



## DETERMINANTS AND BEHAVIOR OF RURAL HOUSEHOLD SAVING: A CASE OF DALE WOREDA, SIDAMA ZONE

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### ABSTRACT

The study aims at investigating the determinants of households' saving in Dale district Sidama Zone. Data of 150 respondents are drawn through field survey in 2012/13 by adopting multistage random sampling technique. Questions are asked directly from head of household about their education level, family size, age, amount of savings per year in birr, assets, income etc. Sample contains information about rural households. Ordinary Least Square method is used for estimation. OLS analysis presents determinants of households' saving in Dale district. It is concluded that, total dependency rate, total income of household and family size significantly raise household savings. Education of household head, sex, household landholdings, marital status, and livestock size of the households reduce saving level of households. This study also supports existence of Life cycle hypothesis. Future research must be conducted which takes into account nonmonetary saving of rural households.

**Keywords:** Life Cycle Hypothesis; Savings; Dale; saving account

### Introduction

Economic theory postulates that households' saving is the difference between households' income and consumption. Income is household's earnings that are earned from all his sources during a year. Sources of income can be salary from Job, business profit, corporate profit, interest payments, earning from farm production, crops' earning etc. Consumption is the total amount of goods and services that is consumed by households during a year. Consumption includes expenditure on food, clothing, housing, rent, education, utility bills, traveling, ceremonies, health, recreation or charity etc. Main forms of savings: Construction materials, cereals and harvest. More generally, this kind of saving accounts for a large part of households saving in rural areas (Robinson, 2004 in khalek etal, 2009).

Growth rate of the country is jointly determined by saving rate and incremental capital output rate in the dynamic model of Harrod-Domar. The role of saving is very critical in capital accumulation and economic development that is recognized in the "two gap" and classical growth models. In Neoclassical growth model, savings do not affect economic growth in steady state but there is high association between higher saving rate and more rapid growth of the economy in its movement towards long run equilibrium. In representing the evolution of developing countries, the transitional path is more meaningful than alternative steady states (Gersovitz, 1988).

Private savings can be organized by banking system, development of financial institutions and the stock exchange. In private savings, large portion of savings is due to large share of household sector. Though there is an improvement in domestic savings rate in Ethiopia, it is still at a low level. The prevailing domestic saving rates do not seem to be commensurate with the envisaged huge investment requirements of the country. It is, therefore, imperative that concerted efforts are made to enhance domestic saving (MoFED,



2012). Household saving is usually the largest component of domestic savings in developing countries, like Ethiopia. This contrasts with the much greater importance of corporate saving in developed countries. The ability, willingness, and opportunity of households to save over time can therefore significantly influence the rate and sustainability of capital accumulation and economic growth in developing countries (Bautista and Lamberte, 1990).

Sum of savings by public and private sector gives national savings. Many Ethiopian families save little for retirement or for other purposes. Now a day's government encourages individuals to develop saving habit in the financial institutions, this is reviled by expanding the branches of Commercial Banks, selling bonds and Government starts to pay salary to its employee through banking system.

### **Objective of the Study**

The overall aim of this study is to identify the determinants and behavior of household saving in coffee growing areas of Sidama Zone.

The Specific objectives of this paper are:

- to study the determinants of household saving and
- to make conventional tests for the predictions of Life Cycle Hypothesis using microeconomic data

### **Methodology**

#### **Data Source and type**

This study mainly used primary data and secondary data. Primary data were collected directly from household head by using face-to-face interview of structured questionnaire. The questionnaire was designed to capture all the necessary variables that are used to establish the determinants of saving in the area. Secondary data were collected from the different reports, published and unpublished materials.

#### **Field Strategy**

It is important to design and follow a well-planned field procedure before the survey is going to be implemented. In this study, the following activities were carried out before the survey done. Enumerators were given both theoretical and practical training to avoid risks of misinterpretation of the questions to respondents during interview period without influencing the respondents' answers. A plan of action was formulated stating the number of interviews to be undertaken per day, how the interviews should be distributed over the weeks.

