Determinants of Household Savings in Uganda

By

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DECLARATION

This is my original work and has never been presented for any degree award in any other university.

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Approval

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DEDICATION

For their unconditional love, support and guidance, I dedicate this research paper to my mother, Dinah Muhumuza Bakebwa Karyanga, the memories of my late father, Lt. Col William Muhumuza Bakebwa, my brothers; Hon. Denis Muhumuza Savimbi, Eng. Micheal Kamugisha, Edmund Nuwamanya, Edson Barigye, my dear sister, Gloria Musiime and last but not least my ever-loving Aunties Edith Karyanga, Maureen Kemigisha Karyanga and Alice Kemigisha.

Contents

Abstract

The recent economic fluctuations, climate risk and a number of individual specific shocks leave households vulnerable to severe hardship in especially developing countries. Moreover, the credit and insurance markets are limited and the social coverage is weak. In this context, households' saving is crucial to provide an insurance against the economic and social shocks. Additionally, a better knowledge of households saving behaviour could develop the untapped potential to locally mobilize and finance investment expenditure in order to fuel self-sustained economic growth and development. This study discusses the ability, willingness and opportunities that influence households in Uganda to save and reviews policy options to boost domestic saving mobilization to fund investment expenditure self-sustainably. It examines the socio-economic and demographic determinants of household savings in Uganda.

The study contributes to literature by empirically analysing the relative importance and direction of each variable in explaining household saving behaviour using the most recent Uganda National Housing Survey data and this should be helpful in designing appropriate policy tools to effectively boost domestic savings mobilization. The framework for analysis uses both descriptive statistics and the estimation of a household saving function using ordinary least squares. The results of the analysis show that household savings in Uganda rise significantly with an increase in both household income and net assets. The study further observes a uniform saving rate between urban and rural households in Uganda. Finally, demographic and social factors like sex and literacy of the household head, location of the household also significantly influence household saving behaviour in Uganda.

JEL classification: E21, C3   C21, D12, D91

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List of Abbreviations

AERC	African Economic Research Consortium
AIH	Absolute Income Hypothesis
APS	Average Propensity to Save
GDP	Gross Domestic Product
GNP	Gross National Product
IMF	International Monetary Fund
LCH	Life Cycle Hypothesis
MPC	Marginal Propensity to Consume
MPS	Marginal Propensity to Save
PIH	Permanent Income Hypothesis
RIH	Relative Income Hypothesis
UBOS	Uganda Bureau of Statistics
UGX	Uganda Shillings
UNHS	Uganda National Housing Survey
UNDP	United Nations Development Programme

CHAPTER 1

1.0 Introduction

In the year 2009, the global economy was devastating as world output contracted by 0.6%, with output in advanced economies contracting by 3.2% in the same year. Output growth in developing countries declined considerably from an average of 6.1% in 2008 to 2.4% in 2009, compared to an average growth of 7.4 percent in the previous five years. In Sub-Saharan African countries, growth declined to 2.1 percent in 2009 compared to an average of 6.4 percent in the previous five years. This, the aftermath of the 2007/08 global financial crisis and recession, led to the emergence of debt crisis, economic stagnation in the industrial economies, slow disbursements and reduced net inflows of external financial resources characterized by a fall in trade volumes, reductions in capital flows and current transfers especially remittances, and a collapse of capital markets as portfolio investment to emerging economies reduced.

Most developing countries especially in the Sub-Saharan African region consequently recognized the need to mobilize domestic resources as an essential pre-requisite for sustained economic growth. Specifically, lack of adequate domestic savings has generally been viewed as the root cause of the continuing external deficit of most developing countries.

Over the last three decades, saving rates have doubled in East Asia, Latin America and the Caribbean (Loayza et al., 2000) while in sub-Saharan Africa savings rates have consistently been declining in the last three decades (Aryetey and Udry, 2000). Reforms to improve the overall performance of the economies of the region in an attempt to enhance the performance of many indicators like attaining higher savings rates have often failed to hit their expected targets. In addition, higher illiteracy levels induced savers to save in non-financial or real assets (Aryetey and Udry, 2000).

Higher inflation rates have also caused people to opt for real assets (Aryetey, 1995). Lack of financial institutions in the rural areas where the majority of the people live is another factor explaining the poor saving levels in Africa and particularly the Sub-Saharan region.

Domestic savings constitute three main sources; the household sector, the corporate or private business sector and the public sector. In most developing economies the corporate sector is

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small and so its contribution to aggregate savings is negligible. On the other hand, these economies are run by big governments associated with high public expenditures and thus large fiscal deficits which usually leave such economies with negative public savings. Therefore, the household sector constitutes the main source of domestic savings worldwide.

Generally, savings play a critical role in the maintenance and sustenance of investment-growth in most developing economies. They are vital in development planning because they free up resources that can be employed to improve productive capacity of the economy by increasing the amount of capital equipment, machinery and indirectly enhancing technological development.

Leff and Sato (1987) argue that an increase in savings facilitates macroeconomic stabilization and thus a substantial proportion of GDP needs to be saved and used in financing gross investment. This with no doubt confirms the existence of a well established positive relationship between savings, investment and growth.

1.1.1 Savings in Uganda and an Overview of the Economy
In the post-colonial era, the gross domestic savings rates in Uganda were highly competitive compared to other African countries. However Uganda experienced political turmoil and war and macro-economic mismanagement during the 1970s under the dictatorial rule of President Idi Amin (1971-1979) that saw the economy crumble down to ruins.

Since 1987, the Government in Uganda has substantially achieved great success in reforming and stabilizing the economy and implementing the structural reforms. The economy has over the past two decades established a strong record of prudent macroeconomic management and continues to undertake private-sector oriented structural reforms. Ugandan economic growth outpaced the rest of Sub-Saharan Africa in the 1990s, reducing the proportion of the population living in poverty from 56% in the early 1990s to about 30% more recently.

Continued implementation of sound macroeconomic and structural economic policies have resulted in robust economic growth, and increased resilience of the economy to external shocks such as the recent 2007/08 global financial and economic crises, volatility in oil prices and escalation of food prices in the region as well as internal shocks such as droughts and severe energy shortages.

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In the financial year 2009/10, the Ugandan economy grew by 5.8% and this was among the highest in the East African Community and Sub-Saharan Africa (IMF's World Economic Outlook, April 2010). Although there was a slowdown in the growth rate of GDP, it was nevertheless robust given that the country faced adverse external shocks as well as natural disasters during the year. In 2010, Uganda's GDP is estimated at US$ 16.4 billion with GDP per capital of US$ 466 at current prices.

Growth rates in fiscal years 2007/08, 2008/09 and 2009/10were 8.7%, 7.1% and 5.8%, respectively. Inflation increased from 7.7% in 2007 to 14.2% in 2009, well above the government's annual target average of 5%, declined dramatically to 9.4% in 2010 as food crop prices decreased, and increased sharply again in the first part of 2011. The Ugandan shilling depreciated by approximately 11% in the first half of 2011.

Despite Uganda's notable improvement in economic performance, it continues to face constraints to its desired development path. The level of domestic savings and investments are still very low to support self-sustained growth and this has been a serious concern to both policy-makers and the academia.

1.1.2 Domestic Savings

Uganda's savings rate stagnated at less than 10% in the last decade, well below the Sub-Saharan average. Yet savings are important to Ugandans because of high income volatility, underdeveloped financial systems and lack of a social safety net. Such savings, however, are often in the form of non-financial assets or participation in small informal networks and are, therefore, unable to garner resources for long-term investment. Larger formal financial institutions are concentrated in urban areas. In the formal banking sector, weak competition, high overhead costs and poor credit information translate into wide interest spreads: borrowers pay as much as 24%, while savers earn only 4%. Long-term credit is hard to come by, with only 12% of all bank loans maturing in more than one year. The agricultural sector particularly lacks access to credit.

