

SAVINGS AND CREDIT COOPERATIVES (SACCO's) AND
HOUSEHOLD SAVINGS BEHAVIOR IN UGANDA

BY

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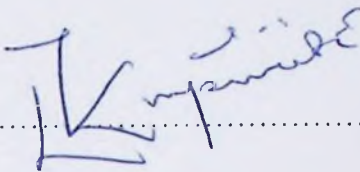
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A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES IN
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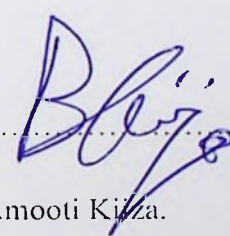
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DECLARATION

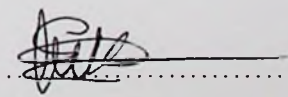
I, Mpiira Samuel declare that the work presented in this dissertation is a result of my own work and to the best of my knowledge has not been submitted for a degree in any other University.

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DEDICATION

In memory of the dear ones who began it but never lived long enough to celebrate the achievements. Florence Nakagwa Namuyimbwa my mother, Michael Baligeya my Uncle and Imelda Nalukenge my supervisor.

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ABSTRACT

This study looks at household savings behavior in relation to participation in SACCOS. A participant was defined as one who made the decision to join a SACCO. Participants were further disaggregated into those who save in the SACCO and those who do not hold deposits in the SACCO. The analysis involved a descriptive analysis of households by status of participation in the SACCO to determine whether there were significant differences in the socio-economic characteristics of participants and non-participants. The analysis then looked at the determinants of the degree of SACCO participation: none membership, membership without savings and membership with savings using an ordered probit model. For households with deposits in the SACCO, we used weighted least squares (WLS) to determine the factors influencing the levels of deposits made in the SACCO.

Results of the probit model analysis showed that the likelihood of membership and depositing in a SACCO increased with growth in incomes, a move from a rural to urban location and having dependants in secondary schools. Households with stable income sources; salary, rent and a spouse who earns were however, less likely to join and save in a SACCO.

The WLS analysis showed that deposits in the SACCO significantly decreased with distance to the district capital, Net deposits also decreased with the increase in level of education of the respondent, wealth holdings, for households engaged in trade and those with secondary school dependants. This may indicate that SACCOS are not well suited to such households either in terms of prestige or adequacy and suitability of products and services offered, with such households graduating to saving with bigger institutions. The analysis also showed a higher propensity to save out of transitory income than permanent income.

Key words: SACCO (Savings and Credit Cooperative), Savings

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

There has been significant growth of the Microfinance sector over the last 10 years, both in numbers of microfinance institutions and the number of clients that they serve. Most of the microfinance institutions are registered as either NGOs with the NGO Board, as Companies under the Company's Act, or as Savings and Credit Cooperatives with the Ministry of Tourism, Trade and Industry. In addition, there are numerous non-registered and registered moneylenders and other formal and informal savings and credit associations. The microfinance sector has been able to grow fast so as to cater for the financial needs of micro enterprises that the larger financial institutions have traditionally failed to address. This sector is characterized by smaller loans with very short repayment cycles, and most of its services are concentrated in urban and peri-urban centers with limited penetration into the rural areas (MFPED 2000)

Traditional banks have an urban bias due to the high costs of rural intermediation arising from small transactions with dispersed clientele and poor infrastructure. The microfinance sector in Uganda has evolved to provide a savings facility that is convenient for rural financial intermediation in terms of accessibility and nature of services offered. (MicroSave Africa Report, 2000)

Due to the rationing behavior of traditional formal banks, various microfinance institutions (MFI's) have cropped up in Uganda that provide savings and /or credit facilities to micro and small-scale business people whose financial needs are very small.

In Uganda these MFI's include savings and credit cooperatives (SACCO's) initiated under the Uganda Cooperative Alliance (UCA) with the aim of providing quality financial services on the basis of self-reliance through mobilization and management of their own financial activities. This was a response to governments call for the strategy of providing affordable financial services to economically poor people living in rural areas. Through member owned and managed institutions where members mobilized own resources through savings, share capital and membership fees. These SACCO's are managed by the board which is led by a chairman and they hire the staff. There several committees within the institution like the loans committee which approves loans to members. This would allow them to create their own resources through savings, start their own financial services institutions operating on cooperative principals and participate in the management of their own local financial markets. UCA was formed in 1961 as the apex of the Cooperative Movement mandated for advocacy, spokesman ship and member education. Its roles broadened to include catalyst for change and mobiliser of resources. It's Mission "The attainment of an economically viable, efficient, sustainable and member sensitive cooperative movement" and many of the services UCA was supposed to provide were provided by government. However in the early 90's, government divested itself from the cooperative movement and stopped providing education, training, audit and other services. It was left with only registration and de-registration of cooperatives and audit as a last resort. Government's withdrawal left a huge vacuum, and UCA was faced with a huge challenge of filling the vacuum.

UCA re-organised its self and the cooperative movement as a whole to meet the challenges arising from government policy. This led to the formation of SACCO's. A

Government policy was adopted where SACCO's were to be used as conduits for agricultural credit in the coffee and cotton sector. As a result, many SACCO's were formed out of the need to access that money. So the foundation for the growth of strong and self reliant SACCO's did not exist and they received the final blow when government divested its self from them. In 1994 a survey was carried out and it was found out that 70% of these SACCO's were dormant or dead and there apex body Uganda Cooperative Savings and Credit Union (UCSCU) was equally helpless. Under Community Empowerment through Co-operative Financial services (CECFIS) project, UCA has demonstrated that rural communities when properly mobilized, sensitized, guided and supported with the basic startup kit, coupled with capacity building services, can start successful SACCO's and can access affordable financial services on a sustainable basis. The SACCO's also having a big potential of becoming safe, sound and sustainable financial institutions (UCA 2005).

1.3 Statement of the Problem

UCA established SACCO's as a response to Governments call to provide affordable financial services to economically poor people living in rural areas. These SACCO's were established under the (CECFIS) project. Members were able to create their own resources through savings (membership/entrance fees, share capita contributions and voluntary savings deposits), start their own financial institutions operating on cooperative principals and participate in the management of these financial markets. In addition the objective was to increase rural communities' power to create, participate in and manage their own local financial markets.

Tremendous progress was made because the SACCO model was adopted and used by the rural people who needed micro finance services most. Rural people have accessed credit through their SACCO's which provides a forum for mobilization of the rural people for the purpose of education, sensitization on development programmes, identifying their economic needs, developing strategies for meeting them and training and empowerment in leadership and governance issues. Several benefits achieved by members include;

1. Improved ability to pay school fees for their children and hence access to better education and value for their assets (sold at appropriate not at desperate times as would otherwise have been the case (UCA 2005).
2. Improved stock of essential household property such as land, bicycles, and mattresses acquired through accumulation of savings and loans through their SACCO's (UCA 2005).
3. Improved access to basic necessities of life like good health (access to medical treatment), good nutrition (diet in homes), acquisition of good clothes and decent housing (UCA 2005).

SACCO achievements have been tremendous (UCA 2005) yet so far no studies have been done in Uganda to quantitatively analyse some of these achievements. SACCO's were established with the aim of boosting saving behavior in rural areas to empower the poor people come out of poverty. Therefore, this study seeks to assess the impact of SACCO's on savings behavior and factors that influence savings decisions with SACCO's. Results from this study will assist policy makers in determining the most effective intervention areas for the rural financial market in Uganda. It will also allow rural credit providers to draw lessons for initiation and improvement of operations in other rural based micro finance associations

1.4 Objectives of the Study

1.4.1 Main objective

The main objective of the study was to establish the factors that influence savings decisions within the SACCO's.

1.4.2 Specific Objectives

1. To characterise a sample of members of the Savings and Credit Cooperatives (SACCO's) and non-members in Uganda.
2. To determine the factors affecting the likelihood of a household participating in SACCO programmes.
3. To determine the factors influencing the extent of household net savings deposits in SACCO's.

1.5 Hypotheses of the Study

- (1) Having salaried employment for the Household head, spouse, earning rent income, having secondary school children, location of SACCO and urban residence positively affects the likelihood of household to participate in SACCO's.
- (2) Income, education level, work experience, distance to district capital, Having secondary school dependants, and access to credit positively influence the level of net deposits in a SACCO

1.6 Scope and Organisation of the Study

The scope of the study is limited to a sample of 463 households for the 2005 calendar year. Data was collected in six SACCO's of Mbarara, Rukungiri, Masaka, Kamuli,

Tororo and Apac. The SACCO's (affiliated to UCA) were chosen because they were well-established, mature and had been operational for at least 3 years. Within the areas where the selected SACCO's situated, respondents were selected using random sampling procedures. With the help of the local leader who provided the lists of the residents. Chapter 2 reviews literature related to this study. Chapter 3 discusses the methods used in data collection and the analytical tools used to achieve the objectives of the study. Chapter four is a presentation and discussion of the results. Finally chapter five gives a summary of the study, conclusions drawn and the recommendations.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Determinants of Participation in Rural Financial Markets

Zeller (1994) found that the decision of a household to participate depends on the anticipated costs and benefits of participation. The primary benefit is that there is a higher probability of obtaining a loan at a lower interest rate from the formal sector than the informal sector. However, households typically decline to access formal credit if they view the costs of participation as too high compared to the benefits. Zeller *et al.* (2001) showed that in formal credit programs, households incur time costs in compulsory training programs. There is also a time cost associated with screening, co-selecting and monitoring activities of group members in case of group lending or looking for third party guarantors in the case of individual lending. For poor households whose major resource is labour, the opportunity costs of participation would be too high.

The joint liability nature of group credit also imposes an additional risk burden on participants since they are responsible for each other's repayment actions (Zeller *et al.*, 1997). Households may fail to demand for formal credit with fear to utility losses as a result of social sanctions by group members and loss of reputation (Zeller *et al.*, 1997). In addition, since the terms and conditions of formal loans are strictly defined and frequently tied to a specific project that has to be approved, the cost of diverting funds to other uses is high. Hence, if loan tied activities do not coincide with the fund use preference of the household; the full cost of loans can be much higher than the stipulated interest rate. In countries where credit unions are established, research has shown that the principal reason most people

become members is, first, to have a dependable place to save and, secondly, to have ready access to a source of credit (Scott, 1992).

For credit unions, the ability to attract the significant savings of large numbers of members is the ultimate test of commercialization (Klachn *et al.*, 2003). For not only does the credit unions have to inspire trust in a secure and safe financial institution, it has to be able to offer an accessible service and pay a competitive return on savings. To do this depends on rigorous adherence to market-based disciplines. Central to success and growth is a vision of the purpose and potential of credit unions. What has been key to success has been, first, the way in which participants have seen the vision as emotionally compelling and, secondly, understood, how they could contribute to achieving its realisation in practice (Jackson, 1997)

2.2 Exclusion and non-participation

Surprisingly little data are available about the number of eligible households that choose not to participate in MFI programs even though they lack access to formal finance. In Bangladeshi MFI's use the rhetoric of serving "the poorest of the poor," but it is generally understood that most do not reach the truly destitute groups composed of widows, orphans, the chronically sick, and the mobile landless (Wright, 2000). Several explanations, including self-exclusion and other factors, are provided for this fact: the poor are too risk averse to participate and incur debt, they are too busy eking out a living to participate in groups and attend meetings, members in group lending programs exclude the poor out of fear that they will not repay on time; and loan officers, who are evaluated on loan recovery performance, discourage the participation of the poorest out of fear they will not repay. Evans *et al.* (1999) listed five sets of client-related barriers to

participation: insufficient resources, ill health or vulnerability to crisis, being a female head of household, lacking education, and individual and household preferences.

2.3 Factors Influencing Household Savings Behavior

Depositing money in a savings account with a financial institution is by no means the only form of saving. It may not necessarily be the best and it is certainly not the most common form of saving. The savings mode that people opt for and the savings pattern they display are influenced by a number of factors. The motives for households are grouped into four categories, (i) to provide resources for retirement and bequests; (ii) to finance expected large lifetime expenditure; (iii) to finance unexpected losses of income; and (iv) To smooth the availability of financial resources over time to maintain a more stable consumption profile. Empirical studies have examined the factors that affect each of these motives which in turn affect the household savings. Some of these factors that have been empirically established are government savings, corporate savings, growth rate, household wealth, unemployment, real interest rate, inflation and terms of trade (Aghevli *et al.* 1990; Masson *et al.* 1995).

The empirical findings of these studies have also been supported by a number of theories, in particular, the Life Cycle Hypothesis (LCH). This suggests that higher income growth would, for a given savings rate in each group, raise aggregate savings by increasing the incomes of those in work relative to those not working. It is also possible for savings rates within the working population to decline if workers anticipate higher future income and thus increase their current consumption. Another implication arising out of the LCH is that the higher the old age dependency ratio, the lower will be aggregate household

saving, as these people de-save in retirement. These four factors have some empirical support. In the case of the dependency ratio, Edwards (1995) and Jappelli and Pagano (1994) have found a negative relationship with savings, but the evidence is not yet conclusive (see Gersovitz, 1988).

Based on the Colombian income and expenditure survey (1984-1985), Ramírez (1992) found that the young and the retired save little. Indirect measures of the precautionary motive (such as the degree of urbanization) have shown a negative relationship with savings (Edwards, 1995). The evidence is more conclusive regarding liquidity constraints. For example, Jappelli and Pagano *op cit* use the loan-to-value ratio and consumption credit as proxies of borrowing constraints and find that these variables affect savings negatively (in a panel of 19 countries). These results are consistent with those found by Hayashi *et al.* (1988), Muellbauer and Murphy (1990), Bayoumi (1993), Miles (1992), and Guiso *et al.*, (1994). In the Colombian context, López (1994) presents evidence in the same direction.

Income generation is another key determinant of a person's capacity to save. People's propensity to save varies considerably. Personal savings are positively related to income levels. Consequently, people's capacity and willingness to save grows as their income increases. There is growing evidence, however, that poor people's capacity to save is much more than was commonly recognised. The realisation that poor people can and indeed do save has prompted several micro and small enterprise programmes, to incorporate savings mobilisation as an essential component into programme design.

