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Research Article

Determinants of households' membership in rural savings and credit cooperatives: An analysis of South Achefer district in Northwest Ethiopia

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Abstract: *Micro-level rural saving and credit cooperatives in Ethiopia's South Achefer District, Western Amhara region, have not received much attention. Therefore, the purpose of this study was to examine the variables that affect the likelihood of rural households in the South Achefer District participating in saving and credit cooperatives. Three Kebeles and 194 households were selected using simple random sample procedures and stratified sampling. Data were collected using focus group discussions, key informant interviews, and surveys. The collected data was analysed using descriptive and inferential statistics. The socioeconomic, demographic and other relevant aspects impacting participation in these cooperatives were examined using a probit regression model. Sex, age, income, land size, tropical livestock unit, household distance from rural saving and credit cooperative, and household participation in local leadership all had a significant impact on savings and credit cooperative membership. This research finds that joining rural saving and credit cooperatives will gradually spread from RUSACCO members to non-members. Therefore, it can be concluded that the Cooperative Promotion Agency in Ethiopia can start introducing cooperative membership from households that have the household demographic, socioeconomic, and other characteristics of households that are more likely to be cooperative members. It is suggested that the Cooperative Promotion Agency in Ethiopia should start by focusing on and giving priority to households with the following household characteristics: women, young people, higher income levels, higher TLU, households that are involved with other financial institutions, households that have better participation in local leadership, and households that are close to RUSACCO.*

Keywords: Household characteristics, Probit model, Rural households, Stratified sampling survey
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1. Introduction

Low-income subsistence farming, which accounts for the majority of the national economy in developing nations like Ethiopia, prevents impoverished farmers from implementing modern technology due to a lack of funding or credit (Addis, 2016). By empowering rural poor people and enhancing their knowledge and abilities, savings and credit cooperative activities

must improve the socioeconomic status of rural society (Kabeer, 2006). In Ethiopia's rural areas, saving and Credit Cooperatives (SACCOs) constitute a unique and significant source of financial services. However, members' participation in saving and membership is still very low, and rural financial cooperatives have performed poorly in mobilizing savings and providing credit (Kifle and Hailemichael, 2015). These cooperatives' membership and saving capital are influenced by numerous important socioeconomic factors (Addis, 2016).

Before 2003, practically all savings and credit cooperatives were located in metropolitan areas, with members mostly being salaried workers and those with similar goals and communities (Pitamber, 2003). Due to their tendency to finance their daily activities through costly informal loans, the poor may consistently receive a lesser return on their investment and, as a result, be on a slower road to accumulating wealth than the rich, who borrow in formal markets (Conning and Udry, 2007).

The Ethiopian government has been working to create and fortify rural savings and credit cooperatives since 2003 with assistance from the International Fund for Agricultural Development (IFAD). There are still some rural residents who do not join rural savings and credit cooperatives, although cooperatives are thought to be the foundation for reducing poverty at the family level, and the government offers several incentives and encouragement to join (Tesfaye, 2018).

In Ethiopia's Amhara Region, 1,081 primary Rural Savings and Credit Cooperatives (RUSACCOs) have 74693 members, including 50,877 men and 23,816 women. These RUSACCOs have mobilized savings totalling USD 484,339.28 and have a total capital of USD 278,214.28, according to the Amhara Region Cooperative Agency report (2021). According to the South Achefer district cooperative office's 2021 report, out of the 160,405 people living in the district, 3224 RUSACO members (2632 men and 592 women) make up 2.1% of the entire population. This suggests that there were not many members and that they did not offer complete services at the district, zone, national, and regional levels. The Regional Cooperative Office and non-governmental organizations (Child Fund, RUFIP, and CVC) have been attempting to address these issues by offering training at various locations and times.

Research on the impact of credit and savings cooperatives on food security is presented by Zemen (2014). Yibeltal (2019) also investigated the factors influencing farmers' participation in Hulet Ejju Enessie's saving and credit cooperative society. Zerfeshewa (2016) investigated the variables affecting Gondar town's credit and savings cooperatives' operating performance. Nonetheless, the bulk of research and these scholars have focused on urban areas and macroeconomic concerns. They did not especially target cooperatives for savings and credit in rural areas. Rural savings and credit cooperatives were not specifically targeted by them. Additionally, according to the South Achefer Cooperative Offices 2020 study, there is no research on RUSACCOs in the South Achefer area, and determinant characteristics differ across urban and rural saving and credit cooperatives. As a result, these studies obscure the realities of rural households, which make up a significant section of Ethiopia's population. Therefore, the objective of this study was to examine the variables that affect the likelihood that rural households in the South Achefer District will participate in saving and credit cooperatives at the household level.

