

**DETERMINANTS OF HOUSEHOLD SAVING IN ETHIOPIA: A CASE OF  
NORTH GONDAR ZONE, AMHARA REGIONAL STATE**

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**ABSTRACT:** *Development economics have for several decades recognized the importance of the mobilization of domestic savings for economic growth in developing countries. However, saving level in Ethiopia is very low and little is known empirically about its patterns and determinants. Therefore, this study attempts to identify and analyze the main determinants of household saving in Ethiopia giving special emphasis to North Gondar zone on three selected districts i.e. Gondar, Dembia and Dabat using survey data collected from 604 sample households in August 2013. The results of the descriptive analyses shows 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. The planning and expenditure controlling habit of most respondents was also found minimal. Besides, the economic analyses shows that income, age, sex, marital status, forms of institutions used for saving and frequency of getting money are significant determinants of household savings in the study area. Based on these findings, we recommend that government policy intervention should focus on increasing the availability and accessibility of financial institutions, awareness creation and education on the importance saving and saving modalities, planning and expenditure controlling habit, socio-cultural saving barriers, increasing interest rate, and inflation and unemployment combating strategies to augment saving capacity, investment and then economic growth.*

**KEYWORDS:** Household saving behaviors, saving determinants, North Gondar Zone, Ethiopia

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## INTRODUCTION

Long-term economic growth requires capital investment – in infrastructure, education and technology, business expansion, and so forth – and the main domestic source of funds for capital investment is household savings. Development economics recognized for several decades the importance of the mobilization of domestic savings for economic growth in developing countries. Thus, the positive relationship between saving/investment and economic growth has long been an established fact in economics (Schmidt-Hebbelet *al.*, 1996; Bisatet *al.*, 1997; and Sinha, 1999).

In developing countries, economic fluctuations and climate risk lead to important income variations and leave the households vulnerable to severe hardship. Moreover, their social coverage is restricted and the credit and insurance markets are not well developed. Thus, these countries often face saving allocation problems and have difficulties to develop productive investments.

According to Deaton (2005) and Rogg (2006), serious problem confronting poor countries including Ethiopia is savings and investment gap. Because of this gap, these countries faced challenges to finance investments needed for growth from domestic saving. It is also common to see these countries to finance their investment in the short run partly through domestic government borrowings and/or foreign loan and grants but this can significantly increase debt burden and cannot be a solution in the long run.

The average gross saving rate as percentage of GDP of Ethiopia is 21% (MoFED 2012). Thus, saving is away to smooth income and to face shocks. Hence, a better understanding of households saving behavior is important. Most saving researches done yet in developing countries in particular in Ethiopia are at macro level. However, a large body of empirical macroeconomic work ignores consumer heterogeneity by assuming a representative household agent. According to Touhami *et al.* (2009), these macroeconomic studies cannot deal with “real-world” features that reflect the diversity of saving behavior. On the other hand, micro econometric analysis allows estimating the importance of economic variables and the role of households features in the saving behavior. Cognizant of this fact, this study attempts to analyze the main determinants of household saving in Ethiopia giving special emphasis to North Gondar zone using micro economic evidences, which is limited in the country and none in the Zone.

## LITERATURE REVIEW

### Theoretical Framework

In developing countries, saving is difficult to capture as it can be raised on an informal basis and as a result, it cannot be completely assessed by the national accounts. On the

