Determinants of Rural Households' Saving Habits: The Case of Gedeb Woreda of Gedeo Zone, Southern Regional State of Ethiopia

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Abstract

Household saving is a crucial determinant of the supply of funds for investment. However, the saving level in Ethiopia in general and in the study area, in particular,is very low.Therefore, this study was aimed at investigating the factors that affect the saving habits of rural households. Cross-sectional data were collected from 295 rural sample households using an interview schedule. The data collected were analyzed by using descriptive and econometric models. The ordinal probit model was used to identify the determinants of saving habits of rural households. The result of the study revealed the major challenges of saving practice in the study area were unplanned spending, high cost of living, high social commitments, spending income as soon as earning, very low income, unavailability of financial institutions, lack of trust in the financial institutions, and lack of knowledge on saving.While saving to acquire an asset, pay education fees, for household consumption, pay medical expenses, receive interest rates for savings, to attend funerals,and getting a loan and credit access were the major opportunities for saving practice in the study area. The estimate of the ordinal probit model with marginal effect found that age, education level, annual expenditure, farmland size, livestock owned, annual income, distance to the financial institution, and frequency of extension contacts had a significant influence on rural households' saving habit. The socio-economic position of the rural area is still demoted which hampers the development process of the country. Increasing earning capacity of the people is expected to enhance the individuals' rate of saving, different on and off farm income diversification strategies should be encouraged. Finally, supplementary research and improvement on the mark and identification further problems and intervention practice will take part in a crucial role in the process of improving saving habit and living standard of rural households. Thus, the finding suggests that awareness creation and training about saving benefits should be

given to the society, price stability policies beleaguered on major food items should be appropriately formulated, and encourage rural households to look for additional jobs without endangering their enduring job of crop and livestock production.

Keywords: Saving, Ordinal probit model, Gedeb Woreda

1. Introduction

1.1. Background of the study

Saving is an important macroeconomic variable to be premeditated under the purview of the economic analysis on an individual as well as a household basis. According to Fisher and Anong (Fisher and Anong, 2012), saving is the mechanism that allows people to defer part of their consumption today in favor of consumption tomorrow, where tomorrow could be next week, next year, retirement, or even (in the case of saving for bequests) after death. Saving is part of the income earned by individuals (Husain, and Baharali, 2016).

Savings in rural Ethiopia is mainly made out of the income from agricultural activities. It is also characterized as seasonal and irregular as the cash flow through the sale of agricultural produce and availability of work is seasona l(Dejene, 2003). This reduces their financial capacity to save or poorly responds to incentives that promote savings in the country (Dejene, 2003). However, rural households do indeed save in the form of tangible assets and/or in financial forms which can be potentially utilized by savings institutions and for investments that are very essential for both households and national wellbeing (Dimova, and Sen, 2010).

For the developing countries including Ethiopia, the household savings rate is a prime cause of the highs or lows of economic development and influences the overall economic scenario. Countries having a higher level of saving rates have managed to reduce the burden of foreign debt and thus domestic investments will be financed by domestic savings, especially in household sectors (Tadele, 2015). The saving habit of many of the peoples of the Gedeo zone particularly GedebWoreda has been said to be low as compared to other states of Ethiopia (GWA, 2020).

The study done by Mirach and Hailu, (Mirach and Hailu, 2014) showed that 54.1% of sample households practiced saving and the common reasons for households not to save are low income, inflation, low-interest rate, cultural background, education, social affairs, and unemployment. However, these studies did not consider the saving habit of individuals or households at the micro-level. Similarly, most researchers have been focused on amount or level of saving to analyse saving behavior. Hence, this study

tried to fill the gap and put an impression on factors affecting saving habit rather than level of saving at the micro-level. Therefore, this study aimed to examine the major determinants of saving habits of rural households in GedebWoreda.

1.2. Objectives of the Study

The general objective of this study was to assess the saving habit of rural household in Gedeb woreda of Gedeozone, Southern Ethiopia.

The specific objectives of the study were:

1. To assess the status of rural households' saving habit in the study area.
2. To identify the key factors affecting rural households'saving habit in the study area.
3. To assess the challenge and opportunity of saving practice of rural households in the study area.

1.3. Significance of the Study

This study was contributed different benefits. First, it could benefit community by creating awareness and providing updated information regarding the importance of saving and the way to improve the saving habit. Second, the outcome of this study would have great contribution to interested party which is related to core factors that determine saving habit of rural households. Third, the research output of this study could also inform the current status of the household saving behavior and the main influential factors with scientific procedure of the saving to the financial institutions working in the study woreda. Forth, the study was also believed to provide the bench mark for forthcoming interested researcher in the same or related topic.

