



**DETERMINANTS OF URBAN HOUSEHOLD SAVING IN SEBETA
TOWN OF OROMIA, ETHIOPIA**

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It is to show that the study paper prepared by Osman Husien, entitled: Determinants of Urban Household Saving in Sebeta Town of Oromiya, Ethiopia & succumbed in partial fulfilment of the requirement for the degree of Master of Science in Development Economics according to the regulations of University and meets the standards with the respect to novelty and high quality.

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ABSTRACT

The saving, a process of keeping money/asset aside, has been shown to have a positive impact on economic growth at the macroeconomic and micro-levels-it is one of the key components in any development that is believed to be the surest way of increasing income and reducing poverty. But, the micro-level (Household saving level) analysis of determinants of households' saving is limited in Sub-Saharan African economies. Understanding determinants of saving at household level helps to visualize appropriate response strategies in terms of targeted saving packages. This study therefore investigates determinant of households in Sebeta town of Oromia region, Ethiopia. The study's objectives include analyses of forms of saving used by urban households, to assess main motives of saving by households and to investigate the major determinants (constraints, opportunities and factors) of household saving. The research has involved both qualitative-focus group discussions and quantitative (household survey) method. Purposive and random sampling techniques were employed in order to select the sample within Sebeta town and study respondents, respectively. The data of 392 households and FGD have been collected from urban households by using interview and open discussion schedules. To collect the required primary source of data, instruments of data collection which include questionnaire was used. This study used both descriptive and econometric (two-part model) analyses. The result of the descriptive analysis showed that almost more than half of the sample households experienced saving and the reasons for households unable to save were inflations, very low income, investing in another assets and high expenditure on consumer goods specifically on Alcohols. The econometric analyses showed that income, expenditure, number of earners in the household member, house ownership, inflations, and availability of remittances and family size are significant determinants of household saving in study area. Based on the findings it is concluded that the determinants of the household heads saving are influenced by demographic and economic factors based largely on family size and number of earners in the households i.e they are the most crucial factor of the household saving in the this study. In the households, holding all other variables constant at their mean values, when household family size and number of earners increase by one individual, the expected amount of saving by households would increases by 32,339.51 birr and 84,218.74 birr yearly, respectively. The marital status had increased by one leads to 6.5 birr decrease the households saving. Holding other variables constant, change in house ownership of households head from "not owned to owned" and accessibility of remittances from 'not access to access', the probability of saving increase at about 34.5 percent and 22%, respectively. Based on the results, it is recommended that concerned institutions should emphasise on livelihood interventions targeted to improve the household income which have a round effect on saving and income growth, socio economic saving barriers, housing, on the importance of saving and saving modalities, planning and expenditure controlling habit, investment and the economic growth. Creating employment opportunity strategies for women to decrease fertilities and conducting practical awareness creations for households on importance of saving as well as adverse impact of extravagancy.

Keywords: Household saving, Determinants of saving, two-part model, GLM model, urban, Sebeta town, Oromia, Ethiopia.

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LISTS OF ACRONYMS AND ABBREVIATIONS

ADL	Autoregressive Distributed Lag
CSA	Central statistical Agency
FGD	Incremental capital output ratio
GDP	Focus Group Discussions
GIS	Geographical Information system
glm	Generalize Linear Model
GTP	Gross Domestic Product
ICOR	Growth and Transformation Plan
IMF	International Monetary Fund
LDC	Less Developed Countries
LDV	Limited dependent variables
MENA	Middle East and North Africa
MoFED	Ministry of Finance and Economic Development
NBE	National Bank of Ethiopia
OLS	Ordinary Least Squire
OWWDSE	Oromia Water Works Design & Supervision Enterprise
SSA	Sub-Saharan Africa
UNDP	Unite Nation Development Program
USA	Unite State of America

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the study

Theoretically, higher saving could have a positive effect on economic growth. According to many authors, the underlining source of economic growth is saving which leads us to capital investment. The increase in investment on infrastructure and productive resources due to increase in saving bring an economic growth of a given country. These all sources of growth could be came from private or household, public and business saving (Lucas, 1988; Romer, 1986; Solow, 1956; Keynes, 1985). For instance, “The central problem in the theory of economic development is to understand the process by which a community which was previously saving 4 or 5 percent of its national income or less converts itself into an economy where voluntary saving is running at about 12 to 15 per cent of national income or more”. This belief implied that, first, saving is directly translated to investment and, second, saving is a prerequisite for economic growth (Lewis, 1954) as cited in (Beshir, 2017).

Furthermore, an empirical study show that saving lead to higher investments, and ultimately to higher economic growth (Odhiambo, 2009) as cited in (Asare et al., 2018). The mobilization of domestic saving is crucial for raising the economic growth and promoting development, as it is the private saving that affect the domestic investments significantly. As a result, this will lead to the solution of problems of employment and economic growth (Bairamli and Kostoglou, 2010). Similarly, the study conducted in Nepal by using unit root test along with ARDL approach suggested that investment has a significant and positive impact on economic growth. However, gross domestic saving have a negative impact on growth in the long run if there is weakness on mobilizing saving into productive sectors (Joshi et al, 2019). A study conducted in Ethiopia using data from World Bank’s ‘African Development Indicators’, justified that a small percentage change in GDP would result in a higher amount of percentage change in domestic saving (Beshir, 2017).

Though gross domestic saving rate in the sub-Saharan countries have better somewhat in current years, from 11.55% of GDP in 2016 to 15.23% in 2020, it is still very far below the average rate of Middle East and North Africa in 2019 of 32.83%. According to World Bank Group data, domestic saving for Ethiopia improved from 17.25% in 2011 to 22.28% in 2019 but is far below MENA region (WBG, 2020). The recent rate of saving is too low by Ethiopia's own standard and relative to other developing countries. The ratio of internal saving to gross domestic product (GDP) over the period from 1965 to 2013 specified that Ethiopian saving routine is very poor (Beshir, 2017). This has also made an economy progressively dependent on foreign financing sources, with high exposure to external shocks, and postponing the essential reforms to create good investment to the private sector and put an economy on a maintainable track of growth and financing (Abu, 2004) as cited in (Saliya, 2018). Therefore, low saving routine of the country is due to numerous determinants of saving (Saliya, 2018).

Those countries that have advanced level of saving rates flourished in reducing the burden of foreign liability and hence domestic investments can be funded by domestic saving especially from household sectors saving (Mengesha, 2015). As per Belay (2016), the ratio of investment to GDP, the ratio of domestic saving to the GDP and the ratio of debt & aid to GDP of Ethiopia over the period of 2005 to 2013 is upsurge in foreign debt and aid is by far higher than that of the increase in local saving. This is shows that foreign liability affects capital accumulation and hence growth in developing countries. In the long run, without the inner ability of a country to accrue domestic saving, viewpoints of repayment seem very weak.

The other scholars showed that individual factors such as obligation to family, upbringing, and employment experiences affect participants' attitudes towards saving and their confidence in their ability to save (Nayak, 2013).

Similarly, according to the study carried out in Mekele city, household those were headed by a female, an income of household and previous experience of saving had a positive and important impact on household to saving. Nevertheless, household head ages, other earners in household member, and dependency ratio had a negative and significant influence on

household (Saliya, 2018). Another study in Ethiopia indicated that saving behaviours of the society was poor although the performance advancement of saving rate. The possible causes identified for poor saving include lack of appropriate saving products, lack of incentive to save, low income level, high level of debt, low interest rate, high inflation and others (Aron et al., 2013). The study in North Gondar zone, showed that income of the households, ages of the household heads, sex of the respondents, marital status of the household heads, forms of institutions used for saving and frequency of getting money were vital determinants of household saving (Mirach, 2014). Bizuneh also studied the factors of household saving behavior in Nekemte town and labelled that positive relation with household ages, incomes, academic levels, and saving.

The aforementioned evidences for poor activities/performance of domestic saving mobilization; existence of huge gap between saving and investment as well as very small presence of empirical studies on urban household saving in Ethiopia is demands for research to search the determinants of household saving by using cross-sectional data and unique methods of data analysis which is very useful for policy design. Therefore, the main aim of this study was to assess factors that affect the household saving situation in Sebeta town of Oromia, Ethiopia.

1.2. Statement of the Problem

Mobilization of growing saving by households could raise a substantial amount of resources for investments that could embolden economic growth. Surely, domestic saving in Africa is dominated by household saving that is not adequately directed into productive/creative use (UNDP, 2007). For instance, the study conducted on policy implication of military expenditure on economic growth in Ethiopia from the years 1974/5 to 2017/18 revealed that high military expenditure for defense, unproductive use, negatively affected economic growth both in the short and long run (Kebede, 2019). The poor growth performance and very high occurrence of poverty in most of the less developed countries, has made mobilizing internal saving to be the focus of researchers, mainly development economists (Kudaisi, 2013). The ratios of investment to the GDP, internal saving to GDP and the debt & aid to the GDP of Ethiopia over the period of 2005

to 2013 show that increase in foreign debt and aid is by far higher than that of the increase in domestic saving (Belay, 2016). This explains that foreign debt affects capital buildup and hence growth in developing countries. Without an internal capability of a country to accrue domestic saving, the long run perspectives of repayment look feeble. Though external finance sources are important, it cannot be a reliable source of income as they are restrictive in nature and subject to repayment. No single loan or aid is unconditional.

On top of this, household saving hooks the lion's share from domestic saving of a country and is very central to provide an insurance against the economic and social shocks although it is highly very vulnerable to an individual specific shock in developing countries. Plus, household saving are extremely dependent on the will, ability and facilities to saves (Belay, 2016). Reports showed that nearly six million households save money in financial institutions with average of 875 birr per year in Ethiopia. Saving rate as percent of GDP rate is 9.5 percent which is very low as compared to that of China, Bangladesh and South Africa. The assessment of household saving in Ethiopia revealed that about 36% of the household did not save with only 7% of regular saving habit (Aron et al., 2013). Accordingly, understanding why and how households save and what determines their saving behavior at micro level can help to identify and formulate suitable policies that increase the amount of resources available for economic development at micro and macro level. Thus, the factors that affect household saving are an important subject of analysis or have to be a policy-relevant research topic.

The literatures on determinants of saving, (Saliya, 2018, Belay, 2016 and Zegeye, 2018) employ single method of econometrics models and binary logistic models with small samples on urban household saving behavior and investigated that the current rate of saving is very poor by Ethiopia's standard and relative to other developing countries.

Other researchers such as Gebre (2018), Girma et al. (2013) and Obayelu (2012) in their studies used the single equation of econometric analysis, Tobit model, to analyze the determinants of household to saving. However, this model description has its own demerits; initially it is actually used in cases where the dependent variable is not observed for some sample households due to cutting and not due to individual choice. In another

words Tobit model specification can assume negative values, but will really take zero for some censored observations. All zero amounts of saving are treated as corner solutions in this model. Secondly, Tobit model is based on a restrictive assumption that both the level (amount) and the choice to save of saving given that decision are determined by the same set of variables which implies that a variable that increases the possibility of household to save will also raise the extent of saving. Hence, two-part model is used as better alternative over Tobit model specification in such type of circumstances (Belotti et al, 2015).

Lawrence K. K. et.al. (2009) and Alebachew & Yohanes (2018), using single OLS methods, investigated the determinants of household saving in rural areas of Kenya and northern Ethiopia, respectively, which have its own drawback for analyzing Limited dependent variables (LDV). Furthermore, these two studies did not incorporate many important variables such as gender, marital status, inflation and distance from financial institutions and fixed asset such as landholding status.

The majority of the studies mentioned above used a single approach of analyzing data to examine the determinants of household saving in developing countries specifically in Ethiopia. While single methods of analyzing data are useful, the use of the two-part econometric method approach may be more expressive and fitting for analyzing saving factors. Besides, previous studies used only primary data collection method without considering and employing triangulation techniques. This paper therefore, adopted the two part econometric model approach as well as triangulation techniques in an attempt to analyze the determinants of urban household saving in Sebeta town. That means it uses as many variables as possible and two part models that captures more information than many previous studies and this has the guarantee to capture the dynamic factors that affects saving in urban areas. Finally, the aforementioned empirical literatures were not carried out econometric model tests while doing their studies. This paper however, conducted multi-collinearity, heteroskedasticity, model specifications and other tests to validate appropriateness of econometric model in study using STATA software.

After reviewing available research papers on determinants of household saving in urban areas, it is found that there are no papers which have focused on determinants of household

saving in urban areas using two part models in Sebeta town of Oromia region, Ethiopia. It is also found that some of the researches focused on urban household saving were used only monetary income and saving from households and completely ignored the relevance of non-monetary income and saving form as a significant part of their budget. Therefore, the researcher filled the gap of the previous study (add value to the literature) by employing two-part econometric models and triangulation approach, using cross-sectional data to the study. In this model the determinants of households' extent and decision to save by household are estimated individually.

1.3. Research Questions

- What are the determinants of household saving in Sebeta town of Oromia region of Ethiopia?
- What are the forms of saving in the study area?
- What are the motives of household saving in Sebeta town?

1.4. Objectives of the Study

The main aim of this research is to assess factors of household saving in Sebeta town of Oromia region of Ethiopia. The study comprises the below mentioned specific and detailed objectives:

1. To ascertain the determinants (constraints, opportunities, factors) of households to save.
2. To analyse forms of saving used by urban households in the study area
3. To evaluate the main drives/intentions of saving by households.

1.5. Significance of the Study

The study is believed to be important, since it was to assess the current and updated factors that hinders and encourage household saving in the study area. Plus, the study was also may help policy makers in the reformulation of saving policies in our country. Financial institutions' managers will know key variables influencing the demand for saving and

those explaining observed preference and also it serve as a stepping stone for other researchers who will be interested in the area.

1.6. Scopes of the Study

This research has focused on addressing determinants of household saving pursued by female and male headed households in Sebeta town of Oromia Regional State. The study mainly relied on the perception, constraints and opportunities of household heads to assess the determinants of household saving.

The research is also restricted to identifying the major determinants of households saving adopted by the households in the study area, where as the determinant factors for using a specific saving strategy by households is not fully covered in the analysis part of the research. Moreover, the study focused only on the microeconomic variables that govern saving and ignores the macroeconomic determinants of saving (i.e national level determinants of saving). This research deals with the determinants of household saving under urban socioeconomic conditions. The study was limited to Sebeta town of Oromia Regional State Sebeta town residents. Hence results from this study may be representative for urban parts of the country. The study aims to provide a better understanding of the variables that determinate household saving. The research has used cross-sectional household survey to collect the relevant information for the study.

