



# Choice and Determinants of Saving in Rural Households of Bale Zone: The Case of Agarfa District, Oromia, South East Ethiopia

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## Abstract

Saving is the important variable in achieving financial security and growth affecting both individual and national wellbeing. However, saving level in Ethiopia specifically in rural areas is limited and less is known empirically about its factors. The general objective of this study was to characterize choice and determinants of saving in rural households' of the study area. To examine this general objective, the study employed descriptive statistics and Econometric model. Both primary and secondary data sources were used for the study. For the purpose of this study primary data collected from 327 sample households. Secondary data were also obtained from concerned financial formal and Informal financial Institution. Descriptive statistics and chi-square were applied to characterize choices of financial institution to save by the sample households. The finding of the survey result indicates that about 52.60% of the sampled households had saved their money at formal financial institutions; whereas the remaining 47.40% of the sampled households had saved at informal financial institutions. This result indicates that most of the household heads still used informal financial institution to save their money due to lack of capacity to develop and implement good savings mobilization strategies within financial institution. Econometric models of Tobit model applied to investigate determinants of rural household's savings. The Econometric model result indicated that sex of the household head's, education level, family size, average annual income, average annual expenditure, livestock ownership and access to credit service were found to have significant effect on rural households' savings. The result of this study indicated that attention should be given towards strengthening capacity building on saving mobilization strategies and expansion of financial institution to reach grassroots level rural households to improve their savings and develop culture of using formal financial institution.

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## Subject Areas

Economics

## Keywords

Rural Household's Savings, Financial Institutions, Tobit Model, Ethiopia

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## 1. Introduction

Savings is cornerstone for economic development of country. It is laying the foundation for financial inclusion on the state of practice in savings mobilization for the poor in developing countries like Ethiopia. Saving deposits provide a relatively stable source of funds that could enable an institution to become a sustainable, self-reliant financial intermediary. Savings mobilization increases the supply of internally generated funds that can be invested in housing microenterprise and small business loans. Saving provides a financial solution for life's uncertainties and increases feelings of security and peace of mind. Once an adequate emergency fund is established, savings can also provide the "seed money" for higher-yielding investments such as bonds and business start up. Saving also linked to increased happiness [1].

Ethiopia average share of gross domestic saving in 2019 was 22.28% of the GDP [2]. But previously the share of gross domestic saving in GDP increased from 9.5 percent in 2009/10 to 21.8 percent in 2014/15 [3]. According to National Bank of Ethiopia [4] in 2019/20 gross domestic saving as percent of the country's GDP is only 20.9% resulting in a huge resource gap as compared to gross domestic investment (Gross Capital formation) which is 30.8% of the GDP. Moreover, as stated in summary and statistical report by the National Bank of Ethiopia [5], an Ethiopian household, on average saves 875 birr per annum in financial institutions. This is low to support viable economic growth and development in the country.

Recently, the amounts of saving generated through financial institutions have increased over the years due to the recent expansion of financial sector in the country. Yet the volume of saving (including household saving in both urban and rural areas) is minimal by any standard and the financial resources hold by household is largely remained unexploited [4]. This indicates that the economic potential of a household is not yet fully utilized. In order to increase the contribution of household sector to the national economy, one needs to explore and understand the reason behind household saving.

In Oromia region, the existing formal financial institution does not address the needs of rural households' financial need even different financial institutions provide financial service to the rural households. Additionally, the culture of rural households to save their money in the financial institution is low because the advocacy and promotion activity of the existing financial institution about sav-

ing mobilization are low. Due to the above factors, majority of the household save their money at their home to use during emergency and other periods [6].

The Oromia regional state economic growth rate (GDP at current basic price) for 2014/15 was 12.4 percent but in 2015/16 declined to 7.1 percent. In 2010/11 regional domestic saving was 15,862 million birr resulting in a huge resource gap as compared to gross domestic investment (Gross capital formation) which was 23,384.2 million birr. But in 2015/2016 this gap became vice versa and domestic saving was 128,296.58 million birr and gross domestic investment (Gross Capital formation) which was 90,829.30 million birr [7].

In the same way, the study area is surplus producer of agricultural production especially cereal and Pulse production. During harvesting period rural households generate good income by selling their product in the market; in the meantime households spend their income extravagantly without plan instead of saving their money at financial institution. This is due to low awareness and promotion campaign about the importance of saving by the existing financial institution to the household. Most of the geographic settlement of the household is not suitable for financial institution because household settles by centering their farmland and grazing areas for their livestock. Low development of infrastructure such as road, potable water and light hinder the expansion of financial institution to the study area.

Currently, regarding the service coverage one formal financial institution serves 21,954 populations in the district [8]. According to National Bank of Ethiopia annual report [4] in 2018/19 G.C one Bank branch serves 17,732 population of the country. This indicate that the current coverage status of formal financial institution have huge gap as compared to the national level or far from minimum standard level within the district.

Different studies employed different models in order to identify the determinants of saving at household level. The commonly used models are Tobit model [3] [9] [10], logistic regression model [11] [12] and Heckman's sample selection model. But this study used Tobit model to analyze the determinant of saving in rural households because of their immediate response to variables. However, there is not sufficient empirical research, which conducted on micro data level on saving or concerning this issue in Bale zone specifically in the study area as I know or my knowledge concerned.

Therefore, this study was examined the choice and its determinants of saving in rural households of Bale zone in the case of Sawena district. Because there was no research based information on how households could closed this gap and to raise the awareness of rural households about the of importance savings.