2. Literature review

2.1. Theories of savings

Many disciplines and scholars have tried to explain savings behavior from different perspective and thoughts. For instance, whiles economists explain savings from income and age perspective (Modigliani and Ando, 1957), sociologist see class and social stratification as the primary influence of savings (Muradoglu and Taskin, 1996). Also, social workers have outlined access, incentives, expectation, and facilitation as the factors that influence savings (Gotteschalck, 2008 and Patti, 2O10). Behavioral economists and economic psychologists on the other hand see self-control, motives and other individual characteristics as the factors that influence savings (Katona, 1975).

The LCH (Life cycle hypothesis) is an economic theory that developed by Franco Modigliani and hisstudent Richard Brumberg. The theory is pertaining to the spending and saving habits of people over the course of aLifetime. LCH presumes that individual's base consumption on a constant percentage of their anticipated life income. On other hand, Friedman's,

(Friedman, 1957) permanent income hypothesis is an extension of the life cycle hypothesis. It is also based on the perception of one's present and future income. When income is higher than the permanent income somebody considers to be his or her comfortable (and realistic) level of income, money is saved for a period in life where income might be below this personal permanent income level.

Keynes (Keyne, 1936) introduced the notion of marginal propensity to save (Keynes' Absolute Income Hypothesis). The theory examines the relationship between income and consumption, and asserts that the consumption level of a household depends on its absolute level (current level) of income. As income rises, the theory asserts, consumption will also rise but not necessarily at the same rate. The idea is that saving is only possible, if someone has more than enough to meet the basic needs. This means that someone can only save what is left over once essentials have been paid for (Ottoo *et al.,* 2009). On other hand, RIH(Relative income hypothesis) states that the satisfaction (or utility) an individual derives from a given consumption level depends on its relative magnitude in the society (e.g., relative to the average consumption) rather than its absolute level.

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3. Methodology

3.1. Description of the study area

This study was carried out in GedebWoredawhich is one of the Woredas in the Gedeo zone in the Southern Nations, Nationalities, and Peoples' Regional state,Ethiopia. It is bordered to the East and South by the Oromia Region, to the West by Kochere Woreda, tothe Northwest by Yirgachefe, and tothe North by Bule.Geographically, the Woreda is located between 5^0 58′ 35″N - 6^0 2′ 14″N latitude and 38^0 16′51″E - 38^0 12′50″E longitude. It has an estimated area of 24,448.13hectares that covers 13 rural Kebeles.The altitude of the woreda is 1500- 3000m.a.s.l.Mean annual rainfall 1001-1800mm, and the mean annual temperature rangesfrom12.6 to 20^0c (GWA, 2020).