1.7. Limitations of the Study

The study was also limited, because specifically it selected only five kebeles out of 10 Kebeles in the town due to time and budget constraints. The researcher has encountered a number of shortcomings during the course of the study. One of the major drawbacks was the Covid-19 pandemic as the researcher forced to use limited number of focus group discussions to collect qualitative and triangulate data. The other constraint was lack of willingness of most of the surveyed respondents to disclose real information about their saving, income and expenditures which has also rendered some limitations to the findings of the research. Therefore, the researcher has relied on other secondary sources as government officials of the town, Microfinance institute and other informants. The major

challenge of the researcher faced was willingness of the respondents to give the appropriate responses to the questions during data collection. Despite all these challenges, the researcher did his level to best capture reliable information explaining the purpose of the study.

1.8. Organization of the Study

The research structured in to five chapters whose sequence is as follows. Chapter one present an introduction that is related to Background, problem statement, objectives, research questions, limitations, scopes and the needs of the study. Chapter two presented literature review that is related with the determinants of rural and urban household saving in Ethiopia. Chapter three explore the research methods adopted by the study; Chapter four presented study findings and their subsequent interpretations. Finally, a chapter five summarized the entire study, makes conclusions for each objective and derive policy recommendations from the study findings as well as areas for future research.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Introduction

The term saving is different from savings. The earlier refers to the act of not consuming one's assets, whereas the second refers to either numerous chances to reduce costs; or one's assets in the form of cash. Saving refers to an activity occurring over time, a flow variable, whereas savings refers to something that exists at any one time, a stock variable (Wikipedia, 2021). To put succinctly, savings is to put money/assets aside whereas saving is the process of keeping money/asset asides.

There are certain theoretical literatures on saving, and enormous empirical studies conducted on determinants of saving in all economic nations /developed, transition and underdeveloped economies/ and at the macro as well as micro level. In this chapter, theoretical models of saving, and empirical literatures are reviewed that focused on both microeconomic and macroeconomic levels. The original theory and theoretical models are presented first in brief in section 2.2 while empirical literatures related to these theories are discussed in section 2.3.

2.2. Theoretical Literature Review

2.2.1. Concepts and Definitions

Saving has primarily been defined as the portion of income that is not consumed. Generally, includes not only money but also assets and other landed property. Saving refers to the act of refraining from consumption and deferring it to a future period. Saving requires accumulation of anything of lasting value is also saving. Formally, it is defined as the excess of income over expenditure on consumption in a period (Keynes, 1936).

It is also the difference between disposable incomes and consumptions. To put it another way, it is what left from income after consumption. Saving is defined as gross national income less total consumption, plus net transfers (World-Bank, 2017). A country's national saving are summary of private saving and public saving, and it is equal to a difference

between nation's income consumptions and government purchases (Jhingan, 2013). Public saving are basically the difference between government revenues and government expenditures whereas private saving is the blend of household saving and business saving. Business saving is also measured by the amount of after tax undistributed corporate profits or it is the reserved earnings of the company.

2.2.2. Theory of Saving

There are numerous theories of saving that are planned from consumption theories (hypothesis) as the amount of income not consumed is saved. These include the Keynesian Absolute Income Hypothesis, Friedman's Permanent Income Hypothesis, and Modigliani Life Cycle Hypothesis. These are discussed one by one below:

According to the Keynesian absolute income hypothesis persons save out of their current income to flat the predictable consumption over time. The outcome of the precautionary saving is realized through its impact on current consumption, as individuals delay their current consumption in order to maintain the utility level of consumption in the future if income drops (Njung'e, 2013). Hence, saving are only possible if someone has more than enough to meet the basic needs and can only save what is left after paying for such basic needs (Michael, 2013).

On the other hand, the Friedman's Permanent Income Hypothesis argued that people will spend money at a level stable with their anticipated long term average income. A household will save only if his or her current income is higher than the expected level of permanent income, in order to guard against future declines in income. According to this hypothesis, income growth is one of the main factors of domestic saving through its effect on the lifetime income of working population. This is due to, the higher rate of income growth raises the aggregate income of active workers relative to those not earning labor incomes and this will raise the lifetime resources of workers on which consumption and saving depends (Nayak, 2013).

Lastly, Franco Modigliani and Richard Brumberg's life-cycle hypothesis assumed that individuals base consumption on a constant percentage of their anticipated life income.

With population growth, there are more young people than old, more people are saving than are not saving, so that the total net saving of the old will be less than the total saving of the young, and there will be net positive saving. If incomes are growing, the young will be saving on a larger scale than the old so that economic growth, like population growth, causes positive saving, and the faster the growth, the higher the saving rate (Ibid). The life cycle hypothesis identifies growth in per capita income as one of the important determinants of saving rates, because people are forward looking and base their saving decisions on lifetime income. But in reality the current level of income also plays a significant role in explaining saving behaviour (Ahmad and Hussein, 2010).

One vital source of low national saving has been the dissaving in the government sector in several countries. Private saving has also generally been lower in the 1980's than in the preceding decades. The contribution of business saving to this decline has been comparatively minor, whereas the fall in household saving has played an important role. The saving rate of the household sector is the result of the behaviour of a large number of individual household units which are influenced in their decision to accumulate capital by various factors. In order to understand the level and movement of a country's overall saving rate it is necessary to study the saving behaviour of the household units (Barbara, 1991).

Psychological and sociological theories of saving assume that consumer's tastes and expectations are not fixed but rather are affected by economic or social stimuli and conditions. Change in the environment and the information received affects the response and decision of the household. Saving is affected by the ability to save and the willingness to save. Some households are less able to save due to their low economic resources and special consumption needs. For those households that can afford to postpone consumption, they must have the will power to save. According to these theories, the decision to save in a household is determined by consumer's expectations and sentiments, families, peers and past saving experiences (Duesenberry, 1949; Katona, 1975; Furnham, 1985; Cohen, 1994).

2.2.3. Theoretical Aspects of Saving and Investment

According to the neoclassical growth theories which was developed in the 1950s and 1960s, higher saving leads to higher investment, and higher investment leads to economic growth. Investment is directly related to output growth via the incremental capital output ratio (ICOR), at least during the transition to its steady state level or in the short run. The more recent endogenous growth theories go even further by asserting that saving and investment (combined with technological progress and human capital) induce both short-term and long-term economic growth (Romer, 1986; Lucas, 1988). Similarly, Carroll and Weil (1994) argue that the positive correlation observed between saving and growth is partly due to the fact that growth proceeds saving even under the assumption that saving is automatically translated into investment. The apparent effect of higher saving is to increase the availability of funds for investment.

However, the theoretical linkages of saving and investment discussed above do not provide clear direction for policy makers as the determinants of saving and investment differ at a theoretical level. At a policy level the presumption that saving are directly translated into investment may not hold. Arguably, this is more likely to be the case in more recent years than before for at least two reasons: first, due to the increase in availability of financial instruments, not all saving are used for productive investment (but instead, at least some of them, may be diverted to what is called ‘portfolio investment’ or ‘speculative capital’) purposes; and second, due to liberalization, the relationship between domestic saving and domestic investment incorporate an international dimension. That is, the net change in capital flow is what determines investment and not necessarily the level or rate of domestic saving. A case in point is the average investment-to-GDP ratio of 18.5% vis-à-vis the average domestic saving to GDP ratio of about 12.1% for the period 1965-2013 in Ethiopia, which is largely true in most SSA countries (Beshir, 2017).

2.2.4. Saving and Growth

The important factor of households’ welfare in developing countries is saving. Conversely, other than saving households have few other ways to smooth out unanticipated variations in their income. For households and private saving could offer a cushion of security against

future uncertainty while for nation saving provide the funds needed in the growth efforts (Michael, 2013) as cited in (Abebe, 2017).

Economic theory has maintained for long that saving or capital accumulation is the main determinant of economic growth, which can be understood as a sustained, long-term rise in the income of a country. Lewis (1954), among others, noted, “The central problem in the theory of economic development is to understand the process by which a community which was previously saving 4 or 5 percent of its national income or less, converts itself into an economy where voluntary saving is running at about 12 to 15 per cent of national income or more”. This belief implied that, first, saving is directly translated to investment and, second, saving is a prerequisite for economic growth (Beshir, 2017).

2.3. Empirical Literature Review

There is very limited empirical literature on determinants of urban family saving in Ethiopia. Till now no any study undertaken in the city of Sebeta regarding urban household saving. However, relevant literature is reviewed and discussed according to the following sub-topics mostly at micro level.

2.3.1. On Factors of Household Saving

Disparity in household arrangement, individuals, demographic, economic and social characteristics of households affect saving pattern and behaviour of households which leads to divergence in national saving rate over time (Schultz, 2005) as cited in (WBG, 2020). As reported indicated that in Ethiopia about 6 million households save money in financial institutions with average of 875 Birr per year. The saving rate as percentage of GDP is 9.5 and it is very low as compared to that of China, Bangladesh and South Africa (Aron et al., 2013).

Zegeye (2018) had also used binary logistic models on household survey data to analyses factors of household saving in Ethiopia. The results showed that household ages, sex, marital status, household education, credit, annual income and interest rate affected

household saving positively while family sizes, distance from financial institutions, distance from markets and consumption expenditure affected household saving negatively.

Furthermore, family sizes and structure is important factor that influencing saving of households. Families that have higher number of active working members involved in economic activities saved much more than others (Popovici, 2012). The other study outlined that sex variables of the household head specified that male headed households are more possible to save money more as they are more frequently involved in different occupations (Nayak, 2013).

The demographic determinants of saving in a group of Asian country which was studied by using econometric methods and found that dependence ratio has a significant and adverse effect on saving across counties (Schultz, 2005). The mean saving of middle ages, early and old ages household heads is about Birr 360.6, 206.2 and 244.6 per month, respectively, and the mean saving of illiterate household heads is Birr 58.57 while household heads with primary education, secondary education and tertiary education on average saves Birr 261.8, Birr 269.93 and 546.65 per month respectively. Therefore, as the educational level increases saving also increase (Halefom, 2015).

Contrary to the other findings such as Gina, et al. (2012) showed that employment, education, social support level, and degree of economic status have a weak association with saving among rural, low-income individuals in Africa.

Nayak (2013) has used linear econometric regression model to measure saving mobilization pattern of households in rural India. He used household data where about 62 percent of the farm households had saving in financial and assets but almost all farm households (90%) had saving held non-formally. His finding indicated that financial institutions with easy access, low transaction costs, higher real returns on saving and convenient withdrawal of saving offered incentives for those households who hold financial saving to channel their saving into the formal institutions. Unlike many theoretical foundations and an empirical finding of the importance of income in determining saving behavior, the income becomes statistically insignificant with zero coefficients. This means, income doesn't influence saving behavior of urban household

heads this study. To put simply, saving status doesn't affect with the increase or decrease of income (Belay, 2016). However, the study on Mekele City by Saliya A.Y (2018) indicated that an income is positively and significantly related with household saving behaviour. Consequently, proposed the government should be strives to increase disposable income of households through different mechanisms through the creation of employment opportunities for citizens and the efficient utilization of domestic resources.

2.3.2. Financial institutions and mobilization of saving

The formal financial institutions engaged in deliveries of saving and credit service for both rural and urban communities include private and government banks and Micro finances. Such institutions are formal in that they possess modern accounting and reporting systems that could help evaluate their performances every time. The banks have been considered as main type of formal institutions that have involved in saving mobilization in Africa. However, the main problems of such institutions to handle the poorer households' saving needs and mobilizing issues particularly that of the poor in rural areas of developing countries is constrained by limited access to the rural poor, lack of trust due to awareness problems by households and inadequacy of formal institutions (Birhanu, 2015).

Most people in Ethiopia make little or no use of the formal saving and lending institutions. Some use informal institutions that occur within the informal sector of the economy. We know that saving in the informal institutions did not yield interest for the depositors and so could not help for mobilizing resource. As a result it is not used for investment to yield income and, of course, most of the time depositors have expected to pay for saving service to their changing financial needs. In developing countries we observe a variety of informal institutions that enable transactions which are particular to the poor (Ibid).

According to Woldemichael (2010) access to deposit services in financial institutions enables the poor to efficiently manage their financial resources. It helps in consumption smoothing during economic shocks and provide an opportunity to accumulate large sums of money for future investment and household outlays. In Ethiopia, for centuries, partly due to inaccessibility of commercial bank branches, absence of postal saving services and lack of strong cooperative movement, deposit services to the poor has been largely

dominated by widely accepted and practiced informal mechanisms such as 'Iqub', 'Iddir', buying livestock and jewellery and hiding cash at home. The aim of the financial institutions during the GTP period has been establishing an accessible, efficient and competitive financial system. In relation to this, emphasis has been given to strengthening modern payment and settlement system, developing access to financial services, supporting the bank system with modern technology and extending the information exchange system to microfinance institutions, among others (MoFED, 2014).

2.4. Conceptual framework of the study

The independent variable such as Annual Income, Annual Expenditure, Education, Age, Household Composition, House ownership, Additional earner, Sex, Marital Status, Remittance and inflation rate are considered and theorized. Further, the researcher conceptualized that there are variables that are not part of the study interest although they needed to be controlled throughout the study because their effect on household saving could not be overlooked.

