overall the model explained 41.25 percent of the variations in the probability of saving in SFFIs. There were a total of 10 statistically significant coefficients in the SFFIS regression equation.
Table 4.4: Marginal effects on Decision to save in Semi-Formal Financial Institutions

| Independent Variables                                      | Marginal Effect | P>|z| |
|-----------------------------------------------------------|-----------------|-----|
| Credit Availability in SFFIs                             | 0.848***        | 0.000 |
| Level of financial information about SFFIs               | 0.169***        | 0.000 |
| Credit Availability in FFIs                              | 0.030*          | 0.062 |
| Location of household                                   | -0.019**        | 0.020 |
| Number of people in household                            | -0.006***       | 0.000 |
| Age of the head of household                             | 0.003**         | 0.032 |
| Age of the head of household squared                     | -0.000          | 0.186 |
| Household level of income per month                      | 0.002**         | 0.021 |
| Transaction cost to nearest bank                         | 0.002***        | 0.000 |
| Bank density in district of residence                     | 0.001***        | 0.006 |
| Interaction of bank density and location of household    | -0.001***       | 0.003 |
| Expectations about future economic conditions            | 0.014           | 0.212 |
| Transaction time to nearest bank                         | 0.000           | 0.306 |
| Perception on rate of interest paid on savings in FFIs   | 0.013           | 0.320 |
| Sector of employment                                     | 0.005           | 0.374 |
| Perception on rate of interest paid on savings in SFFIs  | -0.011          | 0.421 |
| Level of formal education                                | 0.004           | 0.477 |
| Credit Availability in IFIs                              | 0.010           | 0.515 |
| Gender of the head of household                           | -0.003          | 0.658 |

***Coefficient was significant at 1 percent level, ** and * Coefficients were significant at 5 and 10 percent levels respectively

Pseudo $R^2 = 41.25$ percent, Number of Observations = 5696
The availability of loans in FFIs and SFFIs were significant variables in influencing the decision to save in SFFI as reflected by their coefficients which were statistically significant at 5 percent and 1 percent levels respectively. Households who had access to loans from FFIs and SFFIs were found to have a greater probability of 0.03 and 0.85 respectively of saving in SFFIs as compared to those who did not. Loans given in SACCOs and MFIs are usually secured by savings of the loan seeker and also by other group members’ savings. In addition the SFFIs hold the client’s savings as long as the client has a loan with them hence these savings cannot be withdrawn (Helms, 2006). This explains the high marginal effect of credit availability in SFFIs of 0.85 on the decision to save in SFFIs.

The level of financial information about SSFIs was a crucial variable in affecting decision to save in SFFIs as indicated by its coefficient which was statistically significant at 1 percent level. Households with higher level of financial information on SFFIs had a greater probability of 0.17 of saving in SFFIS than those who had lower financial information about them. The findings concur with a study conducted in Uganda which found that as financial information regarding a financial institution increase probability of saving in that financial institution also increase (Kiiza and Pederson, 2002). Efforts to improve informational accessibility about SFFIs can go a long way to increasing their use as savings mechanisms.

The place of residence of a household was significant in affecting decision to save in SFFIs as shown by the statistically significant coefficient of the
location of the household at 5 percent level. Households residing in urban areas had a lower probability of 0.02 of saving in SFFIs as compared to those in rural areas. SACCOs and MFIs are more prevalent in rural areas especially in the form of producer cooperative societies and MFIs coordinated by Non Governmental Organizations (Boring, 2010). SFFIs are important vehicles for reaching out to the rural economy where most women in Kenya are found (Ndungu, 2010).

The size of a household was found to be significant in determining the decision to save in SFFIs as shown by the coefficient of household size which was statistically significant at 1 percent level. An increase in size of household by 1 person reduced the probability of saving in SFFIs by 0.01. An increase in dependency burden lowers the marginal propensity to save, hence probability of saving in SFFIs (Mwega, 1997; Nissanke and Aryeetey, 1998).

The level of income of a household was an important variable in influencing the decision to save in SFFIs with a statistically significant coefficient at 5 percent level. An increase in the income of the household by Kshs. 100 increased the probability of saving in SFFIs by 0.20.

The transaction cost to a bank was found to be important in influencing the decision to save in SFFIs with a statistically significant coefficient at a 1 percent level. An increase in transaction cost by to a bank branch by Kshs. 10 increased the probability of saving in SFFIs by 0.02. When transaction cost to banks increases, physical accessibility of FFIs is reduced hence households look for alternatives that are nearer to them which may come in the form of
SFFIs. According to a study conducted in Kenya, most FFIs do not serve the poor because of high transaction cost and information cost (Mutua and Oyugi, 2006). The scarcity of financial services has seen the emergence of SFFIs pointing to a substitutability nature of savings in SFFIs and FFIs.

The age of the head of the household was crucial in affecting decision to save in SFFIs. The coefficient of age was found to be statistically significant at 5 percent level but coefficient of age-squared was not significant. An increase in the age of the head of the household by 1 year increased the probability of saving in SFFIs by 0.003. Majority of the heads of households were in their middle years as reflected by the mean age of 45 years. According to the life cycle hypothesis, this is the age where consumption is lower than income as the households repay earlier acquired debts and save for old age or to secure their children’s future (Ando and Modigliani, 1963; Modigliani and Brumberg, 1954).

To test the life cycle effects, the age was squared and the resultant coefficient of age squared was found to be statistically insignificant though it was negative showing that the probability of saving in a SFFIS increases as age increases but at a decreasing rate. The study supports findings by an earlier study in Nakuru, Kenya that noted that as age continuously increase; savings in financial institutions decrease (Kibet et al., 2009).

High bank density was found to positively contribute to decision to save in SFFIs as shown by the positive coefficient of bank density which was statistically significant at 1 percent level. An increase in the number of bank
branches in a district of residence by 1 increased the probability of saving in SFFIs by 0.001. This indicates that physical accessibility of FFIs increases attraction of SFFIs to potential savers. When the coefficient of bank density was interacted by the coefficient of the location of household, the coefficient was found to be negative and was statistically significant at 1 percent level. Increase in the bank density in urban areas by 1 bank branch reduced the probability of a household saving in SFFIs by a probability of 0.001.