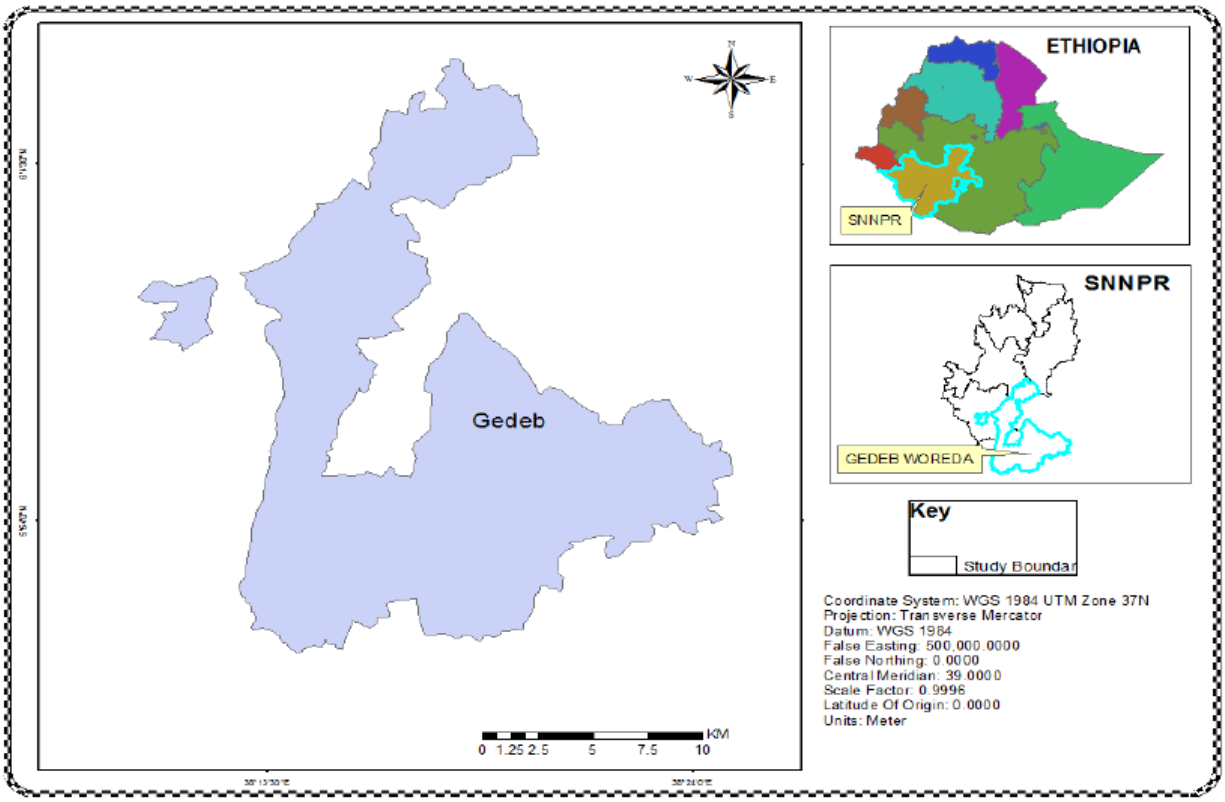

Figure 1: Map of Gedebworeda

Source: *Gedeb Woreda Administration, 2020*

3.2.

3.3.Population

The total population of the Woreda is 162,899 of whom 79,613 are men and 83,286 are women. The total household size is 20,473 of which 18,624 are male and 1849 are women (Gedeb Woreda Administration, 2020).

3.4.Research Design

In order to achieve the objective of the study, this paper used quantitative research design with descriptive and inferential statistics research approach.

3.5. Sample Size and Sampling Technique

A multistage sampling technique was applied in this study. First**,**Gedeb Woreda was selected purposively from the Gedeo Zone. This Woreda has thirteen rural Kebeles. The households are the smallest sampling units of the study to be considered and the heads of these units serve as the target population of the study. Secondly, three kebeles from thirteen rural kebeles were selected using a stratified sampling technique based on their agro-ecology. Kebeles from Dega (high land) and kebeles from WoynaDega (mid land) were identified in two strata. Then two kebeles from Degaout of eight kebele and

one kebele from WoynaDega out of five kebeleswere randomly selected. Based on this, the study was conducted on WorqaSakaro, Hallo Hartume, and Halo Barite Kebeles of Gedeb Woreda. Finally, 295 rural households were randomly selected from total households of 1119 sample households by using the proportional probability sample size sampling technique. The sample size of the sample households was determined by following Yamen's (Yamene, 1967) sample determination formula.

To determine the required sample, 95% confidence level, 0.5 degrees of variability, and 5% level of precision were applied.

$$n = \frac{N}{1+N(e)2}$$

Where, N = Total number of household head, n = Desired sample size, e = level of precision 5%.

$$n = \frac{1,119}{1+1,119(0.05)2} \sim 295$$

The 295 sample respondents were selected from 3 rural Kebeles on a proportional basis as explained below.

ni= $Ni/N*n$, Where, ni = Number of sample units from Kebele i, Ni = the total number of household heads in the Kebele i, n = the desired sample size,and N = Total number of the household head.

Table 1: Distribution of the sample in the selected Kebeles

Kebeles	The agroecological setting of Kebele	Total households	Sample households
Halo Hartume	Dega	319	84
Worqa sakaro	Dega	420	111
Halo Bariti	Woyinadega	380	100
Total		**1,119**	**295**

Source:*GedebWoreda Administration (GWA), and own computational results, 2021*

3.5. Data Source and Data collection

This study used both secondary and primary data sources. The primary data was collected through a household survey using a structured questionnaire. During the survey, information was gathered on issues related to factors that affect the saving habit in the study area. Secondary data were also collected from Gedeo Zone OMFIs, Gedeb Woreda Administration as well as Gedeb Woreda office of Agriculture and Natural Resource Development.

3.6. Definition of Variables

3.6.1. Dependent Variable

Saving habit: This variable refers to the rank response about the saving behavior of sample respondents. It has four points scaled categorical response (1 = No saving, 2 = Dissaving, 3 = Irregular saving, and 4 = Regular saving).

3.6.2. Independent Variables

Table 2: Specification of independent variables

Code	Variables	Type of Variables	Expected sign
AGHH	Age of rural household head	Continuous	+/-
SEXHH	Sex of rural household head	Dummy	+/-
EDULHH	Education level of household head	Continuous	+/-
FAMSIZE	Family size	Continuous	-
MAR-STHH	Marital status of rural household head	Categorical	+/-
DE-R	Dependency ratio	Continuous	-
EXPHH	Expenditure of rural household head	Continuous	-
OCCG	Occupation group	Categorical	+/-
DSTFI	Distance to a financial institution	Continuous	-
FREXTC	Frequency of extension contact	Dummy	+
ANNINC	Annual Income	Continuous	+
USOSAV	Uses of Saving	Dummy	+
FARMSIZ	Farm land size	Continuous	+
NULISTOCK	Number of livestock owned	Continuous	+
AGECO	Agro- Ecology	Dummy	+/-

3.7. Data Analysis

Both descriptive statistics and econometric methods were employed. Ordinal probit model was used to analyze the effects of different demographic, socio-economic, institutional, and biophysical factors on rural households' saving habits.The qualitative data collected through key

informant interviews, focus group discussion and physical observation were narrated and summarized.