2. Research Methodology

2.1. Description of the study area

The study was conducted in South Achefer district of Amhara Region (Figure 1). The District is bordered to the east by the Mecha District, to the west by the Jawi District, to the north by the Semen Achefer District, and to the south by the Dangla District.

Farmers in the District rely heavily on agriculture, which is defined as mixed farming, which involves both crop and livestock production. 39,195 hectares make up the district's entire cultivated area. Cereals such as wheat, teff, maize, and tiny millet are the most important crops cultivated in the District. They cultivate pulse crops like chickpeas and horse beans. The District also produces fruits (banana, mango, papaya, orange, and lemon), vegetables (onion, garlic, potato, tomato, pepper, and carrot), and oil seed crops (linseed and Niger seed). According to South Achefer Administration Office (2020), the District is home to 10,019 beehives, 25473 horses, 56,920 poultry, 97263 sheep, 8577 goats, and 155287 cattle.

Over half of the annual rainfall occurs in July and August, and the distribution of rainfall is irregular. Summer rainfall is about 2500 mm and winter rainfall is 1450 mm (South Achefer Administration Office, 2020). An estimated 165,405 people live in the district overall, with 79,924 men and 85481 women. Rural Savings and Credit Cooperatives (RUSACCOs) and Amhara Credit and Saving Institutions (ACSI) are the types of commercial organizations in the south Achefer district. According to the 2021 report from the South Achefer district cooperative office, there are 17 RUSACCOs with 3224 members (2632 men and 592 women).

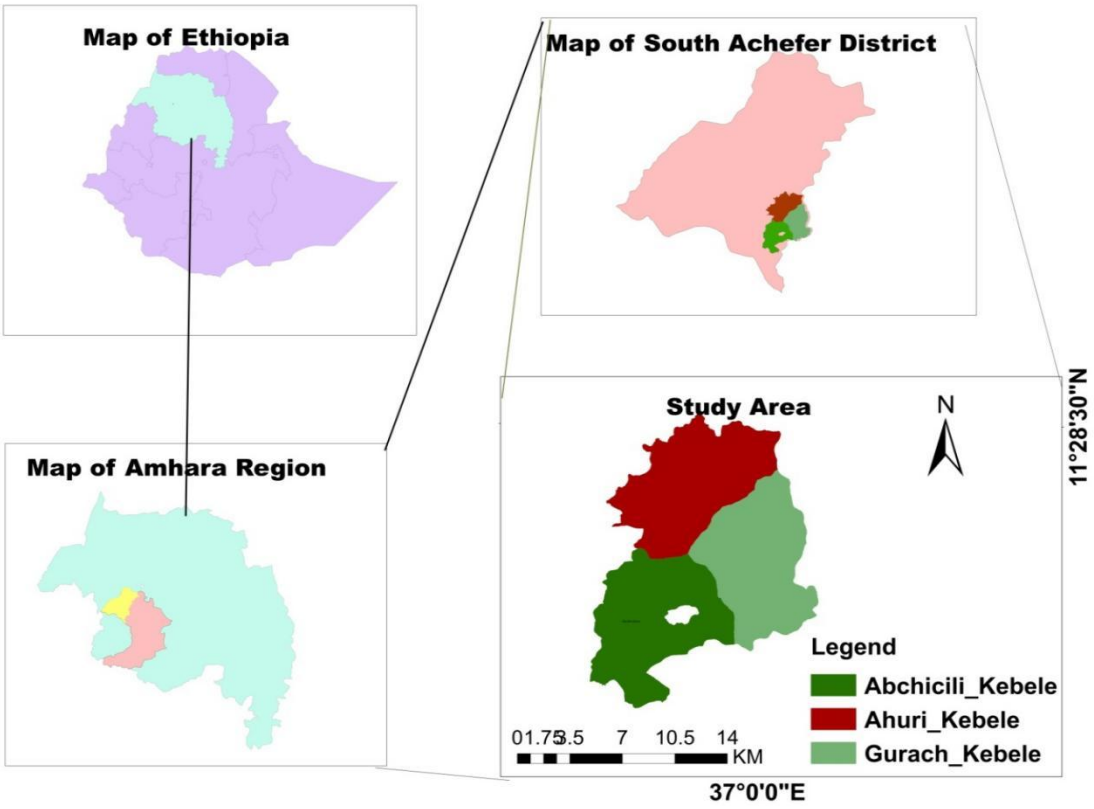

Figure 1: Map of the study area
Source: Own computation using Ethiopia's GIS map (2022)