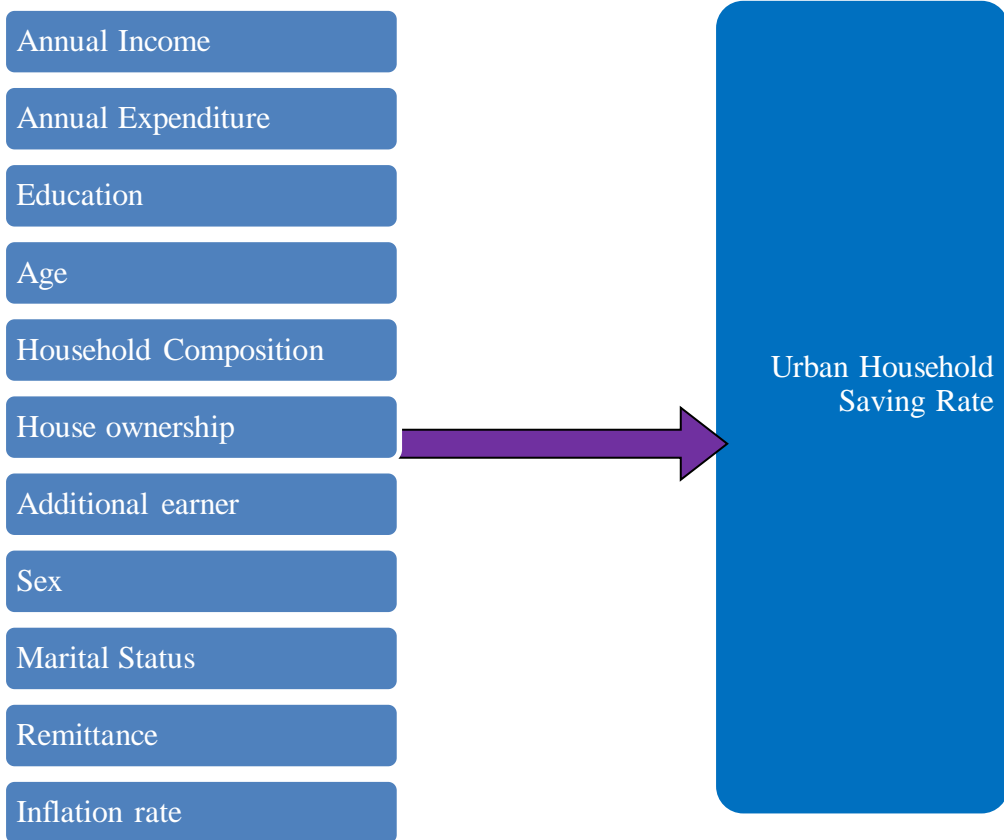


Figure 1 Study Framework

Source: Own Design (2021)

CHAPTER THREE

3. RESEARCH METHDODOLOGY

3.1 Description of the Study Area

Sebeta is a town located in the Oromia Special zone surrounding Finfinne, at a distance of 24km from Addis Ababa city along the ways to Woliso-Jimma, South western Ethiopia. The geographical location of Sebeta town is found at 8°54'40"N latitude and 38°37'17"E longitude with 2,356 meters above sea level. With regard to relative location, it shares common boundaries with Addis Ababa in the North, Northeast and East, Burayu town in the North, and rural villages of Sebeta-Hawas district to the south and west. The total area that is covered with the current topographic map of the town is estimated to 9.8 km². Currently, the town has ten Kebeles which include Sebeta (01), Alem-gena (02), Wal-hate (03), Furi (04), Dima (05), Dalati (06), Sebeta (07), Karabu (08), Sebata (09) and Atabala (10). The population and housing census of OWWDSE (2017) estimated the total population of Sebeta town to be 282,298 with 66,420 households. However, CSA projected the population of the town for the year 2014 was equal to 107, 298 OBoFED (2015) as cited in (Etana, et al., 2019).

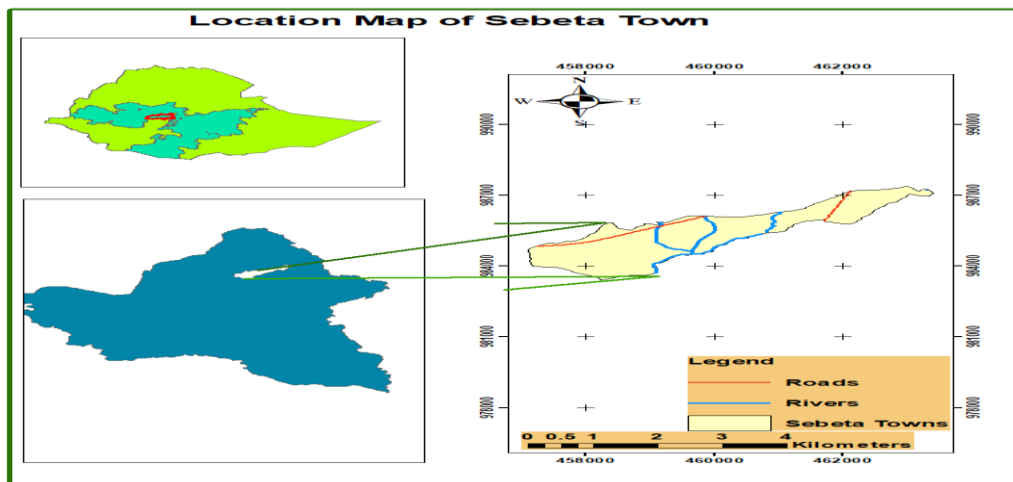


Figure 2 Study area Map

3.2 Data Sources and Methods of Data Collection

Relevant data from both primary & secondary sources are collected, analysed and interpreted using GIS and STATA methods. Both quantitative and qualitative data types were used to analyse determinants of household saving as they complement each other.

3.2.1 Primary Data

Primary data was collected from households survey include data on education, employment status of household members, household annual income and expenditure, household size and housing, borrowing and lending activities, age, sex, marital status, household family size, household head education level, household market access, access to financial institution, interest rate and credit access in the study area through structured questionnaires by close ended elicitation format with open ended follow up questions. The structured questionnaires were posted to the heads of the households with face to face interviews. Secondly, observation method was also used to assess physically the available financial institutions.

3.2.2 Secondary Data

Secondary data was collected from both published and unpublished documents such socioeconomic profile in the town, sectorial studies.

3.3 Sample Size Determination

Sebeta town selected as a representative of the saving potential area, and it is where many formal (banks and micro finance) and informal institutions have been operating in the area. In order to collect reliable and representative sample out of the target population the sample size was decided or determined by applying the scientific formula (Yemane, 1967) as cited in (Zegeye, 2018) as shown below.

$$n = \frac{N}{[1+N(e)^2]} \text{-----3.1}$$

Where: N- number of total households in the town; n = sample size; e = level of precision which is equal to 0.05 (The researcher has decided to take the true margin of error 5% with confidence level 95 %.)

$$n = \frac{N}{[1 + N(e)^2]}$$
$$\frac{19,865}{[1 + 19,865(0.05)^2]} = 392$$

3.4 Sampling Techniques

To get primary data, the paper employed two-stage sampling techniques which have been used by many researchers. At the first stage, five (5) kebeles from the total of 10 kebele were randomly selected from the town; in the second stage, household heads were selected using simple random sampling procedures proportion to their total population size by using probability proportion to size (PPS). Accordingly, about 392 households were chosen through systematic random sampling procedures. Initially, the first household selected by means of lottery method and the other survey points chosen by interval.

Thus, out of 10 kebele's, Furi Gara Bolo (09), Karebu(08), Dima(05), Roge(07) and Daleti(06) has selected through the stated sampling method. This analysis has been carried out for the entire sample of 392 interviewers. The study selected seventeen independent variables such as expenditure, years of schooling, number of earners, prior saving experience, inflation, interest rate, residential house ownership, employment status, number of dependent, age, sex, family size, income, education, availability of remittance, marital status, and access to saving institutions are regressed with one dependent variable which is households heads saving. About a total of 392 respondents of sample Kebeles were selected from 19, 865 household size.

According to population census commission population of the sample kebeles, the total households are listed under in the table below.

Table 3:1 Distribution of populations, Households and sample Respondent

S.n	Name of sampled Kebeles	Total Number of population and Households of Sampled Kebeles		Sampled Respondents	%
		Total Number of population of Sampled Kebeles	Total number of Households of Sampled Kebeles		
1	Furi Gara Bolo	5,566	1,113	22	6
2	Karabu	28,117	5,623	111	28
3	Dima	18,559	3,712	73	19
4	Roge	22,965	4,593	91	23
5	Dalati	24,119	4,824	95	24
Total		99,326	19,865	392	100

Source: Sebeta town Socioeconomic Report, 2019

As it was depicted table 3.1 above, the required sample households (n_1 , n_2 , n_3 , n_4 and n_5) were taken from each sample kebele (Furi Gara Bolo, Karebu, Dima, Roge and Daleti) resulting 22, 111, 73, 91 and 95 Sample respondents, respectively.

Cross-sectional survey method was employed by using among selected representative households in the town. The primary data were collected through interview, and also reviewing related literature obtained from various sources, including the internet. The questionnaire contain, among others, household characteristics, monthly and/or annual income, location (area of residence) of the interviewees, interest rate, absence or presence of financial institutions/intermediaries and knowledge of respondents, which are considered to be important variables that affect household saving behaviour on a priori theoretical grounds. Moreover, secondary data which collected from different sources gave as a highpoint and understand the overall condition of saving environment.

In addition to the household survey, two (2) focus group discussions (FGD), each had 7 to 12 members, was made to collect qualitative data and to triangulate the quantitative data. The most common rule of thumb for the size of FGD is four to six groups. The typical

justification for this range is that the data become “saturated” and little new information emerges after the first few groups (Zeller, 1993b). Two steps stratified sampling design was used to select kebeles as well as households who participate in the FGDs as there is non-homogeneity inside the households in the selected kebeles, like differences in distribution of asset ownership, level of education, proportion of different ethnic groups, etc. and location of kebeles like nearest to town, far away from the center of the town, etc. The questionnaire was pre-tested in the area to amend the contents of the questionnaire on the basis of the feedback to ease the data collection process.

3.5 Econometric Model Specifications

Some empirical studies used single equation such as Logit, Probit and Tobit models to analyse the factors of household to saving (Girma et al., 2013; Obayelu, 2012; Zegeye, 2018; Belay, 2016). However, Tobit econometrics model has its own disadvantages; in initially, it is used in cases where the dependent variable is not detected for some sample households due to censoring and not due to individual choice. It shows Tobit model of econometric analysis can adopt negative values, but will actually take zero for certain censored observations. This indicated that all zero amounts of saving are inferred as corner solutions. Secondly, this model is based on a limited assumption that both the decision to save and level (amount) of saving provided that decision are resolute by the same set of variables which implies that a variable that increases the possibility of households to save will also increase the amount (extent) of saving. Thirdly, the single uses of binary logistic or probit models have also its’ own drawbacks. Unlike Tobit model, both Logistic and Probit models not considered corner solution responses. Therefore, Two part model is used as better alternative over Tobit and other single modelling in such type of settings Amsalu et al (2013). Zero observations could reflect actual outcomes arising from the maximization of economic problems facing rational economic agents. Ignoring such households in the model estimation stage might result in self-selection bias and consequently inconsistent parameter estimates (Cameron & Trivedi, 2005; Wooldridge, 2010).

The overall decision to save by a household is assumed to be a combined result of two stochastic processes, which may or may not be correlated. These decisions are believed to be made by the household head on behalf of the entire household. The first process is whether or not to participate in the saving activity, also called the participant process; the second is the amount to save given that a household decides to save, also called the intensity process. This section describes the procedures that are followed to ensure that the estimated parameters underlying the above stochastic processes are unbiased and consistent, and can be used to make reliable inferences about determinants of urban household saving in Sebeta town of Oromiya, Ethiopia.

The two-part model is estimated to explain determinants of Sebeta town households' saving, to account for households with zero saving. Explicitly, in the two-part model, a binary choice model is fit for the probability of observing a positive-versus-zero outcome. Then, conditional on a positive outcome, an appropriate regression model is fit for the positive outcome. For instance, Asare and Segarra (2017) used this method to explain individual's behavior concerning student's loan acquisition in the U.S.A and explaining saving behaviour of households' in Ethiopia. Unlike the Heckma's selection model, it does not require the participant and intensity stochastic processes to be correlated (Cameron and Trivedi, 2005). However, a Heckma's selection model is estimated to check the robustness of the estimated two-part model parameters. The Heckma's selection model adds the Inverse Mills ratio (ratio of predicted probability density function to the cumulative density function, all from the estimated participant model) as an additional regressor; but the two-part model does not by following Belotti et al (2015). The two-part model is originally developed by Craig in 1971. This study models the determinants of urban households', Sebeta town, saving by following the two-part model framework of Belotti et al. (2015).

Let L^* be a latent decision variable, observable to the individual decision maker only. This decision process compares the expected utility he/she derives from saving $E(U_s)$ and not saving $E(U_{ns})$. According to the random utility model (Cameron and Trivedi, 2005), the individual will save only when the expected utility from saving is greater than that from not saving. Therefore, the probability that an individual might save (which is a function of her socioeconomic and demographic characteristics), also called the participant model, is :

$$P(s_i = 1|z^h) = P(E(U_s) - (E(U_{ns}) > 0) = F(z^{h'} \alpha) \dots\dots\dots 3.2$$

Where P (.) is a probability operator, s_i is a dummy variable which takes a value 1 if household did save and 0 otherwise, z^h is a vector of household' socioeconomic and demographic factors (explained in table 1 below), F(.) is a distributional family and link functions, and α is a vector of parameters associated with z^h in the participant model (Cameron & Trivedi, 2005; STATA, Wooldridge, 2010).

In addition, the model for positive outcomes (also called the intensity model) can be represented as: $E(s_i|s_i > 0, z^h) = g(z^{h'} \beta)$. There is an array of distributional families and link functions to choose from, to fit the GLM model for the second part. However, GLM with family (Gamma) and log (link) function proposed as more robust alternative to a regression of $\ln(s_i)$ and is robust to heteroskedestic errors (Belotti et al., 2015 and Manning et al., 2005). For the entire sample (those with positive or zero observations), the likelihood influence for an observation and the corresponding log-link and F functions are expressed as equations 3.3, below:

$$F(s_i) = \{1 - F(z^{h'} \alpha)\}^{i(i=0)} * \{F(z^{h'} \alpha) * g(z^{h'} \beta)\}^{i(s_i=0)} \dots\dots\dots 3.3$$

Where $i(.)$ an indicator is function; $F(z^{h'} \beta)$ is a F function for positive saving outcomes; β is a vector of parameters associated with z^h in the intensity model; $\hat{\alpha}$ is the estimated parameters from the participant model.