2.3.1 Macroeconomic environment

An important determining factor in savings patterns whether savings are made in real assets or in monetary form depends primarily on the degree of monetisation of the economy. The monetary form of holding wealth or capital formation, which a household chooses, depends on the return, the risk, the convenience and the flexibility or liquidity of the alternative investment opportunities. When there is a high rate of inflation and little market integration (economic instability), households, in particular poor households, would prefer physical assets to monetary savings (FACET BV 2000).

2.3.2 Interest rate

Individuals deposit their savings in cash with financial intermediaries principally on the basis of the interest rates that they are offered. Low interest rates discourage savings in financial instruments. Presumably the real interest rates (interest rate minus the inflation rate) and not the nominal interest rates are decisive, especially when conditions of high inflation prevail. Low interest rate on deposit savings coupled with a high rate of inflation (thus a negative real interest rate) has often been an obstacle to savings mobilization (FACET BV 2000).

2.3.3 Confidence in financial institutions

Confidence is the basis of any financial transaction. People are normally very cautious in letting others have their money. Women in particular have limited experience in the confidentiality of an institution and may feel very uncertain about how reliable banks are in keeping financial details confidential. Another aspect that relates to confidence in banks concerns a common experience with banks that capture rural savings, usually

invest these funds in the urban areas, hence the funds are not utilised for and do not benefit the local communities (FACET BV 2000).

2.3.4 Accessibility

Accessibility of the financial institution is an equally important factor in the promotion of deposit savings. When bank branches are located near market places, operate at convenient hours, savings will be attracted and the higher the bank density and the more extensive its branch network, the greater the potential for mobilising savings.

2.3.5 Range of services

Most banks offer the poorer group's only savings instruments with long periods of notice for withdrawal and often do not allow them to use the savings account as security against a short-term loan. The possibility of having quick access to savings when investment opportunities present themselves or when one is short of cash is one of the basic needs of a saver. The existing financial institutions usually do not fulfill this need sufficiently. Similarly, high transaction costs like fees and charges related to opening and maintaining a savings account influence the net return of savings. When the transaction costs are too high, including the costs incurred by getting to and waiting at the bank, small depositors become discouraged. Experience has shown that the needs of (rural) savers focus on savings instruments that offer security, convenience, ease of deposit, ready access to money and an overall positive real return. Such savings opportunities and incentives would increase the willingness of savers to use financial institutions, which would thus be both to the advantage of savers as well as institutions (FACET BV 2000).

2.3.6 The savings function

Savings functions for developing countries have been estimated through a number of studies. Kelley and Williamson (1968) estimate a simple household savings function for the Jogjakarta region of Indonesia using survey data of 490 families for the period 1958 to 1959. Their study includes both urban and rural households. They examine the source of income and occupation as determinants of savings, using a simple linear function. They divide the households into six relatively homogenous occupational groups based on the structure of the household income sources. They use a simple function with the dependent variable as household per capita savings and household per capita income as the explanatory variable. However, in this study total household savings was used as the dependent variable and the households' permanent income and transitory income as the explanatory variables. This was used to determine the statistical significance of both the intercept and slope dummies for both permanent and transitory income.

Bhalla, 1980 and Paxson, 1990 showed that, measured income is not the appropriate measure to use when determining marginal propensity to save (MPS) out of income. From the empirical findings the marginal propensity to save out of current of household per capita income for the Traders and owners of business are 0.43 and 0.31, respectively.

Bhalla (1980) estimates the savings function using two measures of permanent income. One measure is that of permanent income derived from an earnings function. Using linear savings function, the author obtains an estimate of the MPS out of permanent income (long-run) for three categories of households. For subsistence households estimates range from 0.10-0.15. For middle-income households' estimates range from 0.26 to 0.32, and for rich households, the range is from 0.43 to 0.51. Again from linear

savings functions, the estimates for the MPS out of transitory income for the subsistence level households' ranges from 0.19 to 0.25. For the middle-income households the range is from 0.30 to 0.38, and for the rich households, the MPS out of transitory income range from 0.53 and 0.61. He also finds that the MPS out of permanent income is less than that of transitory income.

Paxson (1992) estimates the MPS out of permanent and transitory income using three measures of savings. This was done using data from Thailand on farm households drawn from 1975/76, 1981, and 1986 Thai socio-economic surveys. The author uses time series information on regional rainfall to construct estimates of transitory income caused by rainfall shocks. The estimated MPS out of transitory income ranged between 0.73 and 0.83. It is maintained that the hypothesis of MPS out of transitory income being equal to one could not be rejected in the study. In the study the number of dependents in the family was employed as an explanatory variable. The number of dependents between the ages of 12 and 17 years seems to depress savings, and the variable is statistically significant at 1 percent level. However, all the above studies have been done for developed counties.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Field Methods

3.1.1 Study Area

The study targeted members of the SACCO's under the Uganda Cooperative Alliance. The study covered clients in the SACCO's of Mbarara, Rukungiri, Apac, Kamuli, Tororo and Masaka districts in Uganda. The selection of these SACCOS was based on the number of years they had been operating in the district with the minimum number of years being not less than three.

3.1.2 Sampling Procedure and Sample Size

From the list of SACCOS operational for three or more years in a district drawn with the help of UCA management, 6 SACCO's were randomly selected. In each area where the SACCO was located, a total of 80 respondents were randomly selected from lists provided by the local authorities. During the interviews the respondents were asked whether they belonged to the SACCO or not. Its on this basis that respondents were disaggregated members were referred to as participants in SACCO related transactions and respondents who had not carried out any transactions with SACCOS or any other financial institution but within the area where a SACCO was located were referred to as non-participants. The total sample size of valid questionnaires of the households that responded was 463.

3.1.3 Data Collection

Data used in this study was based on a survey of participants and non participants in the SACCO's under the umbrella association of UCA. Primary household data was collected using structured questionnaires, which were pre-tested and administered through direct

interviews of the respondents on a range of characteristics. The variables included household head and spouse age, sex, level of education, work experience, number of dependents, occupations; total assets (physical and financial assets); sources of liquidity (loans taken, gifts in kind or in cash and sales, loans given out, income of the head of household, spouse's gross income) and interaction with informal and formal financial institutions.

3.2 Variables used in the study

Total Wealth

In this study, total wealth of the household was computed from financial and physical assets held in 2004 and 2005. Financial assets were computed as savings deposits at the commercial bank and micro-finance institutions at the beginning and end of year. Physical assets included residential property owned before 2004, acquisition of property in 2004 and 2005, that included houses, (commercial and residential), land farm equipment, stocks owned (both agricultural commodity and business) by the household in 2004 and 2005 and livestock held by the household at the time of the survey. For household durables, data were collected on the purchases (acquisitions) of household property like radio, bicycles, furniture, T.V sets, cars, fridge, cookers that were acquired in 2004, 2005 and before 2004. For cash kept at home, the maximum and minimum amount of cash kept by the household at the start and end of year was recorded. For livestock, the number and value of livestock owned by the household at the time of the survey was captured. The livestock category included cattle, goats, local chicken/turkey, sheep/pigs and any other types of livestock.

For formal savings, voluntary financial savings with commercial banks and micro-finance institutions were recorded. Information was recorded on the amount of savings that household head had at the start and end of year. Information was collected on land owned, buildings (commercial and residential) purchased and/or constructed in 2004, 2005 and before 2004.

Total Measured Income

Total household income was considered, which included both labour and capital incomes for both the head of household, spouse and other members of the household. It was measured as the receipts of the household in relation to productive activities include sales of farm products, sale of business goods plus withdraws for home use for the business households. Income from other sources was also recorded.

(i) Income from Agriculture and Animal Husbandry Enterprises

For households with agricultural enterprises, gross receipts from all crops and animal products during 2004 and 2005 were recorded. Income from livestock was included for households who sold livestock and livestock products.

(ii) Income from Business

Although it was difficult to measure, net business profits realized or loss incurred during 2004-2005 were computed. This was obtained by subtracting operational expenses from gross receipts to obtain the estimated profits. Respondents were asked to give the percentage of their gross sales that constituted the net profits. On average the figure was 15% of the gross sales as net profit. In this study the net profits were obtained as 15% of the total gross sales. Estimated profits were then multiplied by a factor of 0.15, because of the unreliability of the information on the profits and expenses of most of the business households.

(iii) Income from Wages and Salaries

Wages (cash) represent earnings from agricultural labour or non-agricultural labour (other employment). Wages were calculated for the household head, from either agricultural labour or other industries, such as mason, brick makers, electricians, tailors, and brewers. Salaries were recorded as monthly basic pay plus monthly allowances or benefits by the household head from the places of work.

(iv) Income from Property

Monthly data on rental income from property owned by the household head was recorded for 2004 and 2005.

(v) Permanent (Long-run) and Transitory Incomes

In this study permanent income is defined as the expected income for a given year and transitory income as the unexpected income that is accrued to the head of household. Permanent income was computed as total measured income. Transitory income in this case included income from remittances. Following Musgrove (1997) and Paxson (1992), it was assumed in this study that the level of permanent income is a function of current and prospective resources that is a function of household specific characteristics such as stock and flow of wealth, sex, level of education, type of occupation, location, work experiences or age of the earner¹. It was assumed that the households' permanent income in its most linear form is expressed as:

$$Y_t^P = \sum_{j=1}^K X_{jt}^P + \lambda_t$$

¹ Bhalla (1980) uses three-year panel data on Indian households to calculate two measures of permanent income, one based on estimates of earnings equation and another based on a weighted average of past income.

Where X_{it} = a vector of household specific characteristics referred to above. $\lambda_{it}^* = \varepsilon_{it} + \varepsilon_t$, $t = 2004$ and 2005 . ε_{it} = a random error term with zero expectations, ε_t = an error specific to the time period. The predicted values from the equation above were used as a proxy for permanent income. Transitory income was not considered as a residual from the above equation. Hence the earnings function for the i^{th} household was generally specified as

$$Y = \alpha_{it} + \alpha X + \beta D + \varepsilon \quad (21)$$

Where Y = total income of the household.

X is a vector of explanatory variables and D is a vector of dummy variables as shown below

X_1 = level of education of head of household (number of years at school).

X_2 = work experience (number of years of work).

X_2^2 = work experience squared.

X_3 = total wealth of the household (both financial and physical assets)

X_3^2 = wealth squared

X_4 = interactive term for level of education and age of household head.

D_{locate} = dummy variable for location (1 = if the household head resides in the town, 0 if rural).

D_{rent} = dummy variable if the household head earns income from rent of his/her property.

D_{spouse} = dummy variable for dual income household (spouse also earns = 1, otherwise 0)

D_{trader} = dummy variable for the major occupation of the household as a trader.

D_{salary} = dummy variable for the major occupation of the household as a civil servant.

$D_{selfemp}$ = dummy variable for the major occupation of the household as self-employed.

D_{farmer} = dummy variable for the major occupation of the household as a farmer.

ε = error term.

The *a priori* expectation signs, were level of education, work experience, total wealth, > 0 and work experience squared, total wealth squared and the interactive term of education and age < 0 , while the expected signs for occupational dummies were ambiguous *apriori*. Separate earnings functions were estimated for the whole sample, urban and rural households.

Net Savings Deposits

This study used data from individual's passbooks held at each SACCO branch to record total deposits and withdrawals of cash made by the respondent in the year 2005. Net savings were then measured as the difference between total deposits and withdrawals in Uganda shillings.

3.2 Analytical Methods

Data on the socio-economic characteristics of participants and non-participants in formal credit transactions was coded, summarized and descriptive statistics (counts, means frequencies, *t*-statistics and standard deviations) were generated. The *t*-statistics were used to test whether there were significant differences in the socio-economic characteristics of participants and non-participants in the SACCO's. Exploratory data analysis was conducted for the data in order to check for outliers, normality (distribution) and symmetry (kurtosis and skewness)². Collinearity of variables was tested for using STATA. An ordered probit regression was carried out to establish the degree of participation in the SACCO and estimation of the savings function establish the level of Net savings Deposits.

² Outliers were detected using the hadimvo technique in STATA. Hadimvo identifies multiple outliers in multivariate data using the method of Hadi (1992, 1994), creating a new variable equal to 1 if an observation is an "outlier" and 0 otherwise.

3.2.1 Objective number (1): Independent Sample T-test for Mean Differences

A *t*-test of mean differences for two independent samples was used to assess the differences in socio-economic characteristics of participant's and non-participants. The study determined whether there were significant differences in the socio-economic characteristics of participants in SACCO's and non-participants. The hypothesis tested was represented as

$$(1) \quad H_0 = \overline{\mu}_b - \overline{\mu}_n$$

$$H_0 = Otherwise$$

Where $\overline{\mu}$ = Mean for household characteristic of the participant (b) and non-participant (n)

The assumption in carrying out the independent two-sample *t*-test is that the two samples will be drawn from normally distributed populations and the variances of the two populations are equal, i.e. $\sigma_b^2 = \sigma_n^2 = \sigma^2$.

This means that s_b^2 and s_n^2 are both estimates of σ^2 and hence we calculate the pooled estimate of σ^2 as

$$(2) \quad S_p = \frac{\sqrt{(n_b - 1)s_b^2 + (n_n - 1)s_n^2}}{n_b + n_n - 2}$$

Where

S_p = Pooled variance which approximates the common variance

$n_b + n_n - 2$ = *df* which is the associated degrees of freedom

S_n^2 = The variance for the sample of non-participants

S_b^2 = The variance for the sample of participants

The independent two samples *t*-test took the form (Mead *et al.*, 1993)

$$(3) \quad T = \frac{\bar{\mu}_b - \bar{\mu}_n}{S_r \sqrt{\frac{1}{n_b} + \frac{1}{n_n}}}$$

3.2.2 Objective number (2): Estimation of Degree of participation in SACCO's

I hypothesized that households make three separate financial savings decisions representing the degree of SACCO participation. The first decision in a household is to choose whether or not to join a SACCO operating in the vicinity of their residence or work station. This choice represents the choice between participation and non participation in semi-formal financial institutions. Once the individual decides to participate in a SACCO, his second decision is whether to hold savings or not. Next, the household must choose whether to acquire a deposit instrument such as a passbook savings account at the SACCO. Since, these first two outcomes are discrete and ordinal rather than nominal, i.e. resulting into the ordering of individuals into non SACCO members, SACCO members who do not save and SACCO members who hold savings accounts; this decision is examined by formulating an ordered probit function of household savings behavior. The third decision in a household that has already acquired a financial instrument is the level of net savings deposits to maintain, given the minimum deposit requirements of the SACCO. This third decision is examined by specifying and testing a household net savings deposit function. An appropriate role for the SACCO is to positively influence these three decisions (directly or indirectly) through appropriate incentives, instruments, and improvements in accessibility to their services.

