

Full Length Research Paper

Factors influencing households participation in the Savings and Credit Cooperative (SACCO) programmes in Uganda

S. Mpiira¹, B. Kiiza², E. Katungi², C. Staver³, J. S. Tabuti², M. Kyotalimye⁴, P. Muwumba⁵, E. Karamura³ and W. K. Tushemereirwe¹

¹National banana research program of the National Agricultural research Organization P. O. Box 7065
Kampala, Uganda.

²Departments of Agricultural Economics and Agri-Business, Makerere University P. O. Box 7062 Kampala, Uganda.

³Bioversity international Parc Scientifique II 34397 Montpellier, France.

⁴Associations for Strengthening Agricultural Research in Eastern and Central Africa P. O. Box 765, Entebbe, Uganda.

⁵Uganda Cooperative Alliance P. O. Box 2215 Kampala, Uganda.

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Uganda Cooperative Alliance established SACCO's as a response to Governments call to provide affordable financial services to rural poor. Over the year's membership and share capital grew. This study investigated factors influencing household's participation in SACCO programmes. Participants were disaggregated into savers and none savers. Degree of participation was estimated, an ordered probit function was used to establish likelihood of participation. Member's participation increased with growth in incomes, dependants in secondary schools. Earning salary, rent, salaried spouse were less likely to participate. Increase in distance from the household to SACCO reduced household's participation due to increased transaction costs.

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

INTRODUCTION

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. 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 are 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. Surprisingly little data are available about the number of eligible households that choose not to participate in

microfinance institutions (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.

Due to the rationing behavior of traditional formal banks, various 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.

Uganda Cooperative Alliance (UCA) established SACCO's as a response to Governments call to provide affordable financial services to economically poor people living in rural areas (UCA, 2004). Over the year's membership and share capital has grown. Tremendous progress was made because the SACCO model was adopted and used by the rural people who needed micro finance services most and several benefits have been achieved (UCA, 2005) yet so far no studies have been done in Uganda to quantitatively determine the household's participation in SACCO programmes. Therefore this study sought to assess the factors influencing the likelihood of a household's participation in SACCO programmes.

Objectives

1. To determine the socio-demographic characteristics of participants and non-participants in SACCO programmes.
2. To establish the determinants of degree of participation in the SACCO programmes.

METHODOLOGY

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.

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.

Data analysis

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)¹ Hadi (1992). Collinearity of variables was tested for using STATA. An ordered probit regression was carried out to establish the degree of participation in the SACCO programs.

Estimation of degree of participation in SACCO's

It was hypothesized that households made three separate financial decisions representing the degree of SACCO participation. The first decision in a household was to choose whether or not to join a SACCO operating in the vicinity of their residence or work station. This choice represented 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, 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 was examined by formulating an ordered probit function of household savings behavior. 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

¹Hadi AS (1992). "Identifying Multiple Outliers in Multivariate Data," J. Royal Stat. Soc. Series (B) 54:761-771.

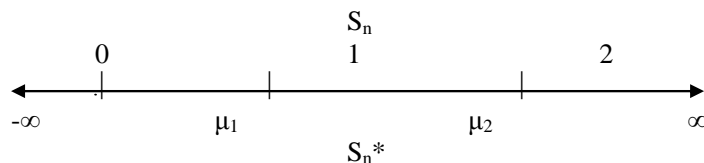


Figure 1. Relationship between latent and coded participation variables.

specification of the ordered probit model was used here (Kockelman, 2001):

$$S_n^* = \beta'Z_n + \varepsilon_n \quad (1)$$

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

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

Where the μ_i 's represent thresholds to be estimated along with the parameter vector β . Figure 1 illustrates the correspondence between the latent, underlying participation variable, and the observed degree of participation, S_n .