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1.1.3 Tax Collections

Uganda's tax base is narrow, with the 35 biggest taxpayers accounting for about 50% of all tax revenue. The agricultural sector, which provides 15% of GDP, is untaxed. Outside the formal sector, much potential revenue is lost, owing to weak administration, corruption and tax evasion. Actual value added tax collections, for instance, were far less than what would be expected with statutory rates as high as 18%. Moreover, coverage of the already small tax-base is inadequate: it is estimated that only 5% of the value added tax on domestic commodities is actually collected. Despite implementing several reforms, the tax burden still falls disproportionately on that small segment of the population which is formally employed. Receipts from custom duties, on which the country depends, are also expected to fall as Uganda enters into the East African Customs Union.

1.1.4 Household Savings in Uganda

According to Ssentamu and Obwona (1995) in their investigation on the nature and determinants of savings in Uganda, about 80% of the households they interviewed earn their income through crop production, wage employment, and informal trade. 57% keep their savings in non-cash forms like livestock, and food hoarding in the rural areas while the urban households keep their non-cash savings in form of durables, real estate or plough back in their businesses. Due to low incomes, high minimum deposit requirements and lack of other savings facilities, over one third of the rural households keep their savings in form of cash hoarding at home.

The inability of the Ugandan economy to generate adequate growth in savings to meet investment needs has widened the saving-investment gap and measures to correct this have only led to a reliance foreign borrowing and donor-assistance to finance planned investment.

With the recent global financial crisis, concessionary capital inflows from industrialised countries have generally declined and coupled with a limited ability to service the current external debt, Uganda's prospects for increasing the inflow of foreign capital in future is also very poor. This leaves the Ugandan economy the only alternative to be increasing the mobilization of domestic savings to fund investment projects to achieve rapid growth in the future. To do so, Uganda will have to pursue policies aimed at increasing savings in order to

sustain and even augment past levels of capital formation and development without incurring unsustainable external indebtedness and external dependence.

In order to maintain a higher rate of domestic savings, not only is there need to maintain fiscal discipline but also to enhance savings from the households and the corporate sectors of the economy. Available empirical studies suggest that private savings dominate domestic and national savings, and that household savings constitute the substantial part of these in most countries (Deaton, 1989).

To enhance an increased overall level of household savings, a clear understanding of the various economic, demographic and social factors that influence the ability, willingness and the opportunity of these households to save is imperative.

1.1.5 Characteristics of Households in Uganda

According to the 2009/10 Uganda National Housing Survey (UNHS), the total number of households in Uganda has increased from 5.2 million in 2005/06 to 6.2 million in 2009/10 with a slight increase in the percentage of households residing in urban areas from 17 percent in 2005/06 to 19 percent in 2009/10.

Uganda's population is estimated to be about 30.7 million of which half is aged below 15 years. There are slightly more females than males. Eighty five percent of the households reside in rural areas. The average household size is estimated at 5 persons per household. Female headed households increased in both rural and urban areas.

The working population has increased to 11 million from 9.3 million persons in 2005/06. This indicates a 4.2 annual growth rate of the working population. The findings of the survey reveal that the females constitute more than half (53%) of the working population.

Uganda's average household monthly expenditure reflected a real increase of 10.4 percent between the 2005/06 and 2009/10 surveys.

On average, between 2005/06 and 2009/10 the urban areas registered a 21 percent real increase in per capita consumption expenditure while the rural had a 15 percent increase.

Based on the 2009/10 survey data, we estimate that 24.5 percent of Ugandans are poor, corresponding to nearly 7.5 million persons in 1.2 million households. The incidence of

poverty remains higher in rural areas than in urban areas. The poor in the rural areas represent 27.2 percent of the population but only 9.1 percent in the urban areas. The rural areas with 85 percent of the population constitute 94.4 percent of national poverty. On the other hand, the urban areas represent 15 percent of the population and constitute 5.6 percent of national poverty. These results suggest that the majority of the poor are in rural areas, about 7.1 million out of the 7.5 million poor Ugandans.

The proportion of poor households declined from 26.5 percent in 2005/06 to 19.3 percent in 2009/10, corresponding to 1.4 million households in 2005/06 and 1.2 million households in 2009/10.

1.2 Problem Statement

The Ugandan economy is still dominated by subsistence agricultural production and the informal sector. The 2009/10 UNHS results indicated declining aggregate savings. At household level, there are either no savings or they are significantly very low and mostly in non-cash form like land, crop produce and livestock. This is so because most of household incomes are meagre from mainly subsistence farming and the financial institutions have failed to mobilise household savings especially in rural areas for fear of high operation costs of running rural branches, lack of adequate collateral, and lack of confidence and public awareness of the banking sector in rural areas.

The inability of Uganda to achieve a significant level of saving has led to a widening saving-investment gap. In an attempt to close this gap, Uganda has had to rely on foreign savings or loans, which have led to a heavy burden of external debt. The supply of foreign savings tends to be not only inadequate but also erratic and shrouded in various controversies and strings thereby creating problems for development planning. These problems underscore the need for increasing domestic savings in the country.

Domestic savings include government savings, corporate savings and the household savings. Although the household sector is large, a major striking feature is that its contributions in terms of financial savings are very small in size leading to the inability of countries in Sub-Saharan Africa including Uganda to address the saving-investment gap (Nissanke, 1992)

While the government has not been able to save enough due to persistent fiscal deficit, the corporate sector savings are insignificant, because of the smallness of the sector. Because of the low levels of domestic savings, the level of private investment is also very low and this has resulted into a considerable imbalance between private and public investment.

In effect, attempts at increasing savings in Uganda must necessarily pursue measures aimed at promoting household savings.

Based on the above, the question is what factors determine household savings in Uganda? Do the households in Uganda have the potential to save more so that the economy can reduce foreign dependence of its capital resources?

1.3 Objectives of the study

The primary objective of this study is to empirically analyze the factors that determine household savings in Uganda.

In light of this, the paper has the following specific objectives:

1. To study the various factors influencing households' ability and willingness to save in Uganda.
2. To estimate a household savings function and determine the relative importance of each variable in explaining household savings behaviour
3. To draw on empirical findings and suggest policy measures to adopt to mobilize household savings to support self-sustained economic growth and development in Uganda.

1.4 Justification of the study

Uganda like any other developing economy aims at reducing its reliance on foreign borrowing and donor-assistance. Understanding the various economic, demographic and social factors that influence the ability and willingness of households to save, will no doubt enhance measures of domestic resource mobilization and thereby sustainably close the saving-investment gap in Uganda.

The estimation of household savings function to identify the factors that determine household saving behaviour will be relevant for policy makers in making decisions towards the promotion of household savings. Based on the determinants of savings, policy makers could better control savings by controlling the relevant variables in the desired direction so as to foster self-sustained economic growth and development.

Most studies on savings in Uganda have usually looked at national level, which is aggregate and is demarcated in broad areas of public and private sector. In light of this, the study will particularly examines the determinants of savings in Uganda but taking the household perspective and the results of which will provide a useful insight into Uganda's policy environment in formulating appropriate policies aimed at improving capital accumulation through savings' mobilization and achieving a sustainable growth.

The results and implications would also be adapted to other economies facing similar problems to these of Uganda for formulating appropriate policies and programmes with far reaching impact on the targeted groups.

CHAPTER 2

2.0 Review of the Literature

2.1 Theories of Savings

A number of theories concerning determinants of savings have been examined. Below is a review of among others; the Keynesian absolute income hypothesis, Friedman's permanent income hypothesis, the life-cycle hypothesis, Duesenbery's relative income hypothesis, the McKinnon-Shaw hypothesis; and Hall's rational expectations hypothesis.

2.1.1 Absolute Income Hypothesis (AIH)

Keynes (1936) postulates that there is a stable function of consumption behaviour and hence savings. He argues that consumption and hence savings have a fairly stable relationship with current income. Keynes therefore stresses that savings would increase with absolute income (disposable income) and that consumption would increase at a decreasing rate as income increases, holding other factors constant. Keynes (1936) links consumption (C) to income levels (Y) through the marginal propensity to consume (MPC), such that;

$$C=f(Y) \dotfill (i)$$

The consumption function is written as

$$C=\alpha + \beta Y^2 \dotfill (ii)$$

where, C and Y are real consumption and real income of an individual, respectively.