2.2. Methods of sampling and sample size determination

Households were chosen for the study using a four-stage sampling technique. Due to the high concentration of well-run rural cooperatives, the South Achefer district in the North Gojjam Zone of the Amhara National Regional State was initially selected on purpose. In the second stage, three kebeles were chosen at random from a total of seventeen effective rural savings and credit cooperatives. The third step used stratified sampling, splitting the population into members and non-members, to address a range of membership statuses (Table 1). The entire list of RUSACOO members and non-members in the chosen kebeles makes up the sampling frame where the lists were obtained from Office of Agriculture and Office of Cooperatives. In the fourth step, simple random selection was employed to choose 194 respondents from each stratum, taking into account the population's socioeconomic homogeneity.

The sample size was determined the formula indicated below as described by Yamane (1967) at 7% level of precision with a 93% confidence interval. This resulted in a sufficient sample size of 194 respondents.

$$n = \frac{N}{1+N(e)^2} \quad [1]$$

Where:

n = sample size; N = population size; e = Margin of error, which is 7%.

The sample size for each kebele was determined by taking the percentage of households in each kebele. To calculate the sample size from each stratum, we employed the proportional allocation approach, which holds that sample sizes from various strata are proportionate to the sizes of the strata (Table 1).

Table 1: Distribution of sampled respondents among the selected Kebeles in each category

Name of Kebele	Total Household	Member Household	Member sample	Non-member Household	Non-member sample	Total sample
Abchcli	1400	497	25	903	45	70
Ahuri	1404	454	22	1050	52	74
Gurach	1120	110	5	910	45	50
Total	3924	1061	52	2863	142	194

2.3. Data collection

To collect data, the household survey's interview schedule had both closed-ended and open-ended questions. Members and non-members of RUSACO were given a questionnaire to complete to gather primary data. The qualitative data was collected through focus group discussions (FGDs), key informant interviews (KIIs), and observations. The qualitative data were used to fill in any gaps discovered during in-person interviews, cross-check the data collected from official surveys, and offer additional contextual information. In particular, information on the demographic, socioeconomic, and other relevant aspects impacting rural savings and credit cooperative membership participation was gathered through the respondents' interviews, focus group discussions, and key informant interviews.

Checklists were used to facilitate focus group discussions with a group of farmers. They were carried out to produce detailed information on some of the survey results and farmer impressions that were either overlooked or insufficiently conveyed by semi-structured questionnaire interviews. They focused on the primary reasons why people join or do not join RUSACCO. This would help confirm, validate, and enhance the household survey results. Images, text, and a tape recorder were used to gather data. Three kebeles were chosen for focus group discussions. Eight participants were included in each focus group discussion, representing a range of sexes, ages, and economic levels to account for the potential for differing viewpoints. Therefore, male and female-headed households, landless households, ageing households, young households, and disabled people have been included in the discussion. The selection of the focus group discussion participants was based on their familiarity with the community and their participation in RUSACCOS. The district office of the cooperative, the RUSACCO management committee, the kebele office of agriculture, and the kebele administration officers all nominated members of the focus group discussion.

Key informant interviews were conducted to have a better understanding of the factors influencing RUSACCO membership participation. We conducted interviews with supervisors and subject matter experts at cooperatives at the regional, zone, and district levels, as well as with leaders of cooperative agencies, kebele administration leaders, kebele agricultural office heads, union and cooperative leaders, and regional and zone research centres. Twenty-one key informants were contacted at the district, Kebele, zone, and region levels to cross-check and validate the quantitative data.

A search of the literature from printed books, journals, and websites was one way to collect secondary data. The information was taken from the annual reports of the Amhara National Regional State Bureau of Agriculture, Amhara Region Cooperative Agency, and Amhara National Regional State Commission of Plan.

2.4. Data analysis

Both qualitative and quantitative data from questionnaire surveys, focus group discussions, key informant interviews, and observations were examined, summarized, and analysed to collect information for this study. SPSS statistical software was used to evaluate the quantitative data. Among the descriptive statistics used in this study were frequency tables, percentages, mean values, and standard deviations. The collected data was analysed using descriptive and inferential statistics as well as a probit model. The socioeconomic, demographic and other relevant aspects impacting participation in rural savings and credit cooperatives were examined in this study using a probit regression model.