Ordered-response models recognize the indexed nature of various response variables; in this application, degree of participation in SACCOS is the ordered response. Underlying the indexing in such models is a latent but continuous descriptor of the response. In an

ordered probit model, the random error associated with this continuous descriptor is assumed to follow a normal distribution. In contrast to ordered-response models, multinomial logit and probit models neglect the data's ordinality and are associated with undesirable properties, such as the independence of irrelevant alternatives (IIA, in the case of a multinomial logit (Ben-Akiva and Lerman, 1985]) or lack of a closed-form likelihood (in the case of a multinomial probit (Greene, 2000]). The following specification of the ordered probit model was used here (Kockelman, 2001):

$$(4) \quad S_n^* = \beta'Z_n + \varepsilon_n$$

Specification of a latent variable representing the demand for a savings account in a SACCO.

Where

S_n^* = latent and continuous measure of the degree of an individual's participation in a SACCO.

Z_n = a vector of explanatory variables describing the individual's characteristics

β = a vector of parameters to be estimated, and

ε_n = a random error term (assumed to follow a standard normal distribution).

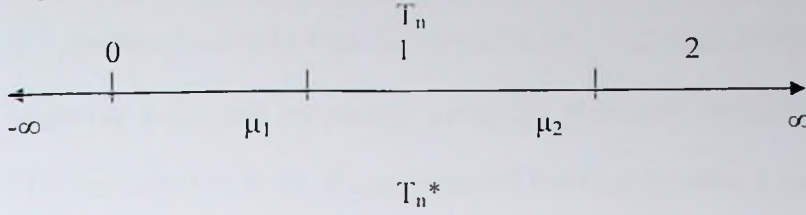
The observed and coded discrete SACCO participation variable, S_n , is determined from the model as follows:

$$(5) \quad S_n = \begin{cases} 0 & \text{if } -\infty \leq S_n^* \leq \mu_1 \text{ (non SACCO member)} \\ 1 & \text{if } \mu_1 \leq S_n^* \leq \mu_2 \text{ (SACCO member without a deposit account)} \\ 2 & \text{if } \mu_2 \leq S_n^* \leq \infty \text{ (SACCO member with a deposit account)} \end{cases}$$

Where the μ_1 's represent thresholds to be estimated along with the parameter vector b .

Figure 1 illustrates the correspondence between the latent, underlying participation variable, and the observed degree of participation, S_n .

Figure 1 Relationship between latent and coded participation variables



The probabilities associated with the coded responses of an ordered probit model are as follows:

$$(6) \quad P_n(0) = \Pr(S_n = 0) = \Pr(S_n^* \leq \mu_1) = \Pr(\beta'Z_n + \varepsilon_n \leq \mu_1) = \Pr(\varepsilon_n \leq \mu_1 - \beta'Z_n) = \Phi(\mu_1 - \beta'Z_n)$$

$$P_n(1) = \Pr(S_n = 1) = \Pr(\mu_1 < S_n^* \leq \mu_2) = \Pr(\varepsilon_n \leq \mu_2 - \beta'Z_n) - \Pr(\varepsilon_n \leq \mu_1 - \beta'Z_n) = \Phi(\mu_2 - \beta'Z_n) - \Phi(\mu_1 - \beta'Z_n)$$

$$P_n(2) = \Pr(S_n = 2) = \Pr(\mu_2 < S_n^* \leq \mu_3) = \Phi(\mu_3 - \beta'Z_n) - \Phi(\mu_2 - \beta'Z_n)$$

Where n is an individual; if k denotes the response alternatives 0, 1 and 2, then $P(S_n=k)$ is the probability that individual n responds in manner k and $\Phi()$ is the standard normal cumulative distribution function. For all probabilities to be positive $0 < \mu_1 < \mu_2$

The marginal effects of the regressors X on the probabilities are not equal to the coefficients. For the three probabilities, the marginal effects of the changes in the regressors are given as

$$(7) \quad \frac{\partial \Pr ob[Y = 0]}{\partial X} = -\phi(\beta'X)\beta$$

$$\frac{\partial \Pr ob[Y = 1]}{\partial X} = (\phi(-\beta'X) - \phi(\mu - \beta'X))\beta$$

$$\frac{\partial \Pr ob[Y = 2]}{\partial X} = \phi(\mu - \beta'X)\beta$$

Where, Φ denotes the cumulative density function of the standard normal distribution.

3.2.2.1 Ordered Probit Model Function

A hypothesis is made that the attributes of household choice for joining a SACCO and acquiring a deposit instrument primarily reflect an evaluation of the transaction costs. They include the level of awareness of banking services available to the household, and the proximity of the institution. Characteristics of an individual that may affect the decision include the level of household income, the type of occupation, age, marital status, education level, gender and number of dependants. The resulting ordered probit function is

$$(8) \quad \Pr (S_n=k) = \beta_0 + \beta_1 Y^p + \beta_2 AGE + \beta_3 AGE^2 + \beta_4 \sum_{i=1}^3 DINFO + \beta_5 EDUC + \beta_6 GENDER + \beta_7 \sum_{i=1}^5 DDEP + \beta_8 MARITAL + \beta_9 \sum_{i=1}^3 STABLE + \beta_{10} DIST + \beta_{11} URBAN + \beta_{12} DISTRICT + u$$

Where p_r is the estimated sample probability that the i^{th} household will choose participation option, $S_n = k$, with k defined as 0 if individual is a non-SACCO member, 1 if a member but a non-saver, and 2 if a member who saves in the SACCO. DURBAN is a dummy variable that captures location of the household in either a rural (=0) or urban (=1) area. DISTRICT is a vector of dummy variables defined as 1 if individual resides in the districts of Mbarara, Tororo, Apac, Kamuli and Masaka. Rukungiri was used as the base district of residence. DINFO is a vector of dummy variables that indicate if an individual is well informed about the banking system and has very good knowledge of STANBIC BANK (stanbic=1), CERUDEB (cerudeb=1) or U-TRUST (ustrust=1) and (=0) otherwise. The choice of financial institutions was based on their wide branch network, their long experience in rural financial intermediation and because the sample statistics showed that they were the most widely known institutions. DIST is a variable for

distance in Km from the individual's residence to the district capital. STABLE is a vector of dummy variables *salaries*, *rent* and *spouse* defined as 1 if an individual earns a salary, rent income or has a spouse who earns respectively and 0 otherwise.

We hypothesise that stable earnings positively influence participation in SACCOS. We also include the predicted values of permanent income as another measure of the influence of earnings on participation in SACCO arrangements. Other attributes that may affect the choice include age (AGE) and the level of education (EDUC) of the individual, their marital status (Married=1), gender (MALE=1). Government policy requires that public secondary school fees must be paid through the banks. Since the school fees must be deposited in the school savings accounts at a commercial bank, parents are forced to come in contact with the banking sector. Thus, households in the survey with dependents in secondary schools are identified by DDEP a vector of dummy variables in school, nursery, primary, secondary and campuser each defined as 1 if individual has none school going dependants, dependants in nursery, primary, secondary and university respectively and 0 otherwise. This variable captures the effect of exposing households to banks.

3.2.3 Objective number (3): Level of Net savings Deposits

A household's level of net savings deposits at a particular institution is a function of several factors. Those factors include the household's permanent and transitory incomes, the level of transaction costs (as measured by distance from the residence to the district capital), the household's education level, value of household wealth proxied by the livestock index, a dummy for dependants in secondary schools, occupation dummies and

the availability of credit.³ Thus, the net savings deposit function for the i^{th} head of household can be generally specified as

$$(9) \quad SD = \alpha_0 + \alpha_1 Y^P + \alpha_2 Y^T + \alpha_3 \text{DIST} + \alpha_4 \text{EDUC} + \alpha_5 \text{LIVEINDEX} + \alpha_6 \text{LOANEE} + \alpha_7 \text{SECONDARY} + \alpha_8 \text{WAGER} + \alpha_9 \text{TRADER} + u_i$$

where SD is net savings deposits in 2005, Y^P is permanent income, Y^T is transitory income,⁴ LOANEE is a dummy variable=1 if household has ever received credit from the SACCO, DIST is the distance in Km to the district capital, EDUC is the number of years of formal education, LIVEINDEX is an index of livestock holdings with livestock holdings summed using a weight of 1, 0.4 and 0.1 for cattle; sheep, goats and pigs; and poultry respectively, WAGER and TRADER are defined as 1 if individual earns any income from wage labour or trade activity respectively and 0 otherwise. α_1 is the marginal propensity to save out of permanent income, α_2 is the marginal propensity to save out of transitory income, Following Sandmo (1969, 1970), Cass and Stiglitz (1972), Levhari (1972), Gersovitz (1989), and Kimball (1990), we impose the conditions that $0 \leq \beta_1 \leq 1$; $0 \leq \beta_2 \leq 1$, and that $\beta_1 < \beta_2$. Where β_1 was Vector of parameters to be estimated. We observe that the interest rates paid on savings deposits do not vary much in cross-section, so they are not specified as a predictor of the level of household savings deposits in (8). However, it is important to note also that the rates on small deposits in almost all banks have been consistently negative in real terms during this period.⁵

³ Bhatt (1989) maintains that the attractiveness of a deposit instrument depends among other things, its degree of liquidity, transaction costs and type or level of risk.

⁴ We assume the permanent and transitory components of income are stochastically independent (i.e., their distributions are uncorrelated).

⁵ The average annual rate of inflation for 1992-1998 was 7.4 percent. The average nominal rate of interest paid by commercial banks on savings deposits was 3.24 percent for the same period.

3.2.3.1 Net Savings Function Estimation

The net savings deposit function was estimated using Weighted Least Squares (WLS) regression. The dependent variable is the amount of net savings deposits held in the SACCO in 2005. Similarly, households with credit facilities available to them from the institution take the value LOANEE = 1, and others = 0. Permanent income and transitory incomes are included in the financial savings function. The Permanent income of a household in this study is proxied by the predicted values of a modified earnings function. It is expected that the propensity to save out of long run income is less than that of transitory income. That is, the income of the i^{th} individual

$$(7) \quad Y_i^P = x_i^P b + e_i^P$$

where x_i^P is a vector of household specific variables (e.g., wealth, gender, level of education, type of occupation, location, work experience or age of the household head).⁶ b is a vector of parameters. Results of estimating the earnings function are reported in Appendix Table A.1. A distinction is made also between the error e^P component and transitory income. Transitory income is not regarded as the residual (error) term in (7), rather it is obtained separately.⁷ Transitory income is proxied as the income received from relatives and friends in 2005 (remittances).

Households were asked about their primary and secondary occupations in terms of steady or reliable income and transient jobs. Permanent income is defined as expected income for the given year. The unobserved component of permanent income (as distinguished from

⁶ See Mincer; Musgrove; Bhalla; and Paxson.

⁷ Musgrove (1979) states that permanent income can be known only with an error that is conceptually different from transitory income. He maintains that the fraction of permanent income that is unexplained, i.e., e_i^P in (7), is consumed exactly like the explained part, and that it has an error component only for the researcher, since the consumer knows what his/her permanent income is. The unexplained income, e_i^P , is just as much a part of permanent income as the explained part. We proxy the explained part of household income by using the predicted values from our estimate of (7).

transitory income) is the residual that is obtained by estimating the earnings function shown in (7). This residual is termed unexplained income. It is not assumed that the residual is transitory income. Moreover, an analysis of the residual indicates that it is not significantly correlated with the measure of transitory income. The results of estimating the net savings deposit function are reported in Table 4.⁸

⁸ We use the predicted values from the estimated earnings function as a proxy for long-run income.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSIONS

This chapter contains the results and discussions of the study. Results are summarized as counts, means, standard deviations, percentages, coefficients, test statistics and significance levels. The chapter has three sub sections; the first subsection looks at the socioeconomic characteristics of participants and non-participants in SACCOS in the study area; the second subsection looks at the factors that significantly influence participation in SACCOS; the third subsection looks at the determinants of the level of net deposits held in a SACCO.

4.1 Socioeconomic Characteristics of Participants and Non-participants

This section examines the socio-demographic characteristics of participants and non-participants in SACCO programmes in the six districts of Mbarara (Ebirungi Biruga Omututu), Rukungiri (Rwerere), Apac (Chawente), Tororo(Mukuju), Masaka (Lwengo) and Kamuli (Kamuli Twisanya) in Uganda. Several aspects were examined. These included socio-demographic characteristics of the respondents, the reasons why people chose to participate or not to participate in SACCO programmes. Statistics pertaining to either participants or non-participants are presented as means. Table 4.1 gives a comparison of the socio-demographic characteristics of the sample of participants and non-participants by rural and urban divide. The *t*-value obtained from a two independent sample *t*-test indicates whether the characteristics of participants and non-participants are statistically different at their mean values.

4.1.1 Socio-demographic characteristics of participants and non-participants in SACCO programmes.

Table 4.1a and 4.1b shows the socio-demographic characteristics of participants and non-participants in SACCO programmes. Results show that about 34% of households in the sample were male with no statistically significant difference in the gender composition of the sample by participation or urban rural divide. On average, 84% of all individuals sampled were married. The results indicate that the average age of the respondents was 40.31 years for the respondents and 37.52 years for the spouses. A further analysis shows that non-participating urban households were significantly younger (33.61) than their rural counterparts (37.67 years) at ($P < 0.05$) and not surprisingly their spouses were significantly much younger than the spouses of the rural respondents.

