Determinants of Savings Behavior among Rural Households in Case of Boricha Woreda, Sidama Zone, Southern Ethiopia

By: Bealu Tukela Bekata

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Principal Advisor: Getnet Begashaw (PhD)

Co-advisor: Bahiriw Tazebew

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Declaration of the final Thesis

I, hereby declare that the corrections and recommendations suggested by the Board of Examiners are incorporated into the final thesis entitled “Determinants of Savings Behavior among Rural Households in Case of Boricha Woreda, Sidama Zone**,** Southern Ethiopia” by Bealu Tukela.

_____	_____	_____
Mr. Bealu Tukela Bekata	Signature	Date

HAWASSA UNIVERSITY

ADVISORS' APPROVAL SHEET

This is to certify that the thesis entitled "Determinants of Savings Behavior among Rural Households in Case of Boricha Woreda, Sidama Zone, Southern Ethiopia**"** submitted in partial fulfillment of the requirements for the degree of Master's with specialization in Accounting and Finance, the Graduate Program of the School of Management and Accounting and finance, and has been carried out by Bealu Tukela Id. No ACFNW/302/06, under our supervision. Therefore we recommend that the student has fulfilled the requirements and hence hereby can submit the thesis proposal to the department.

Getnet Begashaw (PhD)	_____	_____
Name of major advisor	Signature	Date
Bahiriw Tazebew _____	_____	_____
Name of co-advisor	Signature	Date

SCHOOL OF GRADUATE STUDIES

HAWASSA UNIVERSITY

EXAMINERS' APPROVAL SHEET

We, the undersigned, members of the Board of Examiners of the final open defense by Bealu Tukela Bekata have read and evaluated his thesis entitled "Determinants of Savings Behavior among Rural Households in Case of Boricha Woreda, Sidama Zone, Southern Ethiopia", and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirements for the degree of Master of Science in Accounting and Finance.

Name of Chairperson	Signature	Date
Name of Major Advisor	Signature	Date
Name of Co-advisor	Signature	Date
Name of Internal Examiner	Signature	Date
Name of External examiner	Signature	Date
(DGC/SGC)	Signature	Date
SGS Approval	Signature	Date

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ACRONYMS AND ABBREVIATIONS

BoFED	Bureau of Finance and Economic Development
CLZ	Coffee Livelihood Zone
CSA	Central Statistics Agency
EEA	Ethiopian Economics Association
FAO	Food and Agriculture Organization
MLZ	Maize Livelihood Zone
NGO	Non-Governmental Organization
OLS	Ordinary Least Square
SNNPR	Southern Nations Nationalities and Peoples Region
VIF	Variance Inflation Factor
Ha	Hectare
Kg	Kilogram
Km	Kilometer

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ABSTRACT

Household savings is an important factor for the economic growth of the country. This study identified and examined different determinants of saving behavior of rural households and analyzed the pattern and distribution of savings related factors like the mode of saving, amount preferred for saving, attitude preferred for saving, type of saving, expectation for the future savings in Boricha Woreda of Sidama Zone, Southern Ethiopia. The data of 204 sample households was collected from rural households by using structured questionnaires, focus group discussion and key informant interview. For this study, Multiple Regression Model was employed to find out the determinants of saving behavior of households in the study area. The results ultimately revealed that age of household head, education, training, membership to cooperatives, farm and off-farm income, farm size, and livestock were significant and influencing positively rural households' savings. Whereas expenditure, family size, and distance to savings associations were significant variables that influenced the saving behavior of rural household negatively in the study area. These factors therefore have to be considered in designing strategies aimed at improving the saving mobilization of rural households.

Key words: savings, rural, households, multiple linear Regression,

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

According to Jocelyn, Rodriguez, and Richard (1988*)*, there is a close link between rural savings mobilization and the process of economic development especially in countries where the agricultural sector holds a key position in the overall economy. Savings are very imperative for supporting and developing rural industries. Savings determine the level of economic activity of a country to a large extent (Oluwakemi, 2012). Since savings is income not consumed but put aside for future use, it follows that savings drive re-investment, enterprise expansion and ultimately, economic development (Ogheneruemu, 2014).

According to Hafeez *et al.* (2011) national saving is an important feature for achieving high growth in the economy. More saving rates bring out more investment. This will ultimately lead to industrial growth, improvement in quality of products, employment generation, stable prices and finally higher growth. Households saving play an important role in the economic development and the largest component of national savings of both developed and developing nations, due to its significant influence on the circular flow of income in the economy (Iyoha *et al.*, 2003). Nevertheless, domestic savings has been estimated to be only 0.1 percent of the GDP in 2004/05/while investment expenditure is estimated to reach 23% (Birritu, 2005 cited in Teka, 2008). Growth rate of the country is jointly determined by saving rate and incremental capital output rate. Savings are essential instruments for capital formation, investment, and hence economic growth (Issahaku, 2011).

Within the agricultural sector, growth attained will largely depend upon what the farmers do with the seasonal additional incomes generated from their farm activities. This stems from the fact that the growth rate in the farming economy largely depends on the stock of capital built in a farm organization and the reinvestment of such stocks in form of savings for further improvement of the farm organization so that small farmers may be able to acquire modern farming inputs, utilize the associated improved methods, increase their production, raise their incomes and eventually, improve the quality of their lives (Akerele and Ambali, 2012).

Rural savings could also be intended to address other forms of household expenditure which include children's education, smoothening consumption during off-seasons and unforeseen events such as illness and other emergencies. This implies that rural savings is critical to the

welfare and development of the rural people (Ogheneruemu, 2014). According to Jocelyn *et al.* (1988), savings can be mobilized through voluntary or involuntary strategies. The former consists mainly of providing opportunities and incentives to encourage savings whereas the latter essentially involves raising taxes.

Moreover, saving could be accumulating in real assets or financial assets. Large part of saving accumulation in developing countries is real assets (Asian Development Bank, 1985). According to Jocelyn et al. (1988), policymakers and financial institutions have recently placed greater emphasis on financial savings mobilized by the financial system because of two reasons: 1) financial Savings seem easier to directly influence than aggregate savings; 2) financial savings provide funds important to banks for lending.

However, rural households are further constrained due to seasonality of cash flow, work and income (Akerele and Ambali, 2012). Given that rural savings have the ability to drive rural development, a value-added understanding of the social and demographic factors that determine rural household saving is imperative. This will not only inform relevant policy formulation by government but also serve as a guide to various development initiatives for proper targeting and enhancement of rural household saving. Therefore, this study seeks to identify the determinants of rural savings based on evidence gathered from Boricha Woreda, Sidama Zone, Ethiopia

1.2. Statement of the Problem

According to Rogg (2006) serious problem confronting poor countries including Ethiopia is the savings and investment gap. Because of this gap, these countries find it difficult to finance investments needed for growth from domestic saving. It is also common to see these countries to finance their investment in the short run partly through domestic government borrowings and/or foreign loan and grants but this would significantly increase the country's debt burden and would not be a solution in the long run (Girma *et al*., 2013). Consequently, the Ethiopian government focuses on the financial sectors to effectively exploit domestic saving potential, it has planned to increase financial sector accessibility in rural areas and diversify services that are provided by financial sectors.

According to Dejene (2003), savings in rural Ethiopia is mainly made out of the income from agricultural activities. The saving level in Ethiopia particularly in rural areas is very low and characterized as seasonal and irregular as the cash flow through sale of agricultural produce and availability of work is seasonal. This reduces their financial capacity to save or poorly

respond to incentives that promote savings in the country. On other side, rural savings are not emphasized as a major variable for interventions for overall development in Ethiopia in general and study area in particular.