## 2. Research Methodology

### 2.1. Description of Study Area

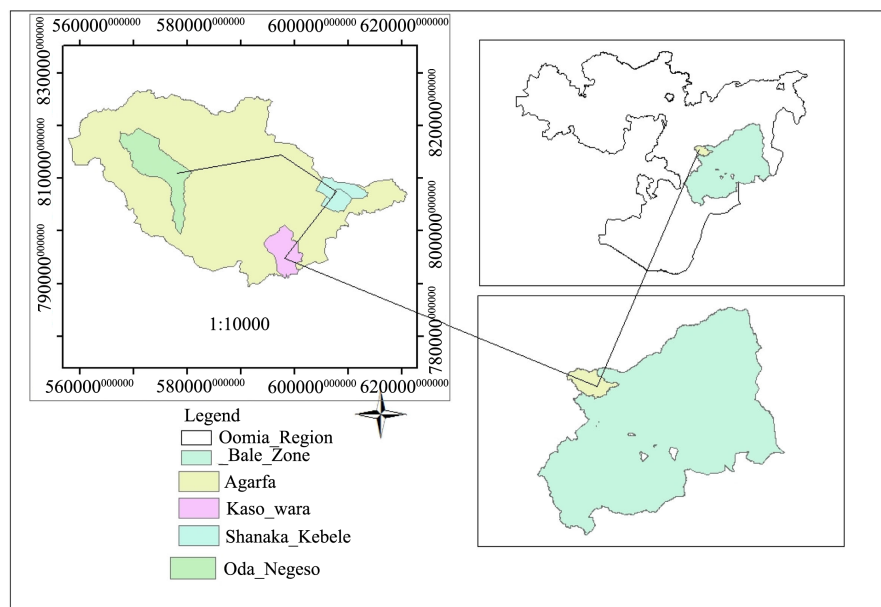
The study carried out in Agarfa district, Bale zone, Oromia National Regional State; Southeast Ethiopia, which was, located 446 km and 31 km away from Fin-

fine the capital of the country and the center of the zone, Robe respectively. The capital/center of district was Agarfa town. It is found in the extreme North Western Corner of the zone, which is bounded by Shirka district of Arsi zone in the North, West Arsi zone in south West, Dinsho district in south, Sinana district in south East and Gasera in North East. Its absolute location falls between Latitude  $59^{\circ}09'06''\text{N}$  and Longitude  $80^{\circ}32'19''\text{E}$ . The total geographical area of the district was about  $1258 \text{ km}^2$  and out of this land 30.6% is under crop production, 0.4% is under grazing land, 17.24% is covered by forest, 51.76% is covered by others (such as river, mountains, construction etc.). The district is classified into 19 rural, and two urban Kebeles [13] (Figure 1).

Agro ecologically Agarfa district is classified in to 17.01% of tropical (500 m - 1500 m), 58.61% of Sub tropical (1500 m - 2500 m), 23.31% of temperate (2500 m - 3500 m) and 1.07% of alpine/cool (Above 3500 m) [13].

The lowest and highest Altitude of the district is extended from 1000 m and 3000m above sea level respectively. The lowest area occupies the Northeast part of the district (around the border of Arsi zone) whereas the highest elevation is Hora mountain which is found around southwestern part of the district. The Mean Annual temperature of the district is  $17.5^{\circ}\text{C}$ . The maximum and minimum temperatures are  $25^{\circ}\text{C}$  and  $10^{\circ}\text{C}$  respectively. The annual rainfalls are 800 mm whereas 1200 mm and 400 mm Maximum and Minimum annual rainfall recorded in the district [13].

Agarfa district population estimated at nearly about 131,723 out of this 85.78% and 14.22% of population live in rural and urban area, respectively. The average population density of the district was 104.71 person/square kilometers [14].



**Figure 1.** Map of the Agarfa Woreda. Source: Adopted from Bale Zone Planning and Economic development office.

In Agarfa district there is both formal and informal financial institution. There are six different formal financial institutions. These are two branches of Commercial Bank of Ethiopia, one Cooperative Bank of Oromia, one Oromia International Bank, one Oromia Credit and Saving Share Company (OCSSCO). In line with this among informal financial institution *Ekub*, *Edir*, *Women* and Youth Associations, Unions and Cooperatives, Teachers Associations and other associations exist in the district [13].

## 2.2. Type and Source of Data

Quantitative and qualitative data was collected from both primary and secondary sources. The secondary data source for this study obtained from various sources of government and nongovernment reports, maps and other relevant materials from different formal Financial institution such as Commercial Bank of Ethiopia, Cooperative Bank of Oromia, Oromia International Bank, Oromia Credit and Saving Share Company (OCSSCO) and others.

The primary data collected using questionnaire from the sampled kebeles households in the district. Such data include demographic characteristic, socio-economic characteristics, financial institution, etc.

## 2.3. Method and Instrument of Data Collection

Three enumerators with undergraduate qualifications/minimum of grade 10 were hired by the researcher to assist data collection process. They had trained on the contents of the questionnaire one day prior to the household survey. In addition; the researcher was supervise and coordinate all the data collection process. The study was employees' two data collection methods such as questionnaires and secondary source to ensure complementary strengths and improvement in data validity and reliability.

**1) Structured Questionnaires:** The structured questionnaire consisting of both closed and open-ended designed and administer to households for primary data collection. Questionnaire was design in order to collect both qualitative and quantitative data. The questionnaire then administered to respondents through face-to-face interviews.

However, face-to-face interview had chosen because they had several advantages over the other methods. According to Bless and Smith [15], an interviewer-administered interview reduces omission of difficult questions by respondents. In addition, it reduces the problem of word or question misinterpretation by respondents and it could administer to respondent who can neither read nor write. In addition, the presence of the interviewer increases the quality of the responses since the interviewer can probe those more specific answers [16]. In this study 327-sample respondent from three sample kebeles was participated to fill structure questionnaires. Reliability and validity are two very important qualities of a questionnaire. There are different statistical ways to measure the reliability and validity of questionnaire. The statistical choice often depends on the

design and purpose of the questionnaire.