2.5. Econometric model used for rural savings and credit cooperative membership participation

A variety of models can be used to examine the rural residents' involvement in various organizations. The selection of the models should be obviously based on the objectives of the study. For example, Nugussie (2010) used the probit model to examine factors impacting rural residents' decisions to join agricultural cooperatives, while Karli et al. (2006) Dejen (2016) and Yibeltal (2019) employed a binary logistic model.In contrast, Zemen (2014) and Bizualem et al. (2018) evaluated cooperative membership decisions using the probit model.

Accordingly, probit regression model was used to examine the socioeconomic determinants impacting savings and credit cooperative membership in this study. According to Wanyama (2012), the dependent variable's binary nature (membership or non-membership) prompted the selection of the probit model. To deal with heteroscedasticity, the probit model was selected, which limits the outcome variable between 0 and 1. This model provides realistic probability and a believable distribution of error terms by assuming that an unobserved continuous variable (Y*) influences the observed binary variable (Y) (Samantha, 2016).

The probit model used in this study is predicated on the idea that households will choose to join the Rural Savings and Credit Cooperative (RUSACCO) if the anticipated benefits of membership outweigh the costs of not joining. Thus, the utility framework is used to simulate the membership decision. The probit model is considered appropriate for explaining the probability of RUSACCO membership due to its capacity to estimate the probability of binary events. The binary dummy variable used in the study to indicate membership decisions has a value of one for households that are RUSACCO members and zero for those that are not. The analysis included both binary and continuous explanatory factors.

Thus, the model for this investigation is as follows, based on Maddala (2005):

$$Pi = P\ (yi * < yi)$$

$$Pi = P\ (yi * < \beta 0 + \beta ixji) = F\ (yi) \qquad [1]$$

Where

S is a normally distributed random variable with mean zero and unit variance, Pi is the likelihood that an individual will choose to join SACCO or not, yi is the outcome variable (whether or not an individual can join RUSACCO), and yi* is the endogenous variable's threshold value.

An estimate of the index Zi is obtained using the inverse of the cumulative normal function:

$$Yi = F - 1(Pi) = \beta 0 + \beta ixi + ui \qquad [2]$$

The probit model's β0, β1, β2… βk parameters don't directly reveal how changes in the explanatory variable affect the likelihood that the community will be a member of RUSACCO. The marginal effect, which takes into consideration the partial change in the probability of the dependent variable, membership in the RUSACCO is used to explain the relationship between a certain independent variable and the probability outcome.

Keeping all other factors equal, the marginal effect of the explanatory variables X on the probability P (Yi=1/X) can be calculated as:

$$\frac{api}{axij} = Bijf(zi) \qquad [3]$$

Where the mean endogenous variable, Pi, has the following value according to the probit results:

$$f(Zi) = F - 1(Pi) \quad [4]$$

$$Zi = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \cdots \ldots \ldots BkXk \quad [5]$$

The density function of the standard normal variable, denoted by f (Zi), is provided by:

$$f(Zi) = \frac{1}{\sqrt{2\Pi}} e^{-1/2z^2} \quad [6]$$

This study uses the probit model to examine if the community's choice to join RUSACCO can be stated as follows:

$$Yi = \beta 0 + \beta 1\, x1 + \beta 2\, x2 + \beta 3\, x3 + \beta 4\, x4 + \beta 5\, x5 + \beta 6\, x6 + \beta 7\, x7 + \beta 8\, x8 + \beta 9\, x9 + \beta 10\, x10 + \beta 11\, x11 + \beta 12\, x12 + \beta 13\, x13 + \beta 14x14 + \beta 15x15 + ui \quad [7]$$

"Y" stands for the likelihood that the particular household's binary dependent variable on the decision whether or not to join any RUSACCOs.

"u" stands for the error term, "xi" for the socioeconomic elements anticipated to impact RUSACCO membership, and "β" for the coefficient of independent variables.

To filter variables that were dependent on one another, a multicollinearity diagnosis test was performed before the actual start of the data analysis.

The Variance of Inflation Factor (VIF) for continuous explanatory variables was used to test for the presence of high collinearity. Generally speaking, multicollinearity is indicated by VIF values of more than 10. To test the relationship between the dummy variables, the contingency coefficient was also computed. Multicollinearity is present when the value is more than 0.75 (Gujirati, 1995).