Girma et al. (2013) note the fact that most studies on determinants of saving adopted a macroeconomic approach. Yet the behavior of economic units on the aggregate level may not necessarily be the same as on an individual or household level. A macro approach to study the determinants of household saving would be misleading in a country like Ethiopia where cultural, economical and social diversity is high. This reality is persuading to shift to micro level analysis on the determinants of household saving. Individuals and families attitude towards money vary greatly. Even within the same family, people have different behavior towards savings. There are people (spenders) who believe that money obtained today must be used to meet present needs and the future will care for itself. There are others (savers) who also hold the view that no matter how little one's income is, there is the need to save part of that income. This matter needs to be discussed more at micro level. So that savings at household or micro level was analyzed under this study.

Additionally, most existing studies gave more emphasis on the factors that are associated with financial savings by neglecting determinants that affect savings in the form of tangible assets. Among rural households, financial savings often comprise a small proportion of total household savings whereas the bulk of Savings has been mainly in the form of physical assets like farmland, inventory of crops and livestock, jewelry and etc. The transformation of more physical assets into financial savings is the challenge to the policymakers who seek to mobilize more rural deposits. Studying only one separately from both forms of savings and generalizing about savings habit of households may be misleading because both of them are highly interlinked. One individual who has no saving habit in the one form of the savings may have good saving habit in the other form of the savings. Consequently, this study focused, on the factors that are likely to influence the level of both financial and kind forms of savings held by rural households. In addition to this, no studies have tried to differentiate socio-economic determinants that affect savings behavior of rural households in the study area. Therefore, this study tried to analyze major determinants of savings behavior of rural households with particular reference to Boricha Woreda of Sidama Zone at household level.

1.3. Research Questions

To analyze qualitative aspects of study, the study attempted to answer the following key research questions

1. What are the forms of savings accumulations among rural households?
2. What are the demographic, socio economic and cultural determinants of household savings in rural area?
3. What is the pattern of saving behavior among rural households in the study area?

1.4. Objectives of the Study

1.4.1. General Objective:

The general objective of this study is to examine determinants of saving behavior among rural households in the Boricha Woreda of Sidama Zone.

1.4.2. Specific objectives:

The Specific objectives of this study are:

1. To examine the determinants of household savings in rural area of the study area,
2. To identify the forms of household saving accumulations in the study area, and
3. To analyze the pattern of saving behavior in rural households

1.5. Hypotheses:

To analyze quantitative aspects of study, the following hypotheses are drawn.

1. Ho: Households' saving behavior directly changes with age of households.
2. Ho: Behavior of households to saving is negatively related with number of family size
3. Ho: The joint effect of demographic, socioeconomic, cultural and institutional variables on saving behavior is statistically insignificant.

1.6. Significance of the Study

This study aimed at investigating the determinants of savings among rural households. It might help policy makers in Ethiopia or abroad to make appropriate saving policy reforms or issue new policies in this regard. Stakeholders like Woreda administration, development agents, NGO and etc operating in the study area will use results and recommendations forwarded to focus on factors that contribute to savings among rural households. Similarly, this study will contribute to the understanding of rural forms of savings in the study area, while contributing to the empirical literature with respect to African savings in general, and

Ethiopian saving in particular as background information for those who will like to conduct related research on the same area.

1.7. Scope of the Study

Geographically, this study was carried out in the Boricha *Woreda* of Sidama Zone in Southern Ethiopia. Rural saving might be related with investment, consumption, agricultural production, and *etc* aspects. However, this study dealt with socio-economic, institutional, and demographic determinants associated with only savings of rural households. Conceptually, this study estimated determinants and forms of savings among rural households for selected sample households. Methodologically, this study was intended to use a cross sectional data and its generalization was made for savings of rural households in the study area.

1.8. Limitation of the Study

The number of Boricha Woreda households being large, undertaking study in this Woreda needs longer time and enough budget. However, because of time and budget constraints only four Kebeles were used for sampling frame which could pose some limitations of the results of the study as representing the whole Woreda. This study also used one year data. As a result, the effects of those factors that vary with time were not incorporated in the study. Thus, it might be important to update the findings of this study in inter-temporal information as required. Again, data collected were not from recorded sources rather from recalling habit of households which might create some bias on the generalization made for households in the study area. Therefore, users of the results of this study should take into account these limitations while applying the recommendations forwarded by the study.

1.9. Organization of the Study

The thesis was organized into five parts. The first part deals with introduction which contains background of the study, statement of the problem, objectives of the study, research questions, significance, limitations and scope of the study. The second part is concerned with review of literatures. The third part elaborates the research methodology which includes description of the study area, the study design, sampling technique, method of data collection, model specification, discussion of the variables and data set used in the study. The fourth part presents results and discussion of the study while the last part provides conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1. Theoretical Literature

2.1.1. The concepts and definitions of savings

Ahmed (1982) has defined saving as an act of refraining from spending one's income on consumption. According to Panikar (1970), saving stands for the portion of income so saved that is available for expenditure in future either for consumption or investment. Personal saving is the difference between disposable personal income and personal consumption expenditure.

Saving is defined as disposable income less final consumption expenditure (or adjusted disposable income less actual final consumption), in both cases after taking account of an adjustment for pension funds; saving is an important aggregate which can be calculated for each institutional sector or for the whole economy. In the context where credit and insurance markets are limited and the social coverage in weak; and economic fluctuations, climate risk and a number of individual specific household saving provide an insurance against such social and economic evils (FAO, 2001).

It is also among those very important variables to the economic growth of any country; developing or developed. The saving culture of a nation determines its growth. Evidences show that countries with high rate of household saving have high potential to growth. Economically grown countries are found to have good culture of saving. An increase in national saving has a substantial effect on investment. National saving is the sum of the weighted average of the three principal sectors of the economy: private household, business and general government. However despite this fact the vast majority of studies on saving behavior concentrate household saving because of the high importance of household saving in the determination of national saving (Touhami,et al., 2009).

Girma at al., (2013) also noted that saving constitute the basis for capital formation, investment and economic growth. A sufficiently strong saving performance is an important precondition for achieving economic growth, macroeconomic balance, and financial and price instability (Adeolu et al., 2006). To lead the underdeveloped countries to the path of development, rate of savings must be enhanced. However the fact is, in many poor countries

including Ethiopia there is a wide gap between national investment need and the amount of national saving that goes to finance investment (Girma et al, 2013).

If a nation doesn't have enough national saving to finance its investment it took national/domestic government borrowing and/or foreign loan and grants. But this will lead to huge debt burden and can't sustainably lead the country to grow economically. East African saving rate is one of the lowest among African regions and being part of East African countries the saving rate in Ethiopia is low. Very little is known empirically about its pattern and determinants (Girma et al., 2013).

Low income individuals are denied access to the basic service, information and resource which help them to build asset and save. For the institutional theorists institutional level factors most important which encourage individual and households save more or less. The main hypothesis of the institutional theory is that institutional factors like access, information, incentives and expectation determine the household or individual saving than any other (Gina et al., 2012).

Economic theory states that savings represents the difference between income and consumption. Income includes earning from all activities during a year and is net of cost incurred in producing that income (imputed costs, however, constitute income of the farm family). In a two sector economy consisting of households and business sector, income is either spent or saved. When this occurs, one can explain the behavior of savings if one knows about consumption (Gina A.N. et.al ,2012).

Consumption is the total amount of goods and services consumed by the rural household during a year and include expenditures on food, clothing, housing, heat, lighting, travel, education, health care, social ceremonies, and recreations, litigation and charity, etc. Savings may be made in kind, such as jewelry, land, livestock or some other commodities, or may be in the form of currency notes deposited in financial institutions and savings are fundamental to sustainable economic development (Beverly & Sheraden ,1999).

The theoretical literature groups households savings motives into four such as to provide resources for retirement and bequests; to finance large lifetime expenditure; to finance unexpected losses of income; and to smooth the availability of financial resources over time to maintain a more stable consumption profile. Household savings literature is based on two major hypotheses; Griffiths and Stuart, (1986).