Total work experience for the respondents on average was 18.28 years. The only deviation from the average was among rural and urban participants. On average rural participants had more total years of work experience (21.39 years) against 18.25 years for the urban respondents. However, this difference was only significant at $p < 0.1$. The respondent's average total work experience was 16.13 years with a statistically significant difference among rural and urban participants. Experience at current job for the spouses on average was 13.25 years. There was no significant difference for the rural and urban non participants well as there was a significant difference for the rural and urban participants at ($P < 0.1$).

The average distance from the residence to the SACCO was 23.33 Kms. As expected the distance from residences designated as rural areas to the SACCO were statistically greater than those from urban locations for both participants and non-participants at ($P < 0.05$). The

average number of visits to the SACCO for the participants was 4.51. There was a significant difference in the number of visits for the rural and urban participants at ($P < 0.1$)

The total number of dependants was 5.6 closer to the national average of 5 dependants per household. This indicates the data was on average representative at least in terms of dependency. At least two of the dependants were in primary, 1 in nursery, 1 in a secondary school and 2 were either out of school or not yet in school with no significant differences in this composition across households. The mean household expenses were 2,521,925. The urban non-participants spent more than the rural non-participants did at 2,480,909 and 2,043,292 respectively with the difference in expenditure significant at ($P < 0.1$). The expense on education constituted about 47% of all household expenses.

On average, 44% of all those sampled households had received an informal loan amounting to 348,393 shillings in 2005. The urban non-participants received significantly larger loan amounts than the rural non-participants averaging 400,304.30 and 174,069.80 shillings respectively with the difference significant at ($P < 0.05$). Also the urban non participants gave out more amounts of loan than the rural non participants of 222,520 as compared to 89,675.93 respectively with a significant difference at ($P < 0.05$).

Table 4.1a Socio-demographic Characteristics of sampled households of Non-participants

Variable	All Households N=460	Non-Participants		T-Value
		Rural N=166	Urban N=44	
Age of HH	40.31 (12.63)	37.67 (12.26)	33.61 (9.65)	2.03**
Age of spouse	37.52 (12.73)	34.73 (12.57)	28.94 (6.38)	2.67***
Education of household head (Years)	8.91 (3.66)	8.41 (3.74)	8.59 (3.84)	-0.26
Education level of the spouse	8.03 (3.30)	7.54 (3.14)	8.30 (3.51)	-1.2
Total experience for the HH	18.28 (11.44)	16.29 (12.07)	13.50 (8.70)	1.34
Experience of HH at current job	12.83 (10.53)	11.64 (10.56)	8.71 (6.88)	1.6
Spouse's Total experience (Years),	16.13 (10.75)	13.58 (10.59)	10.57 (6.60)	1.61
Spouse's experience at current job	13.25 (10.23)	10.70 (9.07)	8.70 (6.11)	1.19
Distance to SACCO in kms	23.33 (13.15)	25.78 (14.02)	20.11 (12.31)	2.44**
Number of visits made to the district town per month	4.51 (5.64)	4.40 (5.76)	5.97 (7.34)	-1.38
Total number of dependants	5.63 (3.77)	4.70 (3.30)	3.95 (2.87)	1.36
Number of dependants in secondary schools	1.94 (1.28)	1.70 (0.87)	1.92 (0.79)	-0.79
Received informal loan	0.44 (0.50)	0.52 (0.50)	0.52 (0.51)	-0.06
Informal loan Size received (Ushs),	348,393.30 (1,437,852.00)	174,069.80 (252,094.40)	400,304.30 (472,863.00)	-3.10**
Size of informal loan given out	227,465.40 (767,586.40)	89,675.93 (113,968.40)	222,520.00 (312,094.40)	-2.77**
Total household income	1,989,831 (2,477,845)	6,910,329 (14,400,000)	13,200,000 (29,100,000)	-2.19**
Household assets Ushs	14,200,000 (33,100,000)	0.39 (0.49)	0.39 (0.49)	2.01**

Source: Survey data

Figures in parentheses are standard deviations

*, **, *** refers to significance at the 10, 5 and 1 percent levels respectively

**Table 4.1b Socio-demographic Characteristics of sampled households
Participants in SACCO programmes**

variable	All Households N=460	Participants		T-value
		Rural N=158	Urban N=92	
Age of HH	40.31 (12.63)	44.64 (12.82)	40.86 (11.70)	2.32
Age of spouse	37.52 (12.73)	42.59 (13.28)	37.78 (10.75)	2.74
Education of household head (Years)	8.91 (3.66)	9.02 (3.80)	9.73 (3.06)	-1.41
Education level of the spouse	8.03 (3.30)	7.78 (3.40)	9.16 (3.08)	-2.78
Total experience for the HH	18.28 (11.44)	21.39 (11.14)	18.52 (10.74)	1.86*
Experience of HH at current job	12.83 (10.53)	14.74 (10.95)	13.87 (10.72)	0.54
Spouse's Total experience (Years),	16.13 (10.75)	20.02 (10.67)	16.43 (10.57)	2.31**
Spouse's experience at current job	13.25 (10.23)	16.96 (10.97)	13.79 (10.50)	1.92*
Distance to SACCO in kms	23.33 (13.15)	23.46 (12.93)	20.17 (11.36)	2.01**
Number of visits made to the district town per month	4.51 (5.64)	3.78 (4.50)	5.27 (6.14)	-2.02*
Total number of dependants	5.63 (3.77)	6.70 (3.92)	6.28 (4.00)	0.81
Number of dependants in secondary schools	1.94 (1.28)	1.91 (1.23)	2.25 (1.75)	-1.41
Received informal loan	0.44 (0.50)	0.37 (0.48)	0.37 (0.49)	-0.04
Informal loan Size received (Ushs),	348,393.30 (1,437,852.00)	551,897.50 (2,622,364.00)	407,058.80 (426,085.30)	0.32
Size of informal loan given out	227,465.40 (767,586.40)	311,043.50 (1,205,113.00)	276,043.20 (373,914.80)	0.17
Total household income	1,989,831.00 (2,477,845.00)	1,847,713.00 (2,249,786.00)	2,937,752.00 (3,072,339.00)	-2.30**
Household assets Ushs	14,200,000.00 (33,100,000.00)	17,500,000.00 (45,900,000.00)	21,900,000.00 (30,300,000.00)	-0.82

Source: Survey data

Figures in parentheses are standard deviations

*, **, *** refers to significance at the 10, 5 and 1 percent levels respectively

4.1.2 Household income sources

An evaluation of household income shows that non participants had higher incomes than participants (Table 4.3) in SACCOS and that rural households were significantly poorer than their urban counterparts with mean differences significant at ($P < 0.05$). This finding may indicate that SACCOS are a significant poverty outreach tool with participation in SACCOS highest amongst the poor than the rich. Furthermore, national statistics also indicate that low income levels generally plague rural areas with close to 96% of the chronically poor living in rural areas. Results further show an equal distribution of households across income sources. However, non-participating urban households were more likely to engage in trade than their rural counterparts.

Table 4.2 Household income sources

variable	All Househol ds N=460	Non-Participants			Participants		
		Rural N=166	Urba n N=44	T- value	Rural N=158	Urba n N=92	T- value
Salary	0.39 (0.49)	0.10 (0.30)	0.16 (0.37)	-0.01	0.39 (0.49)	0.42 (0.50)	-0.59
Spouse earns	0.12 (0.33)	0.83 (0.38)	0.73 (0.45)	-1.05	0.12 (0.33)	0.15 (0.36)	-0.72
agriculture	0.83 (0.37)	0.19 (0.40)	0.18 (0.39)	1.46	0.89 (0.32)	0.80 (0.40)	1.78*
Wage labour	0.14 (0.35)	0.52 (0.50)	0.70 (0.46)	0.16	0.11 (0.32)	0.08 (0.27)	0.96
Trade	0.60 (0.49)	0.16 (0.36)	0.23 (0.42)	- 2.23**	0.61 (0.49)	0.71 (0.46)	-1.58
Rent	0.20 (0.40)	0.11 (0.31)	0.14 (0.35)	-1.1	0.18 (0.38)	0.30 (0.46)	- 2.34**
Remittances	0.12 (0.33)	0.00 (0.00)	0.00 (0.00)	-0.52	0.16 (0.37)	0.09 (0.28)	1.61
Donations	0 (0.00)	0.00 (0.00)	0.00 (0.00)	-	0.01 (0.11)	0.00 (0.00)	1.08

Source: Survey data

Figures in parentheses are standard deviations

*, **, *** refers to significance at the 10, 5 and 1 percent levels respectively

4.1.3 Savings and Credit characteristics of Participants in SACCO programmes

As shown in Table 4.4 on average, participants had held SACCO membership for at least 3 years, and each had purchased an average of 5 shares with no significant difference between rural and urban respondents. However, despite free access to a savings facility in the SACCO, only 54% of all participants had made any deposits on their accounts since joining the SACCO. There was a significant difference in the use of the savings facility, with more urban members (63%) than the rural participants (48%) saving on their accounts at ($p < 0.05$). On average, participants were net de-savers, withdrawing 47,778 shillings more than they had deposited on their accounts in 2005. However, there wasn't any significant difference in the level of savings across location. Participants in these SACCO programmes were all types of people including Peasant farmers, Teachers, Traders / Business people, Nurses who were slightly far from the MFI's and the SACCO's were convenient for them and easily accessible. The loans offered had no grace period, loan maturity was at least one month, payback period was six months, and frequency of payback was monthly with deposits made on ones account and the monthly deductions made automatically by the SACCO.

Table 4.3 Savings and Credit characteristics of SACCO Participants in 2005

Variable	All participants N=250	Rural Participants N=158	Urban Participants N=92	T-value
Belongs to a SACCO (%)	0.54 (0.5)			
Length of time in SACCO (Years)	3.46 (1.59)	3.53 (1.53)	3.32 (1.61)	1.036
Number of shares held	5.3 (5.06)	4.90 (4.21)	5.83 (5.99)	-0.897
Holds savings in SACCO (%)	0.54 (0.5)	0.48 (0.50)	0.63 (0.49)	2.2997**
Opening balance in 2005 (Ushs)	674723.3 (3,126,947.00)	166,738.60 (311,488.20)	1,049,028.00 (4,118,748.00)	-0.7965
Total deposits made in 2005 (Ushs)	1707118 (3,790,515.00)	1,328,157.00 (2,674,721.00)	2,219,361.00 (4,887,853.00)	-1.3479
Total withdraws in 2005	1571506 (3,178,355.00)	1,269,564.00 (2,557,869.00)	2,010,156.00 (3,905,137.00)	-1.3364
Total net deposits (Ushs)	-47,778.98 (144,200.50)	-35,657.08 (94,927.04)	-65,125.83 (106,292.50)	0.2044
Borrowed from SACCO in 2005 (%)	0.40, (0.49)	0.35 (0.48)	0.47 (0.50)	-1.7651
Amount of loan applied for (Ushs)	800,404.00 (1,198,372.00)	569,642.90 (577,332.30)	1,100,930.00 (1,658,596.00)	- 2.2304**
Amount of loan received (Ushs)	694,030.30 (931,490.00)	516,410.70 (532,728.10)	925,348.80 (1,247,430.00)	- 2.2075**
Number of times borrowed	1.24 (0.43)	1.20 (0.40)	1.30 (0.46)	1.2155
Pay back period (Months)	5.67 (1.98)	5.76 (1.96)	5.55 (2.01)	0.5376
Number of sureties	2.28 (1.29)	2.36 (1.48)	2.16 (1.00)	0.7629
Value of securities (Ushs)	3491939 (10,800,000.00)	4,078,182.00 (14,100,000.00)	2,742,093.00 (3,286,528.00)	0.6059

Source: Survey data

Figures in parentheses are standard deviations

*, **, *** refers to significance at the 10, 5 and 1 percent levels respectively

Of those participating in SACCO'S, only 40% had accessed credit from the SACCO. SACCO's exhibit credit rationing behavior with participants receiving loan amounts less than what they had applied for. The total amount of loan applied for and received by the urban participants (1,100,930/= and 925,348/=) and was significantly higher than that applied for and received by the rural participants (569,642.90/=, and 516,410.70) respectively at ($p < 0.05$). On average, the payback period was 6 months. There was no

significant difference because the pay back period was fixed by the SACCO's. This also applies to the number of sureties who were 2 and no significant difference between urban and rural participants. The value of security for the rural participants was (4,078,182/=) which was greater than that of the urban participants (2,742,093/=). Though there was no significant difference between the rural and urban participants, the high value for the rural participants is explained by the kind of security offered which includes land, plantations and cattle which always have a higher value.

4.1.4 Type of security offered in order to access loans

Table 4.5 shows the various forms of security offered in exchange for access to credit. The major types of security offered were land, buildings, durable goods, and livestock and coffee/banana plantations. The SACCO's being rural based; the type of security that participants could offer most was land since each family is expected to have land as a resource for building on and cultivation of food. Generally, urban households were more likely to offer durable goods than rural households most probably due to the fact that most items in this category are linked to electricity which is not available in rural areas. Only 5% of the respondents indicated that salary was offered as security because they were only few people that were earning a salary and at the same time accessing their salaries from the SACCO's.

Table 4.4 Type of security offered in order to access loans

Variable	Overall Sample N=99		Rural Households N=56		Urban households N=43	
	Freq	%	Freq	%	Freq	%
Land	43	43.4	24	42.9	19	44.2
plantations	11	11.0	7	12.5	3	7.0
Furniture	8	8.1	3	5.4	5	11.6
Building	24	24.2	13	23.2	11	25.6
Durable goods	20	20.2	8	14.3	11	27.9
Salary	5	5.1	2	3.6	3	7.0
Group	2	2.0	1	1.8	1	2.3
Livestock	16	16.2	12	21.4	4	9.3
Maize mill	3	3.0	2	3.6	1	2.3
Vehicles	1	1.0	0	0.0	1	2.3
Motorcycle	4	4.0	2	3.6	2	4.7
Business stock	1	1.0	0	0.0	1	2.3

Source: Survey data

4.1.5 Reasons for Participating

Table 4.6 indicates the reasons for participation in SACCO programmes. The major reason why people participated was to borrow (85%) and to save (72%). Other reasons included to socialize, to earn interest and dividends on savings and shares respectively.