In the above equation (ii), α is autonomous consumption assumed greater than zero, and β is the MPC and ranges from 0 to 1. From the equation above, the savings function (S) can thus be derived as

$$S=Y-C \dotfill (iii)$$

Then, the savings function will be written as

$$S=-\alpha + (1 - \beta)Y^2 \dotfill (iv)$$

In equation (iv) above, $-\alpha$ reflects dissaving assumed less than zero, while $(1 - \beta)$ is the marginal propensity to save (MPS) which lies between 0 and 1 such that as the level of income rises, average propensity to save (APS) will also increase. S is the real savings of the economic agent.

Attempts to validate the Keynes theory that have been carried out both in cross-section and time series data have given different results. Using cross-section data for United States of America, Brady and Friedman (1947) report that the MPC was fairly stable but the intercept was shifting upwards (Thomas, 1986). Kuznets, (1942) examined the US data over a period of 1879-1938 and discovered that the average propensity to consume (APS) was fairly constant at about 0.9. Goldsmith (1955) wanted to confirm the Keynesian hypothesis using data for personal rather than national income for USA and he concludes that the APS is constant.

Kuznets (1946) calculated the ratio of gross and net savings to gross and net national products using a cross-sectional data of seventy countries sub-divided into seven categories according to per capita income. The results in his study indicated that there is a tendency to have higher savings ratio for higher per capita income countries though not consistently. He concluded that personal savings are not important in the overall net domestic savings in the lower per capita income countries as compared to the higher per capita ones. Kuznets findings found a positive correlation between personal savings and personal disposable income and this was also supported by studies done by Houthakker (1960).

2.1.2 The Life Cycle Hypothesis (LCH)

Modigliani and Ando (1954) formulated the life cycle hypothesis of individual consumption/saving and has been the core theory that has guided the analysis of savings/consumption over the years. They argue that individuals adopt a planning horizon for their life time consumption. The hypothesis assumes that individuals attempt to spread their life time consumption evenly over their lives by accumulating enough saving during their earning periods to maintain their consumption standard during retirement. According to this hypothesis, an individual is assumed to have relatively low income at the beginning and at the end of their life so the conclusion about saving is that it is dependent on age. In the middle years individuals are able to service their debts which they accumulated during their early life

time when they were not earning, and save the rest while in the latter years of their life, individuals deplete their savings.

But the average earnings of the working population (hence the middle aged persons) in developing countries saves little. Apart from low incomes this group has the burden of looking after children and the elderly (high dependency ratios). In addition these people are in most cases in the process of acquiring real assets like houses, cars etc. Therefore, this group saves more in physical than in financial savings (Romer, 2001).

Williamson and Kelley (1968) tested the life-cycle hypothesis for Indonesia and examined the behaviour of income, household size, and age among a sample of Indonesians. They compared actual household savings with savings predicted by the life-cycle hypothesis. They found significant relationship for age cohort 40-49 years. MPS increased with age of household head for age cohort 20-29 years and 60-69 years respectively. Income was also found to have positive and significant effect. Williamson and Kelley could not correct for the influence of many social economic factors, particularly education due to limited sample size.

2.1.3 The Permanent Income Hypothesis (PIH)

The PIH as developed by Friedman (1957) postulates that household consumption (C_t) at time t depends not on current income but on its permanent income Y^P. The hypothesis which relates permanent saving to permanent income assumes a rational household that maximises utility through its consumption decisions. He argues that choices made by economic agents regarding their consumption/saving patterns are determined not by current income but by their permanent income which he defines in terms of measured longer term income expectations. Permanent income takes into account the long-time expectation over a planning period and a steady state and the consumption maintained over a planning period given the individual's present wealth. He made a distinction between permanent income and transitory income (Y^T). Transitory income is the difference between actually received income and permanent income.

In its simplest form, the savings function can be written as

$$S = \beta_0 + \beta_1 Y^P + \beta_2 Y^T \dots\dots\dots\dots\dots\dots(v)$$

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where β_0 is autonomous savings, β_1 is marginal propensity to save out of permanent income, β_2 is marginal propensity to save out of transitory income. Y^P is permanent income while Y^T is transitory income.

Friedman summarises his theory by saying that individuals will consume a constant proportion of their permanent income thereby making their marginal propensity to save equal to the transitory income (Thomas, 1986). Therefore, the low-income earners are expected to have higher MPC (hence low MPS) and high-income earners have higher transitory element to their income and a lower than average propensity to consume (APS).

Friedman's arguments show that the higher the transitory income the higher the savings rates among the individuals. An important message from the theory is that it is necessary to target the transitory income in order to induce economic agents to save to prevent them from excessive spending due to money illusion.

The PIH can therefore be useful in explaining the saving behaviour of different income groups. The self-employed or capitalists, for example have a greater transitory component in their incomes than labour (wage and salary) earners and so the former are expected to show a higher ratio of savings to observed income.

Empirical studies done to test the permanent income hypothesis have supported the hypothesis by showing a divergence between MPS out of transitory income and that out of permanent income with the former greater than the latter although not equal to one as earlier postulated by Friedman that individuals base their consumption spending on permanent income and thus save their transitory income. Hyun et al. (1979) showed that rural households in Korea saved about one-fifths of permanent incomes and about four-fifth of their transitory incomes during the late 1960s.

Likewise, studies by Friend and Taubman (1968) on twenty countries found the MPS out of permanent income to be around 0.065 and that out of transitory income to be 0.451. Ramanathan (1968) used mean current income as a proxy for permanent income in Delhi and India, where households are classified into homogenous groups and found out that the MPS out of transitory income was positive and significantly below one.

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2.1.4 Duesenberry Relative Income Hypothesis (RIH)

According to Duesenberry (1949), a fraction of an individual's income devoted to consumption depends on the level of his/her income relative to the incomes of the neighbours. An individual is assumed to make a psychological estimation of his real income falling below that of a community. He would then adjust his consumption to average that of the community by consuming more of his disposable income even to the extent of dissaving. On the other hand, if the individual's real disposable income rose above that of the society, an individual would save more from the surplus.

The propensity to save by an individual can be regarded as a rising function of his percentile position in income distribution. Again, aggregate savings ratio is independent of absolute level of aggregate income over time though it may depend on income distribution. Therefore the division of income between consumption and saving depends on the individual's relative rather than his absolute income.

The hypothesis also assumes that an individual's consumption behaviour will be influenced by his habitual consumption. If an individual has already attained a certain standard of living and his real disposable income falls below his previous peak income, he will not cut his current consumption but rather will spend more from his disposable income to the extent of dissaving, in an attempt to regain his previous consumption level. On the other hand, if his income rose higher than his previous peak income, the hypothesis assumes that he will not aspire for a higher standard of living than the one already attained thereby raising his saving ration.
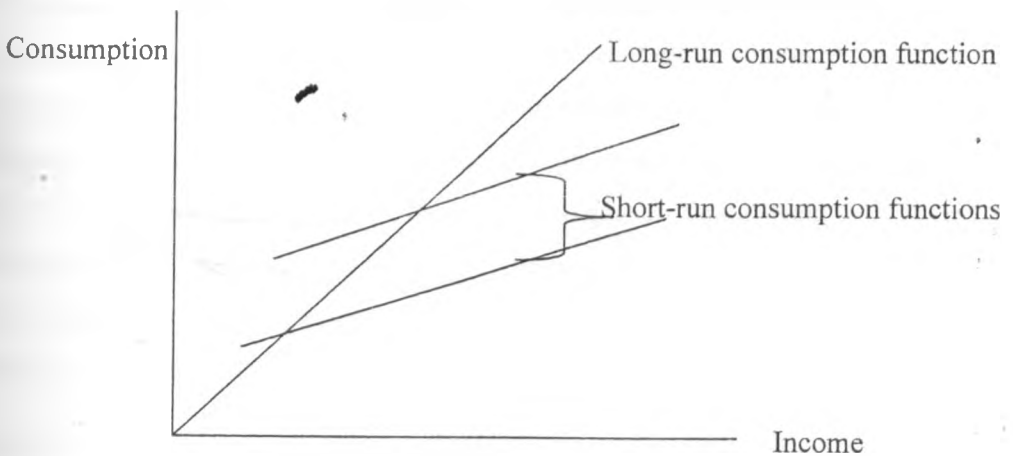

Figure 1: Short-run and long-run consumption function

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The time-series variant of the relative-income hypothesis is very similar to the cross-section version. The main difference is that instead of comparing their income to those of other households, each household is assumed to consider its current income relative to its own past income levels. A household that has in the past achieved income levels higher than its present levels would attempt to maintain the high consumption levels that it achieved earlier. Thus, when incomes fall, consumption would not fall in proportion. (Note that this is not totally inconsistent with the modern theory of consumption smoothing, though the basis for smoothing in the modern theory is the household's average lifetime income, not the highest level of past income.)