There was no difference in the probability of saving in SFFIs between heads of household with primary level of education and below and those with above primary levels of formal education as reflected by the statistically insignificant coefficient of level of formal education. The study concurs with earlier studies that education has positive and effects on decision to save in SFFIs and also other types of financial institutions (Carpenter and Jensen, 2002).

A household’s main source of earning was not crucial in determining the decision to save in SFFIs as supported by the statistically insignificant coefficient of the sector of employment. This could be explained by the fact that the SACCOs and MFIs that make up the SFFIs are very diverse in nature. Some are formed by those working in the formal sector and others by those in informal sector. At the same time, due to the dual nature of the Kenyan labour market, SACCOs have become more informal and flexible opening up their membership to people outside their original setups.

An expectation about future economic conditions was not found to significantly influence the decision to save in SFFIs. As noted earlier,
households are attracted to save in SFFIs due to opportunities of greater access to loans. This can override any negative or positive effects of expectations of future economic conditions. The sex of head of household was not statistically significant in determining decision to save in SFFIs. SFFIs are open to all irrespective of sex hence both males and females are free to access them. The coefficient of credit availability from IFIs was not statistically significant.

The perception about the rate of interest on savings in FFIs and SFFIs were not found to be significant in affecting decision to save in SFFIs. Most households who save in SFFIs do not consider the rate of interest on their savings (Helms, 2006). The households may be more concerned with other facilities that come in when they save in SFFIs, more so the ability to access credit. SFFIs are very appealing to the users who want to safeguard their savings from trivial expenditure as they focus on achieving some long term financial goals. This may partly explain the insensitivity of perception about the rate of interest on savings on the decision to save in the SFFIs (Helms, 2006).

4.3.3 Household’s saving Decision in Informal Financial Institutions

Savings in IFIs included savings with ASCAs, ROSCAs and other group savings. The estimated results from the logistic model of the decision to save in IFIs are presented in table 4.5.
Table 4.5: Marginal effects on Decision to save in Informal Financial Institutions

| Independent Variable                                      | Marginal Effect | P>|z| |
|-----------------------------------------------------------|-----------------|-----|
| Credit Availability in IFIs                              | 0.508***        | 0.000 |
| Level of financial information about IFIs                | 0.465***        | 0.000 |
| Credit Availability in SFFIs                             | 0.205***        | 0.000 |
| Sector of employment                                     | -0.071***       | 0.000 |
| Credit Availability in FFIs                              | 0.067**         | 0.047 |
| Gender of the head of household                          | -0.063***       | 0.000 |
| Level of financial information about FFIs                | -0.056***       | 0.002 |
| Number of people in household                            | 0.013***        | 0.000 |
| Age of the head of household                             | 0.010***        | 0.011 |
| Age of the head of household squared                     | -0.000***       | 0.001 |
| Bank density in district of residence                     | 0.003***        | 0.006 |
| Interaction of bank density and location of household    | -0.003***       | 0.004 |
| Transaction time to nearest bank                         | 0.002***        | 0.000 |
| Transaction cost to nearest bank                         | -0.001***       | 0.000 |
| Level of formal education                                | 0.016           | 0.360 |
| Perception on rate of interest paid on savings in FFI    | 0.035           | 0.408 |
| Household level of income per month                      | -0.001          | 0.615 |
| Expectations about future economic conditions            | 0.008           | 0.782 |
| Perception on rate of interest paid on savings in SFFI   | 0.007           | 0.842 |
| Level of financial information about SFFIs               | -0.004          | 0.822 |
| Location of household                                   | -0.004          | 0.861 |

***Coefficient is significant at 1 percent level, ** and * coefficients were significant at 5 and 10 percent level respectively

*Pseudo $R^2 = 12.23$ percent and Number of observations = 5696*
Availability of loans from IFIs was the most important variable in influencing saving decisions in IFIs with statistically significant coefficient at 1 percent level. Households who had access to loans from IFIs had a greater probability of 0.51 of saving in IFIs compared to those who had not accessed credit from IFIs. Wawire and Nafuko (2010) found that the survival of women groups, who are the majority in IFIs, rests on credit availability which creates opportunities for them to engage in income-generating activities.

Credit availability in SFFIs and in FFIs was also found to have significant effects on decision to save informally with statistically significant coefficients at 1 percent and 5 percent levels respectively. Households who had accessed credit in SFFIS and FFIs were found to have a higher probability of 0.21 and 0.7 respectively of saving in IFIs compared to those who had not accessed credit from them. When offering micro-credit, most microfinance organizations use the group based lending method, which requires an individual to be attached to an organized saving group. Given that some FFIs in Kenya also offer microfinance services, this can explain the positive effect of credit availability in both FFIs and SFFIs on decision to save in IFIs.

The level of financial information about IFIs was found to significantly influence the decision to save in IFIs and had a statistically significant coefficient at a 1 percent level. Households who were well informed about IFIs had a higher probability of 0.47 of saving in IFIs compared to those who were less informed. The level of financial information about FFIs had negative
effects on decision to save in IFIs with a statistically significant coefficient at 1 percent level. Households who were well informed about FFIs had a lower probability of 0.06 of saving in IFIs compared to those who were less informed on FFIs. As financial information regarding operations of FFIs increase, funds are diverted from the informal sector to the formal sector which helps in improving financial sector deepening (Carpenter and Jensen, 2002).

The sector of employment was found to significantly influence the decision to save in IFIs and had a coefficient which was statistically significant at 1 percent level. A household deriving its main income from the formal sector was found to have a lower probability of 0.07 of saving in IFIs compared to those in the informal sector. This can be partly explained by the fact that those working in formal sector got higher accessibility to banks, other formal saving mechanisms such as insurance through NHIF and NSSF and also organizational SACCOS, hence need to save in IFIs may be reduced.

The sex of the head of household was found to significantly influence the decision to save in IFIs and had a statistically significant coefficient at 1 percent level. Male headed households had a lower probability of 0.06 of saving in IFIs compared to female headed households. This could be explained by the fact that most IFIs especially ROSCAs and ASCAs are normally started by women and hence form the majority in IFIs (Helms, 2006; Wawire and Nafuko, 2010). Women have a greater informational and physical accessibility to IFIs compared to men. Attempts were made to identify if use
of IFIs among women varied with age, location and education by interacting
the variables. The results found no significant differences in probability to
save in IFIs among women across age, level of formal education or even the
location.