The mean VIF for continuous variables was found to be less than 10. It implies that the data does not have multicollinearity. Additionally, it was found that multicollinearity was not a problem because the contingency coefficient values for the dummy variables were less than 0.75. Consequently, all of the continuous and discrete explanatory variables were included in the binary probit model analysis (Gujirati, 1995).

3. Results and Discussion

3.1. Demographic and socioeconomic characteristics of the respondents

The socioeconomic features of RUSACCO members and non-members differed on average in terms of age, distance from RUSACCOs, income, land size, and total livestock unit, according to a few continuous factors.

3.1.1. Household head age

The mean age of RUSACCO members and non-members was 38.92 and 45.20 years, respectively, with standard deviations of 9.86 and 12.15. The existence of a significant mean difference in age between the two groups is supported by the t-test (-3.44***). At a significance level of less than 1%, the variable's t-value shows a significant mean difference between the two groups.

3.1.2. Distance to RUSACCOs

It is a continuous variable with a kilometre measurement. Rural saving and credit cooperative members and non-members reported mean distances of 1.385 km and 2.305 km, respectively, with standard deviations of 0.820 and 1.206. Table 2 demonstrates that, at a significance level of less than 1%, the t-test value (-5.086***) indicates a significant mean difference between the two groups in the distance to RUSACCOs. This showed that household heads that live far from RUSACCOs are subject to significant transportation costs and receive insufficient extension services on RUSACCOs.

3.1.3. Income of household

As indicated in Table 2, the mean yearly income of members and non-members was 29,673.1 and 24,500 Ethiopian Birr (ETB), with standard deviations of 10,091.194 and 8,207.201, respectively. One US dollar is equivalent to 124 Ethiopian Birr. The t-test score (3.649***) indicates that the respondents' earnings in the two groups differ significantly at the less than 1% significant level. To join RUSACCOs, a higher income was required. Respondents with higher incomes are more likely to join RUSACCOs. They can purchase shares and pay for registration with the money they earn. This outcome supports the findings of Godwin et al. (2018), who demonstrated that income positively impacted cooperative membership participation.

3.1.4. Livestock number

Member and non-member respondents had respective livestock unit means of 3.7046 and 2.732, with corresponding standard deviations of 2.732 and 1.624. Regarding the quantity of respondents' livestock, the t-test value (4.534***) indicates a significant difference between the two groups at the less than 1% significant level. The existence of more live stocks led to more members joining RUSACCOs, and for a few household heads, livestock was their primary source of income, which encouraged them to join and save money. This outcome is consistent with research by Tilley and Puasha (2006), which found a direct correlation between livestock numbers and RUSACCO membership.

3.1.5. Farming experiences

This parameter shows how long respondents have been involved in farming, expressed in years. The mean farming experience for members and non-members was 14.02 years, with standard deviations of 9.69 and 10.88 years, respectively. According to the findings, there was a significant difference in agricultural experience across the groups at a level below 5% significance.

Table 2: Demographic and socioeconomic characteristics of the respondents

Variable	Member (N=52)		Non-member (N=142)		T-value
	Mean	Std. Dev.	Mean	Std. Dev.	
Age	38.92	9.861	45.2	12.15	-3.44***
Family size	3.31	1.307	3.58	1.354	-1.24
Distance to RUSACCO	1.385	0.820	2.305	1.206	-5.086***
Income	29673.1	10091	24500	8207	3.649***
TLU	3.705	2.732	2.732	1.624	4.534***
Farming experience	14.019	9.689	17.6	10.88	-2.088**
Land size	1.27	1.188	1.116	0.944	0.936

Note that TLU stands for tropical livestock unit, and *** denotes significance at p<0.01 and ** at p<0.05 probability levels

3.2. Socio-economic category and dummy variables

3.2.1. Sex and marital status of the household head

As indicated in Table 3, 31% of respondents were female and 69% of respondents were male. About 78.8% of respondents who were RUSACCO members were married, whereas 88.7% of respondents who were not members were married. The results of the chi-square test ($\chi2$=8.414**) showed that, at a significance level below 5%, there was a significant association between the household head's marital status and membership (Table 3).

3.2.2. Education level of household head

From the total RUSACCOs member respondents 34.6% and 65.4% were not able to read and write and literate respectively while 55.6% and 44.4% of non-member respondents were not able to read and write and literate, respectively. The chi-square test ($\chi2$=20.437***) indicated that there was a significant association between education level and RUSACCO membership at less than a 1% significance level.