#### **Sample Size determination**

Multi-stage sampling method was used to select the sample because the population was geographically dispersed. First Sidama Zone select and within the Zone purposively Dale Woreda selected and then two kebeles (Gane and Sheo). Since these two kebeles have approximately equal size of households which is about 8,300 and 8,260. A random sample of 75 householders finally selected from each of the two kebeles. Since the sampling procedure was fairly random, the samples adequately represents the targeted populations in the area of study.

### **Data analysis**

#### **Descriptive analysis**

The survey conducted in collecting the socio economic data and income related information through structured questionnaire and face to face interview of the sample population. The data presented by using descriptive statistics. The frequency, mean, variance



and other distribution presented or tabulated by using table and their respective distribution or percentage.

### Econometrics analysis

To analyze the determinants and behavior of household savings multiple regression analysis technique employed to estimate values of slope and intercept coefficients. Econometric problems regarding OLS method was traced out using appropriate examinations and found no severe problem as such during analysis. Comparable researches in other developing countries use similar method (see khalek et al, 2009; Gedela, 2012)

### Model Specification

The objective of the study is to analyze household savings with respect to the characteristics of the households. The multiple linear regression method is used to study the relationship between a dependent variable and one or more independent variables. The generic form of the linear regression model is (See Green, 2003)

$$Y = f(X_1, X_2, \dots, X_k) + \varepsilon$$

Where,

**Y** = Dependent Variable

**X<sub>i</sub>** = Independent Variables  $i = 1, 2, \dots, k$

**$\varepsilon$**  = Disturbance

The analyses was begin with the Absolute Income Hypotheses. This model, based on Keynesian theory which relates household saving behavior with household income and other socio-economic variables (see Qian, 1988).

$$S = \alpha + \beta_1 Y + Z + u_i$$

Where,

**S** = Saving, **Y** = Income, **Z** = other socio-economic variables than income

**$u_i$**  = Error term

The specific model is:

$$S = \alpha + I\beta_1 + AG\beta_2 + AGSQ\beta_3 + FSZ\beta_4 + EDU\beta_5 + LH\beta_6 + MS\beta_7 + DR\beta_8 + SX\beta_9 + HF\beta_{10} + OC\beta_{11} + SZL\beta_{12}$$

**TABLE 2.1** Descriptions and hypothesis of variables

S.no	Variable name	Description	Hypothesized effect
1	Income	Continuous	+
2	Age	Continuous	-
3	Age squire	Continuous	-
4	Family Size	Continuous	-
5	Education Level	Continuous	+
6	Land Size	Continuous	+
7	Marital Status	Dummy	Indeterminate a priori
8	Dependency Ratio	Continuous	-
9	Sex	Dummy	Indeterminate a priori
10	Head of family	Dummy	Indeterminate a priori
11	Occupation	Dummy	-
12	Livestock size	Continuous	+

Based on the coefficients (result) of these variables interpretation takes place and see the following parts.



## RESULT AND DISCUSSION

### Descriptive Statistics

Descriptive statistics discusses the statistical data of one variable with a frequency distribution. Table 1 explains Mean, Median, Minimum, Maximum, and Standard Deviation of data series. Table interprets that average Age of household (AG) is 41.70 years, average completed years of Education (EDU) is 2.53 years, average expenditure on food item (Exf) is ETB 8040 per year and on nonfood items ETB 4563.33, average Family size (FSZ) are 6.20, average Size of land holdings (LH) are 0.74 hectares, average number of livestock own (SZL) are 5.97, average households saving (ASv) are 3161.47 per year and average dependency ratio per household (DR) is reasonably high 0.62. Mean and median values of age are almost same, age had less variability on the average and households' surveyed are on the average of same age. Family size of households and dependency ratio are also same on the average. Mean and Median values of Size of land holdings, number of livestock, Education levels are little changed, Size of land holdings, number of livestock, Education level of the household are moderately changed with little variability on the average. Total income of household, household savings, expenditure on food and non-food items have on the average more variability among households. Minimum values of age, education, family size, total income of household, expenditure on food and non-food items in birr, land holding in hectare, size of livestock ownership, savings and dependency ratio are 25, 0, 2, 2800, -1200, 1600, 600, 0.25, 0 and 0 respectively. Maximum values of age, education, family size, total income of household, expenditure on food and non-food items in birr, land holding in hectare, size of livestock ownership, savings and dependency ratio are 65, 13, 13, 34000, 11000, 15000, 1000, 2, 32 and 0.85 respectively.