The age of the household head was found to be a significant factor in affecting
the decision to save in IFIs as indicated by the coefficient of age and age
squared which were statistically significant at 1 percent level. Increase in age
of head of household by 1 year increased the probability of saving in IFIs by
0.01 at a decreasing rate in tandem to the life cycle hypothesis (Ando and
Modigliani, 1963; Modigliani and Brumberg, 1954).

The size of the household was found to be a significant variable in influencing
the decision to save in IFIs with a statistically significant coefficient at 1
percent level. An increase in the size of household by 1 person increased the
probability of saving in IFIs by 0.010. Larger households are more resource
constrained, and to meet their financial needs they rely more on community
networks that may come in the form of IFIs (Newman, et al., 2006).

The level of formal education did not significantly affect the decision to save
in IFIs as shown by the statistically insignificant coefficients. There were no
statistically significant differences in the probability of saving in IFIs among
heads of household with different levels of formal education. Use of IFIs as
saving mechanisms is not enhanced or limited by the level of education.
The number of banks in the district of residence was significantly affected the
decision to save in IFIs with a statistically significant coefficient at 1 percent
level. Though the sign of the marginal effect was expected to be negative, an
increase in the number of bank branches in the district of residence by 1
increased the probability of saving in IFI by 0.003. After interaction of bank
density with location of household, it showed that as physical accessibility of
banks increase in urban areas, the probability of saving in IFIs decrease.
Further, the coefficient of transaction cost to a bank was statistically
significant and an increase in transaction cost to a bank by Kshs. 10 reduced
the probability of saving in IFIs by 0.01. Physical accessibility of banks
makes the IFIs less attractive to households as saving mechanisms.

The transaction time to a bank branch was also significant in influencing the
decision to save in IFIs with a statistically significant coefficient at 1 percent
level. An increase in transaction time to a bank branch by 10 minute increased
the probability of saving in IFIs by 0.02. The study findings are consistent
with results by other studies that where FFIs are unavailable, unsuitable or
expensive, households seek alternative more accessible semi-formal or
informal financial institutions (Ellis, et al., 2010).

The coefficients of perceptions about the rate of interest on savings in FFIs
and in SFFIs were not statistically significant at 10 percent level. The
precautionary motive was the major reason of saving in most of the
households included in the survey. The profit motive was not a driving force
for saving; hence decision to save was not affected by the perception on the
interest rates on savings. The coefficient of the location of a household was not statistically significant at 10 percent level. IFIs are accessible in all regions, urban and rural alike. As long as friends, relatives and co-workers trust each other, they can form informal groups irrespective of where they are located.

Expectation about future economic conditions was not found to significantly influence the decision to save in IFIs and had a coefficient that was not statistically significant at 10 percent level. This could be explained by the fact that savings in IFIs are of small sizes, of short term nature and all the participants know each other well. Expectations about future economic conditions may not therefore enhance or deter savings in IFIs.

The level of income had a negative coefficient meaning that as household income increases, households are less likely to save in IFIs. However, the coefficient was not statistically significant at 10 percent level. When the level of income increases, households seek institutions where their higher income is more secure, hence could explain the lower use of IFIs as incomes increase (Carpenter and Jensen, 2002). The findings concur with earlier studies conducted in Papua guinea and India where use of IFIs was found to be more prevalent in low income households because of easier access and convenience (Sukhdeve, 2008). The financial needs of the lower income households are often catered for by the unorganized, unregulated and sometimes illegal money market, and this could explain the fact that as people move from low to higher income earners, it reduces the probability of saving in IFIs (Todaro and
Informal financial institutions play a complementary role to the formal financial system by servicing the lower end of the market (Ayyagari et al., 2008).

4.4 Household Savings Deposit function

In order to achieve the second objective, regression analysis was conducted using ordinary least squares estimation technique. Diagnostic tests were done on the estimated model to check for econometric problems of heteroscedasticity, multi-collinearity and lack of normality. The problem of heteroscedasticity was detected and was corrected through the use of weighted least squares method. Tests for normality showed that the variables were normally distributed.

The regression results are represented in table 4.6. The model explained 72 percent of the variations in the households’ financial savings in Kenya.
Table 4.6: Regression results for Household Financial Savings function

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficient</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of income per month</td>
<td>0.54***</td>
<td>0.000</td>
</tr>
<tr>
<td>Expenditure on education per month</td>
<td>-0.83***</td>
<td>0.005</td>
</tr>
<tr>
<td>Expenditure on loan repayment per month</td>
<td>-1.27**</td>
<td>0.014</td>
</tr>
<tr>
<td>Bank density in district</td>
<td>-14.49*</td>
<td>0.057</td>
</tr>
<tr>
<td>Perception on rate of interest on savings in FFIs</td>
<td>1068.78*</td>
<td>0.059</td>
</tr>
<tr>
<td>Dummy for main financial provider being FFIs</td>
<td>795.70*</td>
<td>0.079</td>
</tr>
<tr>
<td>Dummy for Level of secondary education and above</td>
<td>-1086.01*</td>
<td>0.084</td>
</tr>
<tr>
<td>Dummy for location of the household</td>
<td>-400.62*</td>
<td>0.103</td>
</tr>
<tr>
<td>Dummy for sex of head of household being male</td>
<td>747.12</td>
<td>0.174</td>
</tr>
<tr>
<td>Dummy for main financial provider being IFIs</td>
<td>469.60</td>
<td>0.195</td>
</tr>
<tr>
<td>Dummy for main financial provider being SFFIs</td>
<td>962.37</td>
<td>0.252</td>
</tr>
<tr>
<td>Perception about rate of interest on savings in SFFIs</td>
<td>630.18</td>
<td>0.342</td>
</tr>
<tr>
<td>Number of people in household</td>
<td>-43.79</td>
<td>0.388</td>
</tr>
<tr>
<td>Age of the head of household</td>
<td>-64.77</td>
<td>0.463</td>
</tr>
<tr>
<td>Age of the head of the household squared</td>
<td>0.61</td>
<td>0.511</td>
</tr>
<tr>
<td>Interaction of Bank density and location</td>
<td>-1.97</td>
<td>0.711</td>
</tr>
<tr>
<td>Dummy for formal Sector of employment</td>
<td>124.67</td>
<td>0.712</td>
</tr>
<tr>
<td>Constant</td>
<td>-2304.83</td>
<td>0.110</td>
</tr>
</tbody>
</table>

***Coefficient significant at 1 percent while ** and * imply coefficient was significant at 5 and 10 percent respectively

Adjusted R squared = 72 percent, Number of observations=3826
Consistent to economic theory, the coefficient of income was the most statistically significant at a 1 percent level. The study found that an increase in the level of the income of the household by Kshs.1000 would lead to an increase in the household savings level by Kshs.540. This figure is quite high and shows that with improved incomes, households are likely to devote a good proportion of their income to savings. The study findings concur with other studies conducted in Kenya, Ecuador, Paraguay, Salvador, Uganda and Pakistan that as household income increases, the household is likely to save more (Bendig, et al., 2009; Kibet, et al., 2009; Deshpande, 2006; Newman, et al., 2007; and Carpenter and Jensen, 2002).