other hand, in OECD countries saving is largely made up of property investments, monetary and financial investments (Schmidt-Hebbel *et al.*, 1996; Bisat *et al.*, 1997; and Sinha, 1999). In developing countries, households hoard money. This is because these savings are perfectly liquid so they can be used to face any urgent need or investment opportunity. This becomes all the more important since households' confidence in the banking system is low. Moreover, non-financial saving is important in developing countries. It can take various forms as precious or semi-precious materials (jewels, carpets, etc...). In Ethiopia, precious or semi-precious materials are accumulated on a regular basis and are exchanged against liquidities in order to meet lifecycle (education, marriage, immigrations, etc.) or urgent spending. The non-financial household saving also consists on housing properties and other forms of ownership (land, livestock, machines, etc.). Robinson (2004) adds building materials, cereals and harvest to these main forms of savings. More generally, this kind of saving accounts for a large part of households' saving. According to Goldstein and Barro (1999) "*one of the essential characteristics of non-financial savings is to be able to be easily used in case of social need or economic opportunity. For cereals stocks or livestock purchases, can add high motivation of economic profitability*". Therefore, livestock accumulation is a source of profit. Livestock can be easily sold; some of them produce other consumable and tradable goods (eggs, milk, wood, etc.) or can be used as agricultural inputs. Nevertheless, this form of savings present some drawbacks: cattle breeding requires resources like water, animal food, pasture, work-time and can be lost in the case of illness or natural disasters.

Various economic literatures identify a large number of motives for household savings, most of them derived from two consumption theories: the permanent income hypothesis and the life cycle hypothesis. Schmidt-Hebbel *et al.* (1996) discuss the saving determinants in each specific theory (which are opposed as far as the sign of some determinants is considered) and how they are related to empirical findings. Among these motives, the most often recurred are the precautionary behavior, life-cycle considerations, investment opportunities, the preference for smooth consumption, the need to accumulate resources for large purchases and the bequest reason.

The permanent income hypothesis predicts that an unanticipated increase in the future income relative to the current income reduces current savings in contrast to the Keynesian point of view. Most of the empirical studies (Hall, 1978 and Flavin, 1981) found that consumption exhibits "excess sensitivity" to a change in income.

From the macroeconomic perspective, many empirical studies, both in developed and developing countries, investigate the determinants of private saving rates in order to explain the diversity in saving rates in the world. Losayza *et al.* (2000) reviewed drivers of private saving and classified into demographic and economic variables. The demographic variables include old or young age and urbanization. Whereas the economic variables include income (temporary/permanent), uncertainty (political instability), rates of return (interest rate, inflation...), domestic and foreign borrowing constraints, fiscal

policy and pension system. Various model specifications related to data samples and econometric strategies are also suggested. However, these literatures provide ambiguous results. Numerous saving determinants are not significant and/or the estimated sign is not consistent with the theory. A case in point here is the sign of the income level. Moreover, a large body of empirical macroeconomic work ignores consumer heterogeneity by assuming a representative household agent. These macroeconomic studies cannot deal with “real-world” features that reflect the diversity of saving behavior. On the other hand, micro-econometric analysis allows estimating the importance of economic variables and the role of households’ features in the saving behavior. This study tries to keep track with this empirical research field.

### **Determinants of household saving in the empirical literature**

Econometric research on the determinants of household saving based on micro data drawn from the less developed countries has lagged far behind the pace set in advanced nations. It would appear that there has been limited hypothesis testing in the LDC's beyond macro formulations of the consumption function. Furthermore, very little of the development literature attempts to isolate the impact of structural change on aggregate personal saving, since few studies provide meaningful disaggregation (Kelley and Williamson, 2009). This state of affairs seems paradoxical, given the currency of W. A. Lewis's remark that the central problem in development theory is to explain an increase in domestic saving from 4 or 5 percent of national income to 12 or 15 percent (Lewis, 1954).

Besides, few studies assess the determinants of saving at the individual level generally due to the lack of data. Using recent econometric techniques, Carpenter and Jensen (2002) and Kulikov, *et al.* (2007) identify how household characteristics affect saving behavior, in Pakistan and Estonia respectively. Carpenter and Jensen (2002) focus on the role of institutions which collect saving and stress on the role of formal (banks) and informal institutions (savings committees). They found that “*increased income leads to a greater desire to participate in some form of savings institutions but as income increases more individuals shift to the formal sector*”. They also found evidence that the urban-rural differences in bank use is negligible which suggests that formal finance is not primarily restricted to urban households in Pakistan. As opposed to Carpenter and Jensen (2002) who focus on the savings supply side, where as Kulikov *et al.* (2007) analyze the saving determinants on the demand side. Making a distinction between regular and temporary household income allows the authors to put forward the role of income variability and the different forms of household assets (financial and non-financial) in a transition economy (Estonia). Their analysis is based on data from household budget surveys. As in many empirical studies, they found that the saving rates depend more on the transitory income than regular income. Among the other variables, the labor market status or the non-financial assets ownership (real estate for instance) and credit access