Table 4.5 Reasons for Participating

Reason	Overall Sample N=253		Rural Households N=158		Urban households N=92	
	Freq	%	Freq	%	Freq	%
To save	182	72.0	113	70.0	68	74.0
To borrow	215	85.0	138	86.0	78	85.0
Social interaction	17	7.0	10	6.0	8	9.0
To develop	5	2.0	3	2.0	2	2.0
Earn interest	10	4.0	8	5.0	3	3.0
SACCO very near	13	5.0	8	5.0	5	5.0
Easy to access	0	0.0	2	1.0	0	0.0
savings						
Earn dividends	3	1.0	2	1.0	1	1.0

Source: Survey data

4.1.6 Reasons for not participating in SACCO's

Table 4.7 indicates reasons for non-participation in SACCO programmes. The major reasons for non participation were lack of information about SACCO programmes (44%) and low income (35%). The low income would lead to a situation where they would not be able to raise money to open up accounts, buy shares, pay up the membership fee and raise enough savings in the bank so that they could access credit; the principal reason for joining the SACCO. Other reasons included fear of imprisonment in case of failure to pay, high interest rates that would escalate the cost of borrowing and reduce its benefits. Participants were not given the option of not buying shares and yet there was no resale mechanism for those who were not willing to renew their membership. Member's savings and shares were not earning interest and dividends. This discouraged members from the joining the SACCO's. Some of the participants belonged to other banks hence there was no need for joining the SACCO's. Based on the past experience of the cooperatives in Uganda, there is still low trust in cooperatives hence lack of trust amongst members. This factor also contributed to the non participation. Other participants did not need to join because had no viable economic enterprises that would generate an income to save or to invest in if they acquired the loans.

Table 4.6 **Reasons for not participating in SACCO's**

Reason	All non-participants N=210		Rural Households N=166		Urban households N=44	
	Freq	%	Freq	%	Freq	%
Low income	74	35.0	61	37.0	12	27.0
Fears prison	6	3.0	5	3.0	1	2.0
High interest rate	11	5.0	8	5.0	3	7.0
Forced to buy shares	2	1.0	2	1.0	2	5.0
Lack of interest	13	6.0	10	6.0	3	7.0
Lack of information	92	44.0	75	45.0	19	43.0
Doesn't trust members	11	5.0	8	5.0	2	5.0
Belongs to a bank	4	2.0	3	2.0	0	0.0
Has been away	2	1.0	0	0.0	2	5.0
Nothing to invest in	4	2.0	3	2.0	1	2.0
SACCO too far	2	1.0	2	1.0	0	0.0
Shares not refunded	0	0.0	2	1.0	0	0.0
Small loan offers	2	1.0	2	1.0	1	2.0

Source: Survey data

4.1.7 Knowledge of financial institutions

Respondents were asked to state all financial institutions known to them irrespective of whether they had ever conducted business with the institutions or not (Table 4.8). Frequencies were then generated using a Yes or No scale to determine the most well known institutions among the respondents. Table 4.6 shows the results of this analysis. The most known financial institutions were Stanbic Bank with an average percentage of (63%) and Centenary Rural Development Bank (53%). There was no significant difference between participants and non-participants. These two banks are widely spread through out the country and many of the salary earners access their salaries from them. Uganda Finance trust was the most well known microfinance institution with the percentage for the urban participants (27%) significantly greater at $p < 0.01$ than that of the rural participants (13%). This significance is attributed to the fact that this microfinance

institution presence was concentrated in towns where it was giving loans to people in groups. Since it had not penetrated the rural areas before it became an MFI.

Table 4.7 Knowledge of financial institutions (Percentage of households reporting)

Institution	All households N=460		Non-Participants				Participants			
			Rural N=166		Urban N=44		Rural N=158		Urban N=92	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Stanbic	290	63	93	56	29	66	104	66	66	72
Pride	14	3	7	4	1	2	5	3	5	5
Uganda										
CERUDEB	244	53	81	49	24	55	82	52	54	59
UFT	83	18	27	16	11	25	21	13	25	27
FOCCAS	9	2	2	1	0	0	5	3	1	1
UML	28	6	8	5	7	16	9	6	3	3
Bank of	5	1	0	0	2	5	2	1	1	1
Uganda										
FAULU	0	0	0	0	1	2	0	0	0	0
Bank of	14	3	7	4	1	2	3	2	5	5
Baroda										
DFCU	32	7	10	6	0	0	14	9	8	9
Bank										
Post bank	9	2	7	4	1	2	2	1	3	3
Uganda										
Crane Bank	28	6	13	8	2	5	5	3	8	9
FINCA	32	7	7	4	2	5	17	11	7	8
Uganda										
Nile Bank	14	3	7	4	1	2	5	3	5	5

Source: Survey data

4.1.8 Problems experienced by the participants in the SACCO

Members participating in SACCO programmes experienced several constraints (Table 4.9). 34% of the members indicated that the interest charged on loans was high. SACCO Management indicated that the interest rate per annum was 36% calculated on a non reducing balance basis which makes it higher than the interest charged by many MFIS. The high interest rate increases the default rate and drop out rates from the SACCO because the money borrowed could not generate returns. 17% of the participants

indicated that a short payback period was a major constraint; this coupled with a lack of grace period increased the chances of defaulting since the participants were not given a chance to use the money borrowed so that it generates profits. This also accounts for the lack of a package for agricultural loans 1% since by nature crops have a gestation period hence these loans are not applicable to the farmers. Many SACCO's are rural based but the loans only benefit the business people not the farmers hence the loans are not farmer friendly.

SACCO's generate their capital through member's savings, share capital, and membership fees. Many of these SACCO's were faced with a situation of failure to raise enough money to loan to the members (11% reporting) leading to a situation of credit rationing at as a constraint due to insufficient funds. One of the constraints members faced was that their savings and shares were not earning any interest. This demoralized the members leading to a situation of not saving in the SACCO's and buying more shares.

Table 4.8 Problems experienced by the participants in the SACCO

Variable	Overall Sample N=250		Rural Households N=158		Urban households N=92	
	Freq	%	Freq	%	Freq	%
High interest rate	85	34.0	47	30.0	40	43.0
Short payback period	43	17.0	24	15.0	18	20.0
Long loan processing	40	16.0	28	18.0	12	13.0
Sales of defaulter's property	13	5.0	8	5.0	5	5.0
Fines on delayed payments	3	1.0	2	1.0	1	1.0
Insufficient loanable funds	28	11.0	17	11.0	9	10.0
Poor services	5	2.0	2	1.0	2	2.0
Overstayed board	5	2.0	2	1.0	2	2.0
Inflexible loan scheme	3	1.0	2	1.0	0	0.0
Loan rationing	15	6.0	9	6.0	6	7.0
Lack of interest on savings and shares	28	11.0	13	8.0	14	15.0
High default rate	5	2.0	3	2.0	3	3.0
Rumor mongering	3	1.0	2	1.0	0	0.0
No grace period	10	4.0	5	3.0	4	4.0
No agricultural loans	3	1.0	2	1.0	0	0.0

Source: Survey data

4.1.9 Benefits from SACCO Membership

Despite the problems faced by members in the SACCO's, their participation in SACCO programmes had accrued benefits (Table 4.10). 65% and 56% of the members indicated the major benefit as improved access to loans and a savings facility respectively. This also supports the fact that some of the major reasons why they participated were to save and borrow. Several studies (Zeller *et al.*, 2001) have shown that placement of traditional financial institutions and microfinance institutions follow an urban bias which increases transaction costs for rural households and reduces their integration into the monetary economy. SACCOS hence provide a means to fill a gap in financial services accessibility. 15% of the participants indicated that they were able to interact socially especially for the

rural participants. These social gatherings included the annual general meetings and other routine meetings as members. This was also supported by the fact that some of the SACCO staff were friendly 11% this in the long run encourage member participation in the programmes.

Table 4.9 Benefits from SACCO Membership

Variable	Overall Sample N=250		Rural Households N=158		Urban households N=92	
	Freq	%	Freq	%	Freq	%
Get loans	163	65.0	106	67	57	62.0
Savings facility	140	56.0	88	56	52	56.0
Social interaction	38	15.0	32	20	7	8.0
Friendly staff	28	11.0	13	11	10	11.0
Accessible	45	18.0	17	16	19	21.0
Earn interest on savings	8	3.0	5	3.0	2	2.0
Learn new ideas	3	1.0	2	1.0	1	1.0
Creates employment	3	1.0	2	1.0	2	2.0

Source: Survey data

The SACCO's visited were all under the Umbrella of UCA and hence the minimum requirements for eligibility to access credit were similar. The major conditions to be fulfilled included having security that was offered as collateral, sureties, an LC1 letter confirming residential status. Furthermore, in order to qualify for a loan, one had to have paid up membership fees since these SACCO's only serve members. In order to access the loan a member was expected to apply for it using official application forms. Loan approval would be done by the loans committee which on average would sit once a month with an exception for emergency loans. A member also had to have savings on his account (forced savings) and at the time of loan application equivalent to 5% of the loan amount required. These loans had no grace period where by the member who borrowed money had to commence payment after one month from the time the loan was received. It always took a member one month to access the loan from the time it was approved by the

loans committee. Other conditions included having paid up the previous loan and having a clean record of not defaulting this was commonly used for members that had acquired loans before from the SACCO. Well as for MFI's there was no need to pay membership fees, buying shares. Some MFI's like Commercial Microfinance Limited payment of the loans were on a weekly basis.

4.1.10 Loan uses

As shown in Table 4.11, on average, 36.4% of the participants indicated that they accessed loans to pay school fees with more of the rural participants (48.2%) accessing or using the loan for fees compared to only 20.9% of the urban participants. This may be explained by the fact that urban households may have different sources of income hence can easily pay fees for dependants well as many of the rural households access income from sale of agricultural produce. Therefore to sustain their dependants in school when it's off season they had to borrow and pay back when they have sold their produce. 69.8% of urban participants borrowed to invest in small business were as 46.4% of the rural participants borrowed for small business. This may be explained by the fact that urban dwellers are involved in small business including shop and market stalls well as in the rural areas small and micro enterprises are more limited this is an expected result and is consistent with findings by Davis *et al.* (1990), Mutenyo (2005).

Table 4.10 Loan use

Variable	Overall Sample		Rural Households		Urban households	
	N=99		N=56		N=43	
	Freq	%	Freq	%	Freq	%
Small business	56	56.6	26	46.4	30	69.8
Health expenses	4	4.0	1	1.8	3	7.0
Education expenses	36	36.4	27	48.2	9	20.9
Food	4	4.0	4	7.1	0	0.0
Durable goods	2	2.0	2	3.6	0	0.0
Buildings	14	14.1	6	10.7	8	18.6
Farming	12	12.1	7	12.5	5	11.6

Source: Survey data

4.1.11 Informal loan sources

Since most of the SACCO's exhibited credit rationing behavior due to insufficient loanable funds, we look at the informal sources of credit available to the households in the sample. Informal loans are monies that we acquire from sources other than financial institutions.

Table 4.12 indicates the various sources of informal loans and these included friends, relatives, traders and cooperatives (Village groups not registered). The major sources of informal credit was friends followed by cooperatives. 11.4% of the respondents indicated that they acquired loans from relatives with more rural respondents (14.6%) indicating that they borrowed from relatives than their urban counterparts (3.5%). This is explained by the fact that individuals migrate to urban areas in search of better income opportunities and later repatriate these funds to rural areas in form of remittances and loans. Also urban respondents are more geographically dispersed from relatives than the rural residents. More urban respondents borrowed from traders (12.3%) than rural respondents (4.9%). Urban respondents generally had more business investments where merchandise is received on credit in informal arrangements with suppliers.

Table 4.11 Informal loan sources

Source of informal loan	Overall Sample N=201		Rural Households N=144		Urban households N=57	
	Freq	%	Freq	%	Freq	%
Friends	138	68.7	94	65.3	44	77.2
Relatives	23	11.4	21	14.6	2	3.5
Traders	14	7.0	7	4.9	7	12.3
Cooperatives	29	14.4	24	16.7	5	8.8

Source: Survey data

4.1.12 Informal loan use

There several reasons why people borrow, and normally the informal loans carry a bigger interest charge than the SACCO loans. However it's in times of difficulty that they borrow. The uses of informal loans were broadly similar but more varied than uses of the SACCO loan. 24.4% of the respondents indicated that they borrowed in order to pay for educational expenses for their dependants, 16.9% for health expenses. 45.6% of the urban respondents invested the informal loans in business were as the rural respondents invested 31.9%. This result is consistent with the findings of Kyotalimye (2005), Mugume and Obwona (1996). Loans from formal or informal sources are tied to income generating projects, hence a considerable cost involved in putting resources to other uses. 9.5% of the respondents used part of the informal loan for agriculture. Other uses of the loan included purchase of livestock, household items, food, land, buildings and constructions.

Table 4.12 Informal loan use

Loan use	Overall Sample N=201		Rural Households N=144		Urban households N=57	
	Freq	%	Freq	%	Freq	%
Food	15	7.5	11	7.6	4	7
Education expenses	49	24.4	36	25	13	22.8
Health Expenses	34	16.9	24	16.7	10	17.5
Durable goods	6	3	6	4.2	0	0
Land Purchase	7	3.5	4	2.8	3	5.3
Building purchase/ Construction	11	5.5	7	4.9	4	7
Business	72	35.8	46	31.9	26	45.6
Farming	19	9.5	14	9.7	5	8.8
Household items	1	0.5	1	0.7	0	0
Livestock	2	1	2	1.4	0	0
Motorcycle	2	1	2	1.4	0	0
Politics and Campaigns	1	0.5	0	0	1	1.8

Source: Survey data

4.1.13 Reasons for not borrowing from SACCO

Table 4.14 indicates the reasons why people don't borrow from the SACCO's. 30.8% indicated that they were not borrowing from the SACCO because they lacked sufficient information on the SACCO programmes. 35.3% had low household income so they would not be able to raise the minimum requirements. 39% of these respondents were rural households well as 24% were urban respondents and others were not borrowing because they did not require the loans. 12.3% of the urban participants indicated that they were not borrowing because of high interest rates compared to only 3.4% of the rural respondents.