3.2.3. Participation in local leadership

About 38.5% of all respondents who were members participated in local leadership, compared to 7.7% of all respondents who were not members. This suggests that members participated in local leadership at a higher rate than non-members. At the less than 1% significance level, the chi-square value ($\chi2$=26.745***) shows an association between rural saving and credit cooperatives and their participation in local leadership (Table 3). This study's outcome is comparable to Nugussie's (2010) findings that he demonstrated cooperative membership is positively impacted by participation in local leadership.

3.2.4. Participation in other income activities

About 94% and 6% of all RUSACCO members, respectively, responded "yes" and "no" when asked if

their households have any additional sources of income. In response to the question of whether their households engage in other income-generating activities, 64% and 36% of all RUSACCO non-members said "yes" and "no," respectively. This suggests that 94% of respondents were members and 64% of respondents were non-members participating in other activities that generate income. This suggests that compared to non-members, members were participating in more other activities that generated income. Participating in other income activities was significant at a significance level of less than 1%, according to the Chi-square test ($\chi2$=19.571***). This suggests that there is a relationship between other income activity participation and membership in a savings and credit cooperative.

3.2.5. Access to information

Out of all sample respondents, 21.1% of members have received information, while 78.9% have not. In contrast, 6.3% of non-member respondents have received information, while 93.7% have not. The data showed that households with access to information were more likely to be RUSACCO members than those without. At a significance level of less than 1%, the chi-square ($\chi2$=19.571***) indicates that there is a substantial correlation between household information access and RUSACCO membership.

3.2.6. Participation in financial institutions

Eighty percentage of RUSCCO members participated in financial institutions, whereas twenty percentages did not. Fifty-five present of RUSACCO non-members did not participate in any financial institution, while forty-five percentages participated. It showed that RUSCCO members outperformed RUSCCO non-members in their participation in other financial institutions. At the less than 1% level of significance, the chi-square ($\chi2$=19.571***) provides evidence of a substantial relationship between RUSCCO membership and participation in other financial institutions.

Table 3: Relationship between discrete variables and savings and credit cooperative membership (chi-square test)

Variable	Category	Member (N=52)		Non-member (N=142)		Total (N=194)		Chi-square-test ($\chi2$)
		No	%	No	%	No	%	
Sex	Male	36	69	124	87	194	100	0.003
	Female	16	31	18	13			
Marital status	Married	41	78.8	126	88.7	194	100	8.414**
	Otherwise	11	21.2	16	11.3			
Education status	Literate	34	65.4	63	44.4	194	100	20.437***
	Illiterates	18	34.6	79	55.6			
Access to information	Yes	11	21.1	9	6.3	194	100	19.571***
	No	41	78.9	133	93.7			
Local leadership	Yes	20	38.5	11	7.7	194	100	26.745***
	No	32	61.5	131	92.3			
PMFI	Yes	42	80	64	45	194	100	19.571***
	No	10	20	78	55			
POIA	Yes	49	94	91	64	194	100	19.571***
	No	3	6	51	36			

Note: PMFI and POIA stand for participation in other microfinance institutions and participation in other income activities, respectively; *** denotes significance at <0.01, ** at <0.05, and * at <10 probability levels

3.3. Factors influencing rural savings and credit cooperative membership

The characteristics influencing rural savings and credit cooperative membership were examined using a probit model. The Probit model can account for 47.58% of the significant percentage of the variation in the dependent variable, or RUSACCO membership those results from changes in the explanatory variables that are part of the model.

At a statistical significance level of less than 5%, the head of the household's sex had a favourable and significant impact on membership in the RUSACCO. As anticipated, the binary probit model's findings showed that women were more likely than men to be RUSACCO members. Compared to men, women were 28.9% more likely to be RUSACCO members. For sample households with female members, the likelihood of being RUSACCO members rose by 28.9%. Due to distances and other factors, female-headed households are likely to not participate in other official financial organizations like Commercial Banks. This outcome is in line with Coelho's (2008) research, which demonstrated that the unique behaviour of rural saving and credit cooperatives is that female-headed households are more likely than male-headed households to become members of a RUSACCO. Male-headed households are less likely than female-headed households to join a RUSACCO, according to all 24 focus group discussion participants and all 14 key informants. Since women can stay at home due to the societal division of work, they choose to save money at financial institutions like RUSACCO, which are located in their local area.

RUSACCO membership was adversely and considerably impacted by the age of the head of the household. RUSACCO membership was less common among older household heads. The probit model's findings showed that for every year of age increase, the sample households' chances of being RUSACCO members dropped by 2.3%. Their slow adoption of new technologies or business practices could be the cause of this. This outcome is consistent with research by Karli et al. (2006), which showed that a household head's age increase had a negative and substantial impact on membership.