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have not significant effect on the household saving behavior; the durable goods possession (in particular cars) has a negative impact on the saving rate.

Among the few researches done in developing countries; Klause *et al.* (1992) studied households saving in developing countries and found that income and wealth variables affect saving strongly. Touhami *et al.* (2009) also investigate the micro-econometric determinants of households saving in Morocco. They concluded as income significantly explains the cross-sectional variation of the saving behavior of households in Morocco. Similarly, Girma *et al.* (2013) identified determinants of rural household savings in East Hararghe Zone, Oromia Regional State Ethiopia. Nine determinant explanatory variables of rural household savings were identified which include: household head education level, livestock holdings, access to credit service, income, investment, training participation, contact with extension, forms of savings and saving motives.

The empirical literature review revealed that there are different factors that affect household savings. Most of these empirical studies focus on aggregate national savings using macro data. Besides, there is no study conducted on microeconomic level on the determinants of household saving in northwestern Ethiopia and limited studies are found in the country. Therefore, this paper attempted objectively to identify major micro level determinants of savings at household level focusing on the effects of the socio-economic characteristics of the households on saving behaviors and their view on income, expenditure and credit institutions. The study is also intended to contribute to the existing research gap through a better exploration of its determinants.

## **RESEARCH METHODOLOGY**

### **Background and sampling methods**

North Gondar is one of the eleven Zones in Amhara Regional State, which is located in the North western part of the country. The zone is bordered on the south by Lake Tana, Mirab (West) Gojjam, Agew Awi and the Benishangul-Gumuz Region, on the west by Sudan, on the north by the Tigray Region, on the east by Wag Hemra and on the southeast by Debub Gondar. Towns and cities in Semien Gondar include Dabat, Dembia, Debarq, Gondar, Gorgora and Metemma. According to CSA (2007), the zone has a total population of 2,929,628 of whom 1,486,040 are men and 1,443,588 women. The total area of the zone is 45,934.090 square kilometers and the population density is 64 persons per square kilometer (CSA, 2007).

### **Method of Data Collection**

A cross sectional survey method was employed by using semi-structured questionnaire among selected representative households in the zone. The primary data was collected via enumerator-administered questionnaires in August 2013. The questionnaire comprise,

among others, household characteristics, monthly and/or annual income, wealth in its various forms, location (area of residence) of the interviewees, interest rate, absence or presence of financial institutions/intermediaries, financial management habit and knowledge of respondents, which are considered to be important variables that affect household saving behavior on a priori theoretical grounds.

### Sample and Data Analysis

From the three districts (urban and rural) of the zone 604 households i.e. Gondar, Dembia and Dabat districts. From three districts (urban and rural) of the zone; Gondar, Dembia and Dabat 604 households were surveyed. The sample size was determined based on the simplified formula developed by Yamane (1967) at 95 percent confidence level, 0.5 degree of variability and 95 per cent level of precision. The data was analyzed by employing descriptive statistics using SPSS (version 20) and Tobit Model was used to analyze major determinants of household savings using Stata (Version 10).