The result of this behavior for aggregate consumption is called a "ratchet effect." When incomes rise, consumption increases along the steeper long-run consumption function. However, when a recession hits and incomes decline, households reduce consumption less than proportionally and fall back along the flatter short-run consumption function. During the recovery, they move up along the flat line until they reach their highest attained level of consumption. After recovery, when incomes grow again, they proceed up the long-run line again until the next recession, when they fall back along a flatter line. Thus, consumption ratchets upward, staying relatively near its highest past value when income declines.

2.1.5 The McKinnon-Shaw Hypothesis

McKinnon (1973) and Shaw (1973 argue that the rate of return on saving, as measured by real interest rate, would have a positive effect on saving rates. The ability to save represents an inter-temporal choice between present and future levels of consumption and so high interest rates encourage economic agents to postpone present consumption in order to yield future interest from the savings. On the other hand, high interest rates encourage economic participants to reduce saving levels since they expect to get substantial yield even if they save less. McKinnon (1973) and Shaw (1973) explain the role of government in mobilising savings through the financial repression hypothesis. Governments over the years have deliberately kept interest rates below market clearing levels to promote investment.

McKinnon (1973) observes that with controlled interest rates it is likely that not all economic agents will access credit and this can lead to dualism, where those firms can access subsidised credit would employ capital-intensive technologies and those not favoured by the policy

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would only carry out high-yielding projects with a short maturity. Another effect of financial repression according to McKinnon (1973) and Shaw (1973) is that it substitutes market for non-market forces in determining interest rates.

Numerous studies inspired by the McKinnon-Shaw repression hypothesis have been conducted. Aryeetey et al (1990) tested the McKinnon-Shaw hypothesis for Ghana over the period 1968-1985. A regression analysis was used with gross domestic savings as a ratio of GNP as the dependent variable. The explanatory variables included growth rate of GNP, per capita GNP, foreign savings as a portion of GNP, real rate of interest and a lagged dependent variable. Real interest rate was found insignificant and thus concluded that real interest rate was unimportant in explaining gross saving behaviour over the sample period. The findings further observed the income variable to be insignificant and was attributed to low real incomes of Ghanaians which made it hard for them to save. The foreign savings variable was highly significant and suggested substitutability between domestic and foreign savings. Finally, the lagged savings ratio was also highly significant but with a negative effect. This was explained using the wealth effect and said that as previous savings increase, people may feel wealthier and increase consumption out of current income and thus decrease current period savings.

In the study by Williamson (1968) on the influence of interest rate changes on savings using panel data for six developing Asian nations, he found the interest rate coefficient to be significant for about half of the countries tested, and strongly negative. It was also found that short-run savings are more sensitive to interest rate changes than long run savings.

Giovannini (1985) and Leff (1980) combined time series and cross sectional studies of eighteen less developing countries to show that there was little empirical support for the relationship suggested between savings and positive interest rate. Gupta (1984) surveyed a group of Latin American and Asian countries using a cross sectional model. Using alternate interest rates and per capita aggregate savings as the dependent variable, he examined the effect of real interest rate on the personal savings of rural and urban households. His conclusion was that even though per capita incomes were low, incentives such as a positive real interest rate could lead to higher savings especially for the urban sector. Webb et al (1992) concluded by noting that real interest rate has no clear effect on household savings. They recommend that successful structural adjustment and growth policies are the most effective ways to raise household saving.

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Loayza et al. (2000) finds no positive relationship between financial deepening and saving or between higher interest rates and saving in developing countries. But they observe a positive relationship between income growth and savings. This is in conformity with the findings of Attanasio et al. (2000).

Masson et al.(1995), in an attempt to establish the determinants of private savings across a large number of developed and developing countries over time found out that the interest rate is a significant explanatory variable for developed countries in determining savings rates. However this is not the case in developing countries. They have found that growth in income is associated with higher rates of saving but beyond a certain point, as income increases savings ratios fall.

In the empirical literature, there is little consensus on the interaction between savings and the real rate of interest. Some researchers have been unable to detect much of the effect of changes in real interest rates on domestic saving in developing countries. For example, Giovannini (1985), who examined this issue for eighteen developing countries, concludes that for the majority of cases, the response of consumption growth to changes in real interest is not significant and that one should expect negligible responses of aggregate saving to the real rate of interest.

2.1.6 Rational Expectations Hypothesis (REH)

Hall (1978) estimated the consumption function based on expectations. The consumption function estimated thus used the weak efficiency assumptions, that is, the belief that past values can be used to explain the present values (Bodie et al. 2004). In this way, Hall construed that past consumption values are enough explanation on current consumption behaviour assuming that consumers are rational. The REH assumes that economic agents keep track of their consumption patterns. Consumption (C) decision at any time, say t, takes into account of known information and expectations of the consumer about the future flow of income as of time t (Branson, 1989). Using Hall's reasoning the inter-temporal consumption model taking into account the role of expectations can be expressed as

$$C_{t+1} = \left[\frac{1+r}{1+s}\right] C_t + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\text{vi}$$

where C_{t+1} is total consumption, r is the discount rate, δ is the rate of time preference, and ε_t is transitory consumption. In regression analysis, the bracket is the coefficient of lagged values of consumption. Equation (vi) above shows that consumption is a random walk. According to this version, changes in consumption arise from surprise changes in income (Dornbusch et al. 2004). In each period, the expected next period consumption equals current consumption. Changes in consumption are unpredictable (Romer, 2001). From this result, Hall (1978) argues that the life-cycle/permanent income hypothesis mean that consumption/saving follows a random walk. If consumption is expected to fall then the economic agent will smooth out. When consumption is expected to fall then the individual will adjust by saving more. Similarly, if consumption is expected to rise, then the individual will have to either deplete their saved income or borrow in order to meet the required level of consumption.

Hall's hypothesis therefore postulates that future savings depend on past income levels and that savings is a random walk.

2.2.0 Other factors that may influence households' decisions to save

2.2.1 Liquidity Constraints

Branson (1989) argues that a household can save today for future consumption or borrow today to consume and pay using future income. This process may not be smooth for many households especially in developing economies because they may be constrained by the availability of financial institutions where they can save and borrow. Liquidity constraints imply the inability of some households to borrow against future income (Sachs and Larrain, 1993). In developing countries, liquidity constraints arise due to the fact that there are few credit institutions and the available institutions lend against collateral. This theory therefore questions the validity of theories like permanent-income hypothesis and life-cycle hypothesis for poor households. The permanent-income hypothesis assumes that individuals can borrow at the same interest rate at which they can save as long as they eventually repay their loans. Romer (2001) observes that the cost of borrowing is usually higher than the interest they receive from savings. In addition, some individuals are unable to borrow more at any interest rate. If individuals face high interest rates for borrowing, they may choose not to borrow to smooth their consumption when their current resources are low. Thus liquidity constraints

can cause current income to be more important to consumption than is predicted by the permanent-income hypothesis. If there are liquidity constraints, a fall in income can cause a large fall in consumption unless the individual has savings. Therefore, the presence of liquidity constraints causes households to save as insurance against the effects of future falls in income.

2.2.2 Ricardian Equivalence

This is the idea that increased government borrowing may have no impact on consumer spending because consumers predict tax cuts or higher spending will lead to future tax increases to pay back the debt.

This would mean a tax cut financed by higher government borrowing would have no impact on increasing aggregate demand because consumers would save the tax cut to pay the future tax increases. Reductions in public saving resulting from tax cuts are offset one for one by increases in private saving leaving consumption, national saving and thus interest rates and investment unchanged.

But if consumers decide to spend some of the extra disposable income they receive from a tax cut (because they are myopic about future tax payments, for example), then Ricardian equivalence will not hold; a tax cut will lower national saving and raise aggregate demand.