Econometric Model

Since the household saving habit is ordinal, the appropriate model to analyze the data was the order probit model (Wooldridge, 2010) and adopted by (Harrison*et al.*, 2002) as well as (Fentahun*et al.*, 2019). **Ordered probit** is a generalization of the widely used probit analysis to the case of more than two categories of an ordinaldependentvariable (a dependent variable for which the potential values have a natural ordering).In this study, the categorical response ranged from 1 to 4, which represents: No-saving, Dis-saving, Irregular saving, and regular saving, respectively. The model was estimated as follows:

$S^* = \sum_{i=1}^{n} \beta x_i + \varepsilon_i$

Where S* is an unobservable index (latent) of the household propensity to save; Xi is individual characteristics, εirepresents error term, β isparameters to be estimated, and i = 1 … n.The response variable was given:

$$S = \begin{cases} 1, & if\ s^* < \mu_1 \\ 2, & if\ \mu_1 \leq s^* \leq \mu_2 \\ 3, & if\ \mu_2 < s^* \leq \mu_3 \\ 4, & if\ \mu_3 < s^* \end{cases}$$

The model assumes that the observed saving response "S" is related to the underlying latent variable: financial position regarding saving and cut of points.

Hence, S = F (S^*, μ_J) the probability that individual i chooses alternative j (j = 1,2,3,4) are

$prob[s_i = 1/x_i] = \emptyset(-x'\beta)$, $prob[s_i = 2/x_i] = \emptyset(\mu_1 - x'\beta) - \emptyset(-x'\beta)$,

$prob[s_i = 3/x_i] = \emptyset(\mu_2 - x'\beta) - \emptyset(\mu_1 - x'\beta)$, $prob[s_i = 4/x_i] = 1 - \emptyset(\mu_2 - x'\beta)$

More generally the model is specified as:

$prob[s_i \leq j/x_i] = p(s^* \leq \mu_j/x) = \emptyset(\mu_j - x'\beta)$

Where $\mu_1 < \mu_2 < \mu_3$are cut-off points, and X is the vector of all explanatory variables. The maximum likelihood parameter estimates can be estimated by maximizing the log-likelihood function.

$log^{l} = \sum_{i=1}^{n}\sum_{j=0}^{j} z_{i\,j} \log(prob[s_i \leq j/x] = \mathrm{p}\,(s^* \leq \mu_j/x) = \emptyset(\mu_j - x'\beta))$

Concerning β and μ,z_{ij} is an indicator variable equal to unity if an individual i chooses alternative j and zero otherwise. To examine factors that influence saving habits, an ordered probit model was used as follows.

$$Y_{i=}\alpha_0 + \beta_1 X_1 + \beta_2 X_2, \ldots, \beta_k X_k + \mu$$

Where Yi represents saving habit, αo is the constant term, β's are coefficients to beestimated, μ is the error term, X1……Xkisthe independent variable.

$$Y_{i=}\alpha_0 + \beta_1 \mathrm{GEN} + \beta_2 \mathrm{MAR} - \mathrm{STA} + \beta_3 \mathrm{AGE} + \beta_4 \mathrm{EDU} + \beta_5 \mathrm{FMS} + \beta_6 \mathrm{DE} - \mathrm{R} + \beta_7 \mathrm{OCCU} + \beta_8 \mathrm{DS} + \beta_9 \mathrm{EXTCON} + \beta_{10} \mathrm{U} - \mathrm{S} + \beta_{11} \mathrm{AINCI} + \beta_{12} \mathrm{FLS} + \beta_{13} \mathrm{LSTOCK} + \beta_{14} \mathrm{EXP} + \beta_{15} \mathrm{AGECO} + \varepsilon_i$$

Where Yi represents saving habit, αo is the constant term and β1, β2, β3,…, β13 arecoefficients to be estimated of regression parameters, ε_i is the random term.

Model adequacy checking

Before running the model, the explanatory variables were checked to know whether the multicollinearity problem exists or not. The parallel regression assumption also has been checked.

Ethical considerations

Prior to data collection, ethical clearance was obtained from Research and Ethics committee of Bule Hora University. Written permission letter was produced from Gedeb Woreda Adminstration Office, and other concerned bodies in the study area. During data collection, each facilities were informed about the purpose, scope and expected outcome of the research, and appropriate informed verbal consent was taken from the facilities. During the training of data collectors and supervisors, ethical issues was addressed as important component of the research.

4. Results and Discussions

4.1. Status of Household Heads' Saving Habit

Table 3 shows that of 295 sample respondents, 71(24.07%), 78(26.44%), 49(16.61%), and 97(32.88%) had not saved, dis-saving, irregular saving, and regular saving habits respectively.