Therefore, the models for the participant model and the intensity models can be estimated separately (Belotti et al. 2015). The participant model was estimated with a probit model and the intensity model with generalized linear Model (GLM). The dependent variable in the intensity model is positive saving outcomes for each observation. The dependent variable for the participant model is a dummy, which equals 1 if household saved and 0 otherwise. The variables in table 3.2 are the independent variables in both the participant and intensity models. They are all expected to be exogenous. The two models are explicitly defined mathematically as:

$$s_i = z^{h'}_i \alpha + \varepsilon_i, \varepsilon_i \sim F \text{ (First part-probit model) } \dots\dots\dots 3.4$$

$$ds_i = 2\pi^{-1/2} e^{-z^2/2}, \varepsilon_i \sim F \dots\dots\dots 3.5$$

$$z^2 = [\alpha + \beta_1 a_{hhi} + \beta_2 a_{hhe} + \beta_3 e_{dhh} + \beta_4 a_{ghh} + \beta_5 fs + \beta_6 n_{eh} + \beta_7 d_{hho} + \beta_8 d_{shh} + \beta_9 d_{mshh} + \beta_{10} d_{rahh} + \beta_{11} d_{inf} + \varepsilon_i]^2$$

$$(s_i | s_i > 0) = z^{h'}_i \beta + U_i, U_i \sim F \text{ (Second part-glm model) } \dots\dots\dots 3.6$$

$$s_i = \log e^{[\alpha + \beta_1 a_{hhi} + \beta_2 a_{hhe} + \beta_3 e_{dhh} + \beta_4 a_{ghh} + \beta_5 fs + \beta_6 n_{eh} + \beta_7 d_{hho} + \beta_8 d_{shh} + \beta_9 d_{mshh} + \beta_{10} d_{rahh} + \beta_{11} d_{inf} + \varepsilon_i]},$$

if $s_i > 0 \dots\dots\dots 3.7$

Where all the variables are already defined, ε_i and U_i are stochastic error terms assumed to be family distributions with link functions with non-constant variance as most of survey data has no constant variance.

Both models are estimated with the “twopm” package in STATA and developed by Belotti et al. (2015). To obtain the marginal effects of the variables on the expected amount a household saves (given that a household saves) the dependent variable in equation 3.3 was not be retransformed back to the original variable, y because using GLM model in second part of the model did not require retransformation. It is necessary for the “twopm” margins routine to work. The marginal effects of the variables in the participant model, probit model, are calculated using the margins post-probit routine in STATA 14. The marginal effects of the discrete explanatory variables in the participant model show the change in the probability of saving for a change in the variable from 0 to 1. In the case of a continuous explanatory variable, the marginal effect shows the change in the probability of adoption for a unit change in the covariate. In the case of the intensity model, the marginal impact of a discrete variable shows the change in the expected amount saved for a change in the explanatory variable from 0 to 1. For a continuous variable, the marginal effect shows the change in the expected amount saved for a unit change in the variable. All the marginal effects are interpreted conditional on holding all other factors constant (McCullagh & Nelder, 1989; McElreath & Richard, 2016).

3.6 Definitions of Variables, Measurements and Hypothesis

The variables that this study uses are described as the following with their hypothesis:

Household Saving (s_i): the household saving, dependent Variable, have two components and estimated by the participant and the intensity models which can be estimated separately (Belotti et al. 2015). The participant model was estimated with a probit model and the intensity model with generalized linear Model (GLM). The dependent variable in the intensity model is natural log of positive saving outcomes for each observation. The dependent variable for the participant model is a dummy, which equals 1 if household saved and 0 otherwise.

Annual household head Income (ahhi): the most important determinant of household to save in in theoretical hypothesis as well as empirical literatures is income of the households. In this paper, household income which is described as all annual income received by all members of the households during the period of the study. Households were requested to pick their annual income from different categories provided in the survey tools. In the study both the median income and categorical income had used. It has treated as a continuous variable when median income is used and as a categorical variable when the income in a category is used. The respondents requested to write their annual income freely. It is expected that an income to be positively related with household saving amount.

Annual Household Head Expenditure (ahhe): total food expenditure is the sum-product of consumable goods and services and their respective prices. Contemporaneous saving is the residual or what is left of income after meeting current consumption needs.

Education of Household head (edhh): according to Zhan and Grinstein-Weiss (2005, theoretical explanations as well as empirical studies showed that education is a vital factor in saving behaviors and in other socio-economic factors. In this study, years of schooling or educations is seized by the reply of selected households to the question to write it in years. The outcome is predicted to be positively related with household saving in this study.

Age of households Head (aghh): Modigliani and Brumberg (1954) in their the life cycle theory, younger people have a trend to consume higher than their income as their wants tend to be mainly for housing and education, and hence they have little or no saving. Earnings rise in general, and saving to be accrued in middle ages. Finally, incomes are declining and individuals consume out of accumulated saving - age of dis-saving in the age of retirement. In this particular study paper, households requested to choose their age that have grouped as 18 to 25, 26 to 46 and 47 to 66 years and above. In the this study, an age is treated as continuous variable used for the completed years age of the household head which is also anticipated to have positive relationship with saving.

Family size of households (fs): the family size of respondents is the variable with respect to household composition considered in this study. To measure the family size, the paper gathered data on family sizes from the households to the question “How many people in addition to yourself, do you support financially and enter 0 if the answer is none”. This is assumed that it is related negatively with saving.

Household Heads' House ownership (hhho): House ownership of Household Heads is expected to have positive effects on the probability that a household will save and also the expected amount saved. These variables are measures of wealth. It has been shown that the wealth of an economic unit has positive impacts on household saving (Schmidt-Hebbel et al., 1992).

Additional Earner in the Households (neh): Additional earners those of household members that are contributing to the household income considered in this study. The additional earner in the household may assistance the household to separate for different consumption uses, and the remaining set apart for saving. Whether or not there is an additional earner in the household, there is an influence on household saving decision. The empirical research from Pakistan decided that additional earners in a household were found to have a adverse relationship with the households saving habits. Nonetheless, the study undertaken in India and Mekele City decided that the number of earners shapes the income of the household, which indicates saving are increased.

Sex of Household Heads (shh): Sex of the household head will have a negative and significant influence on household saving. In this study, households headed by females have more likely of saving than their male counterparts which is projected from the results and discussions of intensity model.

Married Status of Household Heads (mshh): Married and living with a spouse is expected to have positive effects on the probability that a household will save and also the expected amount saved. The study assumed that married couples on the average save more than unmarried people.

Availability of Remittance for Household Head (arhh): it refers to international transfer of money from abroad for relatives. Remittances positively and significantly affect private saving both in the short-run and in the long-run (Munir et al., 2011). Hence, this study assumes that the remittance will have positive effect on household saving decision.

Inflation (inf): this is the general upsurge of general price level of goods and services. According to the empirical study results by Viren, M (1984) inflation also affects household saving behavior negatively. However, inflation as the other uncertainty parameter does not show to have significant effect on household saving behavior (Ogren, 2018). The researcher expects inflation to be negatively related with probability of household saving and the households were asked to give their perception regarding inflation. The elements of households' socioeconomic and demographic variables in vector z^h which are explained above are defined and summarized in table 3:2 below.

Table 3:2 Summaries of variable definitions and its hypotheses

S. N	Variable Name	Descriptions of variables	Measurement	Hypothesis	
				¹ Participant s	² Intensity
1	si	Probability of saving	Dummy (1= saving and 0 otherwise)	Dependent	Dependent
2	ahhi	Annual household head Income	Continuous variable measured in Birr	positive	positive
3	ahhe	Annual household head Expenditure	Continuous variable measured in Birr	Negative	Negative
4	edhh	Education of Household head	Continuous variable which is measured in years	positive	positive
5	aghh	The age of households head	Continuous variable measured in years	positive	positive
6	hc	Household Composition (Total number of family size and presence of partner)	Continuous variable measured in number	Negative	Negative
7	hho	Households heads' house ownership	Dummy(1 =if household owned house = 1 and 0 otherwise)	positive	positive
8	neh	Additional earner in the Household	Continuous variable measured in number	positive	positive
9	shh	Sex of household heads	Dummy (Sex of household head equals 1 if household head is male and 0 otherwise)	positive/Negative	positive/Negative
10	mshh	Married Status of Household Heads	Dummy(1=married,0=unmarried+ divorced + widowed)	positive/Negative	positive/Negative
11	arhh	Availability of remittances	Dummy (Availability of remittances; equals 1 if household head has remittances and 0 otherwise)	positive	positive
12	inf	Inflation	Dummy (If household said inflation affect saving; equals 1 if no equals 0)	Negative	Negative

¹**Participant** is the first-stage participant model, whose dependent variable is a binary variable (it equals 1 if the household saves and 0 otherwise).

²**Intensity** is the second-stage intensity model, whose dependent variable is the natural logarithm of the amount saved in Ethiopian Birr (1 Ethiopian Birr equals 0.025 US\$, January 1, 2021).

3.7 Method of Data Analysis

In this paper, the interpretation was conducted in two consecutive two phases. In the first phase, descriptive statistics were used by analysing socioeconomic characteristics in which those objectives not attained by two part models. At second phase, two part model analysis was applied in order to identify the determinants and forms of households' saving of Sebeta town. Tools and statistics used in descriptive and econometric were generated with the help of econometric software STATA version 14.

3.8 Analytical Procedures (Testing of Model)

3.8.1 GLM Link Test- Box-Cox Regression

The GLM Link Test- Box-Cox Regression test will be also conducted to determine relationship between $z^{h'}_i\beta$ and $E(S/z^{h'}_i)$. To do this, maximum likelihood estimator value of λ for $s(\lambda) = (s(\lambda)-1)/\lambda = z^{h'}_i\beta + U_i$. And it will conclude if: If $\lambda = 0$ (log link); $\lambda = 0.5$ (square root link); $\lambda = 1$ (identity link); $\lambda = 2$ (square link) and $\lambda = -1$ (reciprocal link)

3.8.2 GLM Family Test- Modified Park Test

This study used primary data to model determinants of saving in Sebeta, Ethiopia. The GLM Family Test- Modified park test was used to choose the most appropriate exponential probability or family distribution to specify variance functions given link functions.

Mathematically, $\text{raw2} = (s_i - \hat{y}_g)^2 = \ln(\alpha) + \lambda \ln \hat{y}_g + \varepsilon_i$ if:

$\lambda = 0$ then it is Gaussian distribution (constant variance);

$\lambda = 1$ then it is Poisson distribution (variance proportional to the mean);

$\lambda = 2$ then it is Gaussian distribution ((variance proportional to the square of mean) and

$\lambda = 3$ then it is inverse Gaussian distribution or Wald distribution (variance proportional to the cube of mean)

3.8.3 GLM Testing For Non-Linearity and Goodness of Fit:

3.8.3.1 Pregibon's Link Test To Test Assumption of Linearity

This link test is assumed whether the coefficient of \hat{y}_2 is significantly different from zero. If the model is specified correctly, \hat{y}_2 should have no explanatory power.

3.8.3.2 Testing Deviance Residuals for Goodness of Fit

Deviance residual is defined as the square root of the contribution to the likelihood-ratio test. It is the statistic of a saturated model versus the fitted model which is favourable for GLM model (McCullagh, P. and Nelder, J.A, 1989 and Jones, 2013).

3.8.4 Heteroskedasticity Test

While we use survey (cross-sectional) data we may encounter problem of heteroscedasticity (Gujarati, 2008). We can evaluate the robust standard errors to correct the heteroscedasticity problem (Wooldridge, 2010). Hence, the two-pm model which is used in this paper is adjusted for heteroscedasticity problems using the robust command in Stata version 14 (robust standard errors are estimated for the two-pm).

3.8.5 Multi-collinearity Test

The problem of multi-collinearity was also tested using correlation matrix and it is detected that there is no multi-collinearity problem among explanatory variables in this study. Multi-collinearity is a serious problem, when a pair-wise correlation coefficient between the two independent variables is greater than or equal to 0.8. Hence, from correlation matrix it is exhibited that there is no series multi-collinearity issues in the data which is corrected according to the rule of thumb by Gujarati (2008).

3.8.6 Model Specifications Test

The model selection criteria examined clearly identify the correct asymmetric model out of alternative competing models. The Akaike information criterion (AIC) is an estimator of prediction error and thereby relative quality of statistical models for a given set of data.

Given a collection of models for the data, AIC estimates the quality of each model, relative to each of the other models. Thus, AIC provides a means for model selection. AIC is founded on information theory. When a statistical model is used to represent the process that generated the data, the representation will almost never be exact; so some information will be lost by using the model to represent the process (McElreath, Richard, 2016). AIC estimates the relative amount of information lost by a given model: the less information a model loses, the higher the quality of that model, lower AIC is the best among selected models (Taddy and Matt, 2019).

Accordingly, the two model, first part-probit and second part-glm, used with the following formulas to compute the values of AIC and BIC with stata 14 post-estimation command, *estat ic*:

$AIC = (-2\ln L + 2k)/N$ and $BIC = D2 - (N-k)\ln(N)$, where $\ln L$ and $D2$ are the overall likelihood and the overall deviance, reported by glm, k is the number of parameters of the model, and $N-k$ is the degrees of freedom associated with the deviance $D2$ (Akaike, 1973 and Raftery, 1995).

CHAPTER FOUR

4. RESULTS AND DISCUSSIONS

This part of the study deals with the results of descriptive analysis and two-part model of regression outcomes of the factors of households saving. The scrutiny was carried out in accordance with the objectives of the study. Section 4.1 of the paper explained descriptive analysis while section 4.2 provided the results of the econometric analysis.

4.1 Descriptive Analysis Results

4.1.1 Respondents Characteristics

The following numbers of respondents 47, 187 and 155 of the respondents in the age group were between [21years and 25 years], [26 years and 46 years], [47 years and 66 years] old, respectively. The mean household family size of the total sample households is 3.5 with a minimum and maximum household member of 1 and 7, respectively. Of the 389 household heads about 5.91% of them cannot read and write. Out of the total literate households 1% and 36% of them did attend their primary (1-8) and secondary education, 9-12 grades, which including those household heads who were attending informal education those can read and write, respectively.

Table 4.1 below further shows that the mainstream of the respondents are male and married household heads which is 57.22% and 72%, respectively. The category of occupation the respondents' involved 58.4% originates from government sector, 20.4% originates from private sector, and 20% originates from self- employed and 1% from NGO's employee out of the total respondents. The outcomes from the survey told that the respondents have comparatively higher inclination of formal saving institution for the saving practice. Only, 19% of them favor to use informal institutions and the rest 81% of the respondents prefer the formal institution structures. The respondents' type of occupation is a factor touching the saving gaps between households. Occupation has to be a necessary variable for predicting permanent income. In old-style study, income is divided on the basis of occupation into two bases, specifically profit and wages. Profits and marginal saving rates may be positively connected with levels of permanent income. The

least situation in this case is experienced by the self-employees. Furthermore, the analysis shows 54.6 percent of the respondents save money from their monthly income; on the other hand 45.4 percent of the respondents didn't save from their monthly income.