Households who were repaying earlier acquired loans were shown to save less as the loan size increased with a statistically significant coefficient at 5 percent level. A Kshs.1000 increase in loan repayment per month reduced the level of savings of the household by Kshs.1,260. This is consistent with theory that as the loan size increases, households may not be able to save more. The study findings agree with findings by Rogg (2000) and Kibet, et al., (2009) that as credit access increases, the savings level in a household goes down.

Level of expenditure on education was found to negatively affect the savings level in a household with a coefficient which was statistically significant at 1 percent level. An increase in education expenditure by Kshs.1000 was found to reduce the level of household savings by Kshs.830. Households’ expenditure in education is seen as an investment hence households will prefer to invest in their education because it is likely to improve their future incomes.
The dummy of the level of education was found to be statistically significant. Households headed by persons with an education level of secondary and above had a level of savings of Kshs.1086 less compared to those with primary level of education and below. People who hold higher education level get formal jobs which enable them get loans secured by their salaries. This can limit their ability to save as they pay up earlier acquired loans. They are able to buy assets on credit, finance household expenditure and other emergencies from salaries or loans. The less educated have to save to finance their long-term expenditures or cushion themselves against emergencies. In addition, average level of education expenditure was found to be Kshs.3987 in households by persons with secondary education and above compared to Kshs.968 in households headed by those with primary level of education and below. This can limit their ability to save as they finance the education expenditures. The study findings are similar to findings in an earlier study in Mozambique that found negative effect of education level on the level of household savings (Amimo, et al., 2003).

The coefficient of the perception about the rate of interest paid on savings in FFIs was found to be statistically significant at 10 percent. Households which perceived the rate of interest on savings in FFIs to be high were found to save more by Kshs.1070, compared to those who perceived the interest to be low. Similarly, households who perceived interest rates on savings in SFFIs to be high were found to save Kshs.630 more than those who perceived it to be low. However, the coefficient was not statistically significant at 10 percent level.
This shows that the perceptions about the rate of interest on savings, which are informed by prevailing interest rates and also information available plays an important role on determining the level of savings in a household.

Those whose main service provider was the formal financial institutions were found to save Kshs.795 more compared to those who were using non-institutionalised saving mechanisms and the difference was statistically significant at 10 percent level. These findings are supported by financial literature that savings generated in FFIs are higher compared to what is kept at home or in informal mechanisms (Robinson, 1994).

Bank density in the district of residence was shown to significantly reduce level of savings in a household. Households who were residing in districts with more bank density were found to save less. An increase in bank density in a district by 1 branch was found to reduce the household savings by Kshs.14. The bank density was interacted with the location of the household and the coefficient was statistically significant. An increase in bank branches in urban areas by one branch decreased the level of savings in a household by Kshs.2. However the coefficient was not statistically significant. Bank density can have varying effects on savings. If a household receives its income through the bank and the bank is far off, it can act as a hindrance to withdrawal hence lead to savings. On the other hand if the bank is mainly used for savings purposes and it is far away, it can hinder savings because of reducing the accessibility to the savings service.
Households whose main service provider was the IFIs were found to save 427 more compared to those who were using non-institutionalized saving mechanisms though the difference was not statistically significant. Households whose main financial service provider was the semi-formal institutions were found to save Kshs.970 more compared to those using non-institutionalized mechanisms. The difference was however not statistically significant. Households who use the semi-formal financial institutions save more to secure their loans and also become more credit worthy. Clients of SFFIs are required to save periodically as share contribution in SACCOs and MFIs which improves their creditworthiness.

The study found that those households who were residing in urban areas were saving Kshs.400 less compared to households in rural areas. The coefficient was statistically significant at 10 percent level. Households who reside urban areas got higher household expenditure and hence may not have a lot of surplus funds to save once the household expenses are paid for. In most urban areas households are able to access their funds more easily through automated teller machines, debit cards and credit cards. This may hinder savings in urban areas.

A large household size was found to have negative effects on households’ financial savings. However the coefficient of household size was not statistically significant. This is consistent with earlier studies that found that large households are more resource constrained, which acts as a disincentive to domestic savings mobilization (Newman, et al., 2007; Mwega, 1997;
Nissanke and Aryeetey, 1998). A study conducted in Indonesia found that sustained growth in private savings in Indonesia was explained by reduction in dependency ratio (Mohan, 2006). The study supports earlier findings in Kenya and Pakistan that found that as dependency burden increases, household financial savings decrease (Kibet, et al., 2009; Carpenter and Jensen, 2002).

Households which were headed by males were shown to save more than those headed by females though the difference was not statistically significant. This can be explained by the fact that on average income of male headed households was Kshs.15,188 per month compared to Kshs.11,231 for female headed households.

Consistent with economic theory, as age increased, households were found to save less. However, the coefficient of age was not statistically significant. This can be explained by the fact that the range of household level of savings was Kshs.2038 to Kshs.3318 across age-groups. The study findings are consistent with the life cycle hypothesis that as age increases, level of savings decreases (Ando and Modigliani, 1963; Modigliani and Brumberg, 1954).

The level of savings in households deriving their income from formal sector was found to be Kshs.125 more compared to level of savings in households deriving their income from informal sector. However the coefficient of the sector of employment was found to be statistically insignificant. The average incomes among households who were working in the formal sector was
Kshs.25,133 compared to Kshs.14,117 among those who were working in the informal sector. Households working in the informal sector were more resource constrained, a fact which reduces their ability to save.