Questionnaire reliability describes consistency. It is the extent to which that same questionnaire would produce the same results if the study was to be conducted again under the same conditions. Reliability is assessed by test-retest reliability, inter-rater reliability, parallel form reliability and split-half reliability. This study applies *inter-rater reliability to check questionnaire reliability*. Questionnaire validity measures the degree of agreement of the results or conclusions gotten from the research questionnaire with the real world. Validating a questionnaire assess by criterion validity, Face validity, content validity and construct validity. This study applies *Criterion Validity to check questionnaire validity*.

**2) Secondary source:** Secondary data is the data that had already collected by and readily from other sources. Such data was cheaper and more quickly obtainable than the primary data and may be available when primary data not obtained at all. Secondary data enjoys the advantage of being available, effortlessly, rapidly and inexpensively.

#### 2.4. Sampling Frame and Sampling Procedure

A household was used as the basic unit of the survey and the household head was the unit of observation. In this regard, a household was defined as a group of people living together, making common arrangements for food and other essentials for a living [17]. In order to set sample frame, the list of households recoded by the kebeles was be used as sampling frame. According obtained data from three sample-selected kebeles administration 2180 households found in the area.

This study was employed multi-stage sampling technique in which both purposive and random sampling techniques applied. In the first stage out of ten districts and two towns of Bale zone, Agarfa district selected purposively based on the potential but household does not yet utilize it. In this area a number of microfinance institution are working to increase the saving culture of the people but the people were not yet improved and going well as expected to be due to this and others. I am motivated to know the reason behind fail of saving culture. For this, I do have good knowhow about the area. Therefore, Agarfa district was my research study area. In the second stage, out of the 19 rural administrative kebeles of the district three are purposively selected based on proximity to the center of the district, occupational structure, agro ecological location and accessibility of social infrastructure development especially water, road and market. These sample selected kebeles are namely Kaso-Wara, Oda-Nagele and Sheneka.

Finally, the households were selected from each *kebele* based on sampling frames prepared from the housing registry available at the kebeles administration offices by using simple random sampling. The numbers of households that selected from each sampled kebeles were determined in proportion to the re-

spective total household size in each kebeles

## 2.5. Sample Size Determination

In the Agarfa district, there were about 131,723 and 13,756 total population and Households, respectively. The sample size was determined using Kothari [18] equation. The equation helps to determine the sample size when the population size is finite. The equation was explained as follows:

$$n = \frac{Z^2 pqN}{e^2 (N-1) + Z^2 pq} = \frac{1.96^2 \times 0.5 \times 0.5 \times 2180}{0.05^2 \times (2180-1) + 1.96^2 \times 0.5 \times 0.5} \approx 327$$

where,

$Z$ : Values of standard variant at 95% confidence interval ( $Z = 1.96$ ).

$P$ : is the estimated proportion of an attribute that is present in the population.

$Q$ : is the estimated proportion of an attribute that is not present in the population.

$e$ -Margin of error considered is 5%.

$N$ = population.

The selected three *kebeles* namely Sheneka, Oda-Negele and Kaso-Wara household population are 2180. Using the above formula, the total household sample size of respondent is 327 household as indicated in **Table 1**. The Household sample respondent at Kebele level was selected proportionally based on household number. *i.e.*

$$\text{Sample HH at kebele level} = \frac{\text{Total number Kebele Household} * \text{Total Household sample}}{\text{Total number of households}}$$

**Table 1.** Household sample respondent at kebeles level.

S. N	Name of Kebeles	Total House hold	Sample household
1	Sheneka	552	83
2	Oda-nagele	708	106
3	Kaso-Wara	920	138
	Total	2180	327

Source: Agarfa district planning and economic development commission (2020).

## 2.6. Method of Data Analysis

In order to achieve the stated objectives of the study, the survey data was sort out, edit, coded, organize, summarize and analyze using descriptive and econometric models. The data analysis was conducted using STATA software Version 14 to generate the parameter estimates.

### 2.6.1. Descriptive Statistics

Descriptive statistics namely frequencies, percentages and means are used. The

bar chart, pie chart and frequency tables used to represent or to show the result. In order to determine whether the mean difference between two groups is statistically and significantly different from zero employed independent t-test and chi-square because independent variable has related groups.

### 2.6.2. Econometric Model

The Tobit model is censored regression model. Observation of the latent variable  $y^*$  are missing (or censored if  $y^*$  is below (or above) a certain threshold level. This model has been in wide of application where the dependent variable is observed to zero for individuals in the sample [19].

The application of Tobit analysis is preferred to probit or logit model in such cases because it uses data at the limit as well as above the limit to estimate the regression. Therefore, in this study, Tobit model was used to identify determinants of rural household saving in the study area.

Tobit Model [20] was used to analyze major determinants of household savings by using Stata (Version 14). This model was chosen because amount of household savings tend to be censored at the lower limit of zero [21].

Tobit model specification was given as follows:

$$Y_i = \begin{cases} Y_i^* = X_i\beta + U_i & \text{if } Y_i^* > 0 \\ 0 & \text{if } Y_i^* < 0 \end{cases}, \quad i = 1, 2, \dots, n \quad (1)$$

where  $Y_i$  = the observed dependent variable.

$Y_i^*$  = latent variable (which is not observable).

$X_i$  = vector of explanatory variable.