Among the assumptions necessary for Ricardian equivalence to hold exactly are intergenerational altruism, rational expectations of private agents, absence of credit constraints and non-distortionary taxes (Barro, 1989).

The Ricardian equivalence is related to both the life cycle hypothesis and rational expectations of consumers. The argument is that if the government borrows money to fund a tax cut, rational consumers will realise that in the future, taxes will have to rise to finance the borrowing. Therefore, they save the extra income so that they can pay future tax rises.

Consumers also wish to smooth their consumption over the course of their life. Thus if consumers anticipate a rise in taxes in the future they will save their current tax cuts to be able to pay future tax rises.

De Castro and Fernandez (2009) test the Ricardian equivalence proposition for Spain using several different approaches. While they reject the strong version of Ricardian equivalence

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(full offset) they do find evidence of partially offsetting movements between private and public saving.

They also find some evidence that agents become more Ricardian with increasing government indebtedness. Nickel and Vansteenkiste (2008) report that above a debt to GDP ratio threshold of 90% (22 industrialised countries) or 80% (11 euro countries) an increase in the public deficit does not result in a rise in the current account deficit. This implicitly suggests that private consumers have become more Ricardian with raising debt to GDP ratios.

Hüfner and Koske (2010) investigate household saving determinants for G7 countries. To proxy for Ricardian effects they include the stock of government debt (as opposed to the budget deficit) and find that a reduction of government net financial liabilities of one percentage point, reduces household saving in the United States and France by 0.2 percentage points.

In a comparative analysis of average private saving rates in 15 African countries for the period 1970-1993, Mwega (1997) finds a negative and highly significant coefficient on fiscal balance. Specifically, a 1% in government budget surplus was found to reduce the private saving rate by up to 0.9, implying full Ricardian equivalence. The deduction is that fiscal balance and private saving are perfect substitutes.

2.2.3 Buffer-stock Saving

Buffer-stock saving behaviour emerges if consumers with important income uncertainty are sufficiently impatient. When consumers are both impatient (consumer is 'impatient' in the sense of wanting to borrow against future labor income to finance current consumption) and "prudent" (in the sense that consumers will have a precautionary saving motive) there will be a target level of non-human wealth ('cash') such that if actual cash exceeds the target, the consumer will spend freely and cash will fall (in expectation), while if actual cash is below the target the consumer will save and cash will rise.

Uncertainty about households anticipated future income due to expected unemployment, strengthens the precautionary motive for saving and hence a cut in consumption spending. This in turn justifies the fact that precautionary savings may be part of the explanation why

large consumption falls anticipate large increases in unemployment in response to exogenous shocks to the economy (Carrol, 1992).

In the context of business cycles, Challe and Rogot (2010) showed that shocks to labor productivity affect firm's incentives to create jobs and hence the expected duration of unemployment spells. When employed workers are imperfectly insured against the occurrence of such spells, they hoard assets (buffer-stocks) for self-insurance purposes. Moreover, during times of recession the precautionary motive for holding wealth is strengthened, causing aggregate savings to rise and aggregate consumption to fall which in turn interprets the implications of shock propagation in the economy.

Not only do individuals accumulate buffer-stocks for precautionary purposes, but also sovereigns follow the same behavior. Saving rates of fast growing emerging economies have been rising over time, leading to surprising "upstream" flows of capital from developing to rich countries. Carroll and Jeanne (2009) developed a model to test the relationship between economic development, stock of savings and capital flows. The model was able to confirm the precautionary motive of sovereigns' accumulation of assets (ratio of net foreign assets to GDP) in response to risks of global imbalances.

The buffer-stock saving model therefore suggests that households should maintain a buffer stock of assets against uncertainty. Touche (1989) recommended that "the liquid assets held should roughly equal to six months' employment income. If you are in an unstable employment situation ... the amount should probably be greater". As both this quotation and intuition suggest, one of the implications of a buffer-stock model is that consumers with higher income uncertainty should hold more wealth.

Several recent papers have found empirical evidence that precautionary saving is statistically significant and economically important. Using wealth and income uncertainty data, Carroll and Samwick (1995) find that wealth is substantially higher for consumers who face greater income uncertainty. Carroll (1994) provides some evidence that consumers with more variable incomes save more. Kazarosian (1990) finds, in a regression of wealth on demographic characteristics and income variability, that the degree of income variability is overwhelmingly significant. One further category of evidence on household wealth accumulation patterns supports the buffer-stock interpretation of the life-cycle and permanent income models.

2.3 Other Empirical Literature

Liu and Xu (1997) in a study of Shanghai households found a change in savings behaviour after economic reforms. When the economic reforms (especially housing and pension provision) were carried out, household savings increased and there was diversification into new financial instruments. Still, Bayoumi (1993) examined the consequences of financial deregulation on personal saving for United Kingdom and reports that in the short-run financial liberalisation has a negative effect on household savings. He observes that household saving exhibits an exogenous decline associated with financial innovation. But he notes that savings for households are responsive to wealth, real interest rates and current income.

Schmidt et al. (1992) estimated a behavioural savings function in investigating the determinants of savings using household data. He regressed the savings rate taken as the ratio of household savings to private disposable income on; income, growth in income, wealth, inflation rate, dependency ratio, urbanization rate and foreign savings. The results of his . regression indicated a positive and significant relationship between all the income variables named with household savings. The results further confirmed previous studies as they indicated an insignificant and negative effect of interest rate and inflation in determining savings and that households save less the greater is their monetary wealth relative to other forms of wealth.

Based on a matching household survey, Dennizer et al. (1980) explored the determinants of household saving rates in transition economies. They regressed household savings on variables including sex, employment, age, and income distribution. The regression results indicated that female-headed households have relatively lower savings relative to male-headed households. The evidence on the education variable also violated the typical finding of a positive education elasticity of savings for market economies and thus concluded that it was consistent with the flatter expected income profile of less educated households. The study further found out that saving levels are lower for the 30-49 age group than the 50-64 age group for all the countries considered.

In their study, Friend and Taubman (1966) used target savings model where asset holdings are crucial to savings behaviour. Due to lack of data, past savings were used as a proxy for

wealth. They found out that (past) savings coefficient was highly significant with a negative sign. They explained that larger asset holdings were expected to be more frequently associated with equilibrium between desired and actual assets holdings and, lower savings. Choudhury (1968) who used household asset as a proxy supported this result.

Synder (1971) used regression analysis to study the behaviour of household savings in Sierra Leone. He considered household size as one of his independent variables in his econometric model and found that the probability of positive savings for the sample is unaffected by household size. He defined household size as the number of persons in the household. Large and small households are equally likely to have positive though different savings amount. He also considered the family structure, that is, the extended and nuclear family in his analysis. He found that the nuclear family saves more than the extended family. He explained that with the extended family, income is distributed to many limiting the amount set aside for saving.

In a study carried out by Amimo et al. (2003), they find that the rural Mozambican household saving decision are responsive to income and amounts of assets owned by the households. They also found out that the financial sector plays a crucial role by providing services that local people need. However, their study reports a negative relationship between savings and social factors like education levels.

2.4 Summary

In a nut shell, saving is future consumption i.e. it may be used for conventional consumption later in life or bequeathed to the individual's children for their consumption (Romer, 2001). There is also growing amount of evidence supporting the opinion that saving is precautionary undertaken to guard against periods of low income.

The foregoing discussions reveal that there are several factors that influence economic agents regarding savings. Income, interest rates, availability of financial intermediaries, demographic factors like age and gender of the saver, household size, and dependence ratios are among the notable influences of saving behaviour. This discussion provides a platform for developing the econometric model that will be used to analyse data in the chapters to follow. The empirical literature discussed here grants a benchmark of assessing the results that this research will find.

CHAPTER 3

3.0 Methodology

3.1 Model Specification

The study employs an econometric analysis in order to establish the determinants of household savings in Uganda. Following the review of previous literature, a number of empirical studies and theories of savings postulate a number of factors likely to influence the willingness and ability of households to save. These factors among others are social, economic and demographic in nature.

In order to adequately capture the factors that determine household savings, this study adopts the framework by Wai (1972). The framework is appropriate because it has been similarly used in developing countries by researchers like Amimo et al. (2003). In addition, this approach incorporates all the variables that have been met in the preceding chapter as well as the data that the study intends to use.