Although, majority of the respondents had saving habit, the findings further shows that they got an average annual income of Birr 237,980.50 which varieties from a minimum of Birr 4,200.00 to Birr 3,000,000.00 max and save an average of Birr 31,522.38, and average consumption 191,915.70 ranges from a minimum consumption of Birr 3,600.00 to a maximum of Birr 1,989,000. The family size is an important determinant of household saving. Big family size resulted in low saving, because the larger part of the income is expended on the family's consumption. Contrary to this, small family size leads to more preference of the family members on the road to saving. The results also show that the family size of the respondents' range from one headed household to that of a family size with seven members living together. The average family size is 3.5. This is an indication of a relatively larger family size for most of the respondents interviewed.

Table 4:1 Summary Statistics of Household characteristics

Household characteristics	Frequency and %	
Age of household heads	Freq.	Percent
21 to 25	47	12.08
26 to 46	187	48.07
47 to 66	155	39.85
Total	389	100.00
Family size of households	Freq.	Percent
Family size (1-3)	153	41.02
Family size (4-7)	220	58.98
Total	373	100.00
Number of earners in the Household	Freq.	Percent
0	36	10.32
1	131	37.54
2	172	49.28
3	8	2.29
4	2	0.57
Total	349.00	100.00
Sex of Household head		
Male	222	57.22
Female	166	42.78

Household characteristics	Frequency and %	
Total	388	100
Marital Status of household head	Freq.	Percent
Married	254	71.95
Unmarried	99	28.05
Total	353	100
Years of Schooling	Freq.	Percent
Can't read and write	23	5.91
Primary Education	4	1.03
Secondary education	151	38.82
Tertiary education	211	54.24
Total	389	100.00
Occupations	Freq.	Percent
Government Civil Employee	41	10.46
Government Development organizations em	188	47.96
Private firm employee	80	20.41
NGO's employee	4	1.02
Self-employed	78	19.9
Others	1	0.26
Total	392	100
House Ownership	Freq.	Percent
Owned	211	53.83
Not Owned	181	46.17
Total	392	100.00
Remittance Access	Freq.	Percent
Access	132	33.67
Have no Access	260	66.33
Total	392	100.00
Perception on Inflation impact on Saving	Freq.	Percent
Affected	186	47.45
Not Affected	206	52.55
Total	392	100.00

Source: Own Survey, June, 2021

Table 4:2 Descriptive statistics of Households' Socioeconomic attributes

Variables Name	Obs	Mean	Std. Dev.	Min	Max
Annual Household Income	392	237,980.50	391,774.20	4,200	3,000,000
Annual Household Expenditure	392	179,121.50	296,097.90	3,600	1,989,000
Education of Household Head	389	13.23393	4.639508	0	21
Age of Households	389	42.1671	12.6222	20	66
Family size of Households	373	3.44504	1.599835	1	7
Earners in the of Households	349	1.452722	0.7320062	0	4
Household house Ownership (Dummy)	392	0.5382653	0.4991707	0	1
Sex of Households (Dummy)	388	0.5721649	0.4954036	0	1
Marital Status of Households (Dummy)	353	0.7195467	0.4498583	0	1
Remittance availability for Household head (Dummy)	392	0.3367347	0.4731973	0	1
Perception of Households on impact of Inflation on Income	392	0.4744898	0.499987	0	1

Source: Own Survey, June, 2021

In addition to the above statistics the researcher conducts the analysis that compares the family size, the income and saving of respondents. Accordingly, those households who have one additional family member had the income and saving of 243,106.83 and 32,457.02, respectively; and the household that had two family member had income of 169,200.00 birr with saving rate of 37,200.00, apart from this, those households that had an income of 65,640.00 had a family member of three and their saving were 8,040.00, in line with this those households who had 4 family size had an income and saving of 240,051.62 and 31,847.35, respectively.

Table 4:3 Average Income and Saving

Number of family income Earners	Household head Annual average Income	Household head annual average Saving
1	243,106.83	32,457.02
2	169,200.00	37,200.00
3	65,640.00	8,040.00
4	240,051.62	31,847.35
5	236,361.32	29,319.30
6	240,107.26	31,815.84
7	180,000.00	-

Source: Own Calculation, June, 2021

4.1.2 Determinants of Household Saving

Table 4.4 below showed that, household heads who are in the last age [46-66] save more than household heads that are in the initial age of [20-25] and mid age of [26-46]. The average annual saving of initial, middle Ages and last age respondents are about Birr 9,756.13, 431.74 and 62,640.32, respectively. Another vital determinant of household saving is educational level of household in this study. This is because of the datum, as the level of education rises from primary education the knowledge of households about saving also increase. Table 4.4, confirmed that household heads with tertiary educational level on average save more than households with no or primary educational level. The mean saving of a person those could not be read and write respondents is Birr 9,298.96, while household members with primary, secondary and higher education on average saves Birr 0.00, Birr 7,062.44 and 52,367.15 in each year, respectively. Therefore, as level of education increases at initial level, the mean household saving also decreases and starting to raises from secondary level, this is based on the table 4.4. But it couldn't conclude that the educational level increase the awareness of household level increase at the same time, as it shown in the table the lower education level save more than the higher. Therefore, this finding is consistence with the empirical outcomes of other researchers.

Sex is also as an essential variable in the determinants of household saving. The finding told that women do not save more than men. But usually we expected that women save more disposable income than men. The average saving of women is Birr 27,238.55 in each year but, the mean saving of men is Birr 35,046.00 in each year. Even if the average saving of men is greater than the average saving of women, it is not consistent to generalize as totally men save more than women by simply detecting at the quantity of average saving. This is because, we have to reflect other saving measurement mechanisms like average propensity to save (APS) and marginal propensity to save (MPS). Average propensity to save is expressed as the ratio of total saving (si) to total personal disposable income(Y), that is $APS = S/Y$ whereas change in saving (ΔS) divided by change in income (ΔY) is called MPS (i.e $MPS = \Delta S/\Delta Y$). Here, to measure the average propensity to save of men and women household heads, it is must to measure the average income of both household heads. Hence, the average income of men and women households is Birr 249,671.24 and 239,809.70, respectively.

Table 4:4 Socio-economic and Demographic Characteristics of Households

Variables	Obse.	Average Saving in birr	Min	Max
Age of household heads				
20 to 25	47	431.74	0	8,040.00
26 to 46	187	9,756.13	0	120,000.00
47 to 66	155	62,640.32	0	902,400.00
Family size of households			0	
Family size (1-3)	153	67,572.78	0	902,400.00
Family size (4-7)	220	9,006.12	0	120,000.00
Number of earners in the Household				
Earners (1)	167	36,073.29	1.00	902,400.00
Earners (2)	172	23,090.72	0	411,000.00
Earners (3)	8	65,065.50	28,524.00	108,000.00
Earners (4)	2	96,000.00	72,000.00	120,000.00
Sex of Household head				
Male	222	35,046.00	0	902,400.00
Female	166	27,238.55	0	582,000.00
Marital Status of household				

Variables	Obse.	Average Saving in birr	Min	Max
head				
Married	254	21,680.65	0	888,000.00
Unmarried	99	61,108.48	0	902,400.00
Years of Schooling				
Can't read and write	23	9,298.96	0	47,760.00
Primary Education	4	0	0	-
Secondary education	151	7,062.44	0	118,440.00
Tertiary education	211	52,367.15	0	902,400.00
House Ownership			0	
Owned	211	5,871.53	0	902,400.00
Not Owned	181	6,634.61	0	300,000.00
Remittance Access				
Access	132	53,699.73	0	902,400.00
Have no Access	260	20,263.20	0	654,000.00
Perception on Inflation impact on Saving				
Affected	186	24,538.32	0	888,000.00
Not Affected	206	37,828.37	0	902,400.00
Consumption in birr				
<10,000.00	6	2,400.00	3,600.00	6,600.00
10,000.00 to 20,000.00	17	15,112.94	10,224.00	19,800.00
20,000.00 to 30,000.00	51	25,486.82	20,400.00	30,000.00
30,000.00 to 40,000.00	53	34,257.13	30,480.00	40,000.00
50,000.00 to 50,000.00	11	46,811.27	41,000.00	50,000.00
>50,000.00	254	261,078.41	50,736.00	1,989,000.00
Income				
<10,000.00	1	840.00	0	4,200.00
10,000.00 to 20,000.00	5	19,200.00	19,200.00	19,200.00
20,000.00 to 30,000.00	32	24,975.00	23,400.00	30,000.00
30,000.00 to 40,000.00	71	34,748.45	31,200.00	39,660.00
50,000.00 to 50,000.00	7	44,874.86	41,496.00	48,000.00
>50,000.00	276	324,943.78	50,400.00	3,000,000.00

Source: Own Calculation, June, 2021

4.1.3 Forms (category) of saving and Purpose of saving by Households

With respect to forms of household to save, most of an items used to quantify categories of saving, majority of households want to save to cover future unforeseen phenomenon and to start new business and majority of them wants to save in the forms of liquid assets (cash) at banks (formal institutions).

As it is shown in the below figure, about 40.4% categories of saving which was reported by respondent is to cover future expenses, start new business, supplement for retirement age, build houses and cover children' funds and education fees and about 81% surveyed household reported that they used formal institutions to save their wealth.

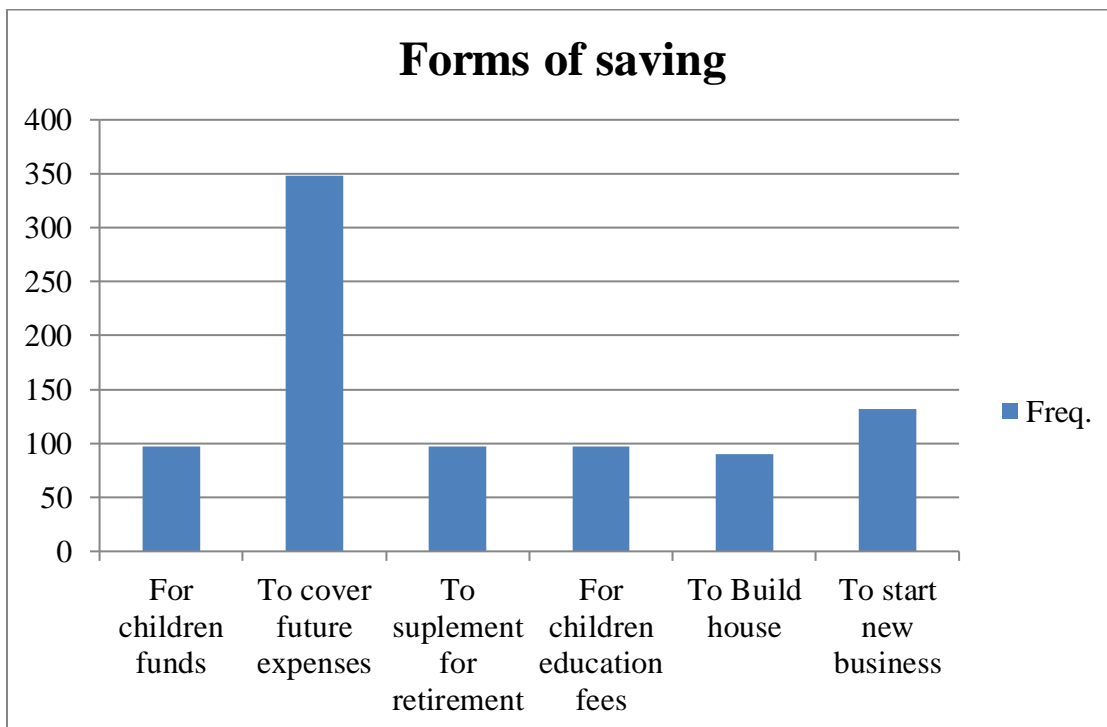


Figure 3 Households' Forms of Saving

Source: Survey, June 2021

4.1.4 Motives, Constraints and Opportunities of Household to Save

Concerning saving motives and their relation to the respondents saving, the most two motives reported were to cover unexpected future expenses and for the purpose of

investment respectively, irrespective of the sex of households, marital status and age of households, occupation type, years of schoolings and level of annual income of the households. About 40.4% of the household heads, reported as their most important motive was unexpected future expenses, which may shows that covid-19 pandemic will be the burning health problems that is expected by households. Another study conducted in Mekele city also witnessed that most of those who did not save had different reasons for not saving. Absence of adequate sources of income and very high level of cost of living due to price rises on food items and non-food items were the main reasons offered for not saving by the sampled non-saver households. Even if acceptable income was available, due to the weak purchasing power of their money, the respondents were impotent to save money on regular basis (Saliya, 2018).

The other reasons were investment which is more important for self-employed, private and NGO workers than government civil and development institutions workers. Relatively high share of private workers of the sampled respondents had no saving. Next to private worker of households' heads, considerable proportion government development organization workers and government civil workers had no saving. Similarly, when we see education sides, high share of sampled households with primary and secondary school completed, followed by household heads with BA/B.sc degree holders had no saving. In the country in general and in Sebeta town household saving is too low to finance investment activities and encourage investors. About 45% of the performance of saving by household is poor which is due to Lack of hard working culture, no fertile environment for saving and high living costs (inflations).

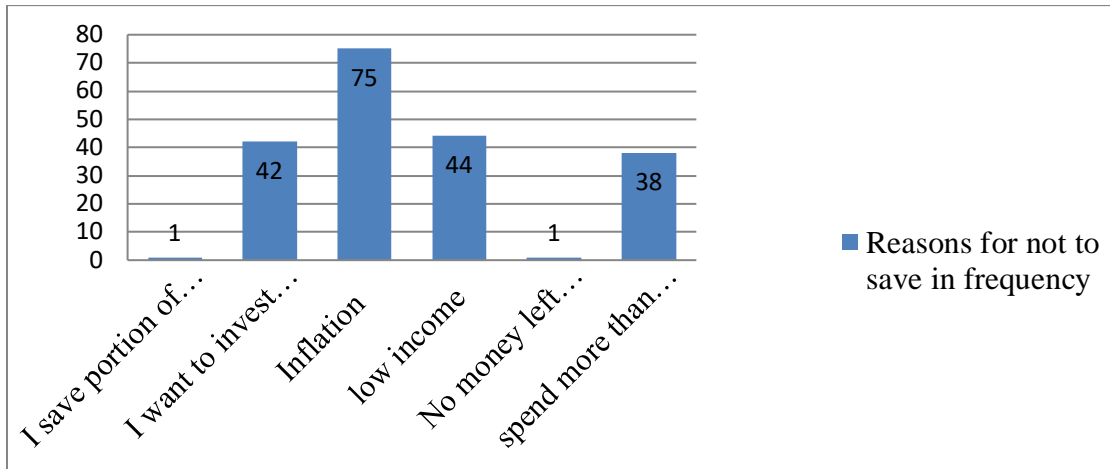


Figure 4 Reasons for not saving

In another case, the constraints and opportunities available for household to saving are condition in the country not allowed them to work more, high living costs, high inflation and low income and physical availability and easily accessibility of financial institutions, respectively.