$\beta$  = vector of parameters to be estimated.

$U_i$  = an independent normally distributed error term with zero mean and constant variance.

$X_i$  is vector of independent variable affecting household savings.

## 2.7. Definition of Variables

### 2.7.1. Dependent Variables

**Rural household saving:** It is dependent variable which represents the amount of rural household put their money in financial institution which is measured in birr.

### 2.7.2. Independent Variables

As indicated in **Table 2**, it hypothesized that the rural household saving were a function of a set of factors that included in the model. The independent variables included in the models and hypothesized are ages of the household head, sex of household head, total family size of the household, education status of the household head, access to credit, livestock holding, total farm land size, annual income, Annual expenditure, distance to market, distance to financial institution.



**Table 2.** Summary of independent variables.

No	Variable name	Variable code	Definition and unit of measurement	Hypothesis
1	Sex of the household head	SEX	Sex is a dummy variable assigned one if a head is male and 0 otherwise.	Positive
2	Age of the household head	AGE	Age of household head in years given in continuous variables (1, 2, 3, ...)	Positive
3	Total family size in the household	FAMLSIZ	Total number of household members takes the value of (1, 2, 3, ...). It is a continuous variable	Negative
4	Education status of the household head	EDUCHH	It is a continuous variable measured in education level of household (quantified by number of years of schooling)	Positive
5	Access to credit	CREDIT	A dummy variable, which takes 1 if a household access 0 other wise	Positive
6	Tropical livestock unit of holding	TLU	It is a continuous variable and measured by Tropical Livestock Unit (TLU Size of livestock owned by HHHs)	Positive
7	Annual Income	INCOM	It is a Continuous variable and income generated by the household annually (in birr)	Positive
8	Annual Expenditure	EXP	It is a Continuous variable and different expense incurred by the household annually (in birr)	Negative
9	Distance from the nearest market	DISMARKT	It is a continuous variable designating HHs proximity to the nearest market center measured in kilometer.	Negative
10	Distance from the nearest financial Institution	DISFIN	It is a continuous variable designating HHs proximity to the nearest Financial institution measured in kilometer	Negative
11	Total farm land size	FLNDSZ	Land size owned by the household in hectares local unit takes the value of (1, 2, 3, ...). It is a continuous variable	Negative

### 3. Result and Discussions

#### 3.1. Rural Household Saving Institution

In the study area, households save their money in two different financial institutions. These are formal financial institution and informal financial institution. **Table 3** gives a breakdown of the different financial institution that households save their money in the study area.

As the finding of the survey result indicated in **Table 3** about 52.60% of the sampled households had saved their money at formal financial institutions. The remaining 46.40% of the sampled households had saved their money at informal financial institutions. The informal financial institution fills the gaps of the rural household. Thus, most of rural household unable to save their money in the

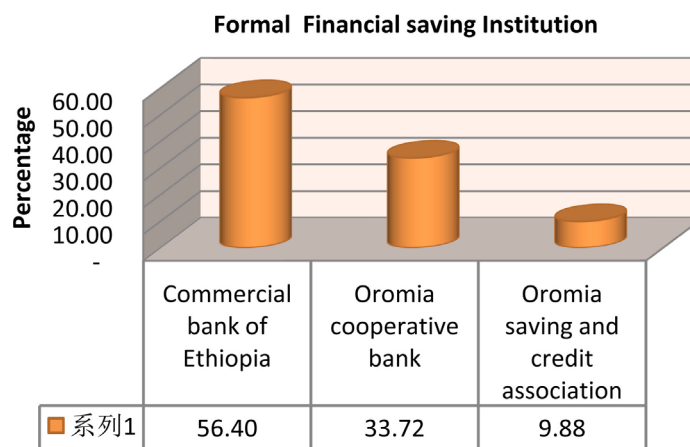
formal financial institution because lack of awareness among rural household about saving, lack of income since most of rural household depend on agricultural activities that generate instable income due to numerous factors and inaccessibility of financial institution in the area due to remoteness and lack of the area.

**Table 3.** Sample rural household saving institution.

Financial Institution	Number in sample HH	Proportion of sampled HHs (%)
Formal Financial Institution	172	52.60
Informal Financial Institution	155	47.40
Total	327	100

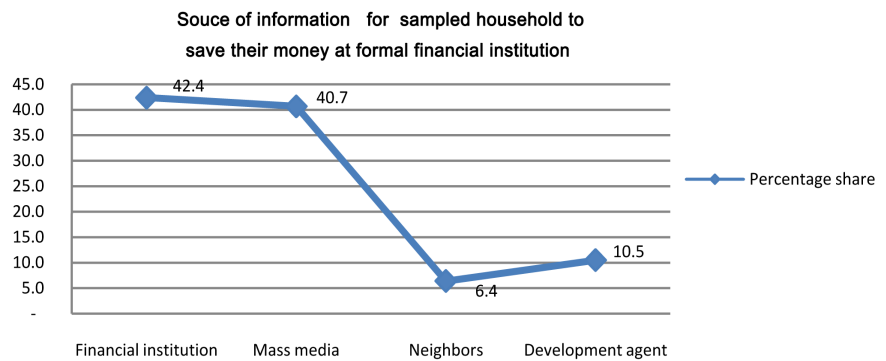
Source: Own survey data (2020).

As indicated in **Table 3** about 52.60% of the sampled households had saved their money at formal financial institutions such as Commercial bank of Ethiopia, Oromia cooperative bank and Oromia saving and credit association.