RUSACCO membership was positively and considerably impacted by the household head's TLU. RUSACCO membership is more prevalent in households with higher TLUs. The likelihood that the households would be RUSACCO members rose by 4.8% for each unit TLU. This outcome is comparable to Mohammed's (2018) discovery that the quantity of livestock animals positively impacted RUSACCO membership. All of RUSACCO's members were either livestock owners or had a comparatively higher number of cattle, according to focus group discussions with farmers and key informant interviews with subject matter specialists.

As anticipated, RUSACCO membership was positively and considerably impacted by the households' land size. RUSACCO membership is more common among households with more land. According to the probit model's findings, for every hectare of land, the sample households' chances of belonging to RUSACCO rose by 21.1%. Membership is impacted by household land size at a statistically significant level of less than 1%. This outcome is comparable to that of Coelho (2008), who demonstrated that land size had a positive and significant impact on RUSACCO joining.

RUSACCO membership was less common among households that lived far from the organization. According to the results of the present study, the probability of the household being a RUSACCO member has been dropped by 9.6% for every increased kilometre of distance to the RUSACCO centre. This could be because households lack information access and are unaware of the benefits and drawbacks of RUSACCOs. This study supports the findings of Yibeltal (2019), who found that, at the 1% level of significance, the household's distance from RUSACCO had a negative and substantial impact on cooperative membership. The focus group discussion has verified that people prefer to save in kind rather than travel great distances to access financial savings and credit institutions to save larger sums of money.

RUSACCO membership was positively and significantly impacted by the household's involvement in other financial institutions, as indicated by the results in Table 4 at the 1% level of significance. This showed that households that participated in other financial institutions had a 22% higher chance of being members of savings and credit cooperatives than households that did not. This suggests that households are more involved in RUSACCO if they also participate in other financial institutions. Other financial institutions encourage household savings and raise household incomes and experiences as a result of membership. This finding is comparable to that of Baticados, (2004), who discovered that households that engaged in financial

institutions and other income-generating activities had a higher likelihood of being RUSACCO members than households that did not engage in these activities.

The households' participation in local leadership had a beneficial influence on their decisions to join rural saving and credit cooperatives at a less than 1% significance level. This suggests that the likelihood of a household head participating in local leadership is more likely to be a member of a rural saving and credit cooperative. The likelihood of a household head being a member of RUSACCO is 33.8% higher for those who participate in local leadership than for those who do not. The likely explanation is that households that take part in local leadership will likely have stronger communication skills, a better leadership style, and a greater understanding of issues. The findings of this study are consistent with those of Nugussie (2010) and Yibeltal (2019), which show that cooperative membership is positively impacted by involvement in local leadership.

Table 4: Factors influencing the rural savings and credit cooperative membership

Variables	Coefficient	Robust Std. error	marginal effects (dy/dx)	Z	P > z
Sex	0.943**	0.384	0.289	2.46	0.014
Age	-0.096***	0.032	-0.023	-3.09	0.002
Education status	0.227	0.142	0.055	1.59	0.111
Marital status	0.051	0.326	0.012	0.16	0.875
Land size in hectares	0.877***	0.269	0.211	3.26	0.001
Family size	-0.108	0.164	-0.026	-0.66	0.509
Income	0.038	0.0219	0.00017	0.000174	0.000082
Livestock	0.201**	0.079	0.048	2.53	0.011
Distance from RUSACCO	-0.399***	0.133	-0.096	-2.99	0.003
Participation in local leadership	1.070***	0.396	0.338	2.7	0.007
Participation FI	0.956***	0.328	0.22	2.91	0.004
Participation INC	0.290	0.415	0.065	0.7	0.485
Access to information	0.592	0.504	0.175	1.18	0.24
Farming experience	0.037	0.030	0.009	1.24	0.215
Constant	1.60	1.21		1.32	0.186

N = 194, Pseudo R2 = 0.4758, prob chi-square = 0.000, ***, ** and * are significant level at 1%, 5% and 10%, respectively

4. Conclusion and Recommendations

The findings of the study demonstrate that age, sex, livestock holdings, involvement in financial institutions, local leadership involvement, and proximity (distance) to RUSACCO influenced the rural households' decisions to become members and make contributions to Rural Savings and Credit Cooperatives. The findings indicated that households living farther away from RUSACCOs and those with older ages were less likely to join cooperatives.