Generally, the model incorporates the variables that are captured in the major theories of savings. The model expresses the savings dependent variable as

$$S=f(A, W, O, \pi)\dots\dots\dots\dots\dots\dots\dots\dots\dots1$$

where, S is household savings, A is the ability to hold financial savings, W is the willingness to hold financial savings, O is the opportunity to hold financial savings, and π is the inflation rate.

A is decomposed as follows;

$$A=f(Y, HA, HS, SX, LB)\dots\dots\dots\dots\dots\dots2$$

where, Y is household income, HA represents Assets of the household, HS is size of the household, SX is sex of the household head, and LB are liabilities of the household.

W is decomposed as follows;

$$W=f(Dr, AGE, EDC)\dots\dots\dots\dots\dots3$$

where, Dr is real deposit rate paid by financial institutions, AGE is the age of the household head, EDC is the literacy dummy variable for the household head.

O is also decomposed as follows;

$$O=f(LOC)\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.4$$

where, LOC is the dummy variable of the household location (whether in rural or urban areas).

Substituting equations 2 through 4 into equation 1 we get the general model of savings specified as;

$$S=f(Y, HA, HS, SX, LB, AGE, EDC, LOC)\dots\dots\dots\dots.5$$

However, considering that the study will use cross-sectional data, we drop both Inflation and deposit rate variables.

The econometric model can thus be finally specified as

$$S = \alpha_0 + \alpha_1 Y + \alpha_2 HA + \alpha_3 HS + \alpha_4 SX + \alpha_5 LB + \alpha_6 AGE + \alpha_7 EDC + \alpha_8 LOC + \alpha_9 AGE^2 \varepsilon_i$$
$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.6$$

where α_0 and α_i for $i = 1, 2, 3, \dots, 9$ are the intercept and slope coefficients respectively,

SX is the dummy variable for the sex of the household head (0 for female and 1 for male),

EDC is the dummy variable for literacy level of the household head (0 for illiterate and 1 for literate),

LOC is the dummy variable for household location (0 for rural and 1 for urban)

Variable Definition and Expected signs of Coefficients

Household Savings (S)

This is total household savings in financial terms, whether formal or informal during a given period (year). Savings could be in terms of bank deposits, money lent out, invested funds and the cash held at home. In this study the framework uses secondary data of the Uganda National Housing survey (UNHS) 2009/10, which has no component of savings. Therefore,

the savings variable is obtained by taking the difference between total household income and household expenditure on non-durable commodities.

Ability to Hold Financial Savings (A)

This is explained through factors like household's income (Y), its assets (HA), its size (HS), the sex of the household head(SX), and liabilities of the household (LB).

The UNHS 2009/10 collected information on various components of household income including; property income, current transfers and other benefits, income from enterprises, salaries and wages; and income from subsistence activities. Household income was defined as the sum of income both in cash and in-kind that accrues from economic activities performed by household members.

Both the absolute and permanent income hypotheses state a positive effect of income on savings.

The variable household asset (HA) is a proxy for household wealth. The household assets are among the measures of economic welfare. In their study, Friend and Taubman (1966) used target savings model where asset holdings are crucial to savings behaviour. Due to lack of data, past savings were used as a proxy for wealth. They found out that (past) savings coefficient was highly significant with a negative sign. Choudhury (1968) who used household asset as a proxy supported this result.

The life cycle hypothesis postulates that demographic variables like household size, dependency ratio, and gender of the household, among others affect savings rates (Ando and Modigliani, 1963). The UNHS 2009/10 defines household size (HS) as the number of usual members in the household. Larger values of their coefficients imply higher consumption levels and hence low savings. Theory states that total savings and consumption give total income of the household. Therefore these variables will be negatively related to the savings levels.

The dummy variable for gender, **SX,** explains whether savings are influenced by the sex of the household head. The dummy SX takes the values of 1 for a male-headed household and 0 for a female head. If the coefficient of the dummy variable is positive it will mean that male-headed household save more than their counterparts. The LB variable is a total indebtedness

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of the household and has a negative relationship with household savings. Liabilities are negative savings.

Willingness to Hold Financial Savings (W)

One of the demographic factors affecting household's decision to save is the age of the household head. If we define variable AGE as a middle-aged household head, then we expect its coefficient to be positive with household savings. This is because according to the life cycle hypothesis, middle-aged persons earn more and are thus expected to save more than old persons.

On the other hand, if we define the AGE^2 variable as an old-aged household head (older than 65 years) then we expect the sign of its coefficient to be negative with savings drawing from the same life-cycle hypothesis conclusions. We therefore expect older households to save relatively less than the middle aged ones.

Education of the household head influences them in their savings decisions and the kinds of risks to be taken. EDC has a positive influence in holding financial savings. The EDC dummy takes the value 1 for a literate household head and 0 if the household head is illiterate. If the coefficient of the EDC dummy variable is positive, it will mean that the households with educated household heads save relatively more than the ones with illiterate heads.

Opportunity to Hold Financial Savings (O)

This can be viewed from the perspective of available financial intermediaries in the proximity of households and the transaction costs incurred by households in trying to access these institutions. Location (LOC) of the household therefore, in terms of whether it is in a rural or urban setting is relevant in explaining the available opportunities for households to save. The dummy LOC takes the value 1 if the household is in an urban area and 0 if in the rural area. Since more and well-diversified financial intermediaries exist in urban areas and in the proximity of most households than is in rural areas, then the dummy variable for location of household is expected to be positive.

3.2 Data Type and Sources

The study uses secondary data from the Uganda National Housing Survey (UNHS) 2009/10.

The UNHS 2009/10 was undertaken from May 2009 to April 2010 and covered about 6800 households scientifically selected countrywide. The survey was comprehensive and had six modules, namely; Socio-economic, Labour Force, Informal Sector, Community, Price and Qualitative modules. All the 80 districts in Uganda as at 2009 were covered.

As noted earlier, the set of data does not have savings as a variable. Household savings will therefore be obtained by taking the difference between total household income and household expenditure on non-durable commodities. This measure captures both funds saved and those invested directly by households.

Analytical Techniques

This study uses both descriptive statistics and econometric analysis to analyse the data from the household survey. Descriptive statistics are important because they give a general overview of the data used in the study. The study will use STATA software packages to estimate a household savings model from the survey based on Equation 6 above. The values and signs of the coefficients from the estimated model help in answering the questions stated in the research problem. In the same manner, hypothesis on stability should be addressed by observing the changes in the signs of the coefficients of the model.

Diagnostic Tests

In any regression analysis one may not be sure as to whether or not the results obtained represent the realities on the ground. In order to mitigate such uncertainty, it is important to use estimation and testing tools by way of making sensible and accurate judgements of the results obtained.

The statistical tools used in this study will examine the signs and magnitude of the coefficients of the regressors, overall fit of the regression equations using the R-squares and standard errors of the regressions, correct specification of the model using the Ramsey RESET test and heteroscedasticity test using Breusch-Pagan Test. Since the data is cross-sectional, the presence of outliners will be a norm than an exception. These would make the coefficients have signs opposed to the theory. To resolve this, removing all the outliners in all variables affected was used to clean the data.

CHAPTER 4

4.0 Empirical Results

4.1 Descriptive Statistics of the Data

The UNHS 2009/10 data used in this study had a total of 1,497 households. Fewer observations were used because of missing observations in variables like age, sex and literacy of the household head. The majority of the households used in this data set were from the rural areas (61%).

About 77% of the households are male headed. The mean age of the household head is 39 years with a minimum of 14 years and a maximum of 90 years. On average the household size is estimated at 5 persons per household and the result also shows that the average household size is bigger in rural areas than is in urban areas. Majority of the household heads are in the age group 20 to 44 years constituting 69%.

The literacy rate of the household heads in the study was 76% with illiterate female-managed household heads constituting 28% of the illiteracy rate. The rural households contributed 84% of the 24% illiterate household heads in the study.