4.5 Correlations Between Savings in Formal, Semi-formal and Informal Financial Institutions

The third objective of the study was to identify the correlations between savings in different types of financial institutions. In order to have financial deepening, more savings need to be mobilized in FFIs. Alternatively, funds mobilized in semi-formal and informal financial institutions need to be channeled to FFIs where the allocation to investors is done in an efficient way. It is in recognition of this that the study sought to identify the correlations existing between savings in the three financial institutions. To achieve this objective, correlation analysis was used and results are presented in table 4.7.

**Table 4.7: Correlation between Savings in FFIs, SFFIs and IFIs.**

<table>
<thead>
<tr>
<th>Savings In</th>
<th>BNK</th>
<th>INS</th>
<th>FFI</th>
<th>SAC</th>
<th>MFI</th>
<th>SFF</th>
<th>ASC</th>
<th>ROS</th>
<th>GRP</th>
<th>IFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>BANK</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSURA</td>
<td>0.45</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FFIs</td>
<td>0.96</td>
<td>0.54</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SACCOs</td>
<td>0.21</td>
<td>0.30</td>
<td>0.24</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFIs</td>
<td>0.20</td>
<td>0.09</td>
<td>0.19</td>
<td>0.03</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFFIs</td>
<td>0.28</td>
<td>0.30</td>
<td>0.29</td>
<td>0.88</td>
<td>0.46</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASCAS</td>
<td>0.11</td>
<td>0.04</td>
<td>0.11</td>
<td>0.06</td>
<td>0.11</td>
<td>0.10</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROSCAS</td>
<td>0.09</td>
<td>0.00</td>
<td>0.08</td>
<td>0.02</td>
<td>0.13</td>
<td>0.08</td>
<td>0.10</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>0.12</td>
<td>0.09</td>
<td>0.11</td>
<td>0.05</td>
<td>0.07</td>
<td>0.08</td>
<td>0.12</td>
<td>0.17</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>IFIs</td>
<td>0.13</td>
<td>0.03</td>
<td>0.12</td>
<td>0.05</td>
<td>0.15</td>
<td>0.11</td>
<td>0.40</td>
<td>0.87</td>
<td>0.31</td>
<td>1</td>
</tr>
</tbody>
</table>

Number of observations - 6598
From the correlation results, there was significant positive correlation between savings in all the financial institutions. Members of SACCOs and MFIs are required to open bank accounts so that any loan disbursements or repayments are done through the accounts. This shows that attempts to increase savings in semiformal financial institutions are likely to have spillover effects of increasing savings in FFIs.

Savings in IFIs were positively correlated with savings in SFFIs, however, the correlation was stronger between IFIs and MFIs (0.15) as compared with the correlation between IFIs and SACCOs (0.05). This may emanate from the fact that SACCOs are more rigid when it comes to membership because members need to be able to save at least a specified sum of money each month and one can only get a loan six months after becoming a member. On the other hand, MFIs are more open especially to low income earners operating in the informal sector. Micro-finance institutions can allow members to contribute very small amounts of money, over shorter periods like every week, and once they save for six weeks, they can get access to loans.

Further, the study identified whether the informal groups that the respondents belonged to had bank accounts and if those groups had borrowed loans from the formal financial institutions. Of all the households included in the study, 27.24 percent belonged to informal groups that had some bank account while 1.92 percent belonged to informal groups which were investing in shares in the Nairobi stock exchange. A study conducted in Kenya, Kakamega district, indicated that even when informal women groups open bank accounts, only a
small percent of them go to commercial banks for funding citing lack of collateral, high interest rates and fear of accessing loans from banks (Wawire, and Nafukho, 2010). Given that majority of the households were saving in IFIs as compared to those who saved in FFIs and SFFIs, there is a great potential to increase the linkages between the financial institutions. The IFIs can be encouraged to deposit members’ savings in FFIs and also access loans from FFIs. This would enhance financial access and financial sector deepening which is crucial in enhancing investments.

4.6 Hindrances to Ownership of a Bank Account

From the study, only about 25 percent of the households surveyed had some form of financial savings in formal financial institutions, and 24 percent of them were saving in the bank. This is quite low considering that in some developed countries like Denmark, over 95 percent of the households save in formal financial institutions. The reasons for not holding a bank account were classified into four major categories; resource barriers, institutional barriers, informational barriers and competitive barriers. Table 4.8 presents the major hindrances to ownership of bank accounts in the order of importance.
Table 4.8: Hindrances to ownership of bank account

<table>
<thead>
<tr>
<th>Hindrance to savings</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resource constraints:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Money to save</td>
<td>2,504</td>
<td>50.17</td>
</tr>
<tr>
<td>No regular income</td>
<td>1,858</td>
<td>37.23</td>
</tr>
<tr>
<td>Can not afford to save</td>
<td>1,603</td>
<td>32.12</td>
</tr>
<tr>
<td>Do not have a job</td>
<td>843</td>
<td>16.89</td>
</tr>
<tr>
<td><strong>Institutional barriers:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank is far</td>
<td>432</td>
<td>8.66</td>
</tr>
<tr>
<td>Do not have a national ID card</td>
<td>305</td>
<td>6.11</td>
</tr>
<tr>
<td>Need to keep minimum Balance in bank</td>
<td>284</td>
<td>5.69</td>
</tr>
<tr>
<td>Do not want to pay service fees</td>
<td>258</td>
<td>5.17</td>
</tr>
<tr>
<td>It takes too long to get your money</td>
<td>131</td>
<td>2.62</td>
</tr>
<tr>
<td>Do not trust banks</td>
<td>123</td>
<td>2.46</td>
</tr>
<tr>
<td>Do not qualify to open an account</td>
<td>93</td>
<td>1.86</td>
</tr>
<tr>
<td>Too young to open an account</td>
<td>87</td>
<td>1.74</td>
</tr>
<tr>
<td>Don’t have a referee</td>
<td>46</td>
<td>0.92</td>
</tr>
<tr>
<td>Someone lost money in bank</td>
<td>11</td>
<td>0.22</td>
</tr>
<tr>
<td><strong>Informational or educational Barriers:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cannot read or write</td>
<td>341</td>
<td>6.83</td>
</tr>
<tr>
<td>Do not know how to open an account</td>
<td>285</td>
<td>5.71</td>
</tr>
<tr>
<td>Do not need a bank account</td>
<td>285</td>
<td>5.71</td>
</tr>
<tr>
<td><strong>Competitive related barriers:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prefer dealing in cash</td>
<td>295</td>
<td>5.91</td>
</tr>
<tr>
<td>Prefer to use other options rather than the bank</td>
<td>291</td>
<td>5.83</td>
</tr>
<tr>
<td>Can perform needed transactions with other financial provider</td>
<td>226</td>
<td>4.53</td>
</tr>
<tr>
<td>It is cheaper to use someone else’s account</td>
<td>12</td>
<td>0.24</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>146</td>
<td>2.92</td>
</tr>
</tbody>
</table>