**Table 1: Descriptive Statistics of Some Selected Variables (N=150)**

<i>Variable</i>	<i>Mean</i>	<i>Median</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
<b>AG</b>	41.67	41	10.78	25	65
<b>EDU</b>	2.53	0	3.36	0	13
<b>FSZ</b>	6.20	5.5	2.43	2	13
<b>I</b>	16604.8	14560	8716.33	2800	34000
<b>ASv</b>	3161.47	2250	4567.50	-12000	11000
<b>Exf</b>	8040	7150	4126.17	1600	15000
<b>Exnf</b>	4563.30	4000	2678.59	600	10000
<b>LH</b>	0.74	0.50	0.46	0.25	2
<b>SZL</b>	5.97	4	6.07	0	32
<b>DR</b>	0.62	0.64	0.17	0	0.85

Source: own calculation

It can be seen from table 2 that 6.7 percent of the sampled households were female and the remaining 93.3 percent were male and 90 percent of the respondents were mainly engaged in farming activity, comparing to off-farm employed who accounts for 10 percent of the sample population, this shows that most of the families who live in the sampled kebeles primarily depend on farming as their main source of income. About 97 percent of the respondents were married and the remaining percent were single. It is also shown in the table 2 below that most of the households (90%) of them



do not have saving account in the financial institution but 15 percent of the respondents do have the account in commercial or other banks.

**Table: 2 Distribution of categorical variables (N=150)**

Variable	Response	Frequency	Percent	Cumulative Percent
<i>Sex</i>	Female	10	6.7	6.7
	Male	140	93.3	100
<i>Marital status</i>	Single	5	3.3	3.3
	Married	145	96.7	100
<b>Main activity</b>	On farm	135	90	90
	Off farm	15	10	100
<b>Have saving acc</b>	No	135	90	90
	Yes	15	10	100

Source: Own calculation

It is evident that from table3 below most of the families do not exercise saving with commercial bank, only 10 percent of the sampled households were found to have saving account with the commercial or other banks. Off course families saves their surplus money after consumption in different form and place 43.33 percent of the respondents save their money at home which they consider it highly liquid and easily accessible without any additional cost at any time. The left over households 6.67 %, saved their money within Ekubbe. The sum of households who saved their after consumption money with Rural microfinance and Credit and saving association are constitute 40 % of the sampled households.

As it revealed on the table 4 the 53 .33 percent of the family lives in well-constructed and the roof of house is covered with the corrugated iron sheet which shows more than half of the respondents were spent more of their income for construction of house than saving and 46.67 percent of them lives in the grass roofed house.

**Table 3: Household Saving With**

Saving with	Freq.	Percent	Cum.
Saving at home	65	43.33	43.33
Rural microfinance	28	18.67	62.00
Credit and saving association	32	21.33	83.33
Ekubbe	10	6.67	90
Commercial or other bank	15	10.0	100.00
<b>Total</b>	150	100.00	

Source: own calculation



Table 4: Distribution of Households by house type living in

Types of hose living in	Freq.	Percent	Cum.
Corrugated iron roofed	80	53.33	53.33
Grass roofed	70	46.67	100.00
<b>Total</b>	150	100.00	