Table 3: Status of rural households'saving habit

Saving habit	No.	%
No-saving	71	24.07
Dis-saving	78	26.44
Irregular saving (randomly)	49	16.61
Regular saving (weekly, monthly, etc.)	97	32.88

4.2. Characteristics of Sample Households

According to Table 4, the result of the study shows that 270 (91.5%) and 25(8.5%) of the sample respondents were male and female-headed households, respectively. Among the sample households that had no saving habit, dissaving habit, irregular saving habit, and regular saving habit, 12(4.1%), 4(1.4%), 4(1.3%) and 5(1.7%) were females headed households, respectively. The remaining sample households that had no saving, dissaving, irregular saving, and regular saving habits were 59(20%), 74(25%), 45(15.3%), and 92(31.2%) males headed households, respectively. The Chi-square result shows that sex was statistically significant at a 5% probability level.

Also, 6(2%), 265(89.9%), 4(1.3%), and 20(6.8%) of the sample respondents were unmarried, married, divorced, and widowed, respectively. From this, 2(0.7%) and 2(0.7%) un-married household heads, 58(19.7%) and 71(24.1%) married household heads, 3(1%) and zero (0%) divorced household heads, and 8(2.7%) and 5(1.7%) widowed households had no saving and dissaving habit, respectively. On the other side, 1(0.3%) and 1(0.3%) un-married household heads, 45(15.3%) and 91(30.9%) married household heads, zero (0%) and 1(0.3%) divorced household heads, and 3(1%), and 4(1.4%) widowed household heads had an irregular and regular habit, respectively.

The chi-square result shows that the marital statuses of the sample households were statistically insignificant, but Sex of HH, Occupation status of HH, Extension contacts of HH, Uses of saving, Agroecology were statistically significant.

Table 4: characteristics of sample households with dummy and categorical variables

Saving habit of rural households											
	No saving habit		Dis-saving habit		Irregular saving habit		Regular saving habit		Total		
Variables	No.	%	No.	%	No.	%	No.	%	No.	%	Chi2
Sex of HH	71	24.1	78	26.4	49	16.6	97	32.9	295	100	
Female	12	4.1	4	1.4	4	1.3	5	1.7	25	8.5	Pr=0.029**
Male	59	20	74	25	45	15.3	92	31.2	270	91.5	

Marital status	71	24.1	78	26.4	49	16.6	97	32.9	295	100	
Un-married	2	0.7	2	0.7	1	0.3	1	0.3	6	2	
Married	58	19.7	71	24.1	45	15.3	91	30.9	265	89.9	Pr = 0.289
Divorced	3	1	0	0	0	0	1	0.3	4	1.3	
Widowed	8	2.7	5	1.7	3	1	4	1.4	20	6.8	
Occupation status	71	24.1	78	26.4	49	16.6	97	32.9	295	100	
Farmer	39	13.2	49	16.6	33	11.2	52	17.6	173	58.6	
Self-Employed	24	8.1	27	9.2	15	5.1	44	14.9	110	37.3	Pr = 0.021**
Unemployed	5	1.7	0	0	0	0	0	0	5	1.7	
Retired	2	0.7	2	0.7	1	0.3	1	0.3	6	2	
Home maker	1	0.3	0	0	0	0	0	0	1	0.3	
Extension contacts	71	24.1	78	26.4	49	16.6	97	32.9	225	100	
Yes	21	7.1	55	18.6	20	6.8	55	18.5	151	51.2	Pr =0.000***
No	50	17	23	7.8	29	9.8	42	14.2	144	48.8	
Uses of saving	71	24.1	78	26.4	49	16.6	97	32.9	295	100	
Yes	33	11.2	70	23.7	45	15.3	90	30.5	238	80.7	Pr =0.000***
No	38	12.9	8	2.7	4	1.3	7	2.4	57	19.3	
Agro-ecology	71	24.1	78	26.4	49	16.6	97	32.9	295	100	
Dega	21	7.1	33	11.2	9	3.1	21	7.1	84	28.5	Pr = 0.0593*
Woyinadega	50	17	45	15.2	40	13.5	76	25.8	211	71.5	

According to Table 5, the F test result for mean difference in age distribution, family size, annualincome, livestock holding, expenditure, education level, and distance, was statistically significant between the groups but the F test result for mean differences in dependency ratio was statistically insignificant.