**Figure 2.** formal financial saving institution. Source: Own survey data (2020).

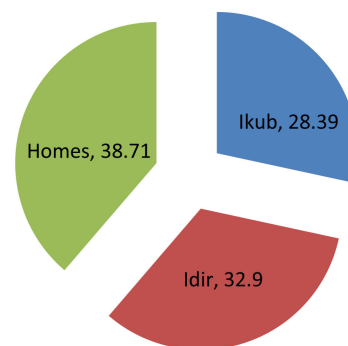
As indicated in **Figure 2** from 172 sampled household used formal financial saving institution accounts about 56.40% used Commercial Bank of Ethiopia, 33.72% used Oromia cooperative Bank and the remaining 9.88% used Oromia saving and credit association. As indicated in **Figure 3** the main source of information for sampled household to save their money at formal financial saving institution is advocacy of financial institution itself take place at home to home, market place and with their institution accounts about 42.4%, mass media like Television and Radios accounts about 40.7%, Neighborhood at residential place accounts about 6.4% and development agents in different meeting place accounts about 10.5% from the total 172 sample household used in this institution.



**Figure 3.** Source of information for rural sampled household. Source: Own survey data (2020).

In general, Access to savings is the key to financial inclusion and low usage of savings services is not an indication of low demand. It has been proven that a good number of poor people now enjoy improved quality of life as they have accumulated assets from savings. Savings is the main funding source for sustainable growth because it is less costly than loans which many Micro finance institutions rely on, stable source of funding, and improves public image and confidence for them.

Previously as indicated in **Table 3** about 46.40% (155) of the sampled households had used to save their money at informal financial institutions option. In the same way as **Figure 4** indicated from the sampled households about 28.39% used Ikub, 32.9% used Idir and 38.71% used their home to save their money as informal institutions option.



**Figure 4.** Rural household informal saving institution in the study area. Source: Own survey data (2020).

From this still we conclude that approximately equivalent or not significant difference in number of sampled rural households save their money at formal and informal financial institution. From informal financial institution saving money at home has a lion share. Saving money at home have not economic contribution but voluntary savings enable households to smooth consumption in the face of uneven income flows, to accumulate assets for the future, to invest in education, and to better prepare for emergencies.

### 3.2. Comparison of Rural Household Saving

The study conducted analysis of t-test and chi-square test to make sure the presence or absence of difference between the rural households saving. The mean values of continuous variables in all saving categories were compared t-test because there are because independent variable has related group. Thus, t-test is appropriate instead of one way ANOVA due to related independent variable. The t-test showed the presence of a significant mean difference between rural households in terms of educational level, family size, annual expenditure, annual income and total livestock ownership of the household head.

**Table 4.** Summary of statistics for continuous variables.

Variables	Savers N = (172)		Non-savers = (155)		t-value
	Mean	Std. Dev.	Mean	Std. Dev.	
Age	34.64	8.50	34.16	8.01	-0.5
Education Level	3.63	2.97	2.38	2.60	4.03***
Family size	5.97	2.16	5.55	1.73	-1.90*
Land Size ownership	2.67	1.62	2.62	1.31	-0.27
Distance to Market	13.88	3.58	13.91	3.64	0.08
Annual Expenditure	14,632.20	9681.54	9572.09	7401.32	5.75***
Annual Income	10,289.53	18,192.42	13,196.13	14,770.33	5.56***
Livestock ownership	6.89	3.44	4.95	3.50	5.04***
DFFI	10.67	5.72	9.95	5.61	1.15

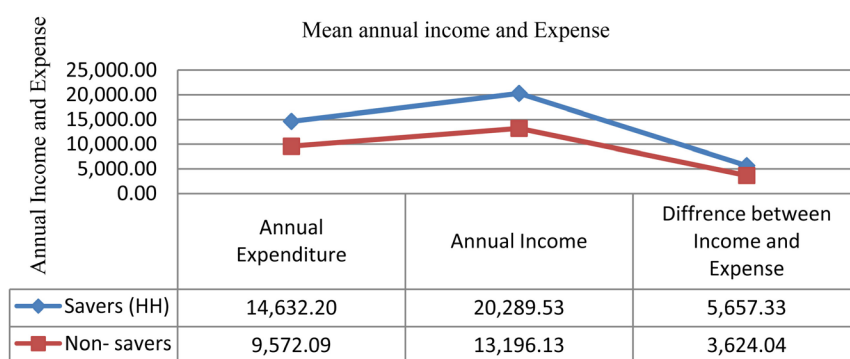
\*\*\*, \*\*, \* means significant at 1%, 5%, 10% significance levels respectively. Source: Own computation result, (2020).

As **Table 4** shows educational levels of the households head are statistically significant at 1% significance level between savers and non-savers of household with respect to educational level. It implies that saver rural households with more education were likely to save their money at formal financial institutions. The family size mean comparison test result shows that there is significant mean difference between savers and non-savers with respect to household size at 10% significance level. According to the survey result, the overall mean household size of the sampled household was about 5.77 persons which are above the national rural average family size of 4.9 persons per household [22].

The mean difference of livestock ownership between savers and non-savers was statistically significant at 1% significance level. According to the survey result pointed out in **Table 4** the average size of livestock of the sampled savers and non-savers was 6.89 and 4.95 TLU respectively and the standard deviation of the livestock ownership size of savers and non-savers was 3.44 and 3.50 TLU respectively.

The mean difference of the annual income and annual expenditure between

savers and non-savers was statistically significant at 1% significance level as indicated in **Table 4**. The annual income of the savers and non-savers was 20,289.53 and 13,196.13 ETB and the standard deviation of the annual income of savers and non-savers was 18,192.42 and 14,770.33 ETB. The average annual expenditure of the savers and non-savers was 14,632.20 and 9572.09 ETB and the standard deviation of the annual expenditure of savers and non-savers was 9681.54 and 10,401.32 ETB respectively as pointed out in **Figure 5**.