### Model Specification

Tobit Model (Tobin 1958) was used to analyze major determinants of household savings by using Stata (Version 10) (See Equ. 1 and 2). This model was chosen because amount of household savings tend to be censored at the lower limit of zero (Gujarati, 2007). The Tobit model specification is given as follows:

$$Y_i^* = X_i\beta + \mu_i \quad i = 1, 2, \dots, n \text{ (Equ. 1)}$$

$$y_i^* = \begin{cases} y_i^* & \text{if } y_i > 0 \\ 0 & \text{if } y_i \leq 0 \end{cases} \text{ (Equ. 2)}$$

### Where:

$Y_i$ : the observed amount of household savings

$Y_i^*$  is the latent variable which is not observed

$\beta$  is Vector of unknown parameters

$X_i$  is vector of independent variable affecting household savings. These were Sex, age, marital status, family size, education level, occupation, average monthly income, income source, access for credit and saving institutions, money getting pattern and frequency, and institutions used for saving of households.

The threshold value in the above model is zero. The model parameters are estimated by maximizing the Tobit likelihood function of the following form (Maddala, 2005; Gujarati, 2007).

$$L = \prod_{y_i^* > 0} \frac{1}{\sigma} f\left(\frac{y_i - \beta_i X_i}{\sigma}\right) \prod_{y_i^* \leq 0} F\left(\frac{\beta_i X_i}{\sigma}\right) \quad \text{(Equ. 3)}$$

Where  $f$  and  $F$  are the density probability function and cumulative distribution function of  $Y_i^*$ , respectively.  $\pi$  means the product over  $I$  for which  $Y_i^* \leq 0$ , and  $\pi_{y_i^* > 0}$  means the product over those  $I$  for which  $Y_i^* > 0$ . Decomposition techniques were used to analyze the effects of explanatory variables on the probability of household savings.

1. The change in the probability of gain in independent variable  $X_i$  changes is

$$\frac{\partial F(z)}{\partial x_i} = f(z) \frac{\beta_i}{\sigma} \quad (\text{Equ. 4})$$

2. The change in intensity of dependent variable with respect to a change in an explanatory variable among the saving category:

$$\frac{\partial E\left(\frac{Y_i}{Y_i} > 0\right)}{\partial x_i} = \beta_i \left[ 1 - Z \frac{f(z)}{F(z)} - \left( \frac{f(z)}{F(z)} \right)^2 \right] \quad (\text{Equ. 5})$$

$F(z)$  is a cumulative normal distribution of  $z$ ,  $f(z)$  is the value of the derivative of the normal curve at a given point (i.e. unit normal density),  $Z$  is the zero score for the area under the normal curve,  $\beta$  is a vector of tobit maximum likelihood estimate and  $\sigma$  is the standard deviation of the error term. Prior to running the above specified models, all dependent variables were checked for the existence of data problems mainly multicollinearity, heteroscedasticity, and endogeneity problems.

## RESULTS AND DISCUSSION

### Household characteristics of the sampled respondents

The average age of household heads was 41.47 years with the minimum and maximum ages of 18 and 84 years with standard deviation of 13.09 years. The survey result showed that, as age increases saving performance of the household increases. On the other hand, the average family size of the sample households was 5.04, which was almost equal with the national average of five persons (CSA, 2010). The largest family size was thirteen and the smallest one.

Among the total sampled households, the proportion of male-headed and female-headed households was 507 (83.9%) and 97 (16.1%) respectively. Fifty-nine percent of the respondents have attended formal education and 28.8% of households were not able to read and write and the rest 11.4% able to read and write. With regard to occupation of the total sampled household 214 (35.4 %) were farmers, 207 (34.3 %) trader, 113 (18.7%) employee and the rest 11.6 % students, pension, housewife, laborer, and unemployed.

### Income source and saving pattern of respondents

Average monthly income of household was found 1473.83 Birr. Majority of households 591 (94%) reported that their source of income was from their own work. Few respondents were also reported remittance and pension as source of their income. On

actual saving practice, 54% of respondents have saving practice. Among those 270 (65.1%) saved less than 5000 Birr. In addition, most households prefer to save money in cash than asset. With regard to receiving income 489 (81.0 %) respondents reported that they have known time pattern. Among those who have known time pattern, seventy-eight percent of respondents reported that their frequency of time of receiving income time pattern was monthly followed by yearly (20.2%) and weekly (1.6%).