Table 4.13 Reasons for not borrowing from SACCO

Reason	Overall Sample N=235		Rural Households N=177		Urban households N=58	
	Freq	%	Freq	%	Freq	%
SACCO is too far	15	6.4	12	6.8	3	5.3
Lack of information	72	30.8	56	31.6	16	28.1
Low household income	83	35.3	69	39	14	24.1
Lack of business to invest in	17	7.3	12	6.8	5	8.8
Don't need SACCO loans	28	12	17	9.6	11	19.3
Poor service delivery	5	2.1	3	1.7	2	3.5
No suitable loan product	4	1.7	3	1.7	1	1.8
Lack security	3	1.3	3	1.7	0	0
Charge high interest rates	13	5.6	6	3.4	7	12.3
Fear loss of property	7	3	5	2.8	2	3.5
Too sickly to engage in business	3	1.3	3	1.7		0
Loan amount offered too small	5	2.1	3	2.8	0	0
Have no agricultural loans	2	0.9	2	1.1	0	0
Other reasons	10	4.3	6	3.4	4	7

Source: Survey data

4.2 Determinants of the likelihood of participation in the SACCO

Households joining SACCO programmes make financial savings decisions representing the degree of SACCO participation. In these decisions households choose whether or not to join a SACCO operating in the vicinity. This choice represents the choice between participation and non participation in semi-formal financial institutions. Households have to make a choice on whether or not to invest in membership fees-a pre-requisite to registration as a SACCO member and purchase of shares is economically or socially feasible. Next, the household must choose whether to acquire a deposit instrument such as a passbook savings account at the SACCO. This decision represents the choice between financial and non-financial assets. Since these outcomes are discrete and ordinal rather than nominal, i.e. resulting into the ordering of individuals into non SACCO members, SACCO members who do not save and SACCO members who hold savings

accounts. This decision is examined by formulating an ordered probit function of household savings behavior.

Results of the ordered probit function estimation are reported in Table 4.15. The estimated coefficients reflect the conditional probability of opening a savings deposit account in a SACCO for each of the identified independent variables. All coefficients have the expected signs, and all are significantly different from zero at the 10 percent level of probability or higher. The overall predictive accuracy of the model is reasonably high at 84.86 percent. The model Chi-square statistic is 86.64 (with 11 degrees of freedom) indicating that the model is statistically significant at the 1 percent level. A linktest shows that the model is well specified. Several factors initially included in the model had the expected signs but an insignificant effect on the model and were hence dropped from the analysis. The linktest⁹ in STATA shows that excluding the variables provides a better model in terms of model specification and that there is no omitted variable bias.

⁹ The STATA command called linktest can be used to detect a specification error after the probit command. The idea behind linktest is that if the model is properly specified, one should not be able to find any additional variables that are significant except by chance. After the probit command, linktest uses the predicted value (*_hat*) and predicted value squared (*_hatsq*) as the predictors to rebuild the model. Variable *_hat* should be a significant predictor since it is the predicted value from the model. If our model is properly specified, variable *_hatsq* shouldn't have much predictive power other than by chance. Therefore, if *_hatsq* is significant, then the linktest is significant. That means either we have omitted relevant variables or our link function is not correctly specified. Thus, for a good model, *_hat* is significant and *_hatsq* fails to be significant.

Table 4.14 Determinants of the likelihood if participating in SACCOS

Variable	Dependent variable = Degree of participation in SACCO			
	Member who doesn't save in SACCO		Member who saves in SACCO	
	dy/dx	Z	dy/dx	z
Predicted income (Ushs)(incomall)	1.90E-08	1.74*	2.23E-07	4.62***
Dummy=1 if earns salary (salaried)	-0.0847	-3.08***	-0.4624	-5.31***
Dummy=1 if earns rent income (rent)	-0.0856	-2.34**	-0.2784	-4.53***
Dummy=1 if spouse earns (spousinc)	-0.1887	-3.72***	-0.3543	-7.65***
Dummy=1 if has children in secondary schools (secondary)	0.0078	1.31	0.0887	+1.91*
Dummy=1 if resident in urban area (urban2)	0.0017	0.22	0.1663	+3.40***
Resides in Mbarara (dmbarara)	-0.0681	-1.87*	-0.217	-3.73***
Resides in Tororo (dtororo)	-0.034	-1.52	-0.1591	-2.70***
Resides in Apac (dapac)	-0.0763	-2.77***	-0.2672	-5.50***
Resides in Kamuli(dkamuli)	-0.0059	-0.48	-0.0474	-0.64
Resides in Masaka (dmasaka)	-0.0167	-0.92	-0.0984	-1.47
Pr (saccsave=k)	0.2936		0.3132	
N	417			
LR chi2(11)	84.01***			
Log likelihood	-408.243			
Pseudo R2	0.0933			

Source: Survey data.

*, **, *** Significant at 10%, 5% and 1% respectively

The model predicted that permanent income, indicators of stability in earnings, spouse income, rent income and salary income dummies, having dependents in secondary and location dummy were all significant predictors of the probability of opening a savings account in a SACCO.

As expected, permanent income was positive and highly significant for membership and holding of a deposit instrument in a SACCO. As stated in economic theory any increases in household income boost household savings behavior. Hence current investments towards

integrating households in a monetary economy are likely to boost household savings mobilization through initiatives such as SACCOS. The positive influence of income on the likelihood of obtaining a deposit instrument is backed by several other studies including Kiiza and Pederson (2001), Ozcan *et al.* (2001) and Reddy *et al.*, (2003).

The effect of stability in income sources measured using dummy variables = 1 if a household earns rent income or has a spouse who earns income or earns a salary in formal employment were all negative and significant ($P < 0.01$) for membership and ownership of a deposit instrument in a SACCO. The likelihood of joining and opening a deposit account in a SACCO decreases by 46% when an individual earns a salary, by 35% when one has a spouse who earns income and by 27% when an individual earns rent income relative to no rent income earnings. This implies that households with stable income sources are unlikely to engage in SACCO services. It is possible that the needs of such households are more effectively met by more developed financial institutions such as banks and well established Microfinance institutions. This is especially true for salary earners who normally get paid their remuneration through the banking system. SACCO's would have to enhance their service package if they are to effectively attract such clientele in their portfolio.

Households with dependents in secondary school were more likely to participate and save in SACCOS than their counterparts at $P < 0.1$. Having children in a secondary school increased the likelihood of participation and saving in a SACCO by 8%. Kiiza and Pederson *op cit* found a result similar to this. One of the reasons given by the respondents was that they participated to access credit and much of the credit access was also invested in fees for the

dependants. As the need for fees increases the chances of participating in SACCO programmes to access credit increases since credit access is tied to an involuntary savings programme.

Our proxy for transaction costs incurred in the process of participating in SACCO's defined as Urban location=1 and 0 otherwise was positive and highly significant for membership and deposit instrument acquisition. The likelihood of membership and savings in a SACCO increases by 16% if a household relocates from a rural to an urban area. This may be explained by the fact that most SACCOS were located in the trading centers taken as urban residence in this analysis. For such households transaction costs such as transport expenses to the SACCO would be considerably much lower, increasing the likelihood of participation. Lower transactions costs have been found to positively influence savings in other studies (Kiiza and Pederson, *op cit*; Reddy *et al.*, *op cit*).

Dummies for district of residence were included to account for fixed effects such as variations in infrastructure and bank density in a spatial context. Rukungiri as a district of residence was used as the district of reference given that the descriptive statistics showed that it had the highest levels of participation in SACCOS. In general, moving from Rukungiri to any other district decreased the likelihood of participation with the negative effect greater in Apac, followed by Mbarara and Tororo.

4.3.1 Determinants of Net Savings Deposits

The net savings deposit function was estimated using Weighted Least Squares (WLS) regression. The dependent variable is the amount of net savings deposits held in the SACCO in 2005. Similarly, households with credit facilities available to them from the

institution take the value $LOANEE = 1$, and others = 0. Permanent income and transitory incomes were included in the financial savings function. The Permanent income of a household in this study was proxied by the predicted values of a modified earnings function and Transitory income was proxied as the income received from relatives and friends in 2005 (remittances).

Results in Table 4.15 show that the level of net savings deposits in a SACCO is affected negatively with each unit increase in the distance from the residence to the district capital; by a household's education and wealth holdings level; engaging in trade activity and by having dependants in secondary schools. Conversely, net savings deposits increase with the level of permanent and transitory incomes of the household, increase in access to credit and involvement in wage income activities.

Table 4.15 Determinants of Net Savings Deposit at SACCO's

Variable	Dependent Variable = Net Savings Deposits (both forced and voluntary savings) (Ushs)	
	Coefficient	T-statistic
Predicted income (Ushs)	0.018***	3.14
Transitory Income	0.052***	3.19
Unexplained income	0.006	1.49
Education level	-11.811.400***	-3.84
Livestock index	-3,191.847**	-2.03
Distance to district capital (Km)	-3,252.285***	-2.77
Has Secondary school dependants(dummy)	-60,602.480***	-2.79
Earns wage income (wage dummy)	111,991.900**	2.43
Earns trade income (trader dummy)	-36,246.580*	-1.73
Accessed credit (loanee)	51,585.710***	2.8
Mbarara district dummy	-49,834.77	-1.21
Tororo district dummy	-66,524.320**	-2.07
Kamuli district dummy	-88,851.470***	-2.88
Masaka district dummy	11,001.88	0.23
_cons	197,925.500***	4.42
N	94	
F(14, 79)	6.34***	
Adj R2	0.4458	

Source: Survey data

*, **, *** Significant at 10%, 5% and 1% respectively

Permanent income plays a positive role in the determination of the level of net savings deposits held by households at financial institutions; and it is highly significant. The estimated coefficient indicates that the marginal propensity to save out of permanent income (in the form of savings deposits) is quite low at 0.018. Theory says that permanent income is consumed but transitory income is saved, the results confirms theory. This can also be explained by institutional theory which suggests that factors other than income and preferences may influence saving behaviour. Low savings by poor people may be limited to limited access to institutional saving opportunities (Sherraden,

1991). Relevant institutional features may include incentives, information, access, and facilitation (Beverly and Sherraden, 1999)

The implication is that permanent income has not played an important role in the formation of household net savings deposits in Uganda. This could be due to the fact that these deposit accounts have earned relatively low rates of return in the past. As a consequence, most households are not driven by the desire to earn interest on these deposits. Rather, they use them for safekeeping, to manage their money prudentially, and where possible to obtain credit. In contrast, the marginal propensity to save in the form of savings deposits out of transitory income is 0.052. When taken together, the coefficients on the permanent and transitory income variables suggest that households will increase their savings if either their permanent or transitory incomes increase, yet, those savings will not necessarily translate into investments in financial assets.¹⁰

The distance to district capital variable explains a significant proportion of the variation in the level of net savings deposits across households. Individuals who reside close to district capitals consistently hold higher net savings deposits than those who do not have such close proximity. Thus, transaction costs play a role in the level of net savings deposits held by households. The lower are the transaction costs involved, the higher is the level of net savings deposits held by households. Households are likely to increase their deposits with a particular financial institution if it offers facilities to borrow that are attractive to them. The coefficient on the LOANEE variable indicates that households

¹⁰ The marginal propensity to save out of permanent income in all assets (physical and financial) was estimated to be 0.43 to 0.48 for urban households, 0.20 to 0.27 for rural households. The marginal propensity to save out of transitory income in all assets has been estimated to be 0.68 to 0.72 for urban households, 0.38 to 0.42 for rural households. Urban households include middle income merchants (Kiiza, 1999).

with credit facilities available to them consistently hold higher net savings deposits than those who do not have credit facilities available.

The effect of education on net savings was negative and highly significant at ($P < 0.01$). As the participants become more educated the less they save as they end up requiring more credit for bigger investments hence transfer their accounts to bigger financial institutions which can offer more in terms of credit than the SACCO with limited funds. Many of the educated in the rural areas were salary earners or public servants who normally get their salaries from the bigger micro finance institutions hence they tend to shift their savings else where. Furthermore, members participated to earn interest and dividends and yet some SACCOS were not offering interest on savings and dividends on shares. The more educated are also more likely to expect a return on their savings and will consequently save less in an institution where the benefits are not tangible. The effect of a rise in education level is similar to that of an increase in the index of livestock holdings. Net savings deposits in SACCOS decrease with a rise in a household's wealth. Wealthier households also need access to more financial instruments that may not be available in a SACCO.

Having dependants in secondary schools in relation to no secondary school dependants decreased the level of household net deposits by 60,000 Ushs and the effect is significant at $P < 0.01$. Generally, the more the dependants in secondary level, the less the net deposits because much of the savings were used for paying fees. Hence although households with secondary school dependants are more likely to participate and save in SACCOS; their participation and savings behavior may be driven by a desire to access credit to meet school expenses rather than the need to access a facility to grow their savings. The kind

of savings made in the SACCO involves both voluntary and forced savings and the members hold one account in the SACCO that caters for both the loan acquired and the savings made. In the process members are forced to deposit a given amount in the bank before they access the loan. The voluntary savings keep on being drained as its being used to offset the loan to cater for the money borrowed leading to the negative sign.