**Figure 5.** Mean annual income and expense. Source: Own computation result, (2020).

On the other hand, a chi-square test indicated the existence of statistically significant difference in terms of two discrete variables. More specifically, the test revealed that there was a significant difference between the rural household saving groups in terms of sex of the household and access to credit of the household head at 1% probability level as pointed out in **Table 5**.

**Table 5.** Summary of statistics for dummy variables.

Variables		Saving Status		Total	Chi square
		Non savers	Savers		
Sex	Female	N	39	23	62
		(%)	25.16	13.37	
	Male	N	116	149	265
		(%)	74.84	86.63	
Access to Credit	Yes	N	20	76	96
		(%)	12.9	44.19	
	No	N	135	96	231
		(%)	87.1	55.81	

Source: Own survey data (2020).

As the result of **Table 5** show that the mean difference of sex and access to credit between savers and non-savers was statistically significant at 1% significance level. This implies that being male or female headed household had statistically significant effect on saving decision of the households. In the same way house-

holds who had more access to credit had higher probability to save their money in different financial institutions.

### 3.3. Determinant of Rural Household Saving

This section focuses on determinant factors of the rural household saving of the study area. Tobit regression model is used, to analyze the factors affecting the rural household saving of the study area. As shown in **Table 6** the Tobit model estimate result revealed among eleven (11) hypothesized explanatory variables eight (8) variables significantly influenced rural household saving. The result indicates that Sex of the households, Education level of the households, Household family size, Annual income, annual expenditure, and access to credit, Tropical livestock unit and distance to financial institutions were determining factors for rural household saving. The plausible implication and marginal effects of the significant explanatory variables on rural household saving presented as follows:

**Table 6.** Tobit model output for explanatory variables.

Variables	Coef.	Std. Err.	T	P > t
Sex of the households	0.2908	0.1215	2.39	0.017**
Age of the households	0.0057	0.0054	1.06	0.289
Education level of the households	0.0570	0.0173	3.29	0.001***
Household family size	-0.0757	0.0235	-3.22	0.001***
Land size owned	-0.0095	0.0307	-0.31	0.758
Access to Credit	0.4878	0.1026	4.75	0.000***
Distance to Market	-0.0157	0.0128	-1.23	0.221
Annual expenditure	-0.0000	0.0000	2.13	0.034**
Annual income	0.0000	0.0000	2.56	0.011**
Livestock Owned	0.0406	0.0134	3.03	0.003***
Distance from financial institution	-0.0157	0.0081	-1.93	0.054*
Constant	-1.4855	0.3650	-4.07	0.000
Sigma	0.7129	0.0438		

Log-likelihood function: -289.71767. Chi-square: 110.85; Pseudo R<sup>2</sup>: 0.1606; Number of observations: 327; Source: based on own survey results, 2020. Note: \*\*\*, \*\*, \* significant at one, five and ten percent significance level, respectively.

**Sex of household head (SEX):** Sex of a house hold head is one of the factors affecting saving status of the rural households at 5% significance level. The result reveals that, as sex of household head change by one unit (changes from female to male), the saving status increases by 0.29 as indicated in **Table 6**. This finding is supported by Tsega *et al.* [3].

**Education level of household heads:** Education increases the analytical ability of individuals to process information received from any source. As the result indicated on **Table 6** revealed, education level of households is statistically sig-

nificant at 1% significance level and positively influences the dependent variable. Each additional year of schooling of the household head increases the saving status by 0.057% and this shows as households are getting educated, they are more likely to save in formal financial institutions. This finding was consistent with Girma *et al.* [9].

**Household family size:** It is a continuous variable. Family size is an important factor for the rural household saving. As expected that, total family size of the household is negatively significant at 1% level of significance as the result indicated on **Table 6**. This is because of as the household size increases, the number of mouths to be fed obviously increases, which share available income to consume. This finding is supported by Oliveira *et al.* [23].

**Annual expenditure:** It is a continuous variable. Annual expenditure is negatively significant effect at 5% level of significance as the result indicated on **Table 6**. This is because in the rural areas there are different social and religious ceremonies celebrated occasionally such as, wedding, burial/funeral, circumcision and others. The expenses related to these ceremonies are sometimes too large relative to farmers' income levels. This finding is supported by Tsega *et al.* [3].

**Annual income:** average annual income shows that significance and positive effect at 5% probability level on rural households saving status as the result indicated on **Table 6**. This can reveals that income would increase households saving ability and enhance the probability of households to save in formal financial institutions. The explanation for this result income would increase households saving ability and enhance the probability of households to save in formal financial institutions. This result is consistent with studies by Rehman *et al.* [24].

**Access to Credit:** From the model output access to credit have positive effect on rural households' savings and significant at 1% probability as the result indicated on **Table 6**. Saving status of rural households increases by 0.48 units when access to credit increases by 1 unit being other factors constant. This implies that rural households with more access to credit would higher tendency to save more at formal financial institutions. This would have possibly meant that credit user households used their loan for production purpose and in turn increases their income. This finding was consistent with Obayelu [25].

**Tropical livestock unit (TLU):** Livestock is the most important asset for rural households in the study area. Rural households in the study area undertake both crop and livestock production activities. In the study area, livestock holding size varied among the sampled households. Based on Storck *et al.* [26] the livestock number was converted into tropical livestock unit (TLU) to facilitate comparison between the two groups. Livestock ownership affect saving status of the households of the study area at 5% significance level as the result indicated on **Table 6**. This finding is supported by Girma *et al.* [9].