Table 5: Characteristics of sample respondents with continuous variables

	Saving habit of rural house holds										
	No Saving habit		Dis-saving habit		Irregular saving habit		Regular saving habit		Total		
Variables	Mean	STD	Mean	STD	Mean	STD	Mean	STD	Mean	STD	F- value
Age	43.24	10.6	46.03	14.9	40.43	9.87	39.04	9.55	42.13	11.77	12.097***
Family size	6.99	2.74	7.06	2.8	6.08	3.02	6.3	2.47	6.61	2.73	4.766
Dependency ratio	0.53	0.45	0.56	0.12	0.5	0.49	0.51	0.27	0.53	0.33	1.884
Annual income	10188	12369	22301	17944	26096	21471	24733	23495	20816	20396	43.560***
Annual expenditure	59262	30414	64087	19026	62441	27982	51065	27911	58371	39747	7.814*
Distance	6.79	2.44	8.49	3.04	6.67	2.48	8.25	2.75	7.7	2.81	19.721***
Farm land size	0.81	0.84	1.45	0.92	1.98	1.95	1.22	0.95	1.31	1.2	29.192***

Livestock	1.3	2.28	2.19	2.69	3.45	4.54	2.06	2.67	2.14	3.05	7.295**
Education level	4.66	3.7	7.09	3.75	5.73	3.87	5.65	4.4	5.81	4.06	13.660***

Note *, **, *** means significant at the 1%, 5% and 10% probability levels, respectively

4.3. Opportunities and Challenges of Saving Practices in the Study area

4.3.1 Opportunities of saving practice in the sudy area

According to the table 6, the study revealed that the opportunities of saving in study area were Household consumption (to buy food), Getting loan and credit access, Receiving interest rate for saving, Building house or acquiring asset, Paying medical expenses, Attending funerals and Paying children education fee.

Table 6: Opportunities of saving practice of rural household

Opportunities	**No.**		**%**		
	Yes	No.	Yes	No.	Rank
For household consumption (to buy food)	152	143	52	48	3rd
To get loan and credit access	64	231	22	78	7th
To receive interest rate for saving	131	164	44	56	5th
To build house or acquire asset (land, clothes, TV)	199	96	67	33	1st
To pay Medical expenses	138	157	47	53	4th
To attend funerals and similar functions	129	166	43	57	6th
To pay children education fee	157	138	53	47	2nd

4.3.2. Challenges of saving practice in the study area

The results of the survey revealed that there are different challenges that reduce the ability of saving of rural household (Table 7).

Table 7: Challenges of saving practice of rural households

	No.		**%**		**Rank**
Challenges	**Agree**	**Disagree**	**Agree**	**Disagree**	
Unavailability of financial institution	116	179	39	61	6th
Lack of trust in financial institution	91	204	31	69	7th
Lack of knowledge/awareness on saving	57	238	19	81	8th
Unplanned spending	233	62	79	21	1st
Spending income as soon as Earning	172	123	58	42	4th

Very low income	165	130	56	44	5th
High social commitments	198	97	67	33	3rd
High cost of living	208	87	71	29	2nd

4.4. Saving trend of Rural Household heads

It may also be important to see how the trend of individuals' saving behaves so as to analyze whether there are changes or improvements in the individuals' saving, over time. Inconsideration of this, the respondents were asked to explain how their annual rate of saving ischaracterized (whether it is increasing, constant or declining), since for the last 2 years until the current period. In this regard, of the total sample households who had saving habit (224), about58 (25.89%) reported that the rate of saving is increasing. The remaining 80 (35.71%) and 86 (38.40%) reported that the rate of saving is immobile and declining, respectively (Table 8).

Table 8: Saving trend of rural sample households

Savingtrend	**No.**	**%**
Increasing	58	25.89
Constant	80	35.71
Decreasing	86	38.4
Total	**224**	**100**

Model Checking

Before running the model, the explanatory variables were checked to know whether the multicollinearity problem exists or not. According to VIF test of multicollinearity in Table 9, the result of this study shows all the VIFs are below 10 and thus all the tolerance margins (1/VIF) are more than 0.1 or 10% implying that there is no multicollinearity problem in the study.

Table 9: Multicollinearity Test with VIF

Variables	**VIF**	**1/VIF**
FAMSIZE	7.63	0.131142
NUMBDEPE	6.41	0.156112
SEX	2.60	0.384064
MARST	2.56	0.390724
DOHAVEXTE	1.53	0.653982
DISTANCE	1.51	0.663373
AGE	1.48	0.677579

FARMLANDHE~R	1.33	0.753575
DOUSESOSAV	1.32	0.757620
EDUCATIONS	1.32	0.760252
ANNINCOME	1.23	0.810763
OCCUSTATUS	1.22	0.817486
TOLTALLIVE~O	1.21	0.827361
TOTALANNEXP	1.08	0.922802
AGECO	1.02	0.856230
Mean VIF	**2.23**	

According to the o-model test in Table 10, an insignificant test statistic (Prob> chi2 =0.3645) provides evidence that the parallelregression assumption has not been violatedwhich means the slope coefficients in the model are the same across response categories (and lines of the same slope are parallel).

Table 10: O-parallel lines regression assumption test after ordered probit model

Approximate likelihood-ratio test of proportionality of odds across response categories
chi2(15) = 27.09Prob> chi2 0.3645

Determinants of Saving Habit of Rural Households

The ordered probit model was selected for analyzing determinant factors that affect sample respondents saving habits in the study area. The model result showing the relations of saving habits and covariates are found to be the best fit according to all regression tests. The overall significant test shows that all variables are jointly significant [LR chi2 (22) =61.74; Prob>chi2=0.000].