Source: own calculation

#### Data/model Diagnosis:

The data tested for heteroscedasticity using Breusch-Pagan test and found that the stochastic term is constant throughout the sample observations. The model is also tested for omitted variable by applying Ramsey RESET test and the test result shows that there is no omitted variable in the model (See Annex B and C). Correlation matrix examines the direction of relationship among two variables and how one variable is related to another. Correlation matrix also indicates the problem of multicollinearity. If coefficient of correlation among two explanatory variables has absolute value equal or above 0.80, there is severe problem of multicollinearity (Gujarati, 1995). (See annex A) correlation among some selected independent variables and verifies no problem of multicollinearity, as all values are less than 0.7. Hence there is no multicollinearity among the independent variables.

#### Determinants of household savings

The preceding section has provided some descriptions concerning the relations between saving and household socio-economic variables. However, the weakness of the descriptive statistical analyses is that each determinant has been calculated without varying other determinants. This section analyzes the determinants of household savings behavior with ordinary least square estimation technique that takes the effects of all determinants at the same time into account.

Table 5 shows the regression estimates for determinants of savings to households. The Explanatory power of regression model is measured by  $R^2$  (0.77), shows that 77 % of the variations in households saving were explained by explanatory variables included in the model. The coefficient of household annual income (I) was significant and positively related to savings. Results show that one Birr increase in income tends to raise household savings by 0.42 Birr because households' capacity to save increases with rise in income level. Marginal propensity to save (MPS) for household saving equation is 0.42 indicates that 42 % portion of total income is saved per year. Similar positive result were found by Sameroyrina (2005); Brata (1999); Khalek et al. (2009); Schrooten and Stephan (2003) showing that income positively influences household savings. The results of the study also show that household savings were affected by sex (SX). Considering the sex dummy, we conclude that women headed household save more than men members.

The age of the household is positively associated with savings and significant at 5% in the study area. And when we see the coefficient of age square (AGS) comparing to age which is negatively related to saving and significant at 5%. As age of household increases by 1 year it will result in an increment in household savings by 408.88 Birr. It is expected that, savings by the young household would be diminishing with age as they grow towards and beyond retirement age. This shows that the household lessen their savings, as they grow old. This confirms with the life cycle hypothesis of savings, which claims that a person would be expected to save up to a point and then start dissaving as he/she grows old. Consistent with



several empirical studies (Rehman et al., 2010; Robinson, 2001), this finding suggests that age of the household is positively related to savings up to some point (retirement) and negatively after some points. Respondents demographic features such as educational status do have positive effect in the household savings but the results of this study show that this variable is negatively correlated with the dependent variable. The rationale behind such type of relationship may be their preference towards education of their children. Most household heads would like to spend more on their children's education and wish to provide better studies. In this way, they spend more and save less. One more year of education is attained by head of household, will reduce savings by 134.07 Birr per year. The interpretation is in line with the literature (Burney and Khan, 1992).

Marital status (MS) is negatively and significantly correlated with the household savings (ASv). Married household heads are less likely to be able to save. Married household heads can save less by about 2865.58 birr each year. ETB 2865.58 is basically increased expenditures due to marriage. But after marriage, his/her daily expenditures will increase; he/she has to take care of family, his/her responsibilities towards family will increase, he/she cannot save much amount of money that he was supposed to save previously.

Indirect relationship is found between size of land holdings (SLH) and household savings. The results suggest that households having more land holdings can save less than the households have less land holdings. Households with one more hectare of land can reduce savings by 2760.04 birr on the average. Study area is basically the agriculturist area. Coffee, Enset, Avocado and Maize etc are main crops of this area. People having more land holdings can spent very large amount of money throughout the year. They have less capacity to save in response of more land holdings. This result is different with, Khalek et al. (2009). There is also significant negative correlation between number of live stocks (SZL) and savings. If the number of livestock increased by one saving will reduce by 271.77 birr per year in average. In general, sex, household annual income, age, occupation, number of Livestock owned, marital status, land size and education were statistically significant in determining the amount of savings by households in the study area.