The data also shows that the mean monthly household income derived from all sources is about UGX 1,220,000. However, the mean income in rural households averaged UGX 248,000 while that of urban households averaged about UGX 2,720,000. More than 50% of the households earned less than UGX 300,000 monthly. Majority of the households (45%) earned monthly income between UGX 300,000 and 5,000,000 and only about 5% of the sample households earned more than UGX 5,000,000 monthly. Male-headed households registered a higher mean income of about UGX 1,500,000 compared to about UGX 257,000 of their female counterparts.

The data observes a uniform mean saving rate of 7.9% for both the urban and rural households. However, male-headed household have a higher mean saving rate of 8.9% compared to their female-headed household whose mean saving rate is 4.7%.

In Table 1 below are summary and descriptive statistics of the variables used in this study's regression model. Tables 2a and 2b compare the same variable statistics with respect to location of the household.

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Table 1: Summary Statistics of the Regression Variables

Variable	Observation	Mean	Std. Deviation	Minimum	Maximum
Household Size	1497	4.99599	2.92623	1	24
Age of Household Head	1497	39.23647	14.94957	14	90
Saving Rate	1497	0.0794161	0.3034475	-4	0.937
Assets	1497	622242	1762648	1035	32400000
Liabilities	1497	560835.2	1571713	600	36100000
Income	1497	1223802	3407457	2000	84000000

Table 2a: Summary Statistics of the Rural Households

Variable	Observation	Mean	Std. Deviation	Minimum	Maximum
Household Size	907	5.125689	2.701008	1	17
Age of Household Head	907	40.37376	15.67165	17	90
Saving Rate	907	0.0793785	0.2823833	-8	0.325
Assets	907	127648.4	161215.1	1035	1850000
Liabilities	907	126736.9	160053.4	600	3115000
Income	907	247557.8	246606.9	2000	1000000

Table 2b: Summary Statistics of the Urban Households

Variable	Observation	Mean	Std. Deviation	Minimum	Maximum
Household Size	590	4.79661	3.234364	1	24
Age of Household Head	590	37.48814	13.59425	14	88
Saving Rate	590	0.0794756	0.3334931	-7.509271	1.9375
Assets	590	1382575	2625932	1725	32400000
Liabilities	590	1228169	2344907	2750	31600000
Income	590	2724570	5066841	5000	84000000

Table 3a: Summary Statistics of the Male-headed Households

Variable	Observation	Mean	Std. Deviation	Minimum	Maximum
Household Size	1154	4.97487	2.921386	1	24
Age of Household Head	1154	38.10225	14.21541	14	90
Saving Rate	1154	0.0891614	0.0986851	-0.5384616	0.9375
Assets	1154	768361.8	1982806	1035	32400000
Liabilities	1154	690600.9	1768079	600	36100000
Income	1154	1511117	3832031	2000	84000000

Table 3b: Summary Statistics of the Female-headed Households

Variable	Observation	Mean	Std. Deviation	Minimum	Maximum
Household Size	343	5.067055	2.945637	1	18
Age of Household Head	343	43.05248	16.65483	17	84
Saving Rate	343	0.046631	0.60701		
Assets	343	130631.8	146919.7	1725	864000
Liabilities	343	124247.6	136060.7	1290	684500
Income	343	257150.4	257933.1	2000	1000000

In Tables 3a and 3b above, we observe that on average male-headed households save much more than the female-headed ones. This could be explained by the income-earning variations in the two groups. As earlier noted female household heads share their time between purely house-keeping activities like childcare, transporting water, and wood-collection and income-earning activities. In most cases their income capacity is adversely reduced and this reduces their ability to save compared to male household heads.

In Table 4 below, we look at descriptive statistics of both the demographic and socioeconomic variables with regard to location on the households.

Table 4: Demographic and Socioeconomic Characteristics of Household Head by Location

	Rural	Urban	Total Number	%
Sex				
Female	277	66	343	22.9
Male	630	524	1154	77.1
TOTAL	907	590	1497	100
Age				
Less than 20 and over 65 years	78	44	122	8.1
20 to 44	608	422	1030	68.9
45 to 64	221	124	345	23.0
TOTAL	907	590	1497	100
Education				
Illiterate	306	57	363	24.2
Literate	601	533	1134	75.8
TOTAL	907	590	1497	100
Income (UGX)				
Up to 300000	610	140	750	50.1
Between 300000 and 5000000	297	372	669	44.7
Over 5000000	0	78	78	5.2
TOTAL	907	590	1497	100

4.2 Results and Interpretation for the Regression Equation

Table 5: Regression results Dependent Variable: Log of Saving Rate

```
Linear regression                              Number of obs =    1497
                                               F( 13,   1483) =   39.55
                                               Prob > F       =  0.0000
                                               R-squared      =  0.2149
                                               Root MSE       =  1.1722
```

logSR	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
logHsize	-.1193075	.0563109	-2.12	0.034	-.2297649	-.0088501
logage	-30.73206	17.0525	-1.80	0.072	-64.18164	2.717514
logAGE2	14.67337	8.305273	1.77	0.077	-1.617961	30.9647
logNA	.0831877	.0057927	14.36	0.000	.0718249	.0945506
logY	-.058572	.0244341	-2.40	0.017	-.106501	-.010643
location	.4167759	.2956252	1.41	0.159	-.1631121	.9966639
gender	-.0688789	.1373181	-0.50	0.616	-.3382372	.2004795
educ	-.0443729	.1446641	-0.31	0.759	-.3281409	.2393952
EdcSex	-.3057567	.1665792	-1.84	0.067	-.6325127	.0209992
AgeLoc	.0004627	.0043722	0.11	0.916	-.0081136	.0090391
LocSex	.0689946	.1833245	0.38	0.707	-.2906083	.4285976
EdcLoc	-.0806782	.1970748	-0.41	0.682	-.4672532	.3058968
HsLoc	.018232	.0184127	0.99	0.322	-.0178858	.0543498
_cons	3.532851	2.163391	1.63	0.103	-.7107816	7.776484

Table 7: Correlation coefficients of the regression variables

	logSR	logHsize	logage	logAGE2	logNA	logY	location
logSR	1.0000						
logHsize	-0.1208	1.0000					
logage	-0.1896	0.0729	1.0000				
logAGE2	-0.1893	0.0728	1.0000	1.0000			
logNA	0.3890	-0.1280	-0.0914	-0.0910	1.0000		
logY	-0.0123	0.0085	-0.0603	-0.0603	-0.0048	1.0000	
location	0.1622	-0.0908	-0.0862	-0.0860	0.1283	0.5598	1.0000
gender	-0.0304	-0.0129	-0.1297	-0.1293	0.0432	0.2429	0.2250
educ	-0.0373	0.0051	-0.0212	-0.0212	0.0720	0.2454	0.2745
EdcSex	-0.0612	0.0147	-0.0867	-0.0865	0.0607	0.3594	0.3586
AgeLoc	0.0977	-0.0538	0.1662	0.1664	0.0872	0.5183	0.9066
LocSex	0.1121	-0.0523	-0.0884	-0.0882	0.0889	0.6096	0.9099
EdcLoc	0.1158	-0.0570	-0.0763	-0.0762	0.1097	0.6043	0.9219
HsLoc	0.0770	0.3279	-0.0240	-0.0238	0.0283	0.4687	0.7561

	gender	educ	EdcSex	AgeLoc	LocSex	EdcLoc	HsLoc
gender	1.0000						
educ	0.0735	1.0000					
EdcSex	0.6638	0.6889	1.0000				
AgeLoc	0.1964	0.2538	0.3255	1.0000			
LocSex	0.4001	0.2747	0.4799	0.8182	1.0000		
EdcLoc	0.2328	0.4207	0.4628	0.8402	0.8612	1.0000	
HsLoc	0.2002	0.2269	0.3150	0.7152	0.7144	0.7144	1.0000

Household Size

The coefficient for the log of household size is negative as expected and is significant at 5%. The empirical results imply that a 1% increase in the size of the household reduces the household saving rate by 0.11%, holding other factors constant. Synder (1971) in his analysis to study the behaviour of household savings in Sierra Leone considered the family structure, that is, the extended and nuclear family. He found that the nuclear family saves more than the extended family. He explained that with the extended family, income is distributed to many limiting the amount set aside for saving.