Out of fifteen explanatory variables (9 continuous, 4 dummy, and 2 categorical variables) included in the model eight significantly affected the saving habit of sample rural households. These were Age of household head, education level of household head, Annual expenditure of household, Landholding size of household, number of livestock, Annual income of the household, Distance of household to financial institutions, and Frequency of extension contact.

Table 11: Results of the ordered probit model

	Saving habits of rural households				
Variables	**Coef.**	**NSH**	**DSH**	**ISH**	**RSH**
SEX	-0.4355771	0.0286532	0.1258564	-0.095924	-0.0585856
AGE	-.285549*	.0018784*	.0082507*	-.0062884*	-.0038407*

Marital status					
Un-married	-0.0147932	0.0045935	0.001308	-0.002637	-0.0032645
Married	0.3950648	-0.0154571	-0.1223888	0.0759853	0.0618606
Divorced	0.0526542	-0.0003833	-0.0174911	0.0084499	0.0094245
Widowed	-0.1418793	.00 16338	0.0484017	-0.0203597	-0.0264082
Family size	-0.0013007	0.0000856	0.0003758	-0.0002864	-0.0001749
Dependency ratio	0.0071568	-0.0004708	-0.0020679	0.0015761	0.0009626
Education level	-.0464103**	.003053**	.0134099**	-.0102206**	-.0062422**
Annual expenditure	-3.93e-06 **	2.59e-07**	1.14e-06**	-8.66e-07***	-5.29e-07**
Occupation status					
Farmer	0.1371219	-0.0425781	-0.0121245	0.0244428	0.0302597
Self-employed	0.0702855	-0.004821	-0.0201121	0.015706	0.0092271
Unemployed	-0.0509542	0.0029755	0.0150856	-0.0107922	-0.007269
Retired	-0.1883348	0.0086792	0.0577022	-0.0374153	-0.0289661
Home maker	-0.7821766	-0.0077335	-2623011	-0.1146011	-0.1399665
Farm land size	.1202958***	-.0079133***	-.0347585***	.0264919***	.0161799***
Number of livestock	.0443728***	-.0029189***	-.0128212***	.0097719***	.0059682***
Annual income	6.22e-06***	-4.09e-07***	-1.80e-06***	1.37e-06***	8.36e-07***
Distance	-.0625686**	.0041159**	.0180787**	-.013779**	-.0084155**
Extension contact	.3862617**	-.0254091**	-.1116071**	.0850636**	.0519526**
Uses of saving	0.4410875	-0.0290157	-0.1274486	0.0971375	0.0593268
Agro ecology	0.4320735	-0.0310213	-0.1516271	0.0774312	0.1387496
cut1	-2.471011	0.8121144			
cut2	-1.7506	0.8081948			
cut3	-0.6651387	0.805357			
Number of observations	295				
LR chi2(22)	61.74				
Prob> chi2	0.000				
Pseudo R2	0.0756				
Log-likelihood	-372.364				

Remark: **, **, *** indicates 1 percent, 5 percent, and 10 percent significance levels, respectively, and NSH, DSH, ISH, RSH refers to no saving, di-saving, irregular saving, and regular saving habit, respectively.*

The result of Table 11 revealed thatthe age of the rural household headaffected the habit of saving significantly and negatively at a 1% probability level. Thus, one more

year of household head increases the probability of the household's no-saving anddis-saving habits by 0.19 percent and 0.83 percent, respectively; and decreases the probability of the household'sirregular and regular saving habits by percent 0.63 percent and 0.38 percent,respectively.

The education level of rural household heads (Educations) also affected the habit of saving significantly and negatively at a 5% probability level. So, one more year of schooling forthe household head increases the probability of the household's no saving and dis-saving habits by 0.31 percent and 1.34 percent, respectively; and decreases the probability of the household's irregular and regular saving habits by 1.02 percent, and 0.62 percent respectively. The annual expenditure of rural household heads affected the habit of saving significantly and negatively. Thus, one Ethiopian birr more expenditure of household head increases the probability of the household's no-saving and dis-saving habit by 0.0000259 percent and 0.000114 percent annually, respectively; and decreases the probability of the household's irregular and regular saving habit annually by 0.0000866 percent and 0.0000529 percent, respectively.

Farmland size (FARMLANDHE). According to the model result**,** this variable affects saving habits significantly and positively at a 10% probability level. Holding one extra hectare of farmland by rural households increases the probability of the sample households' irregular and regular saving habits by 2.65 percent and 1.62 percent, respectively; and decreases no saving and dis-saving habits by 0.79 percent and 3.48 percent, respectively.