The major hindrance for failure to have a bank account was limitation of resources. Households cited the lack of or low income, irregularity of income and lack of a job as the major hindrance to saving in banks. The study findings are similar to Chandararot and Dannet (2007), who found out that lack of cash to save among 89 percent of low income earners, was the major reason for not saving in formal deposit taking institutions in Cambodia.
The next hindrance was institutional factors that limit ability of households to open bank accounts such as bank being too far, high minimum bank balances, taking too long to get one’s money, having no referees among others. Illiteracy and lack of adequate information on opening of accounts also played a role in failure to open accounts in bank. Finally, there were also competitive barriers to opening of bank accounts whereby households preferred to deal in cash or use other financial providers. Given that institutional barriers and informational barriers were the second and third highest respectively after resource barriers, banking institutions have a crucial role in reducing the barriers of access so as to increase the population banking with them.
CHAPTER FIVE
SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

5.1 INTRODUCTION

This chapter contains the summary of the study findings, conclusions drawn from the study, policy implications emanating from the study and finally areas for further research are suggested.

5.2 SUMMARY OF THE STUDY

The low national savings rate in Kenya has been a major concern considering the fact that increased investment level needs to be financed from domestically generated resources. Household savings make up a very important part of the national savings and their contribution to national savings rate cannot be underestimated. For these household savings to be available for financing long term investments they need to be mobilized in the formal financial institutions that have deeper financial reach. On the other hand, if a lot of savings are mobilized in the semi-formal and informal financial institutions, strong linkages with the formal sector would ensure that they are channeled to the formal sector and this would also improve the availability of long-term funds for investment purposes. Studies conducted in Kenya showed that over 74 percent of the households saved in the informal financial institutions and other non-institutionalized forms, 13 percent in semiformal financial institutions while about 25 percent of the households had some form of financial savings in formal financial institutions. Given this scenario, there was need to conduct a
study on what affects a household’s choice to save in each form of financial institution. The specific objectives of the study were: to examine the factors affecting Kenyan household’s decision to save in formal, semi-formal and informal financial institution, analyse the determinants of level of financial savings, analyze the existing correlations between savings among the financial institutions, identify hindrances to ownership of bank accounts and make policy recommendations on how financial savings could be improved.

The first objective was to examine the factors that affect the decision to save in each type of financial institution. A Separate logistic regression was run for each type of financial institution. Credit availability in FFIs and SFFIs, level of financial information on FFIs, location of the household in an urban area, and household head having an education level of secondary and above increased the probability of saving in FFIs. In addition, a household deriving main income from formal sector, household being optimistic about future economic conditions, high bank density and increased income levels all increased the probability of a household saving in the FFIs. On the other hand, perception that rate of interest on savings held in semi-formal financial institutions was high and a large household size reduced the probability of saving in formal financial institutions.

Like in the FFIs, in the semi-formal financial institutions, credit availability in SFFIs and high level of financial information on operations of SFFIs encouraged households’ decision to save in SFFIs. Other variables that positively encouraged saving decision in SFFIs are: credit availability in FFIs,
increased age of the head of household, household head having a level of education of secondary and above, increased transaction time to formal financial institutions and increase in the income of the household and high bank density. The location of a household in an urban area, increased bank density in urban areas and a large household size all reduced the probability of saving in SFFIS.

Like in the FFIs and the SFFIs, the credit availability in IFIs and high level of financial information regarding IFIs played the most significant role in increasing the probability of saving in IFIs. An increase in the age of the household head and size of the household similarly led to increase in the probability of saving in IFIs. Location of the household in an urban area, increased level of financial information about FFIs, increased bank density in urban areas, deriving main income from formal sector, increased transaction cost to nearest banks and the gender of the household being male reduced the probability of a household saving in IFIs. The sex of the head of the household had a statistically insignificant coefficient in the decision to save in FFIs and SFFIs. However, when making a decision to save in IFIs, it had a statistically significant coefficient, with the probability of saving in IFIs being higher if head of household was female. This was explained by the fact that majority of those who were saving in IFIs were females.

The second objective of the study was to estimate the households’ saving function. The level of financial savings in a household significantly increased with increase in level of household income, perception that rate of interest on
savings in FFIs was high and if main financial service provider was FFIs. Expenditures on education and on loan repayment were found to reduce the level of financial savings. Increased Bank density and the education level of household head being secondary were found to have negative effects on the level of financial savings. Most households were saving to meet day to day household expenditures, for emergencies, for education of self and children and a few were saving to have funds for investments and financing their expenditures in old age. This could explain the unexpected negative signs for the education level on level of savings.

The third objective was to identify the correlations existing between savings in the three financial institutions. Savings in FFIs were positively correlated with savings in SFFIs. This can be explained by the fact that, those people who save in SFFIs may be required to open bank accounts to ensure loans are disbursed and repaid through these accounts. In addition, most SACCOs, operate front office savings accounts which encourage formal savings. Savings in FFIs were positively correlated with savings in IFIs, though the correlation was weaker compared to that with the SFFIs. FFIs and IFIs act as substitutes in financial services, servicing the upper income and the lower income households respectively. However, due to the higher accessibility of IFIs especially ROSCAs, households who save in FFIs also save in IFIs. Savings in SFFIs and IFIs were positively correlated.

Of all the households included in the study, only 27.24 percent belonged to informal groups that had some bank account while 1.92 percent belonged to
informal groups which were investing in shares in the Nairobi securities exchange. Given that majority of the households were saving in IFIs and also non-institutional forms (74 percent) as compared to those who saved in FFIs (25 percent) and SFFIs (13 percent), there is a great potential to increase the linkages between the IFIs, SFFIs and FFIs by ensuring that such funds are channeled to mainstream formal financial institutions.