Table 4:5 Motives, Constraints and opportunities of Household to Save

What is the rate of your saving performance?	Freq.	Percent
Poor	184	46.94
Satisfactory	160	40.82
Good	6	1.53
Excellent	42	10.71
Possible constraints about saving	Freq.	Percent
Condition in the country not allowed..	41	10.49
Conflict and inaccessibility of credi..	7	1.79
High inflation and low income	39	9.97
High living costs	41	10.49
Lack of hard working culture	59	15.09
No additional work available in the m..	1	0.26
No favorable condition to save in fo..	13	3.32
Instability in the country	42	10.75
low income	35	8.95
no fertile environment for saving	113	28.90
Possible opportunities about saving	Freq.	Percent
Availability of financial institutions	40	44.44
Future hope that stability may come	1	1.11
Though I don't have capacity, I wish t..	1	1.11

Easily accessibility of financial inst..	41	45.56
Motives of Saving by Households		
To leave money to my children (or other relatives)?	97	11.27
To cover unforeseen expenses from illness/accidents	348	40.42
To supplement my retirement income	97	11.27
To pay for my children's (or other relatives) education	97	11.27
To buy or build a house/durables in the future	90	10.45
To start up a new business	132	15.33
Where do you prefer to save your money?		
Formal institutions	282	81.03
Informal Institutions	66	18.97
Total	348	100

Source: Survey, 2021

4.1.5 Result of Focus Group Discussion

Though there was a challenge of covid-19 pandemic, a total of two (2) FGD were conducted during the data collection at Dima kebele with 8 households and Furi Gara Bolo kebele 10 households. Based on the data collected and summarized during the FGD discussion, household members those economic statuses are in good condition be able to save while those economic status is less relative to others were unable to save a lot of money. As to them, the motives of saving are to create freedom choice, to be more independent, to invest on other assets, to cover unforeseen expenses and to purchase/own a home. Even those households wealthier than the other unable to save the amount they wished due to upsurge of basic costs of basic utilities such as electricity fees, less income, etc. The FGD result also revealed that the saving habit affected by family size, house ownership, unique individual and household behaviour and income of households.

Participants in the two FGD were asked in what form they save. Most of them replied that they saved in the form of money at banks and informal institutions like Ekub and Edir while others said that they saved in the form of assets. In addition to this, most of the respondent explained the saving situation as the behaviour of individuals not suitable for creating many savers as some of them spend their money without plan. That is they spent on unproductive assets such as drinking alcohols more than their capacity (extravagancy).

They clearly point out that most of the households dwelling in the town spend their income on alcohol drinks, consumer goods such as sugar, food oil, etc.

4.2 Econometric Analysis: Result of the Two-Part Model

While we use survey (cross-sectional) data we may encounter problem of heteroscedasticity (Gujarati, 2008). We can evaluate the robust standard errors to correct the heteroscedasticity problem (Wooldridge, 2010). Hence, the two-part model which is used in this paper is adjusted for heteroscedasticity problems using the robust command in Stata version 14 (robust standard errors are estimated for the two-part). The problem of multi-collinearity was also tested using Correlation matrix and it is detected that there is no multi-collinearity problem among explanatory variables in this study. Multi-collinearity is a serious problem, when a pair-wise correlation coefficient between the two independent variables is greater than or equal to 0.8. Hence, from correlation matrix it is exhibited that there is no series multi-collinearity issues in the data which is corrected according to the rule of thumb by Gujarati (2008). See appendix.

Furthermore, the parameters in the participant model (probit) are jointly significant at the 1 percent level, with a Wald chi-square value of 93.48 (degree of freedom 11) (table 4.6). This means the model is significant in explaining the probability that a household would save. Also, about 37 percent of the variation in the dependent variable – whether or not a household would save (si) – is explained by the model. With regards to the intensity model, approximately 72.52% of the variation in the amount of positive saving outcome is explained by the model. For detail information of this analysis see annex.

4.2.1 Participant Model (Probit) Results

The participant model results show that number of earners within households, years of schoolings, ages and marital status of households and house ownership have significantly positive correlations with the probability that a household will save (Table 4.7). The signs of the above variables are consistent with remittance availability. Similarly, family size and annual household expenditure have significant negative correlations with the probability that a household would save. Households that had access to remittances are more likely to

save, holding all other factors constant, by up to 14 %. Access to remittances is a source of additional income and in particular, it can provide households to save more. By using logistic model, it has been shown in other studies that age, marital status, household education, sex of households and annual income have a significant positive effect on household saving (Zegeye, 2018).

However, households with more illiterate members are more likely to save, compared to households that do not as it was depicted in descriptive analysis above. It is possible because uneducated household heads might have learned from experience the need to save for unexpected emergencies. However, in general, educated household heads are more likely to save compared to uneducated heads (Teshome et al., 2013). This paper also founded that educated household heads are more likely to save compared to uneducated heads by 1.4% keeping other things constant.

To sum up, in the table below out of 11 independent variables, 6 variables: years of schooling, age and family size, availability of remittances, house ownership and number of earners in the households have a significant effect on household saving at 1 percent and 5 percent.

4.2.1.1 Marginal Effect for participant Model (Probit)

Since the participant model used in this paper is non-linear, the marginal effect of each explanatory variable on the response variable is non-constant but it hinge on on the value of the descriptive variables. Consequently, marginal effects are a means for summarizing how change in a response is related to change in co-variants in this study. For categorical variables, the marginal effects show how Probability of saving equals one is forecasted to change as covariates changes from 0 to 1 holding all other covariates constant. However for continuous independent variables, the marginal effect measures the instantaneous rate of change while all other variables are constant. This means in this study, change in the probability of household saving with a unit change in continuous independent variable. Thus, opposed to linear regression case, it is not possible to interpret the estimated parameters as the effect of the independent variable up on saving. However, it is possible

to compute the marginal effects at some interesting values of the significant explanatory variables.

Family size (fs):- The size of household was negatively related with probability of household saving and coefficient calculated by model is statistically different from zero at 1% level of significance. Keeping all other variables constant at their mean values, when household family size increase by one individual, probability of households saving decrease by about 10.8%. This result is due to the fact that when family size increases with its high fertility rate of respondents, less employment opportunity of the households, weak working culture of the members of the family become unemployed and which was coupled with very low rate of skills and therefore low payment. Therefore, additional household member may share the limited resources available which lead the household to save less amount of money.

Additional Earner in the Households (neh): The size of household was positively related with probability of household saving and the coefficient is statistically different from 0 at 5% level of significance. Keeping all other variables constant, when earners in the households increase by one individual, the probability of household to save increased by 17.8% in this particular study.

Household Heads' House ownership (hhho): This variable expected to have positive relationship with probability of saving and the coefficient was statistically significantly different from zero at 1% level. Holding other variables constant, change in house ownership of household head from “not owned to owned” probability of saving increase at about 34.5 percent.

Education of Household heads: - in this study education of the household was positively and significantly different from 0 at 5% level. Other things remain constant, when education of the household increase by a unit probability of household saving increase at about 2.3 percent. This is due to the fact that when education increases households' tendency to save increase it means as education increases the households' chance to get jobs and information will increase which encourage them to save for their future destiny.

The same as this finding Saliya (2018) found out that education and saving rate had positive association.

Age of households Head (aghh):- Econometrics two-pm (first part) analysis shown that household saving in Sebeta town is significantly and positively associated to household age. The coefficients of the age indicate that as the age of the household increases by 1 year the saving rate of the household increases by 0.009 cents. The same as this finding Obayelu (2013) found out that age and saving rate had positive association.

Availability of Remittance for Household Head (arhh):the results of the first parts of econometric analysis shows that the international transfer of money from abroad for relatives is positively and significantly positive with probability of saving by households. For instance, a unit increase in households' remittances is expected to increase the expected amount they would save by 22%. Similarly, the remittances positively and significantly affect private saving both in the short-run and in the long-run (Munir et al., 2011).

4.2.2 Intensity Model Results

4.2.2.1 Intensity Model Results (Second Parts-GLM)

The results of the intensity model show that households' family size and annual expenditure have significant and negative effects on the expected amount saved, holding all other factors constant while income, years of schoolings, age of households, house ownerships, availability of remittances and number of earners in the households are positive effect on the expected amount saved. The signs of these variables are the same as those obtained from participant model that is estimated in first parts of two-part model. (Table 4.7).

4.2.2.2 Marginal Effect Results for Intensity (Second) Model

The household size was adversely related with likelihood of household saving & the coefficient is statistically different from zero at 5 percent level of significance. Making all other variables constant at their mean values, when household family size increase by one individual, the expected amount they would save by 32,339.51 birr yearly. The result is

due to the fact that if the family size increases with its high fertility rate, minimum employment opportunity available, bad work culture members of the family become unemployed and together with low rate of payment motivations. The result of this study is similar to the study conducted by Wolde (2018) in Gumer district town. The study concluded that as the family size of the house hold increases by 1 the saving rate of the household would decrease by 21 birr monthly. In contrast of this, family size didn't affect household saving which is in line with Klaus et al. (1992).

Furthermore, the results of intensity model shows that the number of earners in the household was positively linked with likelihood of household to save and the coefficient is statistically different from 0 at 1 percent level of significance. Keeping all other variables constant, when numbers of earners in the household increases by one individual, the expected amount of saving by households would increase by 84,218.74 birr. Nevertheless, the previous study conducted by Saliya (2018) found that the additional earners in the households and house ownership by the households have negative relation with the amount to save by the households. In addition to this, the result of this model revealed that the household income and expenditure were positively linked with likelihood of household to save and the coefficient

Table 4:6 Two-Part model estimates for the determinants of household saving

Variables	Probit (Participant Model)			GLM (Intensity Model)		
	Coef.	Robust Std. Err.	mfx	Coef.	Robust Std. Err.	margins, dydx(*)
ahhi	0.0000003	0.0000004	0.00000011	0.0000021***	0.0000003	0.2562534
ahhe	(0.0000009)	0.0000005	(0.000000352)	(0.0000010)**	0.0000004	(0.1250373)
edhh	0.0576792**	0.0189501	0.0229809	0.0263246*	0.0104841	3,295.549
aghh	0.0225997**	0.0090824	0.0090043	0.0229567**	0.0076535	2,873.929
fs	(0.2719912)***	0.0746946	(0.1083683)	(0.2583253)***	0.0547829	(32,339.51)
neh	0.4478306**	0.1182814	0.1784272	0.6727322***	0.1041988	84,218.74
Dhho(*)	0.8950320***	0.2236088	0.3454707	0.3932753*	0.1800547	49,233.78
dshh(*)	0.2307532	0.1852769	0.0918242	0.0718332	0.1375478	8,992.739
dmshh(*)	(0.2607489)	0.2914363	(0.1029047)	(0.0650029)	0.1714052	(8,137.658)
drahh(*)	0.5711202*	0.2238222	0.2213531	0.2728687	0.1512341	34,160.19
dinf(*)	(0.3759460)	0.2414396	(0.149096)	(0.0452474)	0.2154295	(5,664.478)
_cons	(1.7015940)**	0.5814108	-	7.6958360***	0.5562783	-
Wald chi2(11) =	93.48					
Pseudo R2 =	0.3718					
Number of obs =	306			157		
(1/df) Deviance=				0.7252125		
(1/df) Pearson =				0.7592982		

Source: Own Calculation, 2021

(*) dydx is for discrete change of dummy variable from 0-1

***, **, * = denotes significance at 1 percent 5 percent and 10 percent, respectively.

Mfx- shows the marginal effects of the variables on the expected amount saved by the households given that the household saves.

4.3 Model Test Results

4.3.1 GLM Link Test- Box-Cox Regression

As it is shown in the annex figure (figure 12) the boxcox coefficient, theta, is approximately approaches to zero which shows the relationship between expected values probability of saving and covariates are log links.

4.3.2 GLM Family Test- Modified park test

```
. test lnyhat-0 = 0
( 1)  [raw2]lnyhat = 0
           chi2( 1) = 263.83
           Prob > chi2 = 0.0000
-
. test lnyhat-1 = 1
( 1)  [raw2]lnyhat = 2
           chi2( 1) = 4.31
           Prob > chi2 = 0.0379
-
. test lnyhat-2 = 2
( 1)  [raw2]lnyhat = 4
           chi2( 1) = 415.93
           Prob > chi2 = 0.0000
-
. test lnyhat-3 = 3
( 1)  [raw2]lnyhat = 6
           chi2( 1) = 1498.69
           Prob > chi2 = 0.0000
```

Figure 5 Modified Park Test Results

Here, since the GLM does not assume constant variances and instead assumes there is a function that explains the relationship between variance and mean. To choose the most appropriate exponential probability distribution, one must specify a suitable variance function. Modified park test is used to choose the most appropriate variance functions and recommends family given a particular link functions. Hence, since the lamda is equal to 2

and its coefficient is significant the optimal variance functions family is gamma distribution (g). See figures 10 and 11 above.

4.3.3 GLM Testing For Non-Linearity and Goodness of Fit:

4.3.3.1 Pregibon's Link Test To Test Assumption of Linearity

Ho: model is linear. The coefficient on lnyhat2 should be statistically insignificant. Hence, lnyhat2 has no explanatory power and this model specified correctly in this research.

```
. glm raw2 lnyhat lnyhat2, family(gamma)link(log) vce(robust)

Iteration 0:  log pseudolikelihood = -3997.6054
Iteration 1:  log pseudolikelihood = -3382.4922 (backed up)
Iteration 2:  log pseudolikelihood = -3297.9218
Iteration 3:  log pseudolikelihood = -3294.5244
Iteration 4:  log pseudolikelihood = -3294.4922
Iteration 5:  log pseudolikelihood = -3294.4921

Generalized linear models                No. of obs      =          157
Optimization      : ML                   Residual df     =          154
                                                Scale parameter =    6.930716
Deviance          =  474.0563939          (1/df) Deviance =    3.078288
Pearson           = 1067.330314           (1/df) Pearson  =    6.930716

Variance function: V(u) = u^2           [Gamma]
Link function     : g(u) = ln(u)        [Log]

                                                AIC             =    42.00627
Log pseudolikelihood = -3294.49207      BIC             =   -304.6055
```

raw2	Robust					
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lnyhat	.6726184	1.178842	0.57	0.568	-1.637869	2.983106
lnyhat2	.0458127	.0476915	0.96	0.337	-.0476608	.1392863
_cons	8.307534	7.018401	1.18	0.237	-5.448279	22.06335

Figure 6 Pregibon's Link Test results for Assumption of Linearity

4.3.3.2 Testing Deviance Residuals for Goodness of Fit

Deviance residual is defined as the square root of the contribution to the likelihood-ratio test. It is the statistic of a saturated model versus the fitted model which is favourable for GLM model. As it is shown in the following figure, the variance function is chosen correctly and deviance residuals should follow the 45' line on a normal plot.