According to the study, the following recommendations are pertinent to enhance RUSACCOs' capacity and providing rural impoverished people with long-term services. Provision of training, community awareness creation and capacity building trainings are necessary to boost RUSACCO membership and to enhance the efficiency and quality of services provided by the cooperative. Moreover promotion is vital to motivate non-members for being member of the RUSACCO.

Provision of credit system by the cooperative agency is required for purchasing improved breeds of animals, as it positively and significantly correlated with RUSACCO membership. Implementing an appropriate land use system, incentive mechanisms to retain members, and expanding the opportunity for non-members to join the rural saving and credit cooperatives are also proposed.

Empowering women in economic and social leadership roles is also recommended to improve the participation of females in RUSACCO savings. Setting incentive mechanisms, such as planning yearly RUSACCO share dividend programs help retaining the members and encouraging the new members to join the cooperatives. The district cooperative promotion office should regularly monitor and evaluate the RUSACCO leaders to increase their capacity to provide better services and address management-related issues.

Data availability statement

Data will be made available up on request.

Conflicts of interest

The authors declared that there is no conflict of interest.

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Reference

Addis, D. (2016). *Household savings behaviour and determinants of savings in rural saving and credit cooperatives* [Master's thesis]. Haramaya University, Ethiopia.

Assefa, A. (2016). *Impact of saving and credit service on the socio-economic status of women in Mida Woremo District: The case of Addis Alem saving and credit union* [Master's dissertation project research (MRDP-001)]. Indira Gandhi National Open University.

Coelho, S. P., and Favareto, A. (2008). Questioning the relationship between participation and development: Case studies of the Vale do Ribeira, Brazil. *World Development, 36*(12), 2937–2952. https://doi.org/10.1016/j.worlddev.2007.12.003

Conning, J., and Udry, C. (2007). Rural financial markets in developing countries. In R. Evenson & P. Pingali (Eds.), *Handbook of agricultural economics* (Vol. 3, pp. 2857–2908). Elsevier.

Dejene, D., and Matthews, H. (2016). A study on factors affecting farmers' cooperative membership increment in Bench Maji zone, South-Western Ethiopia. *Journal of Developing Country Studies*, *6*(2), 129–137.

Kabeer, N. (1996). Agency, well-being and inequality: Reflections on the gender dimensions of poverty. *IDS Bulletin, 27*(1), 11–21. https://doi.org/10.1111/j.1759-5436.1996.mp27001002.x

Karli, B., Bilgic, A., and Celik, Y. (2006). Factors affecting farmers' decision to enter agricultural cooperatives using random utility model in the South Eastern Anatolia region of Turkey. *Journal of Agriculture and Rural Development in the Tropics and Subtropics, 107*(2), 115–127.

Kifle, T., and Hailemichael, A. (2015). Savings and credit cooperatives in Ethiopia: Development and challenges. *Journal of Economics and Sustainable Development, 6*, 140–146.

Maddala, G. S., and Lahiri, K. (1992). *Introduction to econometrics*. John Wiley & Sons.

Megiso, T. (2018). The role of saving and credit cooperatives in improving rural micro financing: The case of Bench Maji, Kaffa, and Shaka zones. *World Journal of Business and Management, 4*, 30–50.

Nugussie. (2010). Why do some rural people become members of agricultural cooperatives while others do not? *Journal of Development and Agricultural Economics, 2*(4), 138–144.

Pitamber, S. (2003). *Factors impeding the poverty reduction capacity of micro-credit: Some field observations from Malawi and Ethiopia* (Economic Research Papers No. 74). African Development Bank.

Samantha, V. (2016). *Cooperatives in social development and the observation of the international year of cooperatives* (Report of the General Secretary: A/66/168). United Nations.

South Achefer Administration Office, (2020). Annual Report of the South Achefer Administration Office, Dure Betie, Ethiopia.

Wanyama, F. O. (2012). *Cooperatives and policy advocacy in Eastern Africa: Perspectives for cooperatives in Eastern Africa*. Paper presented at the Expert Meeting on Perspectives for Cooperatives in Eastern Africa, Humura Resort Hotel, Kampala, Uganda.

Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). Harper & Row.

Yibeltal, A. (2019). *Determinants of farmers' participation in saving and credit cooperative society in Hulet Ejju Enessie Woreda, East Gojjam zone* [Master's thesis]. Debre Markos University.

Zerfeshewa, B. (2010). *Determinants of saving and credit cooperatives (SACCOs) operational performance in Gondar Town* [Master's thesis]. Mekele University.