Following the pioneering work of Keynes which defines savings as a linear function of income, the first major breakthrough in savings literature is the permanent income hypothesis of Friedman. This hypothesis differentiates permanent income and transitory income as determinants of savings. Permanent income is defined in terms of the longtime income expectation over a planning period and a steady rate of consumption maintained over lifetime given the present value of wealth. Transitory income is the difference between actual and permanent income and since individuals are assumed not to consume out of this income category, marginal propensity to save on transitory income will be unity.

The second major contribution to savings literature comes from Ando and Modigliani's stated by Degu (2007), lifecycle hypothesis, whose basic assumption is that individuals spread their lifetime consumption evenly over their lives by accumulating savings during earning years and maintaining consumption levels during retirement. The life cycle theory suggests that age has an impact on savings. The young and the retired people are not saver. Therefore the higher the dependency ratio of a nation, the lower will be the saving rate thus implying what is called the level of effect of the life-cycle theory. Macroeconomic and political stability affect expectation and thus, also the saving rate. The services provided by government, such as social security, the availability and the quality of financial services can affect saving rate.

There are two sides of mobilization of rural savings. The supply side- the circumstances under which rural clientele are most likely to entrust their savings to financial institutions- and the demand side- the effort and range of services of financial intermediaries to institutionalize surplus funds. Confidence is the basis of any financial transaction. Safety, continuity, and secrecy are some of the factors that foster confidence. Some government intervention may help in creating a sense of safety and confidence. When deposits are covered by insurance, it increases savers' confidence (FAO, 2001).

Rural people are rational in their approach to financial matters and they do take advantage of attractive interest incomes on deposits, if offered. In effect, an increase in interest rates makes current consumption more expensive than future consumption, and consequently promotes deferment of consumption (Beverly et al.,2008). Accessibility to the financial institutions is an important factor in the promotion of savings. When financial institutions/banks are opened near market centers and operate at convenient hours, rural people opt to institutionalize their surpluses. When they are confident as in its liquidity, they would prefer to earn something on the surplus other than keeping it idle. Stipulating low minimum transaction and balance limits

would attract smaller depositors. Provision of financial services like money transfer from one center to another can encourage depositors. Similarly, nonfinancial services like payment for purchase of crops, payment of bills, etc, can increase deposits. Payment for crops presents an opportunity for intermediation because the buyer could establish an account payable in favor of the farmer. When there is a linkage between savings and lending, rural households will be prompted to hold deposits with a view to availing a loan when needed (Padmanabhan, 1987).

2.1.2. Theories related to savings

2.1.2.1. Individual Oriented Perspective

The early second quarter of the 20th century marked the beginning of approaching the household or individual saving behavior from the income point of view with the work of Keynes (1936) "general Theory". Nyhus (2002) noted that in the 19th century there has been models of saving which focused on the intertemporal choice between consuming now or later and the factors that influence these choices. The theory of interest formation and the theory of preference took the lion share in explaining the determinants of saving in the 19th century. The theory of interest formation as described by Nyhus (2002) propagates that only income factors affect saving. However in 1936 Keynes came up with the theory preference which basically is the modification of the theory of interest. He introduced the concept of time preference, which explains as reflecting a person's impatience for consumption. In this new model time preference is the important determinant of saving. Time preference is excess of the present marginal want for one more unit of present goods over the present marginal want for one more unit of future good. The rate of time preference is the marginal desirability i.e the preference for present over future goods. Differences in time preference is emanated from two factors: income factors and the personality factors. The following are some of the personal factors which are related to the time preference:

1. *Foresight.* The greater the foresight, the lower the impatience.
2. *Self-control.* Self-control reflects the willingness to resist temptations. The greater the self-control, the lower the impatience.
3. *Habits.* The influence of habits may be in either direction. Someone who is used to spending will continue to spend although the income declines. Likewise, someone who is used to providing for the future will do so also when the income increases. Hence, two persons with the same income might differ in their impatience due to a difference in habits.

4. *Expectations of life.* Fisher regarded the chance of death as the most important rational factor tending to increase impatience. Anything that tends to prolong human life will tend to reduce impatience.
5. *Thoughts for relatives.* The stronger the bequest motive, the lower the impatience. In addition, Fisher argued that the increase of offspring (number of children) lowers impatience.
6. *Need to follow the whims of fashion.* The more independent of "Mrs Grundy and the high-powered salesman of devices that are useless or harmful, or which commit the purchaser beyond his income prospects", the lower the impatience.

2.1.2.2. Income approach

The role of income on household or individual saving is undeniable fact. There have been a number of empirical evidences that has shown the positive relationship between saving and income. Of course “the dominant independent variable in most economic analysis of saving is income Nyhus (2002). The 20th century witnessed a stream of theories and models which focuses on the determinant role of income on saving. The major four of these theories are discussed below.

2.1.2.3. *Absolute Income Theory*

Nyhus (2002) summarized the absolute income hypothesis theory of saving. Accordingly the objective and subjective factors, as thought by Keynes, would influence the propensity to consume of individual or household level. However out of the objective and subjective variables that potentially affect the propensity to consume, current absolute income is the necessary variable to be included in the model of household saving as per the absolute income theory.

“changes in income and windfall gain or losses to be the most important determinants of the propensity to consume. So that at aggregate level consumption could be predicted by aggregate income. the distribution and effect of subjective factors would change very slowly over time in a population along with most of the objective factors. On aggregate level they would have little impact on the propensity to consume. psychological factors were unnecessary in aggregate model of saving, Subjective factors and objective factors would change very slowly and that the propensity to consume could be regarded as constant and current absolute income is the only variable necessary to include in models of saving.” Nyhus, 2002.

2.1.2.4. *Relative Income Theory*

In economics, relative income hypothesis is attributed to James Duesenberry, who investigated the implications of this idea for consumption behavior in 1949. It is the first attempt made to define an alternative consumption function to absolute income hypothesis of saving. *Nyhus, (*2002) referring to the works of Duesenberry (1949) narrated the basic concepts, assumptions and implications of the RIH. Accordingly rather than the absolute current income past income and relative income are the determining components of the saving function. In addition to this social comparison and habits are other influential components of individual or household economic behavior.

Nyhus (2002) noted the challenges and critics made by Duesenberry(1949) against the independednt preference assumption of the AIH which propagates households or individuals decide their consumption function solely depending on income without considering the social factors. For Duesenberry(1949),according to *Nyhus (2002),* the relative income (interdependent preference) and past income(habit formation) are the most important components in determining saving behavior. Accordingly not the absolute level income, but the social factors such as the relative position of the consumer in the income distribution of the group he/she used for comparison ie.people compare themselves to people they meet on regular basis when they determine their consumption level. In other words RHI is based on a postulate that has long been acknowledged by psychologists and sociologists, namely that individuals care about status (Guha ,2008). This means that when people made a consumption decision they are not absolutely determined by the good itself rather they consider the good which is most coherent within groups of same age, social class and same geographical area *(Nyhus, 2002)* this is called interdependent preference.

Further, Nyhus (2002) discusses the two main implications of the interdependence preference assumptions. The first is income change will not soon followed by change in consumption. This is because it takes time to establish new consumption income. The second implication of this assumption is at times of stable income or individual consumption patterns might change as a reflection to social comparison. An individual's utility index depended on the ratio of his or her consumption to a weighted average of the consumption of the others. And hence: (1) aggregate saving rate is independent of aggregate income, and (2) the propensity to save of an individual is an increasing function of his or her percentile position in the income distribution.

2.1.2.5. *Life Cycle Hypothesis*

The life Cycle theory makes its first appearance in two papers that Modigliani wrote in the early 1950s with a graduate student, Richard Brumberg, Modigliani and Brumberg(1954) and Modigliani and Brumeberg(1980) (Deaton, 2005;*Nyhus, 2002*). The Life-Cycle Hypothesis (LCH) is an economic theory that pertains to the spending and saving habits of people over the course of a lifetime. The concept was developed by Franco Modigliani and his student Richard Brumberg. LCH presumes that individuals base consumption on a constant percentage of their anticipated life income. An example supporting the hypothesis is that people save for retirement while they are earning a regular income (rather than spending it all when it is earned). Investopedia explains 'Life-Cycle Hypothesis (LCH)': The Life Cycle Hypothesis concludes that the average propensity to consume is greater in both young and aging individuals, since they are borrowing against future income (in the case of young individuals) or using savings (as with aging or retired individuals). Middle-aged people, on the other hand, have a greater propensity to save and a lower propensity to consume, enhanced by a typically higher income.