Household Net Assets

A variable net assets (NA) was generated by taking the difference between assets and liabilities of a household. The coefficient of the log of net assets is positive and strongly significant at 1%. This implies that a 1% increase in net assets owned by a household increases the saving rate of that household by 0.08%, holding other factors constant.

The empirical findings confirm the central role of assets in determining household savings in developing countries. This result could be explained by the fact that most financial institutions require collateral security in the form of assets as a pre-requisite to accessing credit and hence households with more net assets have more opportunities to accessing loans which in turn improve their ability to hold financial savings.

Household Income

The coefficient of the log of income is negative and significant at 5%. This empirical implication is in line with Keynesian absolute income hypothesis which states that savings are directly and linearly related to income.

The findings indicate a negative savings rate coefficient of 0.06 which implies that a 1% increase in household income reduces the savings rate by 0.06%, holding other factors constant.

This result contradicts most studies (Amimo et al. 2003, Houthakker, 1960) that have found income positively influencing household saving rate. The explanation could be that there is a high age dependency ratio in Uganda associated with increasing responsibilities that come as a result of increases in earnings. This behaviour is common in most developing countries.

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Uganda Bureau of Statistics (UBOS, 2010) indicates a high age dependency ratio, that is, for every 100 persons in the working age group (15–64 years), there are 117 dependent persons (the proportion of persons aged less than 15 years constituted about 51 percent of the total population while that of persons aged 65 and above constituted only 3.1 percent).

Age of the Household Head

The coefficient of the log of age of the household head is negative and significant at 10%. The results indicate that as the age of the household head increases by 1%, the saving rate of the household he manages reduces by 30.7%. However, it is important to note that the sign does not follow the life-cycle hypothesis. Younger heads of households are expected to save more than older heads of the household. One explanation for this contradiction is that, in rural areas, younger heads of household do not hold enough physical wealth. Therefore, it is very difficult for them to hold financial savings. This situation is common in environments with high poverty and low levels of financial intermediation (Amimo et al. 2003).

However, the coefficient of the log of age squared is positive and also significant at 10%. This implies that a 1% increase in the older age (over 50 years) of the household head, the saving rate of the household he/she manages increases by 14.7%. This could be explained by the need for older household heads to save for their retirement and additionally, older heads have considerably accumulated physical wealth which enables them to hold more financial savings than the younger heads of household.

These results support model expectations in that it was assumed to follow the quadratic form.

Other Variables

The other variables; location of the household, gender, and literacy of the household head do not significantly influence household saving rate.

However, when the literacy and gender variables of the household head are interacted with each other (Edc*Sex) the coefficient is negative but significant at 10% in influencing household saving rate.

4.3 Diagnostic Tests Results

Ramsey RESET test using powers of the independent variables

In order to establish whether or not the regression model was correctly specified, a Ramsey RESET test using powers of the independent variables was carried out with the null hypothesis that the model is not well specified as against the alternative hypothesis that the model is well specified.

Ho: Model has no omitted variables

	$F(14, 1475)$
F	50.57
Prob>F	0.0000

The results above render no evidence in support of the null hypothesis and so the conclusion that the model is well specified.

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

The Breusch-Pagan / Cook-Weisberg test was also carried out to check for presence of heteroskedasticity. The null hypothesis is constant variance in the error terms against an alternative hypothesis that the error terms have differing variances.

Ho: Constant variance

	$Chi2(8)$
Chi2	19636.34
Prob > chi2	0.0000

The test results above do not reject the null hypothesis and so the conclusion that error terms are homoskedastic.

CHAPTER 5

5.0 Conclusions and Policy recommendations

5.1 Summary and Conclusions

This study has examined the determinants of household saving behaviour in Uganda. The ordinary least squares estimation method was used to explore the impact and magnitude of different socio-economic and demographic variables on the saving behaviour among households in Uganda.

The savings variable was computed by taking the difference between household income and consumption expenditure on non-durable commodities.

It is apparent that saving rate especially at household level is low in Uganda to support domestic investment. The estimated model shows that households in Uganda have an average saving rate of 7.9%. This is considerably a low savings rate bearing in mind that planned investment spending for this fiscal year has increased to about 9.7%.

This paper has also observed similar saving rates between rural and urban households. However, male-headed households have on average a higher saving rate of 8.9% compared to 4.7% mean saving rate of female-headed households.

Finally, the paper postulates that household savings are not only influenced by income-related variables like household income and net assets but also by demographic variables like age of the household head and the size of household. Income related variables like household net assets and income are the principal determinants in influencing the households to save. This is conformity to the Keynesian absolute income hypothesis that stresses the role of income in influencing saving behaviour.

Net assets owned by the household strongly influence positively the saving rate. This confirms earlier studies by Friend and Taubman (1966) that used target savings model and concluded that asset holdings are crucial to savings behaviour

5.2 Policy Implications

The paper has important elements that can help the Ugandan economy and other developing economies to realise their medium and long-term development goals with regard to domestic resource mobilization and particularly improving domestic savings' mobilization and Investment growth.

It is evident from the paper that the household saving behaviour is influenced by many factors both socio-economic and demographic in nature.

The crucial determinant of savings as earlier stressed is the level of income that economic agents have. When households hold financial savings in formal institutions they contribute to private and national savings which become available to fund investment growth and development.

The foregoing discussion has concluded that households have a substantial potential to increase their saving rate in order to cope up with the rate of investment expenditure and reduce dependence on foreign savings and donor assistance for development funding. Most households especially in rural areas hold their savings in non-financial form like livestock, land, food stuffs and cash holdings at home.

The study concludes that it is important to entice households especially in rural areas to save with formal financial intermediaries in an effort to improve domestic resource mobilization for investment growth. This can be achieved through public sensitization aimed at encouraging rural communities to save in financial institutions and undertaking moral suasion, campaigns to restore the public's confidence in financial institutions, and sensitizing and training the public to develop saving and banking habits. However, with few formal financial institutions in rural areas, the government of Uganda should strengthen and promote self-help informal financial intermediaries like voluntary associations (for example, rotating savings and credit associations, women groups, social clubs, village banks) in an effort to mobilize rural savings.

The recommendations above cannot achieve the desired purpose of the study if the economy is unstable. So it is imperative for policy makers to adopt a comprehensive approach aimed at macroeconomic stabilization. Strong and prudent macroeconomic management and

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continuous private-sector oriented structural reforms should be undertaken. Implementation of sound macroeconomic and structural economic policies would help achieve this goal.

With stable inflation levels, savers would be assured that their real rate of return would not be heavily eroded with time. Bank of Uganda as the central monetary authority should consider a regulatory framework including a deposit insurance scheme to safeguard the interests of depositors. Proper scrutiny of banks operating in the economy should also be done to reduce banks being declared bankrupt or being closed down by the authorities when they are not operating within their mandate.

In addition to the above, the monetary authorities (Bank of Uganda) should promote diverse financial institutions, saving institutions, mutual funds, financing companies, rural financial institutions, among others to provide a range of financial services for different categories of saving population.

The study has also found that demographic characteristics influence savings rate in the households. In order to have effective interventions of mobilising personal savings policies aimed at controlling population growth should be emphasized especially among rural households. The government should take campaigns about fertility reductions very seriously especially where people are still ignorant about modern contraceptive methods. Modern family planning methods should be encouraged and highly publicised to curb down the exploding population growth rate and its associated problems in the country.

The findings of this study have shown a negative influence of household size on the saving rate of households.

All these measures are aimed at giving households at all levels the ability, willingness and opportunity to hold financial savings. In this way the economy of Uganda and other developing countries would be able to mobilize enough domestic resources and locally fund their investment expenditures. Investment growth is one crucial fuel for growth and development.

With local mobilization developing economies cushion themselves from excessive external debts, interest payments, imported inflation and other external shocks that jeopardize the development progress of their economies.

5.3 Limitations of the Study

The results of this study should be treated with caution when making inferences. The UNHS 2009/10 survey was not designed to particularly take care of the needs of the present study. Consequently, some variables like savings had to be proxied by taking the difference between household disposable income and consumption.

Similarly, fewer household observations were used from the UNHS 2009/10 survey because of missing data in variables like age, sex and literacy of the household head. However, this study has benefited a lot from the same survey.

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