Net savings deposits were affected negatively by increasing the distance away from the SACCO to the household and was significant at ($P < 0.05$). This was attributed to the fact that as the distance from the capital increased, the level of savings reduces, because this increased the cost of savings through increased transport costs, it also requires time to move from farm to the SACCO and since the distance would be grate members would be hesitant to move to the institution. Being a trader negatively affected the household net savings. Savings deposits decrease by 36,246 Shillings as households engage in business related activities. The reason is that being business oriented, the more they became deeply involved in business the more they ploughed back the money into the trade hence having less savings. Mutenyo (2005) also showed that traders save a significant amount of money in form of business items consequently reducing on the level of financial deposits held.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.0 Summary

This study examined the socio-demographic characteristics of participants and non-participants in SACCO programmes in the six districts of Mbarara (Ebirungi Biruga Omututu), Rukungiri (Rwerere), Apac (Chawente), Tororo(Mukuju), Masaka (Lwengo) and Kamuli (Kamuli Twisanya) in Uganda results indicated that that non participants had higher incomes than participants indicating that SACCOS are a significant poverty outreach tool. Of those participating in SACCO'S, only 40% had accessed credit from the SACCO. SACCO's exhibited credit rationing behavior with participants receiving loan amounts less than what they had applied for. The major reason why people participated was to borrow and to save and why people were not participating was lack of information about SACCO programmes and low income. The major constraints experienced by members included high interest rate charged on loans 36% on a non reducing balance basis. Though there were constraints, members had accrued as improved access to loans and a savings facility respectively. The loans received by participants were used to pay school fees for the dependants.

With respect to household savings behavior in relation to participation in SACCOS. A participant was defined as one who made the decision to join a SACCO. Participants were further disaggregated into those who save in the SACCO and those who do not hold deposits in the SACCO. The analysis involved a descriptive analysis of household and individual characteristics by status of participation in the SACCO. The analysis then looked at the determinants of the degree of SACCO participation: none, membership

without savings and membership with savings using an ordered probit model. For households with deposits in the SACCO, we use weighted least squares (WLS) to determine the factors influencing the levels of deposits made in the SACCO. Results of the probit model analysis showed that the likelihood of membership and depositing in a SACCO increased with growth in incomes, a move from a rural to urban locale and having dependants in secondary schools. Households with stable income sources; salary, rent and a spouse who earns were however, less likely to join and save in a SACCO.

The WLS analysis showed that deposits in the SACCO significantly decreased with distance to the district capital, showing the pivotal role of accessibility to successful savings mobilization. Net deposits also decreased with the level of education of the respondent, wealth holdings, for households engaged in trade and those with secondary school dependants. This may indicate that SACCOS are not well suited to such households either in terms of prestige or adequacy and suitability of products and services offered, with such households graduating to saving with bigger institutions. On the other hand, the level of deposits increased for wage earners relative to other income sources, with increases in income and with improved access to credit. The analysis also showed a higher propensity to save out of transitory income than permanent income.

5.1 Conclusions

Based on a representative sample of households in Uganda, we find that rural and urban households can afford to acquire savings deposit instruments given the appropriate incentives and accessibility. Accessibility of financial institutions is one of the major problems that must be addressed in Uganda, if an effective national program of

household savings mobilization is to evolve. Thus, our analysis has focused on the physical and institutional dimensions of accessibility.

Reduced physical accessibility due to remote location of households tends to hinder membership in a SACCO and subsequent acquisition of deposit instruments. Conversely, our analysis shows that the likelihood of acquisition increases by about 16% times when a household moves from a rural area to an urban location. This effect is due to proximity to more financial institutions most of which are located in urban centers, where an increasing exposure to financial institutions increases the propensity to save in the form of financial assets. The survey data confirm that physical accessibility is particularly limited by the presence of an urban bias, as reflected by the number and quality of financial services offered in rural areas. A possible explanation for this urban bias could be the high costs associated with serving the geographically dispersed population in small towns and rural areas.

Since significant increases in household savings mobilization are possible, the public policy discussion in Uganda needs to consider the use of incentives to bring SACCOS closer to the rural clientele. This could be in the form of specific one-time subsidies to offset the start-up costs of innovative institutions that bring services closer to the rural and small town populations. Second, better rural infrastructure must be developed in the form of road, electrical, and telecommunications systems to reduce the costs of delivering financial services.

Institutional access is related to the availability of credit facilities to depositors. We find that access to credit has a positive and significant influence on the level of net savings

deposits held by households. Households with credit facilities available to them consistently hold higher net balances of savings deposits than those without. We attribute this to a combination of a voluntary increase in the level of savings (given the lending institution offers facilities to borrow that are attractive to them) and arrangements whereby a lender requires savings as a form of collateral.

We find that household income is a significant determinant of the level of household net savings deposits in SACCOS. While the rates of return paid on savings deposits in Uganda have been negative in real terms for quite some time, households continue to hold savings deposits for the purpose of keeping their money safe and to exercise prudent management of their finances, rather than to earn interest. Due to the low marginal propensities to save out of permanent and transitory incomes in the form of net savings deposits (0.02 and 0.05, respectively), increases in household income alone are not likely to increase the level of financial assets held by households. Rather, savings deposits will be more effectively increased by efforts to increase financial intermediation by offering savings instruments that bear positive real rates of return, keep the deposits safe, and do so at relatively low cost to the depositor.

5.2 Recommendations for Further Study

There is need for further studies, Determine the tradeoff between increased outreach and financial sustainability of SACCOS by placing them even deeper in the rural areas.

Determine how SACCOS can be empowered to develop and provide loan products that are tailored towards farming (agriculture). Determine the impact of these SACCO's on the welfare (livelihoods) of the households as these remain gaps to be addressed.

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Appendix A: OLS Results for the Household Earnings Function

The OLS estimation results for the household earnings equation are reported in Table A.1. The dependent variable is disposable income (in Ushs). The independent variables include: the total expenses on education of dependents (Ushs), the size of the household's portfolio of physical assets in millions of Ushs (ASSET), Asset-squared (ASSETSQD), a dummy variable for SEX (male=1) to reflect the gender wage differential reported in earnings functions. The occupation dummy variables are RENT, and SALARIED. They reflect the major source of income category, for rent income, and salary earnings respectively. SPOUSINC is included as a dummy reflecting whether the spouse also earns. This was included as a measure of stability in earnings. A linear functional form for the equation is adopted since the residual analysis indicates that the standard linear function assumptions are not violated.

Table A.1 Income function for predicting permanent household income
(Dependent variable = total household income (Ushs))

Variables	All households		Urban households		Rural households	
	Estimated Coefficients	T-Value	Estimated Coefficients	T-Value	Estimated Coefficients	T-Value
school	0.309	3.74***	0.206	1.24	0.416	4.49***
ses	(0.083)		(0.166)		(0.093)	
	0.020	3.91***	0.016	0.83	0.010	1.71*
	(0.005)		(0.019)		(0.006)	
	-0.000	-2.83***	0.000	0.25	0.000	-1.25
	(0.000)		(0.000)		(0.000)	
earners'	1,248,706.000	5.82***	1,176,974.000	2.69***	1,150,595.000	4.87***
ay	(214,522.400)		(438,121.400)		(236,186.200)	
	2,356,684.000	13.18***	3,265,756.000	7.63***	1,975,428.000	10.61***
rs	(178,758.100)		(427,996.600)		(186,134.800)	
ay	2,239,084.000	8.45***	1,810,532.000	3.09***	2,409,138.000	8.58***
se	(265,108.100)		(585,919.600)		(280,624.000)	
ay	103,193.600	0.58	-21,412.890	-0.05	19,655.900	0.11
=1)	(178,155.400)		(443,558.100)		(182,922.100)	
	51,932.710	0.38	239,471.500	0.69	95,775.100	0.67
	(138,196.200)		(346,771.700)		(143,606.100)	
	415		121		294	
	0.5674		55.43		56.31	
se	78.58***		22.32***		56.92***	

Figures in parentheses are standard deviations

*, **, *** refers to significance of T-test at 10, 5 and 1 percent levels respectively

Appendix B: Questionnaire on Assessment of the influence of Savings and Credit

Cooperatives (SACCOS) on Households Savings

Name of interviewer _____

Date _____

1a) IDENTIFICATION

- (a) DISTRICT _____
- (b) SUB-COUNTY _____
- (c) ZONE / VILLAGE _____
- (d) RESPONDENT'S INITIALS _____
- (e) URBAN HH _____ RURAL TRADING CENTER HH _____; RURAL HH _____
- (f) NON BORROWER----- BORROWER
- (g) DISTANCE TO DISTRICT CAPITAL (Km) _____
- (h) NUMBER OF VISITS TO DISTRICT CAPITAL PER MONTH _____

1b) TABLE 1: HOUSEHOLD PARTICULARS

	AGE	SEX	EDUCATION LEVEL (YEARS)	TOTAL WORK EXPERIENCE (YEARS)	EXPERIENCE AT CURRENT JOB
H HEAD					
MARRIED	2-SINGLE	3-DIVORCED	4-WIDOWED		
POUSE					
DEPENDANTS	TOT NO	SCHOOL FEES	UNIFORMS, SHOES	BOOKS, PENS, PENCILS	POCKET MONEY, NECCDESITIES, TRANSPORT
N NURSERY					
N PRIMARY					
N SECONDARY					
AT UNIVERSITY					

NOT SCHOOL	IN					
---------------	----	--	--	--	--	--

2a) Are you a SACCO member

i) Yes No.....

2b) If no why haven't you joined.....

.....

2c) If yes what made you join the SACCO programmes.....

.....

2d) Do you know any other financial institution. Yes..... No.....

If yes List them

1.
2.
3.
4.
5.
6.

2e) How many years have you been in the SACCO.....

2f) TABLE 2: THOSE WITH CREDIT FROM A FORMAL FINANCE INSTITUTION

TYPE OF INSTITUTION WHICH GAVE YOU THE LATEST LOAN

1. MFI

2. BANK

3. SACCO

4. Other, Specify _____

2g) HOW DID YOU LEARN ABOUT THE LOAN SCHEME?

- Adverts – Newspapers / Radio / T.V.
- MFI/BANK Pamphlets / Brochures / SACCO documents
- Friends/ Relatives/ Neighbour/ Members
- Loan Officer

2h) DISADVANTAGES YOU HAVE WITH THE SACCO

- 1.....
- 2.....
- 3.....
- 4.....
- 5.....
- 6.....

2i) ADVANTAGES YOU HAVE WITH THE SACCO

- 1.....
- 2.....
- 3.....
- 4.....
- 5.....
- 6.....

LOANS GIVEN IN CYCLES: IN THE LAST 2 YEARS TO THE LATEST

[illegible]

1. Business (Capital), 2. Health, 3. Education, 4. Consumption (Nutrition, Clothes), 5. Durable Goods (T.V., Radio), 6. Land, Building(s)

TABLE 3: CREDIT HISTORY

WHAT CONDITIONS DID THE SACCO GIVE YOU IN ORDER TO GET YOUR RECENT LOAN?

TABLE 4: INFORMAL LOANS OF THE HOUSEHOLD

	[1] 2005 LOANS, first 3 months	[2] 2005 LOANS, at present
LOANS, TAKEN BY RESPONDENT		
LOANS, GIVEN OUT BY RESPONDENT		
<u>SOURCES / RECEIPT OF INFORMAL LOANS BEFORE GETTING FORMAL LOANS</u>	<u>LOAN PURPOSE</u>	
- Friends / Relatives	- Food & Clothes	
- Traders	- Education Expenditure	
- Cooperatives	- Health Expenditure	
- Other, specify	- Durable Goods (T.V.,	
Radios)	- Purchased Land	
	- Buy or Construct	
	Buildings	
	- Small business	
	- Other, specify	

a) TABLE 5 IF YOU DON'T HAVE FORMAL CREDIT; GIVE REASONS WHY.

DISTANCE TO SACCO
LACKED INFO ON SACCO
LOW INCOME THRESHOLD
OTHER

TABLE 6: SACCO SAVINGS ACCOUNT HELD IN 2004/2005

[illegible]

TABLE 7: DOMESTIC (NON-BUSINESS) CONSUMPTION EXPENDITURE

CATEGORY	Quantity	PRICE PER UNIT (2005 SHS)
INCOME PER WEEK or MONTH		
SPENDING PER YEAR		
HOUSEHOLD (WHOLE FAMILY)		
EXPENSES PER YEAR (WHOLE FAMILY)		
DOMESTIC RENT PAID PER MONTH		
ELECTRICITY		
CHARCOAL		
FUEL OIL PER WEEK/MONTH		
RAFFIN		
WATER PER MONTH		
TELEPHONE EXPENSES		
TRANSPORT		
MEAT		
TEA / COFFEE		
SOAP		
CLUT		
CELEBRATIONS		
MEAT		
SH		
COOKING OIL		
TOMATOES		
FRUITS		
VEGETABLES		
BEANS		
NUTS		
EGGS		
POSHO		
CASSAVA		
ICE		
WET POTATOES		
DRY POTATOE		
OTHERS SPECIFY		

1) Table 8: HEALTH EXPENDITURES

	2005
HEAD OF HOUSEHOLD EXPENSES	
PREGNANCY /FAMILY PLANNING	
POUSE	
DEPENDANTS	
RELATIVES OUTSIDE THE HOUSEHOLD	

9a) TABLE 9: VALUE OF PURCHASES AND CONSTRUCTION OF PROPERTY

PROPERTY	GOT IN 2005 (SHS)	GOT BEFORE 2005
RESIDENTIAL HOUSE		
COMMERCIAL BUILDING		
LAND		
RADIOS		
BICYCLES		
MOT CYCLE		
FURNITURE		
T.V SETS		
CARS		
FRIDGE		
CRIBS		
TRACTORS		
PLOUGHS		
FENCES		
DIPS		
HOES		
GENERATOR		
PUMPS		
SLASHERS		
PANGAS		
CATTLE		
SMALL ANIMALS		
KNAPSACK SPRAYERS		
SAWS		
COOKER		
Others specify		

10a) TABLE 10: SALES OF PROPERTY IN 2005

PROPERTY	2005 (SHS)	VALUE	FUNDS FROM SALES CHanneled TO
RESIDENTIAL HOUSE (S)			BANK (SAVED)..... RE-INVESTED..... OTHER SPECIFY
COMMERCIAL BUILDING (S)			BANK RE-INVESTED..... OTHER SPECIFY
LAND			BANK RE-INVESTED..... OTHER SPECIFY
BREEDING LIVESTOCK			BANK RE-INVESTED..... OTHER SPECIFY
FARM EQUIPMENT			BANK RE-INVESTED..... OTHER SPECIFY
DOMESTIC DURABLES			BANK RE-INVESTED.....