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

$$\begin{aligned} P_n(0) &= \Pr(S_n=0) = \Pr(S_n^* \leq \mu_1) = \Pr(\beta'Z_n + \varepsilon_n \leq \mu_1) = \Pr(\varepsilon_n \leq \mu_1 - \beta'Z_n) = \Phi(\mu_1 - \beta'Z_n) \\ P_n(1) &= \Pr(S_n=1) = \Pr(\mu_1 < S_n^* \leq \mu_2) = \Pr(\varepsilon_n \leq \mu_2 - \beta'Z_n) - \Pr(\varepsilon_n \leq \mu_1 - \beta'Z_n) = \Phi(\mu_2 - \beta'Z_n) - \Phi(\mu_1 - \beta'Z_n) \\ P_n(2) &= \Pr(S_n=2) = \Pr(\mu_2 < S_n^* \leq \infty) = \Phi(\mu_3 - \beta'Z_n) - \Phi(\mu_2 - \beta'Z_n) \end{aligned} \quad (3)$$

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 $\Phi(\cdot)$ 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

$$\begin{aligned} \frac{\delta \Pr ob[Y=0]}{\delta X} &= -\phi(\beta'X)\beta \\ \frac{\delta \Pr ob[Y=1]}{\delta X} &= (\phi(-\beta'X) - \phi(\mu - \beta'X))\beta \\ \frac{\delta \Pr ob[Y=2]}{\delta X} &= \phi(\mu - \beta'X)\beta \end{aligned} \quad (4)$$

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

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:

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

here 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. URBAN 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 (utrust=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 (SACCO offices). STABLE is a vector of dummy variables salaried, rent and spousinc defined as 1 if an individual earns a salary, rent income or has a spouse who earns respectively and 0 otherwise. The researcher hypothesised that stable earnings positively influence participation in SACCOS. The researcher also includes 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 campus 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.

RESULTS AND DISCUSSION

The socio-demographic characteristics of participants

Table 1. Socio-demographic characteristics of sampled households.

Variable	All households (N=460)	Non-Participants		T- value	Participants		T-value
		Rural(N=166)	Urban(N=44)		Rural(N=158)	Urban(N=92)	
Age HHH	40.31(12.63)	37.67(12.26)	33.61(9.65)	2.03**	44.64(12.82)	40.86(11.70)	2.32
AgeSP	37.52(12.73)	34.73(12.57)	28.94(6.38)	2.67***	42.59(13.28)	37.78(10.75)	2.74
EducHHH	8.91(3.66)	8.41(3.74)	8.59(3.84)	-0.26	9.02(3.80)	9.73(3.06)	-1.41
EducSP	8.03(3.30)	7.54(3.14)	8.30(3.51)	-1.20	7.78(3.40)	9.16(3.08)	-2.78
TotexpHHH	18.28(11.44)	16.29(12.07)	13.50(8.70)	1.34	21.39(11.14)	18.52(10.74)	1.86*
ExpcurHHH	12.83(10.53)	11.64(10.56)	8.71(6.88)	1.60	14.74(10.95)	13.87(10.72)	0.54
TotexpSP	16.13(10.75)	13.58(10.59)	10.57(6.60)	1.61	20.02(10.67)	16.43(10.57)	2.31**
ExpcurSP	13.25(10.23)	10.70(9.07)	8.70(6.11)	1.19	16.96(10.97)	13.79(10.50)	1.92*
DIST	23.33(13.15)	25.78(14.02)	20.11(12.31)	2.44**	23.46(12.93)	20.17(11.36)	2.01**
VIST	4.51(5.64)	4.40(5.76)	5.97(7.34)	-1.38	3.78(4.50)	5.27(6.14)	-2.02*
Totdep	5.63(3.77)	4.70(3.30)	3.95(2.87)	1.36	6.70(3.92)	6.28(4.00)	0.81
Depsec	1.94(1.28)	1.70(0.87)	1.92(0.79)	-0.79	1.91(1.23)	2.25(1.75)	-1.41
Infloan(%)	0.44(0.50)	0.52(0.50)	0.52(0.51)	-0.06	0.37(0.48)	0.37(0.49)	-0.04
Recloan	348,393.30 (1,437,852.00)	174,069.80 (252,094.40)	400,304.30 (472,863.00)	-3.10**	551,897.50 (2,622,364.00)	407,058.80 (426,085.30)	0.32
Givloan	227,465.40 (767,586.40)	89,675.93 (113,968.40)	222,520.00 (312,094.40)	-2.77**	311,043.50 (1,205,113.00)	276,043.20 (373,914.80)	0.17
TotHHINC	1,989,831.00 (2,477,845.00)	6,910,329.00 (14,400,000.00)	13,200,000.00 (29,100,000.00)	-2.19**	1,847,713.00 (2,249,786.00)	2,937,752.00 (3,072,339.00)	-2.30**
HHasst	14,200,000.00 (33,100,000.00)	0.39(0.49)	0.39(0.49)	2.01**	17,500,000.00 (45,900,000.00)	21,900,000.00 (30,300,000.00)	-0.82