**Distance to financial institution:** It is a continuous variable and distance is measured in terms of Kilo meters. As the result indicated that distance to finan-

cial institutions' is negatively related at 10% level of significant as the result indicated on **Table 6**. In the study area the accessibility of formal financial institutions infrastructures are at infant stage and need further attention to improve saving mobilization. Rural financial institutions which are located at far distance areas discourage rural household to save money. This finding is supported by Wolde Gebre [10].

## 4. Conclusions and Recommendations

### 4.1. Conclusions

About 52.60% of the sampled households had saved their money at formal financial institutions. The remaining 47.40% of the sampled households had saved their money at informal financial institutions. The informal financial institution fills the gaps of the rural household. Thus, most of rural households are unable to save their money in the formal financial institution because lack of awareness among rural household about saving and lack of income since most of rural household depend on agricultural activities that generate instable income due to numerous factors and inaccessibility of financial institution in the area due to remoteness and lack of infrastructure of the area.

The main source of information for sampled household to save their money at formal financial saving institution is advocacy of financial institution itself door by door, market place and with their institution accounts about 42.4%, mass media like Television and Radios accounts about 40.7%, Neighborhood at residential place accounts about 6.4% and development agents in different meeting place account about 10.5% from the total 172 sample household used in this institution.

Approximately equivalent or not significant difference in number of sampled rural households saves their money at formal and informal financial institution. Regarding informal financial institution, the rural sampled households that save their money at home have a lion share *i.e.* account about 38.71%. Saving money at home has not economic contribution but voluntary savings enable households to smooth consumption in the face of uneven income flows, to accumulate assets for the future, to invest in education, and to better prepare for emergencies.

To make sure the presence or absence of difference between the rural households saving, the study conducted analysis of t-test for continuous independent variable and chi-square test for discrete independent variables. The t-test result indicated the presence of a significant mean difference between rural households in terms of educational level, family size, annual expenditure, annual income and total livestock ownership of the household head. The chi-square test result indicated that there was a significant difference between the rural household saving groups in terms of sex of the household and access to credit of the household head.

Tobit regression model is used to analyze the factors that affect the rural household saving of the study area. The model result indicated that out of 11 hy-



pothesized variables six were found to be significantly influenced rural household saving at 1%, 5% and 10% probability levels. The result indicates that sex of the households, education level of the households, household family size, annual income, annual expenditure and tropical livestock unit were determining factors for rural household saving.

## 4.2. Recommendations

Based on the finding of the study, the following policy recommendations are possible areas of intervention that might help to mobilize and develop the culture of rural household saving in the study area.

Savings is the main funding source for sustainable growth because it is less costly than loans which many Micro finance institutions rely on, stable source of funding, and improves public image and confidence for them. But saving mobilization in the rural household of the study area is low. Thus, the existing financial institution in the district mobilizes savings by focusing on methodological and technological innovations that may be useful for delivering quality savings services. Additionally, campaign of continuous advocacy activity in market place, home to home and somewhere else with collaboration of concerned government bodies about importance of saving within rural household in the district must take place to improve saving mobilization status.

High promotion activity on saving mobilization must take place by preparing standardized posters, banners, leaflets, brochures, panel discussions, TV and Radio advertisement and promotions and other tools of promotion. In Schools mini Medias and sponsoring events like inter school races, parent days, and other promotion strategies can be used in promoting about saving mobilization within the student.

Sex of the household being female-headed household in the rural area has negatively significant relation with saving. Because female headed household in the rural area most of the time focuses on consumption than engaging on income generating activities to promote saving. Thus, female-headed household in the rural areas advisable to engage on different livelihood activities to supports their household economically.

Educational level of sampled households was found to have a significant positive association with rural households' saving status. Financial institutions in collaboration with agricultural offices, NGOs and other community-based organizations should work on awareness creation activities in the study area though providing training to the rural households. In addition to awareness creation activities, financial institutions should have in kind reward system to motivate non-saver households.

Large Family size inhibits chance of highly adopting/engaging in different livelihood strategy to improve their income level of household. But the effort of household to engage on different livelihood strategy is low and the number of mouths to be fed obviously increases, which share available income to consume. In this regard, awareness creation and provision of family planning services are

mandatory by local government bodies and non-government organization to promote saving.

Average annual income had positive and statistically significant effect on rural household saving. Awareness creation on saving mobilization by collaboration of concerned government and nongovernment bodies on improving rural households' income through diversifying their livelihood activities, reducing unwanted consumption and manage their daily expense by well planned expenditure system leads rural household to save their money in the formal financial institution.

Annual expenditure has negative effect on saving. The rural households amend and improve different social and religious ceremonies celebrated occasionally such as, wedding, funeral, circumcision and others to the extent of minimizing expense. The expenses related to these ceremonies are sometimes too large relative to farmers' income levels. Different advocacy activity within the rural household must be works on these ceremonies to encourage saving mobilization.

Credit access had positive and statistically significant effect on rural households' savings status. In order to make non-saver rural households to save, financial institution should have awareness creation, consult program and provide productive loan and follow up their credit utilization so that they can use it to generate additional income and this in turn motivates rural households to save in financial institutions.

Distance to financial institution and related transport costs are the major factors hindering rural household to save money at formal financial institution. So that household saves their money at home. Thus, provision or expansion of formal financial institution and public facilities such as construction of roads and infrastructure in the rural areas facilitate transportation and encourage household to save money at formal financial institution. Therefore, Special attention has taken to establish financial institution and social infrastructure to the rural household to improve saving mobilization.