The Life Cycle Hypothesis theory is considered as the most paths breaking income theory of saving which served as the basis of most modern research on saving. Nyhus (2002) forwarded the psychological foundations of the hypothesis. Accordingly people are considered to be forward looking and prefer smooth consumption over time. They will make their consumption stream independent of their income stream using the financial market. More ever it is based on the assumption that people rationally determined how much they can consume over the remainder of their life time so as to maximize utility. In its simplest form agents will try to keep the marginal utility of expenditure constant over time. Further throughout the lifetime the wealth profile will be hump shaped; rising until retirement and decreasing thereafter. This implies that the preferred path of consumption is likely to be relatively stable over the life time. Hence saving is determined by the extent to which current income was above or below average life time earnings. Households with a current income above life time average income are expected to save, while those with income below average are expected to dissave.

Deaton (2005) noted that the most important motive of saving is the need to provide life necessities during retirement. Young people will save so that when they are old and either cannot or do not wish to work; they will have money to spend. He argued that the life cycle hypothesis is one in which the wealth of the nation gets passed around: the very young have little wealth, middle aged people have more, and peak wealth is reached just before people

gets retired. The LCH model also implies that population growth leads positive saving (Deaton, 2005; Nhyus, 2002). As per Deaton's explanation with population growth , there are more young people than old, more people are saving than are dissaving, so that the total dissaving of the old will be less than the total saving of the young , and there will be net positive saving. If income are growing, the young will be saving on a larger scale than the old are dissaving so that economic growth, like population growth , causes positive saving , and the faster the growth , the higher the saving rate.

2.1.2.6. *Permanent Income Hypothesis*

Meghir (2002) noted that Milton Friedman's PI hypothesis originates from the basic intuition that individuals would wish to smooth consumption and not let it fluctuate with short run fluctuations in income. Accordingly Fredman's hypothesis rests on the notion that individuals base their consumption on a longer term view of an income measure, perhaps a notion of lifetime wealth or a notion of wealth over a reasonably long horizon. As explained by Nhyus, 2002, people have a notion of what their mean permant income will be over a given time period and that they aim to consume a fixed proportion of the permanent income during that time. Hence individuals consume a fraction of this *permanent* income in each period and thus the average propensity to consume would equal the marginal propensity to consume. Nhyus (2002) noted that the LCH and PIH are almost similar; except PIH applied an infinite time horizon, in contrast to the LCH which assumes that the length of life is known.

Permanent consumption (C_p), permanent income (y_p), transitory consumption ($t\ c$), transitory income ($t\ y$) are ingredients of Fredman's model. Measured income is the sum of *permanent* and *transitory* income ($t\ y$) and measured consumption is the sum of *permanent* and *transitory* consumption ($t\ c$), i.e.

$$C = Cp + tc \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots. (1)$$

$$Y = Yp + ty \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

And Permanent consumption is determined by the equation,

$$Cp = K(r,z)Yp \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.. (3)$$

where $k(r, z)$ is the average (or marginal) propensity to consume out of permanent income which depends on the rate of interest and on taste shifter variables z. The transitory components may reflect genuine fluctuations, or measurement errors. The key point is that the consumption plan does not depend on the transitory components.

Purpose and motives of saving

Nyhus(2002) documented Lindqvist(1981) hierarchy of saving motives which was inspired by Ferber's(1973) and Kantonas(1975) proposed reasons for saving. According Lindqvist(1981) households financial decision consists of four types of motives: cash management, consumption decision, saving decision and asset management. Cash management involves decision concerning the households handling of money. Consumption decision concern both routine purchases and strategic purchases of consumer dureables. Saving decision are decision in which the allocation of income between now and later periods are made. Asset management deals with how the saved money is invested i.e portifolio decision. According to Kantona(1975) reasons for saving are categorized as follows.

1. For emergency: this corresponds to precautionary saving motive which implies reserving for "rainy days". Given the uncertainty about the future developments, the households may wish to hold assets to meet possible emergencies such as unemployment or seakness.
2. For retirement: Includes retirement and money needed for old ages. It is a build up of assets to finance consumption after retirement when current earned income reduced or even becomes zero.
3. For children and family need: this includes expenditures associated with raising children and their education.
4. Other purposes: this includes buying a house or saving for vacation.

Generally economists and psychologists agree that people have reasons for saving and that saving might differ with respect to which motive is the most important (Nyhus,2002).

Impulsiveness

This is associated with self control and the ability to delay gratification. Impulse control relates to the extent a decision-maker thinks about advantages and disadvantages before making decisions. Individual differences in delay of gratification behavior are considered behavioral manifestations of a general disposition to contain impulses and desires. It is expected that impulsiveness will be negatively correlated with saving as noted by Nyhus(2002).

Personality structure

Personality structure consists of five dimensions: Extraversion (Vs introversion, Agreeableness(Vs dominance) , Conscientiousness (vs Inconscientiousness) ,Emotional stability (Vs neuroticism) and Intellect (vs openness). Due to the fact that some of these dimenstions might be associated with the willingness and ability to delay gratification and, therefore, they indirectly affect individual saving behavior (Nyhus,2002)

Institutional Perspective

As per the institutional theory individuals and households are faced with institutional level factor that makes it impossible or difficult to save. The main hypothesis of institutional theory assumes that low income individuals and families are unable to save and accumulate assets primarily because they don't have the same institutional opportunities that higher income individual and families receive(Gina A.N. et.al ,2012 in Beverly & Sheraden, 1999; Sheraden, 1991) Institutions in the institutional theory refer to "purposefully created policies, programs, products, and services that shape opportunities, constraints and consequences" (G.A.N Chowa et al in Beverly et al., 2008:p.10). Seven institutional level dimensions have been hypothesized to influence saving and asset accumulation. These are: access, information, incentives, facilitation, expectation, restriction and security (Gina A.N. et.al ,2012 in Beverly & Sheraden ,1999;Beverly et al.,2008;Sheraden & Barr,2005;Sheraden et al.,2003;Sheraden,Williams,McBride & Ssewamala,2004).

Gina et al. (2012) has conducted the saving performance of low income households in Uganda who participated in the east Africa program from the individual oriented, and institutional and social perspective. In this study he found that the institutional theory of saving is important in predicting saving performance in an asset building intervention for low income rural households. Not only the asset building but also it can explain substantially the factors affecting the saving performance among the rural income individuals in SSA. The study specifically suggests information access and expectation are important to the saving performance of low income rural individuals. Also financial education and ease of visiting a bank (proximity) are found to be statistically significant. This implies that the availability of financial institutions is not enough to encouraging peoples to save. Individual and families calculate the transaction costs associated with banking. The transaction cost typically refers to time, effort and money spent to reach banks. Holding other variables constant, for any 10% increase in the number of financial education attended, AQNS is expected to increase by 5%.

Further, holding other variables constant, the expected increase in AQNS from those individuals who found it hard to visit a bank to those who found it easy to visit a bank is about 82%. In addition to these the study also found out the importance of financial incentives to the saving performance of individuals.