The number of Livestock Owned (TOLTALLIVE) is positive and significant at a 10% significance level. By keeping other variables constant, owninglarge livestock number increases the probability of having a better saving habit, and vice versa. Thus, one more number of livestock of household heads decreases the probability of the household's no saving and dis-saving habits by 0.29 percent and 1.28 percent, respectively; and increases the probability of the household's irregular and regular saving habits by 0.98 percent and 0.60 percent, respectively. This is probably due to rural households obtaining higher income from a large livestock number. Livestock is another source of income next to coffee and enset production in the study area.

Discussions

This study aimed to investigate the factors that affect the saving habit of rural households in the Gedeb district of Gedeo zone, Southern Ethiopia. The study identified factors that influence the saving habit of rural households. Among them,

the ages of rural household heads were the significant factors in this study. The probability of having poor saving habits is enhanced as the age of the household head increase. Similar findings were conducted in rural households in Ethiopia (Temam&Feleke, 2018). This is probably due to the reason that when the age of rural household heads increases, the level of responsibility and cost of living to manage the family will be higher, and old aged households in the study area are economically inactive and dependent on others.

The education level of the rural household head also affected the habit of saving significantly and negatively. The model outcome shows the probability of having poor saving habit increase as rural household heads' years of schooling increase. This result is supported by the result obtained by (WogeneMarkos, 2015). The reason may be an educated household head is more probably send the children to school; therefore their expenditure is higher as result of a lower savings.

The annual expenditure of rural household head variable also affected the habit of saving significantly and negatively. This is because rural household heads faced unexpected and unplanned spending in different activities like food expenditure, production expenditure, materials expenditure, etc. and related expenses diminish the good saving habit of the rural household head. This result matches with the finding of (Ismail and Bakar, 2012), and the overall expenditure-income elasticity increases the annual expenditure increase and that affects annual saving negatively.

Farmland size affects saving habits significantly and positively. The rural household heads that have larger farmland have better-saving habits. This might be because farm households who own larger land sizes produce more output which results in higher farm income and savings. This study is supported by the study conducted by (EjiguMulatu, 2020). Annual income affected the habit of saving significantly and positively and the probability of having good saving habits increase as annual income in Ethiopian birr increase. This is that the higher amount of annual income could reveal rural household head is on the way to improving their agricultural production and productivity to save the household essential needs and smooth life for the family. The study result was similar to the finding of (Issahaku, 2011) and suggests that annual income had a positive and significant impact on household savings behavior.

In line with the expectation, distance from the home of the rural household to financial institutions affected saving habit

negatively and significantly and revealed that the probability of loss of good saving habit increase as distance in kilometer increase. This is because households' residence far away from the institution joined with the institutions' problematic saving procedure and discouraged some rural household heads to save more in financial institutions. This result is in line with the study by (Birhanu, 2015) and (Chemonics International, 2007). As expected, the coefficient of frequency of extension contact on the model is estimated to be positive and significant and revealed that the probability of holding a good saving habit increase as frequencies of extension contact increase. This is due to fact that rural households who had more extension contact were more informed than those who had less/no extension contact. Thus, frequency of extension contact is crucial to increase production and productivity in turn saving habits in the study area. The results of studies by (Musa *et al*., 2015) found that extension agents provide farmers with new information on improved agricultural technologies, better farm management practices, market, etc.

Conclusions

The finding of this study shows the average annual income of the total households was 20,815.69 Ethiopian birr. Food expenditure is highly increasing expenditure in the study area. In the study area, 24.07 percent of sample rural households had no saving habit. Only 25.89 percent of the rate of saving is increasing, the rest 35.71 percent and 38.40 percent are immobile and declining, respectively in the study area.

The major challenges of rural households saving practices were unplanned spending, high cost of living, high social commitments, spending income as soon as earning very low income, unavailability of financial institutions, lack of trust in the financial institution, and lack of knowledge /awareness on saving.The major opportunities for saving for the rural household were to acquire an asset (house, land, clothes, TV, etc.), to pay education fees, for household consumption (to buy food), to pay medical expenses, to receive interest rates for saving, to attend funerals and similar function and to get a loan and easy access to credit. Using the estimate of the ordinal probit model with marginal effect, the significant variables were carried out and concluded that out of the significant factors, only age of household head, education level of household head, distance to a financial institution, and annual expenditure affect saving habit negatively, while farmland size, ownership of livestock, annual income and frequency of extension contacts affect saving habit positively.

Recommendation

The researcher recommends that financial institutions, government, and other stakeholders shall work together to improve the saving habit of rural households through creating awareness about saving benefits, developing and providing saving consultation programs, giving productive loans, and following up on their credit utilization so that they can use it to generate additional income and this, in turn, motivates rural households to save informal financial institutions and the government should therefore increase its funding of the education sector not only to the secondary and tertiary institution but also to the adult education program. NGOs should also be encouraged to participate in the provision of education, especially in training and the acquisition of necessary skills for the management of finance.

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