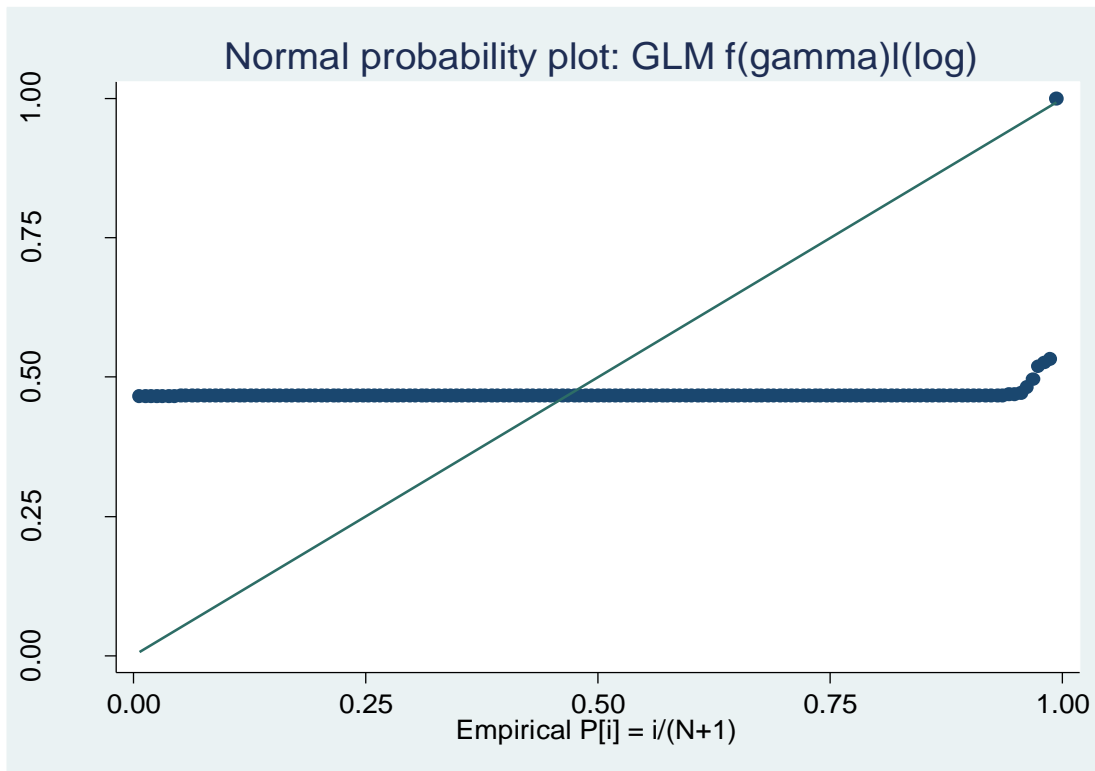


Figure 7 Test results for Residuals for Goodness of Fit.

According to McCullagh, P. and Nelder, J.A and Jones, 2013, the criteria for residuals for goodness of fit (variance function is chosen correctly) is deviance residuals should follow the 45' line on a normal plot.

4.3.4 Testing for Heteroskedasticity

While we use survey (cross-sectional) data we may encounter problem of heteroscedasticity (Gujirati, 2008). We can evaluate the robust standard errors to correct the heteroscedasticity problem (Wooldridge, 2010). Hence, the two-pm model which is used in this paper is adjusted for heteroscedasticity problems using the robust command in Stata version 14 (robust standard errors are estimated for the two-pm).

4.3.5 Testing for Multi-collinearity

The problem of multi-collinearity was also tested using correlation matrix and it is detected that there is no multi-collinearity problem among explanatory variables in this study. Multi-collinearity is a serious problem, when a pair-wise correlation coefficient between the two independent variables is greater than or equal to 0.8. Hence, from correlation matrix it is exhibited that there is no series multi-collinearity issues in the data which is corrected according to the rule of thumb by Gujarati (2008). The result of multi-collinearity test was attached in the annex part of the paper.

4.3.6 Testing for Model Specifications

The model selection criteria examined clearly identify the correct asymmetric model out of alternative competing models. The Akaike information criterion (AIC) is an estimator of prediction error and thereby relative quality of statistical models for a given set of data. Given a collection of models for the data, AIC estimates the quality of each model, relative to each of the other models. Thus, AIC provides a means for model selection. AIC is founded on information theory. When a statistical model is used to represent the process that generated the data, the representation will almost never be exact; so some information will be lost by using the model to represent the process (McElreath, Richard, 2016). AIC estimates the relative amount of information lost by a given model: the less information a model loses, the higher the quality of that model, lower AIC is the best among selected models (Taddy, Matt, 2019).

Accordingly, the two models, first part-probit and second part-glm, used with the following formulas to compute the values of AIC and BIC with stata 14 post-estimation command, *estat ic*:

$AIC = (-2\ln L + 2k)/N$ and $BIC = D2 - (N-k)\ln(N)$, where $\ln L$ and $D2$ are the overall likelihood and the overall deviance, reported by glm, k is the number of parameters of the model, and $N-k$ is the degrees of freedom associated with the deviance $D2$ (Akaike, 1973 and Raftery, 1995).

As a result, the probit model was used in the first parts of the two-part model as AIC value is lower, 289.1 compared to the logit model which is equal to 290.4 and the glm was used in the second part as the AIC value is lower than that of OLS model. For more information see the following two pictures.

```
. estimates stats logit probit
```

Akaike's information criterion and Bayesian information criterion

Model	Obs	ll (null)	ll (model)	df	AIC	BIC
logit	306	-211.9985	-133.186	12	290.3721	335.0551
probit	306	-211.9985	-132.5268	12	289.0537	333.7367

Note: N=Obs used in calculating BIC; see [\[R\] BIC note](#).

Figure 8 Model Specification Test for the first part Model

```
. estimates store glm
```

```
. estimates stats OLS glm
```

Akaike's information criterion and Bayesian information criterion

Model	Obs	ll (null)	ll (model)	df	AIC	BIC
OLS	157	-2080.43	-1915.212	12	3854.425	3891.1
glm	157	.	-1757.254	12	3538.507	3575.182

Note: N=Obs used in calculating BIC; see [\[R\] BIC note](#).

Figure 9 Model Specification Test for the second part Model

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

This study used a two-part model to explain household's saving in Sebeta town of Oromia region, Ethiopia. Household saving is one of the most important elements of household economic activities. Thus, in order to understand factors that affect household head saving it is better to study the response of households saving to different social, economic and demographic factors.

Main findings indicate that the determinants of the household heads saving are influenced by demographic and economic factors based largely on family size and number of earners in the household. This both factors are the most crucial factor of the household saving in this study. In the households, holding all other variables constant at their mean values, when household family size and number of earners increase by one individual, the expected amount of saving by households would increase by 32,339.51 birr and 84,218.74 birr yearly, respectively. This point out that great and rapid increase in number of earners inclines to raise the rate of household to save since household ability to save rises with household number of earners as the income would increase in the households. When the age of the head of household increases by one year, saving had increased by about 2.3 birr on the average. The marital status of household heads has a negative relationship with household saving. The marital status had increased by one leads to 6.5 birr decrease the household saving.

Moreover, household house ownerships and remittance accessibility have significantly positive correlations with the likelihood that a household would save. Moreover, number of earners in the households, education and age of have significantly positive effects on the expected amount of money a household would save.

Plus, about 40.4% forms of saving which was reported by respondent is to cover future expenses, start new business, supplement for retirement age, build houses and cover

children' funds and education fees and about 81% surveyed household reported that they used formal institutions to save their wealth.

Saving motives and their relation to the amount saved by household, the major two reasons for saving was to cover unexpected future expenses and motives for investment in different order irrespective of the sex of the households, marital status of sampled households, age of household, type of occupation, level of education and income level of households. Investment purposes were the most crucial for self-starting, private and NGO employees than government civil and development institution employees in this particular study.

The constraints and opportunities available for household to saving are condition in the country not allowed them to work more, high living costs, high inflation and low income and physical availability and easily accessibility of financial institutions, respectively.

In general, the analysis showed that among the hypothesized explanatory variables, except the some variables the other all variables had a significant impact on saving of households, accordingly, age, access to remittance, marital status, house ownership, number of earners and income had shown a positive influence on saving, conversely, family size, inflation and marital status had negatively influence the saving rate of households. Thus, this study may contribute knowledge on determinants of the household heads saving in urban areas of the country and enhance-evidence based interventions.

5.2 RECOMMENDATION

Though the level of saving in Ethiopia is very weak, the household saving are contributes a lot for economic growth and development. Therefore, Ethiopia in general and Sebeta town in particular has taken to improve their saving. Based on the findings of the study the researcher forwards the following recommendations:

- i.** The government and concerned body should try to shape livelihood interventions to improvement of household income and diversification of income streams for the households and encourage working cultures of the citizens which will have a round effect on saving, investment and income growth.

- ii.** Community family planning measures and other awareness creations should be taken to bind household family size. That is creating strategies of employment opportunities for Women to decrease fertilities and practical awareness creations for households.
- iii.** The current prevalence of high cost of day to day living which is due to inflations was one of the most imperative determinants observed to add to low saving performance by sampled households in the study area. The government should come up with the necessary measures and effort to calm the high cost of living burden by employing short-term and long-term plans and strategies in the country. The concerned bodies should also continue the work of alleviating price on food items as a temporary plan since the majority of sampled household income is consumed to cover food items and other basic needs. Furthermore, the country should encourage domestic producers of food and non-food items for the local market as a long-standing policy since one of the major reasons behind inflation on food and non-food items is the unpredictability of the local and global market.
- iv.** Based on the results and discussions by this paper, the major reasons of saving responded by households members is to cover future unforeseen situations and to start new business. Therefore, facilitating and strengthening the accessibility of financial institutions to give loans without collateral and focusing on health of community (especially how to prevent transmission of covid-19 pandemic) which would decrease extra expense of households, particularly in the town of sebeta where the study is conducted.
- v.** The government and financial institutions should be work on how the saving benefits households in the town through different mechanism.
- vi.** The situation of the present study is on factors of households saving living in Sebeta town, which may not be possible to conclude to whole populations of Ethiopia, even to the Oromia Nation Regional State. Plus, country side household heads are not touched in this study. It would, therefore, be remarkable to discover whether there are differences in the saving of urban and rural household heads in Ethiopia.

- vii.** This study was carried-out based on a limited sample drawn from a large number of respondents. The conclusion is based on these sample households, so far the study cannot generalize at a regional or national level. As a result, future studies working in collaboration with stakeholders for funding sources may undertake similar research that are use larger amount of sample size with other unique econometric models such as Heckman selection model.

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ANNEXES

Fitting probit regression for first part:

```
Iteration 0:   log pseudolikelihood = -211.99845
Iteration 1:   log pseudolikelihood = -134.22732
Iteration 2:   log pseudolikelihood = -133.19282
Iteration 3:   log pseudolikelihood = -133.18603
Iteration 4:   log pseudolikelihood = -133.18603
```

Fitting glm regression for second part:

```
Iteration 0:   log pseudolikelihood = -1765.7463
Iteration 1:   log pseudolikelihood = -1758.1258
Iteration 2:   log pseudolikelihood = -1757.2549
Iteration 3:   log pseudolikelihood = -1757.2537
Iteration 4:   log pseudolikelihood = -1757.2537
```

Two-part model

Log pseudolikelihood = -1890.4398 Number of obs = 306

Part 1: probit

	Number of obs	=	306
	Wald chi2(11)	=	93.48
	Prob > chi2	=	0.0000
Log pseudolikelihood = -133.18603	Pseudo R2	=	0.3718

Part 2: glm

	Number of obs	=	157
Deviance = 105.1558155	(1/df) Deviance	=	.7252125
Pearson = 110.0982444	(1/df) Pearson	=	.7592982

Variance function: V(u) = u²
Link function : g(u) = ln(u)

[Gamma]
[Log]

	AIC	=	22.53826
Log pseudolikelihood = -1757.253731	BIC	=	-627.9998

		Robust					
si	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]		
probit							
ahhi	2.77e-07	4.18e-07	0.66	0.508	-5.43e-07	1.10e-06	
ahhe	-8.83e-07	5.10e-07	-1.73	0.083	-1.88e-06	1.17e-07	
edhh	.0576792	.0189501	3.04	0.002	.0205378	.0948207	
aghh	.0225997	.0090824	2.49	0.013	.0047985	.0404008	
fs	-.2719912	.0746946	-3.64	0.000	-.4183898	-.1255925	
neh	.4478306	.1182814	3.79	0.000	.2160032	.6796579	
dhho	.895032	.2236088	4.00	0.000	.4567668	1.333297	
dshh	.2307532	.1852769	1.25	0.213	-.1323829	.5938893	
dms hh	-.2607489	.2914363	-0.89	0.371	-.8319535	.3104557	
drahh	.5711202	.2238222	2.55	0.011	.1324368	1.009804	
dinf	-.375946	.2414396	-1.56	0.119	-.8491588	.0972669	
_cons	-1.701594	.5814108	-2.93	0.003	-2.841138	-.5620499	
glm							
ahhi	2.05e-06	2.76e-07	7.42	0.000	1.51e-06	2.59e-06	
ahhe	-9.99e-07	3.72e-07	-2.69	0.007	-1.73e-06	-2.70e-07	
edhh	.0263246	.0104841	2.51	0.012	.0057761	.046873	
aghh	.0229567	.0076535	3.00	0.003	.0079561	.0379573	
fs	-.2583253	.0547829	-4.72	0.000	-.3656979	-.1509527	
neh	.6727322	.1041988	6.46	0.000	.4685063	.876958	
dhho	.3932753	.1800547	2.18	0.029	.0403746	.7461761	
dshh	.0718332	.1375478	0.52	0.602	-.1977555	.3414219	
dms hh	-.0650029	.1714052	-0.38	0.705	-.4009509	.2709451	
drahh	.2728687	.1512341	1.80	0.071	-.0235446	.5692821	
dinf	-.0452474	.2154295	-0.21	0.834	-.4674814	.3769867	
_cons	7.695836	.5562783	13.83	0.000	6.605551	8.786121	