2.2. Empirical Literature

2.2.1. Household portfolio choice

Portfolio choice is the decision about how to save. Once the household decide how much to save the next step is to decide about how to save ie in what for it should be saved. Household decision on the form of saving basically depends on the security, liquidity and economic return of the asset. Depending on the physical characteristics of the asset and asset market imperfection degree of liquidity, security and economic return differs from one asset to the other. "Given the investor is risk aversion the optimal portfolio allocations are determined by the expected risk and return of the expected asset" (Elasabeth et al., 2014). Broadly speaking households save their asset in two forms: in the form of physical asset and financial assets. Individual households calculate the opportunity cost while deciding the form of the asset. If an individual decide to hold his/her asset in the most liquid form which is money then; he/she has to take the risk of loss of future economic return associated with inflation. Being this the fact as noted by Touhami et al., (2009) in most of developing countries households save in the form of financial asset (money) due to the fact that these savings are perfectly liquid so it can be used to face any urgent need or investment opportunity. Non financial (physical asset) saving is also an important and observed aspects of the developing countries. These non financial forms include jewels, carpets, land, livestock, machines, cereals and others.

2.2.2. Rural Savings Mobilization

According to Orazio and Migule, (2000), Household savings in developing countries, Stated as: Funds for investing in agriculture in developing countries come from three major sources: public investment, private investment, and foreign aid. The share of public investment would be roughly 70 percent in a typical developing country, private investment at around 10-15 percent, and the balance of 10-15 percent from foreign aid. To meet these investment commit men's, government mobilizes resource, partly through land revenue, agricultural income tax betterment. The shortfall in the mobilization of domestic shavings, both public and private, is met by foreign aid and investment. Although the share of these different sources varies from institution to institution and from country to country, two general trends have been visible in

the structure of these resources, Firstly a heavy reliance on concession funds from central banks or aid agencies and secondly, a relative neglect of savings mobilization from the public. Due to the absence of efficient credit and insurance market, household savings are a crucial determinate of welfare in developing countries. On the one hand, without savings, households have few other mechanisms to smooth out unexpected variations in their income and so; shocks may leave permanent scars, such as interrupting the process of human capital accumulation at early ages. On the other hand, since savings are one of the only means to accumulate assets in the absence of credit and insurance markets, the capacity to save becomes one if the most important vehicles of social mobility and of enhancing future income-earning possibilities.

Savings is a mechanism by which economic agents make deliberate choice to allocate a portion of their current income for the purpose of making investment and their increasing their future earning capacity. Theory suggests that household total savings depend on the rate of return on savings, on uncertainty of future incomes, on risk aversion of household, on lifetime or permanent income or wealth, on family characteristics (FAO, 2001).

Economic theory tells that saving represents the difference between income and consumption. Income includes earning from all sources during a year and is net of all costs incurred in producing that income. Consumption is the total amount of goods and services consumed by the rural household during a year and include expenditure on food, clothing, housing, travel, health care, social ceremonies, etc. Saving may be made in kind such as jewelry, livestock, grain, or some other commodities or may be in form of currency notes deposited in a bank (Azhar, 1995).

Savings in form of assets has limitations. Grain can deteriorate in storage or be lost to pests, animals require looking after and can die; moreover, when they are held as insurance against crises such as drought, they are often sold at a loss if the crisis occurs, because of deteriorating terms of trade or for a quick sale. Finally, holding a visible and available form of savings, such as grain or assets, can make it hard to resist demands and claims from other relatives (Johnson and Ben, 1997).

In low-income communities, most people prefer to save their cash undisclosed places. This may be ion the roof, pot, walls, underground, or under a bed. This encompasses risk of theft, damaging by termites and loss in case of fire (Phil Bartle, 2006).

The experience with micro finance all over the world has belied the myths that the poor do not save, and that they are not creditworthy. Despite having low paid jobs, the poor save, and the savings rate among the poor are not as one would contemplate. Similarity; in contrary to the belief that the poor are bad credit risk, it is now established that the poor can be creditworthy that in some countries, the loan repayment rate is even higher among the poor than the non-poor (Khander, 2000).

A common feature of economic growth theories is the premise that capital accumulation is a prerequisite of economic growth, and that the savings of individual and households are an essential part of the process of capital accumulation. Savings determine, largely, the rate at which productive capacity and income grow. An effective smoothly functioning financial system will increase the mobilization of saving, lower transaction costs, disperse risks and direct the allocation of resources to the most productive uses. Evidence suggests that there is far more liquidly in rural areas than is generally assumed. This is partly due to seasonality in agricultural production. Moreover, rural people are responsive to interest rate changes and appropriate financial services. Hence, mobilization of voluntary financial savings in rural areas should be the first priority of financial institutions. Contrary to this, there is another approach, which is stated as follow; in the rural areas, a vicious circle of low capital, low productivity, low income, and low savings could break by an instrument called credit (FAO, 2001).

2.2.3. The Role of Rural Savings

There are different types of financial institutions in the world. A single institution model suitable to all countries does not exist-no one structure could say to be clearly preferable to others. What is important is that these institutions should be able to adapt to local conditions and financial flow. As a short-term solution to the lack of savings by the households, governments of developing countries are embarking on micro financing schemes to enable the households to venture in to small business activities. However, these measures are not only costly but also not sustainable in the longer run if the societies are not empowered to save by themselves (Orazio and Miguel, 2000)

Savings and credit cooperatives are voluntary financial organizations owned and operated by members. Their purpose is to encourage savings by creating local deposit activities and then using the pooled funds to make loans for productive, consumer or social purposes to their members. Rural savings and credit cooperatives operate as farmers' grassroots organizations,

aimed usually at meeting the seasonal financial needs of their members, which other financial institutions do not satisfy (FAO, 2001).

Members therefore take pride in owning their own savings and credit cooperative. Cooperatives have the feel of the local areas, reflecting the rural ethics and culture. Farmers feel at easy with loan agents of cooperatives, unlike in the case of commercial banks. Despite the potential advantages of the system, effective cooperatives for financial services delivery have been face difficult in many countries. The major problems of cooperatives in Africa are absence of experienced management, uneconomic base level units, lack of supporting infrastructure like extension, training etc., poor member participation, insufficient supervision and auditing of cooperatives, and too much political disturbance (SACCOL, 2003).

Empirical evidences of household savings in Pakistan (Azhar, 1995), indicated that methods of savings are categorized as savings in cash, saving in bond holding, saving in agricultural products and saving in livestock. Saving in agricultural products is preferably practiced because of its higher flexibility. Saving in livestock represents the most practiced form. It has dual impact on the household economy, firstly, as a source of extra income and, secondly, by acting as cash which is always available at home. Factors that influence the form and extent of saving are divided into four categories. These are economical, psychological, socio-cultural, and institutional factors. Some of the results from Azhar (1995) study are presented as follows.

Income determines the extent as well as the form of savings. Landholding, especially the size of citrus orchards, strongly influence the rate of total saving, since the size of land holding influences income and income influences savings positively. A large family size exerts a negative influence on saving in kind. Cash savings remains neutral but livestock keeping is proved to be positively influenced by the availability of household labor.

The age of the household members exerts an uncertain impact on savings; if they are productive, the influence is positive. Underemployed or unemployed members are a burden on the household income and have a negative impact on savings. Empirical evidences proved that education is quite an uncertain factor in the case of savings. In most of the cases, better education gave better exposure which induced a demonstration effect and increased the propensity to consume (Sheraden & Barr,2005).

The empirical survey of gender- specific savings aptitude indicated that women are found to be financially conservative and try to hold money for the family’s security, whereas men

prefer to concentrate upon the accumulation of social capital. The results of the study conducted by Orazio and Migule, (2000) entitled savings habits, needs and priorities in rural Uganda indicated that hindrances of rural savings were: low income level of rural households was the most significant factor; high fee charged by the financial institutions was the second most significant factor; the third most important impediment to savings was low personal interest in savings. Low interest rate paid on savings was a relatively insignificant impediment of savings. Though clients find interest rate too low, they nonetheless remain clients as this is not enough of a disincentive to cause them to exit.

According to FAO studies (2001), indicated that on average; rapidly growing countries have higher savings rates than slower-growing countries. These rates are influenced by many factors: the level of income per capita, the rate of income growth, the age composition of the population and attitude toward thrift.