### **4.3. Limitations of the Study**

Secondary data about the status of household saving in each sample selected kebeles are not well organized and documented instead little information and data exist at the formal financial institution located at the center of the district. Limitation of secondary data becomes a major challenge of the study. Thus organizing data center at each kebeles level about saving is a corner stone for further study and improves data availability.

During the face to face interview most of the household heads are not willingness and reserve themselves instead of responding on the questionnaire. Households link their response with tax system. Convincing the household of sample selected area about the study to become willingness and respond on prepared questioners takes time.

Lack of funds reduced the sample size of the research study though the data

collected was relevant and effective in coming up with conclusions. If the sample size was larger than the one used in the study, probably more significant results would have been obtained.

Most of the geographic settlements of the households are not suitable for the study because household settles by centering their home close to farmland and grazing areas for their livestock. Due to this, most of the time the household head is not presented in their home, enumerators redundantly visit sample household home to fill questioner. Thus, the study devoted more time to get data to reach on finding and conclusion.

#### 4.4. Areas of Future Studies

Rural households engaged in similar household livelihood strategies differ in terms of levels of wealth and saving status. The impact of saving on wealth value margins need to be assessed at rural household levels. It is also essential to assess the impact of saving status heterogeneity in the study area on the rural households' decisions to diversify their livelihood strategies.

#### Conflicts of Interest

The authors would like to declare that they have no interest of conflict and we want to disclose you that it is our original research work.

#### References

- [1] Oromia State University (2015) Saving Mobilization Training Manual, Ziway/Batu.
- [2] World Bank (2020) Global Economic Prospectus. World Bank, Washington DC.
- [3] Hagos, T. and Yemane, M. (2014) Determinants of Household Saving in Ethiopia: A Case of North Gondar Zone, Amhara Regional State, Ethiopia. *International Journal of Development and Economic Sustainability*, **2**, 37-49.
- [4] National Bank of Ethiopia NBE (2019) Summary and Statistical Report of 2019/20 Economic Survey of the Ethiopia, NBE Data Base. <http://www.nbe.gov.et>
- [5] National Bank of Ethiopia NBE (2011) Summary and Statistical Report of 2011 Economic Survey of the Ethiopia, NBE Data Base. <http://www.nbe.gov.et>
- [6] Oromia Planning and Economic Development Commission (2018) Socio Economic Profile, Finfine.
- [7] Oromia Planning and Economic Development Commission (2018) Oromia National Regional State Regional Economic Account/GDP Statistics, Finfine.
- [8] Bale Zone Planning and Economic Development Commission (2018) Socio Economic Profile, Robe.
- [9] Girma, T., Belay, K., Bezabih, E. and Jema, H. (2014) Saving Patterns of Rural Households in East Hararghe. *Journal of Development and Development Economics*, **6**, 177-183. <https://doi.org/10.5897/JDAE2013.0507>
- [10] Wolde Gebre Chufa (2018) The Determinants of Household Savings in Ethiopia: The Case of Gurage Zone Gumer Woreda in Southern Regional State.
- [11] Hailesellase, A., Abera, N. and Baye, G. (2013) Assessment of Saving Culture among Households in Ethiopia. *Journal of Economics and Sustainable Development*, **4**, 1-8. <http://www.iiste.org>

- [12] Assefa, M. and Rao, D. (2017) Determinants of Saving Behavior of the Salaried Employees in Ethiopia: A Case Study of Wolaita Sodo Town. *International Journal of Advanced Research*, **5**, 1285-1296. <https://doi.org/10.21474/IJAR01/6085>
- [13] Agarfa District Planning and Economic Development Commission (2018) Socio Economic Profile, Agarfa.
- [14] (2016) According to Bureau of Planning and Economic Development of Oromia Population Projection.
- [15] Bless, C. and Higson-Smith, C. (2000) Social Research Methods. An African Perspective. Cape.
- [16] Leedy, P.D. and Ormrod, J.E. (2004) Survey of Research Methodology for Human Services Learners.
- [17] Food and Agriculture Organization (2010) Pastoralism in the New Millennium. Animal Production and Health Paper, Rome.
- [18] Kothari, C.R. (2004) Research Methodology: Methods and Techniques. New Age International Publishers, New Delhi.
- [19] Maddala, G.S. (2005) Introduction to Econometrics. 3rd Edition, Formerly of Ohio State University Press, New York.
- [20] Tobian, J. (1958) Estimation of Relationships for Limited Dependent Variable. *Econometrica*, **26**, 24-36. <https://doi.org/10.2307/1907382>
- [21] Gujarati, D. (2007) Basic Econometrics. McGraw Hill, New York.
- [22] Central Statistical Authority (CSA) (2008) Summary and Statistical Report of the 2007 Population and Housing Census; Population Size by Age and Sex.
- [23] Oliveira, A., Donald, W., Mauricio, B. and Douglas, H. (2003) The Potential for Financial Savings in Rural Mozambican Households. *The 25th International Conference of Agricultural Economists*, Durban, 16-22 August 2003, 33-59.
- [24] Hafeez, R., Muhammad, F. and Furrukh, B. (2010) Households Saving Behaviour in Pakistan: A Case of Multan District. *Pakistan Journal of Social Sciences*, **30**, 17-29.
- [25] Obayelu, O.A. (2012) Saving Behavior of Rural Households in Kawara State, Nigeria. *African Journal of Basic Applied Science*, **4**, 115-123. <https://doi.org/10.2139/ssrn.1999413>
- [26] Storck, H., Bezabih, E., Berhanu, A., Borowiccki and Shimeles, W. (1991) Farming Systems and Farm Management Practices of Smallholders in the Hararghe Highlands (Farming Systems and Resource Economics in the Tropics). Vol. II, Wissenschaftsverlag Vauk, Kiel.