Figure 10 Two-Part model estimates for the determinants of household saving


```

. glm raw2 lnyhat, family(gamma)link(log) vce(robust)

Iteration 0:   log pseudolikelihood = -4165.8021
Iteration 1:   log pseudolikelihood = -3528.5298
Iteration 2:   log pseudolikelihood = -3434.9292
Iteration 3:   log pseudolikelihood = -3301.3196
Iteration 4:   log pseudolikelihood = -3296.2817
Iteration 5:   log pseudolikelihood = -3296.1534
Iteration 6:   log pseudolikelihood = -3296.1532

Generalized linear models           No. of obs   =       157
Optimization       : ML             Residual df   =       155
                                                Scale parameter =    6.826746
Deviance           =  477.3787123    (1/df) Deviance =    3.079863
Pearson           = 1058.145606      (1/df) Pearson  =    6.826746

Variance function: V(u) = u^2           [Gamma]
Link function      : g(u) = ln(u)       [Log]

                                                AIC           =    42.01469
Log pseudolikelihood = -3296.153229    BIC           =   -306.3394

```

raw2	Robust				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
lnyhat	1.773368	.1091789	16.24	0.000	1.559382 1.987355
_cons	1.919198	1.179175	1.63	0.104	-.3919428 4.230338

Figure 13 GLM estimation results for testing distributional Families

```
. boxcox si $x if si>0
Fitting comparison model
```

```
Iteration 0: log likelihood = -2080.4302
Iteration 1: log likelihood = -1833.4813
Iteration 2: log likelihood = -1831.7021
Iteration 3: log likelihood = -1831.7009
Iteration 4: log likelihood = -1831.7009
```

```
Fitting full model
```

```
Iteration 0: log likelihood = -1915.2123
Iteration 1: log likelihood = -1767.8214
Iteration 2: log likelihood = -1741.2233
Iteration 3: log likelihood = -1740.9149
Iteration 4: log likelihood = -1740.9148
```

```
Log likelihood = -1740.9148
Number of obs = 157
LR chi2(11) = 181.57
Prob > chi2 = 0.000
```

si	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
/theta	.2047815	.0476261	4.30	0.000	.1114361 .2981268

```
Estimates of scale-variant parameters
```

	Coef.
Notrans	
ahhi	.0000222
ahhe	-.0000141
edhh	.2204663
aghh	.170789
fs	-2.147148
neh	5.455159
dhho	2.776681
dshh	.1980775
dms hh	-.5112987
drahh	2.29727
dinf	.0095272
_cons	14.08733
/sigma	6.2375

Test	Restricted	LR statistic	P-value
H0:	log likelihood	chi2	Prob > chi2
theta = -1	-1989.7939	497.76	0.000
theta = 0	-1749.7563	17.68	0.000
theta = 1	-1915.2123	348.59	0.000

Figure 14 Boscox Testing Result for GLM Link Test

```
. estat vce, correlation format(%6.3f)
```

Correlation matrix of coefficients of twopm model

		probit										
e (V)		ahhi	ahhe	edhh	aghh	fs	neh	dhho	dshh	dmshh	drahh	dinf
probit												
	ahhi	1.000										
	ahhe	-0.821	1.000									
	edhh	-0.099	0.003	1.000								
	aghh	-0.039	0.074	-0.063	1.000							
	fs	0.180	-0.114	0.095	0.147	1.000						
	neh	-0.074	-0.016	0.098	0.131	-0.061	1.000					
	dhho	-0.054	0.107	0.092	-0.348	-0.154	-0.268	1.000				
	dshh	0.037	0.060	-0.002	0.005	0.014	0.123	-0.151	1.000			
	dmshh	-0.059	-0.073	0.055	-0.026	-0.268	0.039	-0.296	-0.037	1.000		
	drahh	-0.025	0.014	-0.015	-0.075	-0.104	0.008	0.335	-0.041	-0.213	1.000	
	dinf	-0.083	-0.145	0.141	-0.399	-0.048	-0.022	0.207	-0.058	0.275	0.288	1.000
	_cons	0.016	-0.002	-0.492	-0.583	-0.410	-0.363	0.222	-0.201	-0.256	0.000	-0.053
glm												
	ahhi	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	ahhe	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	edhh	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	aghh	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	fs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	neh	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	dhho	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	dshh	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	dmshh	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	drahh	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	dinf	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	_cons	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
e (V)		probit _cons	glm									
probit _cons		1.000										
glm												
	ahhi	0.000	1.000									
	ahhe	0.000	-0.320	1.000								
	edhh	0.000	-0.291	0.098	1.000							
	aghh	0.000	-0.269	0.190	0.033	1.000						
	fs	0.000	0.175	0.016	0.077	0.232	1.000					
	neh	0.000	-0.033	-0.243	0.126	0.006	-0.364	1.000				
	dhho	0.000	-0.165	0.189	0.020	-0.057	0.230	-0.210	1.000			
	dshh	0.000	0.036	0.139	-0.079	0.119	0.008	0.094	0.118	1.000		
	dmshh	0.000	-0.097	-0.230	0.231	0.317	0.202	0.281	-0.313	-0.056	1.000	
	drahh	0.000	0.022	-0.169	0.093	-0.403	0.166	0.105	0.238	-0.007	-0.085	1.000
	dinf	0.000	-0.209	-0.106	0.196	-0.207	-0.007	0.396	0.186	0.248	0.197	0.421
	_cons	0.000	0.193	-0.112	-0.393	-0.701	-0.441	-0.320	-0.199	-0.301	-0.518	-0.013
e (V)		glm dinf	glm _cons									
glm dinf		1.000										
glm _cons		-0.264	1.000									

Figure 15 Results of Test of Multi-collinearity

Survey Questionnaire on the Determinants of Household Saving

This survey tool is developed for the purpose of undertaking Research to identifying determinants of saving in urban households in Sebeta town of Oromia Region, Ethiopia. It will be submitted to Addis Ababa University as a partial fulfilment of a Master's of science degree in Development Economics. Therefore, you are selected to be one of the participants in this study and I request you to give your genuine answer voluntarily. I assure you that your responses will not be shared with other party or be used for other purposes and I strongly believe that my success highly depends on your meaningful and relevant information. If you have any question regarding on this survey please contact the owner of this research with the following address:

Name: **Osman Husien**; Address: **Tel: +251-9-12-99-26-03**

Part I: Instruction to fill the Questionnaire: This questionnaire includes several categories of questions that will help us understand different aspects of determinants of saving. There is no right or wrong answers to any of these questions. It also has several different kinds of questions that appear in different formats. I may ask you to **circle or write a number of your choose or write your opinion**, in the space provided.

Part II: Respondent's Information:

Full Name of Respondent: _____ study Area:

_____ Date of Data Collection _____ Kebele:

_____ Signature: _____

Part III: Interview Questionnaires for Households':

1. Gender: Sex of the household head? 1. Male 2. Female
2. Age: Please, Would you tell me your age? (household head age) _____
3. Education: Indicate highest level of education attend by the household head. 1. Can-not be read and write 2. Read and Write Only 3. Primary School Completed 4. Secondary school or preparatory 5. Technique and Vocational colleges Diploma 6. First Degree 7. Second Degree 8. Third Degree 9. Others (specify) _____
4. Religion: What is household head religion? _____
5. Household composition:
5.1 Are you the head of the Household? 1. Yes 2. No
5.2 Marital status of the household head? 1. Married 2. Unmarried 3. Divorced 4. Widowed 5. Separated
5.3 How many persons including you do you support financially? (enter 0 if the answer is

none)_____
5.4 How many members of the family earn periodic income in addition to you? _____
5.5 How many of the people that you support financially are children under the age of 18? (Enter 0 if the answer is none) and how many of them are above the age of 65? _____
5.6 If you offer financial help for people who live anywhere other than in your household, please provide the number of other people. (enter 0 if the answer is none)_____
<u>6. Household Income:</u>
6.1 Do you think that your current and future real income affected by Inflations? 1. Yes 2. No
6.2 If your answer is ‘yes’ for the above questions how? :_____
6.3 Do you think that your current and future saving affected by Inflations? 1. Yes 2. No
6.4 If your answer is ‘yes’ for the above questions how? :_____
6.5 How many of your family are employed (number of earners)? _____
6.6 Select the answer which best describes Your Current Occupation status. 1. Government Civil Employee 2. Government Development organizations employee 3. Private firm employee 4. NGO’s employee 5. Self-employed (doing own business) 6. Other (specify) _____
6.7 What is your part-time works that you earn money (if any) 1. Trade 2. Teaching 3. Working in private firm 4. None (type zero if there is no part-time work)_____
6.8 Do you have anyone who has been sending you Money from abroad? 1. Yes 2. No
6.9 Select the answer which best describes Your Current Additional Occupation status. 1. Government Civil Employee 2. Government Development organizations employee 3. Private firm employee 4. NGO’s employee 5. Self-employed (doing own business) 6. Other (specify) _____
6.10 How much birr do you earn per month on average? (approximation) _____
6.11 Thinking of all of your sources of household income before taxes, what is your total annual household income? _____
6.12 Thinking of all of your sources of household income before taxes, what are both your own as well as additional sources (such as a spouse/partner). _____
<u>7. Household Expenditures:</u>
7.1 How much birr do you spend per month on average? _____

7.2 What are your total annual household expenditures? _____
8. <u>Credit Accessibility</u>
8.1 Do you have saving access in your area? 1. Yes 2. No
8.2 Where do you prefer to save your money? 1. Formal institutions 2. Informal institutions
8.3 . If your response for above question is informal/traditional, why? Justify your answer. _____
8.4 What is your reason if your answer for above question is modern or formal institution? Please list your reasons. _____
8.5 How long is the formal institution far from your home in KM? _____
8.6 Are you aware that you can earn interest on your saying accounts? 1. Yes 2. No
8.7 Will you decide to save more if the current interest rate rises? 1. Yes 2. No
8.8 Do you have access to credit facilities? 1. Yes 2. No
8.9 If your answer is “yes” for above question, what is your source of credit? 1. Private Money lenders 2. Micro finance institutions 3. Commercial Banks 4. Friends or relative 5. Not applicable 6. others (specify) _____
8.10 If “no” for the above question, what is your reason? 1. Lack of credit facilities 2. Have never heard of credit facilities 3. Others’ (specify) _____
9. <u>Saving, Assets Ownership and liability:</u>
9.1 Do you have your own home/house? 1. Yes 2. No
9.2 What would you estimate your total value of your investment assets, financial assets, and value of personal possessions to be at this time? Please do not include any debt attached to this assets. _____
9.3 Have you borrowed money from friends, relatives or financial institutions? 1. Yes 2. No If ‘yes’ how much? _____
9.4 Which of the below mentioned statements will best defines the present condition of your family? 1. Running into debt 2. Saving to draw on our saving 3. Handling to make ends meet on our income’, 4. Saving little 5. Saving lot
9.5 Do you save money from your earnings? 1. Yes 2. No If ‘yes’ how much in month? _____ If you really don’t know, type 0 (zero).
9.6 If you answer is ‘yes’ for the above questions, for how long you put aside your money in informal or formal institutions in years? _____ If you really don’t know, type 0 (zero).
9.7 What is the rate of your saying performance? 1. Poor 2. Satisfactory 3. Good 4. Very good 5. Excellent
9.8 If your response for above questions is ‘Poor’, what is the reasons _____

9.9 Choose the best description of your (household's) ways to save money from the following? **1.** I do not save, usually I spend more than my income **2.** I do not save, usually all the income is spent **3.** I do not really try to save, but usually I have some money left by the end of the year **4.** I save whatever left at the end of each month, no particular intention **5.** I save all irregular income, and spend all regular income **6.** I save regularly by putting money aside every month **7.** I do not know

10. Reasons for Saving:

10.1 We would now like to ask you some questions about your personal opinion about saving. People have many different reasons for saving money for a short or for a long time. Why you want to save money? If you really don't know, type 0 (zero). **1.** To leave money to my children (or other relatives) **2.** To have some saving to cover unforeseen expenses from illness/accidents **3.** To supplement my retirement income, & to have extra money to spend in retirement **4.** To pay for my children's (or other relatives) education **5.** To buy or build a house/durables in the future **6.** To start up a new business

10.2 Which group is the First Most Important to you, with respect to the financial situation of your household? **1.** The neighbour **2.** Friends and acquaintances **3.** Colleagues at work **4.** People with the same level of education as myself **5.** People of about the same age as myself **6.** People having the same job as I have **7.** Brothers and sisters (or other relatives) **8.** People that I know from the newspapers or from the TV **9.** Other _____ **10.** Don't know.

10.3 Which group is the Second Most Important to you, with respect to the financial situation of your household? **1.** The neighbour **2.** Friends and acquaintances **3.** Colleagues at work **4.** People with the same level of education as myself **5.** People of about the same age as myself **6.** People having the same job as I have **7.** Brothers and sisters (or other relatives) **8.** People that I know from the newspapers or from the TV **9.** Other _____ **10.** Don't know.

10.4 What is your general opinion about saving?

1. _____
2. _____
3. _____
4. _____
5. _____

Thank you in advance for your kind cooperation!

Focus Group Discussion (FGD) Checklist questions

1. Do you think that your current and future real income and saving affected by inflations? How?
2. In your opinion, how savings habits of yours and community encouraged?
3. In your opinion, what kinds of activities those discourage community to put money aside?
4. What is your first priority institution to save money (Informal VS formal institutions)?
5. Usually, in what form you and communities save (assets versus money)?
6. What types of major activities you and communities spend their incomes? Please list from very important to less important?
7. How do you evaluate credit access (both distance and services) financial institutions?
8. In addition to formal job, do you work in part-time? Please mention?
9. Do you think that your current and future real income and saving affected by interest rate? How? Negatively or positively?
10. In your opinion, what determines your saving situation?
11. Any other things you want to discuss or say about savings, expenditure, income, etc?