The results of the study conducted by Orazio and Migule, (2000) indicated that demographic variables such as age groups, birth rates, dependency ratio and financial variables such as interest rates, inflation rates, available financial instruments and initial wealth levels affected the decision of household savings significantly. Similarly, models simulation results of Quo Qin (2003) studies revealed that income uncertainty has positive impact on household savings. The result of the study conducted by Degu Addis (2007) indicated that socio economic variables such as age, family size, dependency ratio, resource ownership and expenditure pattern affects the decision of household savings significantly.

2.3. Conceptual framework of the study

A study by Browning and Lusardi [1996] states that three factors were found to be determinants of the saving behaviour of households in Africa. One of these was the ability to save which in turn depends on a household's disposable income and expenditure. The second was the propensity or willingness to save as influenced by sociocultural and economic factors like the family obligation to educate children. The third one was the opportunity to save and returns on savings.

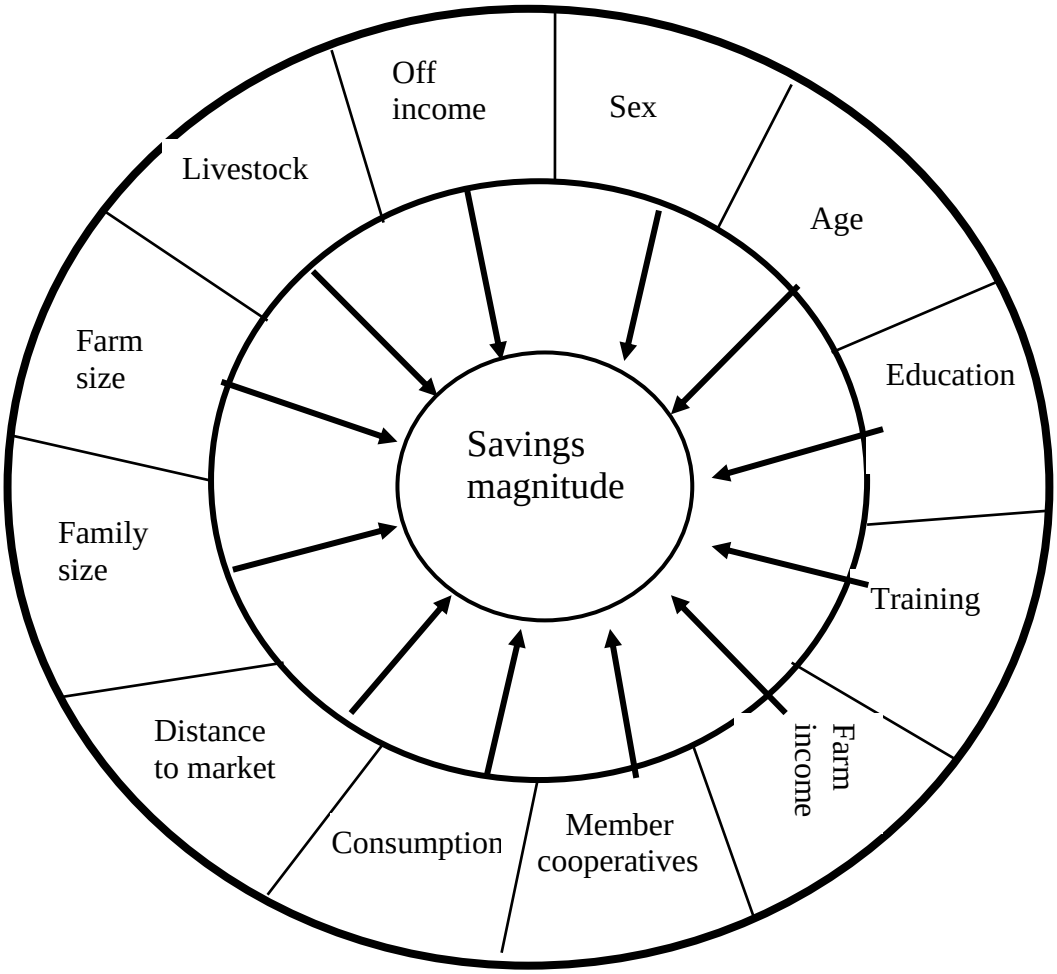

Figure 2.1. Saving decision process and determinants of savings

Source: Modified from Teka (2008)

In that same study, the two scholars [Browning and Lusardi 1996] also revealed that high cost of living and social responsibility were responsible for not saving. Besides they found out that family size affect saving in a negative form i.e. people with large families do rarely save compared to those with small families. Furthermore, it was also found out that landholding strongly influence the rate of total saving, since the size of land holding influences income and income influences savings positively. In another studies, dependency ratio, resource ownership and expenditure [Jappelli and Modigliani 1998] pattern affect the decision of household savings significantly. Overall, socio economic variables like income, level of education, sex, farm size, age, training, distance, household size were the major determinants of saving behavior of rural households. The following pictures shows saving decision making process and different demographic, socio-economic, cultural and institutional factors that affect the saving behavior of rural households.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Description of the Study Area

This study was carried out in Boricha *Woreda* which is found in Sidama Zone within southern Ethiopia (Figure 3.1). Boricha *Woreda* is geographically bordered on the south, by Loka Abaya *Woreda*, on the west by the Wolayita Zone, on the northwest by the Oromiya region, on the northeast by Hawassa Zuria *Woreda*, on the east by Shebedino *Woreda*, and on the southeast by Dale *Woreda*. It has an estimated area of 588.05sq km, comprising 39 *Kebeles* of which 3 *Kebeles* are urban *Kebeles* and the others are rural. It extends from the lowest point at south west of the mouth of tributary of Bilate river 1320m.a.s.l to north east 2080m.a.s.l (Bechaye, 2011). Boricha *Woreda* has a total population of 250,260, of whom 125,524 are men and 124,736 women. Only 4.16% of its population is urban dwellers. The major crops by coverage are maize, haricot bean, coffee, horticultural crops and *teff* (CSA, 2007). The study area has undertaken high extent of maize production. However, use of agro chemical, irrigation and manure for soil fertility practices and maize production is very low. In this area, cultivation of maize crop occupies much share in the crop production.

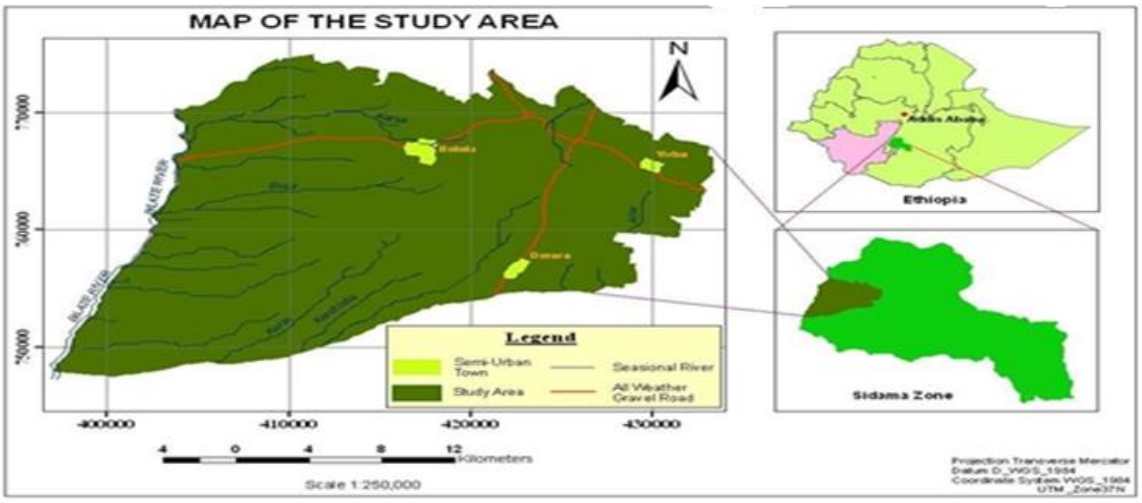

Figure 3.1: *Administrative* map of the Boricha Woreda

Source: Bechaye (2011)

There are two cropping seasons in the study area, i.e., *Belg* (short rainy season) which runs from March to May and *Meher* (main rainy season) which occurs in the months from June to September. *Belg* rains are mainly used for land preparation and planting long cycle crops such

as maize. The *Meher* rains are used for planting potato, green paper, haricot bean, sweet potato and to some extent *teff* (Bechaye, 2011). Farming system of the study area generally depends on rain fed agriculture and mixed farming system. Both crop production and animal husbandry are commonly practiced. The main crops grown during the two cropping seasons are maize, haricot bean, potato, green pepper, sweet potato, and in some parts sugar cane and *enset*. The main livestock species are cattle, goats, sheep and poultry. Major cash crops are maize, haricot bean, potato, green paper.