### **Financial Management Knowledge of respondents**

The descriptive result showed that respondents' knowledge about financial management was above average. Out of the sampled households 326(54%) responded they know somewhat, 159(26.3%) said as they do not know enough and the rest 19.7% showed confidence on their financial management knowledge. Among the total sampled household, 315(52.2%) have had no discussions with their family on the importance of savings when they grow-up. Similarly, 349 (57.8%) have had no discussions with their family on family expenditure plan. However, almost all respondents 580(96%) acknowledged the importance of saving. Major saving barrier factors found are cultural background 540 (89.4%) followed by lack of money 519 (86%), lack of education 492(81.5%) and social affairs 371(61.4%). With regard to policy variables, respondents recognize the effect of inflation (53.3%) and unemployment (35.5%) on households' saving. In addition most respondents 532 (88.1%) were aware that they can earn interest rate on their saving accounts and 422(69.9%) of the respondents mentioned they can decide to increase their savings if the current interest rate increases. Thus, this is also a good policy indication for the government to enhance household's savings.

It is also observed that 480 (79.5%) of the sampled respondents didn't have written goals that require savings. To measure respondents' expenditure controlling trend they were asked if the things that they owe are important to them. Thus, 262 (43.4%) respond that the things that they owe are not all that important to them. Similarly, 352 (58.3%) respond as buying things gives them a lot of pleasure and 380(62.9%) mentioned as they can spend it if they get money unexpectedly. Thus, since lack of having written goal and unplanned expenditure discourages saving, the government can interfere to improve the planning and expenditure controlling culture of the community to enhance household savings.

### **Credit access and experience of respondents**

Credit can increase consumer access to essential resources and fuel economic growth. It also enables efficient allocation of risk, costs and financial reserves. Besides, farmers can acquire inputs and equipment – such as fertilizers, tractors, farming equipment and livestock – that make them more productive and enhance overall agricultural productivity. It is also widely recognized that access to credit is critical for cultivators

operating in a market setting. In order to fully exploit natural, material and human resources in most efficient and effective way it is necessary for any country to have credit access via a sound financial or banking system.

Among the sampled respondents credit access is difficult and very difficult for 103(17.1%) and 165(27.3%) which accounts around 45%. Similarly, only 226(37.4%) of the sampled respondents get the chance for credit they need. Thus, the government should improve the accessibility and availability of credit via different mechanisms.

### **Results of the Tobit Model**

Eleven explanatory variables were considered in the econometric model out of which six variables were found to be significant determinants of the sample households. Econometrics Tobit analysis shown that household saving in the zone is significantly and positively associated to household income with P-value 0.000 and t-value 3.57. The role of income in stimulating saving stems from the Keynesian link between saving and income i.e.higher incomes raise the capacity to save. In addition, factors such as age, marital status and type of saving institution used are also significant determinants at 1%; and sex and frequency of getting money at 5% level of significance. Education status has positive contribution for household savings though not significant. The econometric result revealed that employees and traders save money better than others do.

The result indicates that age positively and significantly determines household savings. The reason for this might be age related saving motivating factors. Browning and Lusardi (1996) and Deaton (1997) stated precautionary or buffer-stock savings as main explanatory factors to insure against risks and the uncertainty of the individuals lifetime, and the desire of the elderly to leave a bequest to heirs.

Marital status is found as another significant (at 1% level of significant with negative sign) determinant factor for household savings. Since the descriptive statistics showed that 83.9% of the sampled households are male-headed households, the main reason for the finding might be the fact that most female partners are spouses that makes their liquid money contribution very less. Furthermore, there are also social and others costs added most of the time for married individuals.

The form of institutions that households used for saving is also another strong determinant factor (significant at 1% level of significance) for household savings. It indicates that those households who used formal institutions such as banks are in a better performance than those used the informal once.