11a) TABLE 11: ROUTINE IMPROVEMENTS, RENOVATIONS AND DAMAGES

PROPERTY TYPE	ADDITIONS IMPROVEMENTS VALUE (SHS)	REPAIRS TO DAMAGE NET COST (SHS)
	2005	2005
RESIDENTIAL		
COMMERCIAL		
FARM STRUCTURES		
FARM MACHINERY		
OTHER PROPERTY		
TOTAL VALUE		

12a) TABLE 12: LIVESTOCK OWNED AS OF TODAY

CATEGORY	NUMBER	VALUE (SHS)
CATTLE		
GOATS		
LOCAL POULTRY		
SHEEP		
PIGS		
Others		

13a) TABLE 13: PROPERTY INHERITED/GIFTS IN 2005

	2005 VALUE (SHS)
PROPERTY RECEIVED BY HH	
PROPERTY GIVEN OUT BY HH	
NET CHANGE = (1-2)	

14) SOURCES OF INCOME FOR THE HOUSEHOLD

14a) TABLE 14: EARNERS IN THE HOUSEHOLD 2005

	MAJOR OCCUPATION	Salary/Wage 2005	ALLOWANCES/ BONUS PER YEAR	TAXES 2005
HH				
SPOUSE				
CHILDREN				
OTHERS				
NET ANNUAL INCOME				

15a) TABLE 15: INCOME FROM AGRICULTURAL BUSINESS

GROSS SALES	2005 (SHS)
CROPS SOLD	
ANIMALS /BIRDS SOLD	
LIVESTOCK PRODUCTS MILK, HIDES, ETC	
2. OPERATING EXPENSES	
ALL RENT /YEAR	
MARKET/ROAD TAX	
3 PROFITS CLAIMED (SHS)	

16b) TABLE 16: WAGE INCOME FROM HIRING OUT LABOUR

	CATEGORY	2005 VALUE (SHS)
TOTAL WAGES PER YEAR		
TOTAL WAGES PER YEAR		
TOTAL WAGES PER YEAR		
TAXES		
TOTAL NET WAGES EARNED		

17a) TABLE 17: INCOME FROM OTHER BUSINESSTRADING

	SHOPS (retail/ wholesale)	MARKET STALL	2005 VALUE (SHS)
GROSS SALES PER WEEK / MONTH			
OPERATING EXPENSES			
RENT PER MONTH/YEAR			
LABOUR PER MONTH/YEAR			
MATERIALS PER YEAR			
INCOME TAX/VAT			
LICENSE TAX			
PROFITS CLAIMED			

18a) TABLE 18: INCOME FROM RENT RECEIVED BY THE RESPONDENT

INCOME FROM RENT		INCOME FROM RENT	
ITEM	VALUE 2004 (SHS)	ITEM	VALUE 2005 (SHS)
1.		1.	
2.		2.	
3.		3.	
4.		4.	

APPENDIX C: Regression Results

**Earnings function (All households)

. reg totinc05 totcosts asset assetsqd rent salaried spousinc sexresp

Source	SS	df	MS	Number of obs = 415
				F(7, 407) = 78.58
Model	1.5462e+15	7	2.2088e+14	Prob > F = 0.0000
Residual	1.1440e+15	407	2.8108e+12	R-squared = 0.5747
				Adj R-squared = 0.5674
Total	2.6902e+15	414	6.4980e+12	Root MSE = 1.7e+06

totinc05	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
totcosts	.3091141	.0825455	3.74	0.000	.1468452 .4713829
asset	.0198676	.0050773	3.91	0.000	.0098866 .0298486
assetsqd	-3.90e-11	1.38e-11	-2.83	0.005	-6.61e-11 -1.19e-11
rent	1248706	214522.4	5.82	0.000	826996.3 1670417
salaried	2356684	178758.1	13.18	0.000	2005279 2708088
spousinc	2239084	265108.1	8.45	0.000	1717932 2760236
sexresp	103193.6	178155.4	0.58	0.563	-247026 453413.1
_cons	51932.71	138196.2	0.38	0.707	-219734.7 323600.1

**Earnings functions by location

. reg totinc05 totcosts asset assetsqd rent salaried spousinc sexresp if urban2==1

Source	SS	df	MS	Number of obs = 121
				F(7, 113) = 22.32
Model	6.5701e+14	7	9.3858e+13	Prob > F = 0.0000
Residual	4.7510e+14	113	4.2044e+12	R-squared = 0.5803
				Adj R-squared = 0.5543
Total	1.1321e+15	120	9.4342e+12	Root MSE = 2.1e+06

totinc05	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
totcosts	.2059838	.1657909	1.24	0.217	-.1224779 .5344454
asset	.0157424	.0188948	0.83	0.407	-.0216917 .0531765
assetsqd	3.27e-11	1.32e-10	0.25	0.805	-2.29e-10 2.94e-10
rent	1176974	438121.4	2.69	0.008	308976 2044971
salaried	3265756	427996.6	7.63	0.000	2417818 4113694
spousinc	1810532	585919.6	3.09	0.003	649719.1 2971344
sexresp	-21412.89	443558.1	-0.05	0.962	-900181.5 857355.7
_cons	239471.5	346771.7	0.69	0.491	-447545.7 926488.7

. reg totinc05 totcosts asset assetsqd rent salaried spousinc sexresp if urban2==0

Source	SS	df	MS	Number of obs = 294
				F(7, 286) = 56.31
Model	8.3769e+14	7	1.1967e+14	Prob > F = 0.0000
Residual	6.0785e+14	286	2.1254e+12	R-squared = 0.5795
				Adj R-squared = 0.5692
Total	1.4455e+15	293	4.9336e+12	Root MSE = 1.5e+06

totinc05	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
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totcosts		.4158734	.092608	4.49	0.000	.2335937	.5981532
asset		.0101086	.0059226	1.71	0.089	-.0015489	.0217661
assetsqd		-1.81e-11	1.45e-11	-1.25	0.213	-4.65e-11	1.04e-11
rent		1150595	236186.2	4.87	0.000	685710.9	1615478
salaried		1975428	186134.8	10.61	0.000	1609060	2341796
spousinc		2409138	280624	8.58	0.000	1856787	2961488
sexresp		19655.9	182922.1	0.11	0.915	-340388.5	379700.3
cons		95775.1	143606.1	0.67	0.505	-186883.8	378434

**Determinants of degree of participation in SACCOS

. oprobit saccsave incomall salaried rent spousinc secondary urban2 dmbarara dtororo dapac dkamuli dmasaka

Iteration 0: log likelihood = -450.24744

Iteration 1: log likelihood = -408.55613

Iteration 2: log likelihood = -408.24307

Iteration 3: log likelihood = -408.24297

Ordered probit regression	Number of obs	=	417
	LR chi2(11)	=	84.01
	Prob > chi2	=	0.0000
Log likelihood = -408.24297	Pseudo R2	=	0.0933

saccsave		Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
incomall		6.29e-07	1.35e-07	4.67	0.000	3.65e-07 8.93e-07
salaried		-1.51022	.3479032	-4.34	0.000	-2.192098 -.8283424
rent		-.9464214	.2638807	-3.59	0.000	-1.463618 -.4292247
spousinc		-1.560289	.3710695	-4.20	0.000	-2.287572 -.8330067
secondary		.2512483	.1324724	1.90	0.058	-.0083929 .5108895
urban2		.453531	.13067	3.47	0.001	.1974225 .7096396
dmbarara		-.7305617	.2464822	-2.96	0.003	-1.213658 -.2474655
dtororo		-.492131	.2034913	-2.42	0.016	-.8909665 -.0932954
dapac		-.8898205	.1967018	-4.52	0.000	-1.275349 -.5042921
dkamuli		-.137268	.2194695	-0.63	0.532	-.5674203 .2928844
dmasaka		-.2936848	.2127986	-1.38	0.168	-.7107624 .1233928
/cut1		-.1654299	.174763			-.507959 .1770992
/cut2		.5922554	.1762375			.2468363 .9376746

. mfx compute, predict(outcome(1))

Marginal effects after oprobit

y = Pr(saccsave==1) (predict, outcome(1))
= .39319271

variable		dy/dx	Std. Err.	z	P> z	[95% C.I.]	X
incomall		-2.42e-07	.00000	-4.68	0.000	-3.4e-07 -1.4e-07	2.1e+06
salaried*		.5470906	.10579	5.17	0.000	.339745 .754436	.393285
rent*		.3639361	.09406	3.87	0.000	.179579 .548293	.211031
spousinc*		.542936	.08915	6.09	0.000	.368213 .717659	.127098
second~y*		-.096501	.05075	-1.90	0.057	-.195966 .002964	.517986
urban2*		-.1680186	.04614	-3.64	0.000	-.258458 -.07758	.292566
dmbarara*		.2850976	.09202	3.10	0.002	.104745 .465451	.131894
dtororo*		.193043	.07962	2.42	0.015	.036986 .3491	.189448
dapac*		.3435185	.07146	4.81	0.000	.203469 .483568	.223022
dkamuli*		.053376	.08611	0.62	0.535	-.115405 .222157	.151079
dmasaka*		.1150681	.0842	1.37	0.172	-.049964 .280101	.158273

(*) dy/dx is for discrete change of dummy variable from 0 to 1

. mfx compute, predict(outcome(2))

Marginal effects after oprobit

y = Pr(saccsave==2) (predict, outcome(2))
= .29356401

variable	dy/dx	Std. Err.	z	P> z	[95% C.I.]	X
incomall	1.90e-08	.00000	1.74	0.082	-2.4e-09 4.0e-08	2.1e+06
salaried*	-.0846939	.02752	-3.08	0.002	-.138623 -.030765	.393285
rent*	-.0855801	.03661	-2.34	0.019	-.157343 -.013818	.211031
spousinc*	-.1886571	.05078	-3.72	0.000	-.288186 -.089128	.127098
second~y*	.0078355	.00598	1.31	0.190	-.003888 .019559	.517986
urban2*	.0017128	.00773	0.22	0.825	-.01343 .016855	.292566
dmbarara*	-.0681169	.03637	-1.87	0.061	-.139399 .003165	.131894
dtororo*	-.0339705	.02233	-1.52	0.128	-.077738 .009797	.189448
dapac*	-.0763212	.02757	-2.77	0.006	-.130359 -.022284	.223022
dkamuli*	-.0059319	.01247	-0.48	0.634	-.030382 .018518	.151079
dmasaka*	-.0166812	.01805	-0.92	0.355	-.052056 .018693	.158273

(*) dy/dx is for discrete change of dummy variable from 0 to 1

. mfx compute, predict(outcome(3))

Marginal effects after oprobit

y = Pr(saccsave==3) (predict, outcome(3))
= .31324327

variable	dy/dx	Std. Err.	z	P> z	[95% C.I.]	X
incomall	2.23e-07	.00000	4.62	0.000	1.3e-07 3.2e-07	2.1e+06
salaried*	-.4623966	.08712	-5.31	0.000	-.633154 -.291639	.393285
rent*	-.278356	.06139	-4.53	0.000	-.398684 -.158028	.211031
spousinc*	-.3542789	.04629	-7.65	0.000	-.445013 -.263545	.127098
second~y*	.0886656	.04641	1.91	0.056	-.002298 .179629	.517986
urban2*	.1663058	.04896	3.40	0.001	.07034 .262271	.292566
dmbarara*	-.2169807	.05823	-3.73	0.000	-.331114 -.102848	.131894
dtororo*	-.1590724	.059	-2.70	0.007	-.274712 -.043433	.189448
dapac*	-.2671973	.04859	-5.50	0.000	-.36243 -.171965	.223022
dkamuli*	-.0474441	.07385	-0.64	0.521	-.192196 .097308	.151079
dmasaka*	-.0983869	.06687	-1.47	0.141	-.22945 .032676	.158273

(*) dy/dx is for discrete change of dummy variable from 0 to 1

**Determinants of level of net saving deposits (fixed effects regression)

. reg netsave incomall inrelati educresp liveindex distcap secondary wagger trader loanee dmbarara dtororo dkamuli
dmasaka if inc!=1 & mim!=1 & live!=1 [aw=incomall]
(sum of wgt is 2.2790e+08)

Source	SS	df	MS	Number of obs =	95
Model	6.0937e+11	13	4.6874e+10	F(13, 81) =	6.64
Residual	5.7150e+11	81	7.0555e+09	Prob > F =	0.0000
				R-squared =	0.5160
				Adj R-squared =	0.4384
Total	1.1809e+12	94	1.2562e+10	Root MSE =	83997

netsave	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
incomall	.017749	.0056099	3.16	0.002	.006587	.028911
inrelati	.0501579	.0162529	3.09	0.003	.0178197	.0824961
educresp	-11111.8	3040.139	-3.66	0.000	-17160.73	-5062.881
liveindex	-3337.437	1568.922	-2.13	0.036	-6459.1	-215.7746
distcap	-2900.229	1153.514	-2.51	0.014	-5195.359	-605.098
secondary	-56783.76	21559.18	-2.63	0.010	-99679.77	-13887.75
wager	111882.4	46193.21	2.42	0.018	19972.43	203792.4
trader	-41414.65	20593.15	-2.01	0.048	-82388.56	-440.746
loanee	50335.61	18411.8	2.73	0.008	13701.91	86969.31
dmbarara	-25936.09	37820.13	-0.69	0.495	-101186.3	49314.1
dtororo	-60725.89	31925.82	-1.90	0.061	-124248.3	2796.48
dkamuli	-89531.87	30876.92	-2.90	0.005	-150967.2	-28096.49
dmasaka	5109.395	48597.69	0.11	0.917	-91584.76	101803.5
_cons	184457.4	43729.89	4.22	0.000	97448.67	271466.2