Figures in parentheses are standard deviations; *, **, ***significance at the 10, 5 and 1% levels respectively; AgeHH (Years) = age of the household head; AgeSP (Years) = age of spouse; EducHHH = Education level of household head (Years); EducSP = Education level of the spouse; TotexpHHH = total working experience for the household head; ExpcurHHH = experience in years for the household head at the current job; TotexpSP = Spouse's Total experience (Years); ExpcurSP = Spouse's experience at current job Years); DIST=distance to district capital in KMs; VIST=number of visits made to the district town per month; Totdep=total number of dependants; Depsec = average number of dependants in secondary schools; Infloan =Received informal loan; Recloan=informal loan Size received (Ushs); Givloan = Size of informal loan given out (Ushs); TotHHINC = Total household income (Ushs); HHasst = Household assets (Ushs).

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 was examined here. Several aspects were examined. These included socio-demographic characteristics of the participate or not to participate in SACCO programmes. respondents, the reasons why people chose to Statistics pertaining to either participants or non-participants are presented as means. Table 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.

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

Table 1 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 18.52 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

Table 2. Reasons for participating.

Reason	Overall sample		Rural households		Urban households	
	N=253		N=158		N=92	
	Frequency	%	Frequency	%	Frequency	%
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 savings	0	0.0	2	1.0	0	0.0
Earn dividends	3	1.0	2	1.0	1	1.0

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 nearest town was 23.33 km. As expected the distance from residences designated as rural areas to the district capital were statistically greater than those from urban locations for both participants and non-participants at $P<0.05$. The average number of visits to towns for the participants was 4.51. There were significant differences in the number of visits for the rural and urban participants at $P<0.1$.

The total number of dependants was 5.63 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 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 ($P<0.05$).

Reasons for participating

Table 2 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.

Reasons for not participating in SACCO's

Table 3 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 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

Problems experienced by the participants in the SACCO

Members participating in SACCO programmes experienced several constraints (Table 4). 34% of the members indicated that the interest charged on loans

Table 3. Reasons for not participating in SACCO's.

Reason	All non-participants		Rural Households		Urban households	
	N=210		N=166		N=44	
	Frequency	%	Frequency	%	Frequency	%
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

Table 4. Problems experienced by the participants in the SACCO.

Variable	Overall sample		Rural households		Urban households	
	N=250		N=158		N=92	
	Frequency	%	Frequency	%	Frequency	%
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

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 as a

Table 5. Ordered Probit Model Regression results for degree of participation in SACCOs.

Variable	Dependent variable = Degree of participation in SACCO			
	Member who do not 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*	-0.2170	-3.73***
Resides in Tororo (dtororo)	-0.0340	-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 chi ² (11)	84.01***			
Log likelihood	-408.2430			
Pseudo R ²	0.0933			

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

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 neither saving in the SACCO's nor buying more shares which is a sure way of raising capital for the SACCO's.

Determinants of degree 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, that is 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 5. 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% level of probability or higher. The overall predictive accuracy of the model is reasonably high at 84.86%. The model Chi-square statistic is 86.64 (with 11 degrees of freedom) indicating that the model is statistically significant at the 1% 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 linktest² in STATA shows that excluding the variables provides a better model in terms of model specification and that

² 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.

there is no omitted variable bias.

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

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), Kalemli-Ozcan et al. (2001). 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% and conversely having no children in secondary schools increased the likelihood of not participating by 9% on average. 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. And in order to access credit one needed to be a fully paid up member. 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 programmes increased 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, 2001).

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.

Conclusion

Results indicate that the likelihood of membership in SACCO programmes 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. This indicated that as individual's wealth improves their financial needs changed and could no longer be met by the Savings and credit cooperatives packages offered.

RECOMMENDATIONS FOR FURTHER STUDY

There is need for government to establish structures in place that can bring financial institutions much closer to the people as so as to reduce the transaction costs that include transport to and from the financial institution. However there is need for further studies, to determine the economic feasibility in terms of sustainability and incomes of placing SACCOS even closer to rural households.

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