**Table 1: Tobit model estimates for the determinants of household savings**

Explanatory variables	Coef.	Robust Std. Err.	t	P> t
Age of household head	.0233657	.00909	2.57	0.011
Sex of household head	.4441065	.2175966	2.04	0.042
Marital status of household	-.3099986	.1183281	-2.62	0.009
Education level of household head		.0606069	0.20	0.840
Average Monthly income	.0122432	.0000576	3.57	0.000
Income source	.0002055	.2257938	0.21	0.836
Family size	.0466966			
Occupation	-.0658303	.0613582	-1.07	0.284
Frequency of getting money	-.0090557	.0774699	-0.12	0.907
Type of saving institution used	-.5840852	.3000129	-1.95	0.053
Access to credit service	-.2451633	.085305	-2.87	0.004
_cons	.0129999	.0635666	0.20	0.838
/sigma	1.25587	.9806154	1.28	0.201
	1.198317	.0981014		
Obs. summary: 158	left-censored observations at amts<=1101			uncensored observations
0 right-censored observations	Number of obs = 259			
LR chi2 (11) = 49.28	Prob> chi2= 0.0000			Log likelihood = -248.79146
Pseudo R2 = 0.0901				

Women and men have differing propensities to save due to variations in perceived risks and interests and in gender-related external factors that affect savings behavior. Thus, sex is also another variable that explained household savings significantly (at 5 % level of significance). Saving behavior of women was better than men. Studies show that women are more conservative in their investment decisions than men. For example, Bajtelsmit and Bernasek (1996), find that women hold a much higher proportion of their portfolios in fixed assets than men. Bajtelsmit and Vander Hei (1997) also found gender differences in pension decisions, with women significantly less likely to invest in employer stock and equities than men. Similarly, Hinz *et al.*, (1997) found that women invest their pensions more conservatively than men.

This is more explained in developing countries. Households in developing countries on average are poorer and income is likely to be less stable, so that the allocation of income over time faces severe competing pressures that differ in intensity from those in developed economies. Access to financial institutions and the availability of financial instruments are more uneven in developing economies, and this also may affect saving

rates. Further, developing countries tend to have shallow social safety nets. This suggests that families must rely largely on household-level savings and investments in kinship networks as part of their consumption smoothing strategy that the women feel deeply. Thus, this is another useful finding to plan gender based savings mobilizations and formulation of policies.

It also indicates that frequency of money getting negatively and significantly affects household savings. This might be because individuals fail to go to saving institutions repeatedly when they get the money which exposes them to spend more. Though not significant, family size affects negatively household savings which is in line with Klaus *et al.* (1992) and the life cycle model.

### **IMPLICATION AND CONTRIBUTION TO KNOWLEDGE**

To the best knowledge of the researchers, so far, no study was conducted on microeconomic level on the determinants of household saving in northwestern Ethiopia and limited studies are found in the country. The study attempted to assess the effect of socio-economic factors such as age, sex, marital status, family size, level of education, occupation; and income, saving and credit experience of households. Thus, it is found that age, sex, marital status, form of institutions used for saving and frequency of getting money are significant determinants of savings of the households. The findings of the study also establish 54% of households practice saving and identified saving barriers such as inflation, low income, cultural background, education, social affairs and unemployment. Thus, this study may contribute knowledge on saving behaviors of households in rural and urban areas of the country and enhance evidence-based interventions.

### **CONCLUSION AND RECOMMENDATION**

In conclusion the descriptive analysis 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. The planning and expenditure controlling habit of most respondents was found minimal. Besides, the economic analyses shows that income, age, sex, marital status, forms of institutions used for saving and frequency of getting money are significant determinants of household savings in the study area.

Based on these findings, we recommend that government policy intervention should focus on increasing the availability and accessibility of financial institutions, awareness creation and education on the importance of saving and saving modalities, planning and expenditure controlling habit, socio-cultural saving barriers, increasing interest rate, and inflation and unemployment combating strategies to augment saving capacity, investment and then economic growth.

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