The fourth objective was to identify the major hindrance to opening of bank accounts among households. The study found that resource barriers, institutional barriers and informational barriers were the major hindrance to opening the accounts in that order.

5.3 CONCLUSIONS OF THE STUDY

In all the financial institutions, the probability of saving in the institution was most significantly affected by the credit availability in the institution and the household having a high level of financial information about the financial institution. Increased incomes of households significantly improved probability of saving in FFIs and SFFIs though it was not significant in the IFI equation. Whereas a large size of household increased the probability of saving in IFIs, it reduced the probability of saving in both FFIs and SFFIs.

The perception of high interest rates in SFFIs did not significantly affect the decision to save in a SFFI, but it significantly reduced the probability of saving in FFIs. The high interest rates especially on SACCO savings could help to encourage savings in SFFIs and discourage savings in FFIs where
interest rates are very low. The location of a household in an urban area significantly increased the probability of saving in FFIs where they are more accessible while it reduced the probability of saving in SFFIs and in IFIs. This could be due to higher physical accessibility of SFFIs and IFIs in rural areas and lower accessibility in urban areas. While the sex of the household head was not significant in affecting the probability of saving in FFIs and SFFIs, it was significant in affecting the decision to save in IFIs. This is because, most IFIs are started by women hence they are the majority in them.

From the estimated household financial savings function, the level of financial savings in a household are significantly increased by increased household incomes, perception of high interest rates on savings in FFIs, and if the main financial service provider of the household was a FFI. Expenditures on education and on loan repayment significantly reduce the level of financial savings.

There were significant but weak correlations between savings in FFIs, SFFIs and IFIs. This could imply a complementarily nature of the services offered by the financial institutions. Households who were saving in SFFIs and IFIs could get some knowledge about the operations of FFIs either through the other members or through the group-lending schemes which, though formed informally enable interaction with financial advisers from the formal financial institutions. This can encourage them to open banks accounts. The correlation between SACCO and FFIs savings was higher compared to the correlation
between savings in SACCOs and IFIs. SACCO savers have a greater access to FFIs especially through front office services offered within them.

5.4 POLICY IMPLICATIONS

From the empirical findings, a number of policy implications can be drawn:

Credit availability in financial institutions was found to increase the probability of saving in each type of institution. The government of Kenya, through the ministry of finance and the central bank should ensure that the recently introduced credit reference bureau caters for all types of households and also organized informal groups so that prospects of enhanced credit availability among households can enhance their interactions and savings in FFIs, SFFIs and also in IFIs. The number of households who had access to loans from formal financial institutions was only 3 percent compared to 25 percent who had bank accounts. This could be explained by the tight lending procedures in the FFIs requiring households to have collateral and meet other requirements. FFIs can establish linkages with existing SFFIs and IFIs who can deposit their savings in FFIs and in turn, the FFIs can disburse loans through the same IFIs for lending to members. This is supported by the fact that credit availability in the financial institutions was seen to significantly increase the probability of saving in the financial institution.

There is a need for the ministry of finance, commercial banks and SACCOs to invest in financial literacy and marketing programmes to improve the knowledge and understanding of financial services and their availability. The
probability of saving in each of the financial institutions was high if the household had high level of financial information about it. Field training can be conducted amongst informal financial institutions groupings, among micro-entrepreneurs who form majority of the workforce and also among the rural population. This is further supported by the fact that increased financial information regarding FFIs was found to significantly lower the probability of saving in IFIs, which on average mobilize lower level of savings per household.

The government through the relevant ministries needs to put measures that can enhance household incomes which were found to significantly increase the probability of saving in both FFIs and SFFIs. Better infrastructure, lower cost of doing business and higher security can increase the profitability of existing businesses and also attract new investors. This can help to improve the incomes of those who are in paid employment. The government through the relevant ministries can enhance technology use and help in expanding the markets of the goods produced by small scale entrepreneurs, where majority of the households derive their income. Improved incomes will increase financial savings and the probability of saving in the FFIs.

The government of Kenya has been encouraging the growth of deposit taking microfinance institutions. Among the households who were included in the study, only 3 percent were using microfinance products and 10 percent were using SACCO products. From the strong correlation between savings in SFFIs with both FFIs and IFIs, growth in the microfinance industry is likely to
translate to more financial deepening as more households start saving and accessing loans from MFIs, which is likely to improve their income levels. The members of informal financial savings groups can be encouraged to join SACCOs either individually or as a group. This can boost their savings level and enhance their creditworthiness which may in the long-run lead to more use of FFIs as their incomes increase. Given the positive correlations between the financial institutions, encouraging the use of SFFIs may finally encourage use of FFIs. This will increase the level of households’ financial savings level which was found to be higher among households whose main financial service provider was FFIs.

As the government of Kenya aspires to mobilize more long term finance to achieve the national vision, all the relevant ministries should invest in more transport and communication infrastructure, water and electricity so that rural areas can be conducive for business growth hence improve the incomes of the rural households. This can attract more banks and other formal financial institutions to open up more branches in rural areas and attract rural households’ savings where over 70 percent of the Kenyan population lives (Republic of Kenya, 2010).

The agency banking started by Equity, Co-operative and Kenya commercial banks in retail outlets from the year 2010 can be introduced by all formal financial institutions to ensure the households are able to save where they do their regular shopping including the village kiosks. This is supported by the fact that the increased bank density was seen to significantly reduce the
probability of saving in both SFFIs and IFIs. At the same time greater use of SFFIs and IFIs in rural areas is due to their higher physical accessibility.

There is a need for the FFIs to improve the rate of interest on savings deposited with them to ensure households are attracted to their savings products. This emanates from the fact that the rate of interest paid on savings in SFFIs was statistically significant in FFIs. Most SFFIs pay interest to the members in the form of dividends from SACCO shares and sometimes they also give attractive rates of interest on fixed deposits. In addition households who perceived the interest rate on savings in FFIs as higher were found to have a higher level of savings.

The government should allocate more funds to education budget, not only to primary and secondary education but also for adult education which increases literacy among the adult population. This would ensure that in the future, most households can save in FFIs as supported by the findings of this study which showed that increased level of formal education increased the probability of saving in FFIs.