3.2. The Survey Design

Research design is considered as the blue-print and cornerstone of any study since it facilitates various research operations. The nature and objectives of the study to be achieved and the means of obtaining information are the most important factors to be considered in order to choose the appropriate research design. To achieve the stated objectives, both quantitative and qualitative data methods was used to get accurate and more complete information. Using both quantitative and qualitative collection methods at the same time is more advisable. Because quantitative data provides precise summaries and comparisons, while the qualitative data provided general elaborations, explanations, meanings and relatively new ideas. Taking all these into account, multiple approaches which combine both quantitative and qualitative methods was used for this study. A cross-sectional survey was administered to collect both quantitative and qualitative data that was used for the study. The study was completed in less than one year period; therefore cross sectional study design was the most appropriate one which was employed by the study.

3.3. Data Type and Source

The study used both secondary and primary data to attain the stated objectives. The secondary data was collected from different sources including research papers, booklets, internet, BoFED, EEA, CSA, from Zone and *Woreda* sector offices, and different unpublished materials. Moreover different published sources including journals was used to collect some secondary data. The primary data was collected through household survey and key informant interviews from sample households using structured questionnaire. Moreover, focus group discussions were held during the survey with 10-15 farmers, local administrators and development agents. During the survey, information was gathered and analyzed on issues related to the socioeconomic factors that affect savings of rural households in the study area, and about the forms savings of rural households.

3.4. Sample Size Determination and Sampling Technique

3.4.1. Sample size determination

The following formula was used in the determination of sample size (Israel, 1992),

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

Where n is the sample size needed, N is the population size of the study area (= 280576), and e is the desired level of precision (in this case, e= 7%) with the same unit of measure as the variance and e^2 is the variance of an attribute in the population.

Then, the sample size (n) was calculated as follows,

$$n = \frac{280576}{1 + 280576(0.07)^2} = 204$$

Therefore, a total of 204 households were selected for the study. These households were selected from selected four *Kebeles* by using random sampling method. The population size of *Woreda* was obtained from Agriculture and Rural Office of *Woreda*.

TABLE 3.1. SAMPLE SIZE DETERMINATION

Sampling design	BorichaWoreda is Purposely selected	1st stage strata by zones is purposely designed and BorichaWoreda is divided into three livelihood zones	2nd stage, randomly selected sample Kebeles from each livelihood Zone	Total House Hold in sample Kebeles	No of sample households by systematic sampling
Sampling technique	39 rural Kebeles= 49025 House holds	MLZ	KonsoreArki	6541	46
			Koran Gogi	8992	63
		APLZ	SheloElancho	5128	37
		CLZ	AlaboArke	8275	58
Total size of sample households=204					

Source: Own construction (2015)

3.4.2. Sampling procedures and techniques

A multi-stage stratified sampling technique was used to select sample farmers in Boricha *Woreda*. Boricha *Woreda* is purposively selected based on the extent of rural savings. In the second stage, Boricha *Woreda* was grouped into three livelihood zones based on the way of living. These livelihood zones are Agro Pastoralist Livelihood Zone (APLZ), Coffee Livelihood Zone (CLZ) and Maize Livelihood Zone (MLZ). Each livelihood zone has 5, 10, and 24 *Kebeles* respectively as shown in Figure.3.2 (Bechaye, 2011). In the third stage, two *Kebeles* from maize Livelihood Zone, one *Kebele* from Agro Pastoralist Livelihood Zone and also one *Kebele* from Coffee Livelihood Zone were selected based on the extent of maize production, number of *Kebeles* in each zone and discussion with extension officers as shown in the Figure 3.2. Consequently, Koran Gogi and Konsore Arki *Kebeles* from maize Livelihood Zone, Shelo Elancho *Kebele* from Agro Pastoralist Livelihood Zone and Alabo Arke *Kebele* from Coffee Livelihood Zone were randomly selected from respective livelihood zones. The sample size was distributed in each sample *Kebele* based on the probability proportional to size method as follow.

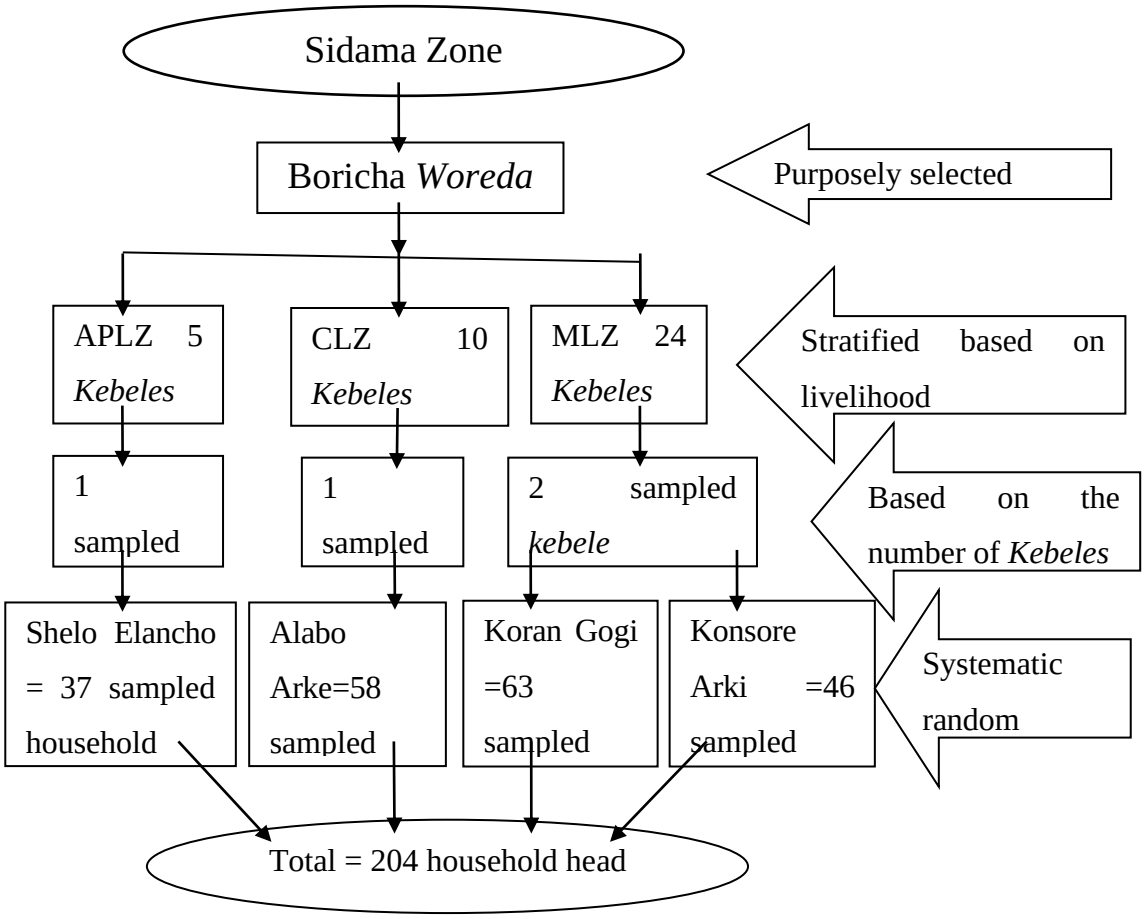

Figure 3.2. Schematic representation of sampling technique

Source: Own construction (2015)

3.5. Methods of Data Analysis

To process and analyze the data, STATA and SPSS software were used. After completing the field work, the quantitative data was coded, entered into STATA, cleaned and verified. The data collected from different sources was analyzed by using both descriptive statistics and econometric methods. The descriptive method includes simple ratios, percentages, tables, frequencies, standard deviations, *etc*. The quantitative and qualitative data were tabulated in the way that can enable to understand or capture the view of factors that affect rural household's saving behavior. After that households' savings was taken as a dependent variable and was then regressed against household specific, demographic, socioeconomic and institutional factors. The quantitative data was processed and analyzed using Ordinary Least Square (OLS) method. Diagnostic test for the violation OLS assumption was conducted. The

qualitative data was also summarized and presented to supplement the result of the quantitative analysis.