**Table 5: OLS regression result**

ASv	Coef.	Std. Err.		P> t	[95% Conf.	Interval]
<b>I</b>	0.42	0.03	13.67	0.000*	0.36	0.482
<b>AG</b>	408.85	172.86	2.37	0.019**	67.05	750.66
<b>AGS</b>	-4.54	2.04	-2.22	0.028**	-8.58	-0.50
<b>FSZ</b>	21.39	278.47	0.08	0.939	-529.24	572.02
<b>EDU</b>	-134.07	79.78	-1.68	0.095***	-291.82	23.69
<b>OC</b>	1452.30	244.52	5.94	0.000*	968.81	1935.79
<b>SX</b>	-3465.98	1932.65	-1.79	0.075***	-7287.42	355.45
<b>MS</b>	-2865.58	911.87	-3.14	0.002*	-4668.63	-1062.53
<b>SZL</b>	-271.77	61.49	-4.42	0.000*	-393.37	-150.17
<b>DR</b>	6959.25	2939.42	2.37	0.190	1147.12	12771.39
<b>LH</b>	-2760.04	727.56	-3.79	0.000*	-4198.64	-1321.43
<b>cons</b>	-8919.35	3487.03	-2.56	0.012	-15814.27	-2024.43

R<sup>2</sup> 0.77 Adjusted R<sup>2</sup> 0.75  
 Observation 150 Prob(F-statistic) 0.000

Notes: \* 1% significance level, \*\* 5% significance level and \*\*\* 10% significance level

Source: survey calculation





## Recommendations and Conclusion

The study analyzes determinants of household savings based on data collected from Dale district through multistage random sampling technique in 2012/2013. It is found that this study supports life cycle hypothesis. Age has positive relationship and square of age is negatively related to household savings. Education of household head, Number of livestock, size of land holdings, sex and marital status of household head are significantly and inversely affecting household savings. Total income of household, family size and Occupation have significant direct relationship with household savings. MPS value is recorded 0.42 for Dale district.

Based on the results, study suggests that Government should provide free education materials and scholarships to the students at school, college and university levels. So that household can save more rather than spending on their education. Institutions that are involved in development projects need to increase their support to improve the business environment of the rural populations. Such decisions include improvement in the Transport and communication infrastructure. Also of importance is increased involvement of the government in services that support economic activities in the rural areas such as, electricity, water, extension services and marketing channels. These will motivate households to increase their production, income and hence saving. Since this research covers monetary savings among households living in the rural Dale District, it may be of an interest to establish whether other households in different set-ups such as in urban areas behave the same. Even within the urban region, there exist different sub-populations with different socioeconomic characteristics. There is need of investigating the influence of the above factors on genuine saving. Since only monetary savings was considered within this study, it would be of interest for future research to assess households where nonmonetary income and savings form a significant part of their budget.

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## ANNEX

### A, Correlation among independent variables

	I	SX	AG	EDU	OC	FSZ	LH	SZL
I	1							
SX	0.0955	1						
AG	0.0743	-0.1205	1					
EDU	0.4972	0.2025	-0.2544	1				
OC	0.1807	0.2034	-0.4344	0.2924	1			
FSZ	0.1401	0.2941	0.5833	-0.0686	-0.1665	1		
LH	0.4959	0.2139	0.4413	0.375	0.0871	0.5468	1	
SZL	0.0939	0.1753	0.3037	0.0322	0.0957	0.7169	0.5679	1

Source: own calculation

### B, Ramsey RESET test using powers of the fitted values

**Ho: model has no omitted variables**

**F(3,135)=30.56**

**Prob>F=0.000**

Tested using Stata-12

### C, Breusch-Pagan/Cook-Weisberg test for heteroskedasticity

**Ho: Constant varianc**

**chi2(1) = 9.97**

**Prob > chi2 = 0.0016**

Tested using Stata-12