In Kenya, the informal sector is very significant in job creation and employs over 75 percent of the country’s workers. Over 80 percent of new jobs in 2009 and 2010 were created in the informal sector (Republic of Kenya, 2010). The informal sector should be supported in ways that raise productivity and entrepreneur’s incomes which would raise the probability of saving in FFIs as supported by the study findings. From the study findings, increased income
level enhanced the level of household savings. Raising the incomes of the sector where majority of Kenyans derive their earnings would go a long way towards boosting the level of household savings.

To improve savings in FFIs, there is a need for the government to ensure the population is confident of future economic conditions through economic stability. High inflation rates may hinder savings in FFIs when households become pessimistic about the future. This calls for good policy measures to control the rate of inflation. This is because expectations’ regarding future economic conditions was seen to play a crucial role in making decisions to save in FFIs.

The government through the ministries of medical services and public health need to continue funding family planning programmes to ensure that population growth rate and household sizes are reduced in order to encourage higher levels of household financial savings. This is supported by study findings that found that a decrease in household size significantly increased the probability of saving in both FFIs and SFFIs and at the same time increased the level of household financial savings.

Expenditures on education are one of the investments in human capital hence its negative effects on levels of household savings is not alarming. Loan repayments on the other hand can have real negative effects on domestic savings mobilization if the loans are not used for productive investments. Among the households included in the survey who had loan products, majority
acquired loans for transactions and precautionary purposes (87 percent) and only a small proportion of 15 percent for investment purposes. There is a need for the Kenyan population to be educated by the financial institutions giving them loans to take loans that enhance their incomes rather than for personal use. This would increase the level of households’ savings in the long run.

Formal financial institutions can ensure they tap the pool of savings from IFIs by encouraging women groups, who form majority of IFIs to open accounts in banks, join SACCOs, purchase shares in stock exchange and insurance investment products.

5.5 Areas for Further Research

This study looked at the factors affecting the decision to save in each type of financial institution and the factors affecting the level of financial savings in a household. It would be important to find out how changes in government policies on savings mobilization over time have affected level of savings in formal financial institutions and in semiformal financial institutions. This would ensure that as the government designs policies to enhance savings, such policies are successful in improving the national savings level.

This study used cross-sectional data to identify factors influencing the decision to save in financial institutions over a one period of time. To identify how the factors affect saving decisions overtime, panel data can be used.
REFERENCES


Noula, A. (2002). Multivariable Functions of Savings and Credit in Menoua, West Cameroon


Appendix 1: Detailed Descriptive Statistics for Quantitative independent variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Observations</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum Value</th>
<th>Maximum Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of the head of Household in years</td>
<td>6598</td>
<td>46</td>
<td>13.56</td>
<td>17</td>
<td>67</td>
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<tr>
<td>Bank Density in district</td>
<td>6598</td>
<td>54</td>
<td>111.00</td>
<td>0</td>
<td>347</td>
</tr>
<tr>
<td>Transaction time to nearest bank in minutes</td>
<td>5712</td>
<td>22</td>
<td>28.27</td>
<td>10</td>
<td>420</td>
</tr>
<tr>
<td>Transaction cost to nearest Bank in Kshs.</td>
<td>5699</td>
<td>43</td>
<td>62.72</td>
<td>10</td>
<td>500</td>
</tr>
<tr>
<td>Level of Household Savings per month in Kshs.</td>
<td>4254</td>
<td>2567</td>
<td>15367.51</td>
<td>30</td>
<td>700,000</td>
</tr>
<tr>
<td>Number of people in a Household</td>
<td>6598</td>
<td>5</td>
<td>2.60</td>
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<tr>
<td>Level of Household Income per month in Kshs.</td>
<td>6590</td>
<td>14249</td>
<td>30669.02</td>
<td>20</td>
<td>812,500</td>
</tr>
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</table>
### Appendix II: Bank Density per District

<table>
<thead>
<tr>
<th>District</th>
<th>Number of Bank Branches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nairobi</td>
<td>347</td>
</tr>
<tr>
<td>Mombasa</td>
<td>67</td>
</tr>
<tr>
<td>Nakuru</td>
<td>41</td>
</tr>
<tr>
<td>Kisumu</td>
<td>26</td>
</tr>
<tr>
<td>Thika</td>
<td>25</td>
</tr>
<tr>
<td>Meru Central</td>
<td>25</td>
</tr>
<tr>
<td>Nyeri</td>
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</tr>
<tr>
<td>Kajiado</td>
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</tr>
<tr>
<td>Uasin Gishu</td>
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</tr>
<tr>
<td>Kiambu</td>
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</tr>
<tr>
<td>Murang’a</td>
<td>15</td>
</tr>
<tr>
<td>Machakos</td>
<td>15</td>
</tr>
<tr>
<td>Malindi</td>
<td>14</td>
</tr>
<tr>
<td>Kisii Central</td>
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<td>Laikipia</td>
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</tr>
<tr>
<td>Kirinyaga</td>
<td>10</td>
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<tr>
<td>Nandi</td>
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<tr>
<td>Trans Nzoia</td>
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<td>Bungoma</td>
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<td>Taita Taveta</td>
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<td>Makueni</td>
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</tr>
<tr>
<td>Kericho</td>
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<td>Kilifi</td>
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<td>Bomet</td>
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<td>Isiolo</td>
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<td>Migori</td>
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<td>Kisii North</td>
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<td>Nyandarua</td>
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<td>Maragua</td>
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<td>Kwale</td>
<td>4</td>
</tr>
<tr>
<td>Meru North</td>
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<tr>
<td>Homa Bay</td>
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<tr>
<td>Siaya</td>
<td>4</td>
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<td>Baringo</td>
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Continuation Appendix II: Bank Density per District

<table>
<thead>
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<th>District</th>
<th>Number of Bank Branches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narok</td>
<td>4</td>
</tr>
<tr>
<td>Butere/Mumias</td>
<td>4</td>
</tr>
<tr>
<td>Lamu</td>
<td>3</td>
</tr>
<tr>
<td>Wajir</td>
<td>3</td>
</tr>
<tr>
<td>Turkana</td>
<td>3</td>
</tr>
<tr>
<td>West Pokot</td>
<td>3</td>
</tr>
<tr>
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