3.5.1. Model specification

According to Jocelyn et al. (1988), Policymakers and financial institutions have recently placed greater emphasis on financial Savings mobilized by the financial system because of two reasons: 1) financial Savings seem easier to directly influence than aggregate Savings; 2) financial Savings provide funds important to banks for lending. Among rural households, the bulk of Savings has been mainly in the form of physical assets like farmland and equipment, inventory of crops and livestock and other assets like jewelry and consumer durables. This study tries to capture the forms of in kind savings by descriptive statistics method. Whereas, financial savings, often comprise a Small proportion of total household savings. The transformation of more physical assets into financial savings is the challenge to the policymakers who seek to mobilize more rural deposits. The estimation of household saving function for this study was obtained by using OLS method. This study is focused, therefore, on the factors that are likely to influence the level of financial savings held by rural households. The difference between household income and expenditure (Consumption) is taken as saving.

The econometric regression model used to analyze the household determinants of saving with other independent variable is given through multiple linear regressions.

The analysis was made based on the Absolute Income Hypothesis, which related the household saving behavior with household income and other socio economic variables.

The model that was used for the econometric regression is

$$S = \alpha + \beta_1 \text{sex} + \beta_2 \text{age} + \beta_3 \text{age2} + \beta_4 \text{Edu} + \beta_5 \text{Training} + \beta_6 \text{farminc} + \beta_7 \text{Memb} + \beta_8 \text{Cons} + \beta_9 \text{Disa} + \beta_{10} \text{Famlsize} + \beta_{11} \text{Farmsize} + \beta_{12} \text{Livestock} + \beta_{13} \text{offarminc} + u_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

TABLE 3.2: REGRESSION VARIABLES OF MULTIPLE LINEAR REGRESSION MODEL

Variable	Description of variable	Measurement	Hypothesized Sign
Sex	Sex of household head	Discrete (Male=1, Female=0)	+
Age	Age of household head	Continuous (number of Years)	+
Age2	Age of household head squared	Continuous (number of Years)	-
Famlsize	Number of family members	Continuous (Number)	+
Edu	Years of education of household head	Continuous (number of Years)	+
Training	Received trainings on savings	Discrete (Yes =1, No =0)	+
Memb	membership to cooperatives	Discrete (Yes =1, No =0)	+
Dista	Distance to the nearest saving association	Continuous (Km)	-
Onfaminc	Annual income from on farm activities	Continuous (Birr)	+
offaminc	Annual income from off-farm activities	Continuous (Birr)	+
Expnd	Expenditure level of household	Continuous (Birr)	-
Farmsize	Total farm size	Continuous (Hectare)	+
Livestock	Number of livestock in TLU	Continuous (Number)	+

Source: Own construction (2015)

3.6. Definitions of variables and working hypotheses

3.6.1. Dependent Variable

The dependent variable (S) is the holding magnitude of savings that either at a financial institution or at home. This holding includes loans granted (to parents, relatives, neighbors, traders and friends), deposits (with banks, Cooperatives, microfinance, and money keepers), and any money held at home. It is a continuous dependent variable in the model and measured in Ethiopian Birr.

3.6.2. Independent Variables

After the analytical procedures are clearly defined, it is necessary to identify the potential explanatory variables that would influence savings behavior. Review of literatures, past

research findings, experts and author's knowledge of rural household's savings behavior of the study areas were used to identify potential determinants of savings behavior and the magnitude of savings. Therefore, the following explanatory variables are selected to analyze their causal relationship with dependent variable and effects on dependent variable.

1. Sex of the household head (Sex): This is a discrete variable that takes a value of "1" if the household head is male and "0", otherwise. In this study in one hand, once female headed households have got information about savings programs and related financial products/services they are strong participants in all aspects of the financial system. On the other hand, it is assumed that due to tradition or culture, male household heads have more exposure and access to information and new interventions than female household heads, which might enable them to participate in the saving activities as early as possible. Based on this assumption it is hypothesized that sex of the household affects the magnitude of annual savings.

2. Age of the household head (Age): It is a continuous variable and defined as the number of completed years from the time of birth till the time when the survey will be conducted. Age is supposed to represent accumulated work experience. In this study it is assumed that as age increases farmers would acquire knowledge and experience through continuous learning and the level of responsibility to manage the family and the need to accumulate assets for tomorrow becomes high. Therefore, they prefer to save cash. In light of this, it is hypothesized that the age of the household head is positively related to the magnitude of savings.

3. Education level of the household head (Edu): This represents the level of formal schooling completed by the household head. It is a continuous variable in terms of the household head grade level. On one hand, educated farmers are expected to have more exposure to the external environment and accumulated knowledge through formal learning which might enable them to pursue livelihood strategy that leads to better income through making use of available opportunities. Therefore, it is hypothesized that education level of the household head is positively related to the magnitude of annual savings.

4. Training (Training): It is a discrete variable, which takes a value of "1" if yes and "0", otherwise. Training would increase the awareness level of farmers and exposure to new ideas, information, activities, opportunities, working environment, and different sources of income, prudent handling of cash, etc. Usually the trainings programs focus on organization,

management, objectives, operation system, savings mobilization, etc. Therefore, access to training would have positive impact on the amount of member's annual savings.

5. The amount of farm income in Birr (OnFaminc): It represents the amount of farm household members annual income generated from on-farm activities. It is a continuous variable. The higher the amount of annual income might reflect households' strategy of improving its agricultural production and productivity to secure the household basic needs and gradually to change the household members' life style. Hence, it is hypothesized that on-farm income is positively related to the saving behavior of households.

6. The amount of income generated from off - farm activities in Birr (offaminc): It represents the amount of annual income generated from different non-farm activities of the household. It is a continuous variable. The higher non-farm income might reflect household's strategy of diversifying its income sources with the view to decrease the household income risk. Hence, it is hypothesized that the amount of annual non-farm income is positively related to the magnitude of savings.

7. Expenditure (Expnd): It is a continuous variable that refers to the sum of household expenses on food item, clothing, health, education etc. It includes not only expenditure on consumption but also different expenditures on social and religious ceremonies celebrated occasionally such as, wedding, burial/funeral, circumcision and others. The expenses related to these ceremonies are sometimes too large relative to farmers' income levels.

Expenditure is expected to have a negative impact on the household members' decision to save.

8. Family size (Famlsize): It is a continuous explanatory variable represented by positive integer values. As the family size increases, the number of mouths to be fed obviously increases, which share available income to consume. On the other hand, if the majority of the members are productive, the level of income at household level will be increased. Hence, it is hypothesized that the household's family size is directly or inversely related to the members' decision to the behavior savings.

9. Farm size (Farmsize): This is the total farm size cultivated by the household given in hectare. Since it reflects ownership of an important asset, it is expected to affect production positively. The theory of factors of production implies that, land is one of the important factors of production. Therefore, farm size, as a variable, is hypothesized to have positive relationship with agricultural production and thereby increased farmers' income. It is a continuous variable. If the member has large land size, he would gain more income. It is

assumed that the larger the total area of the farmland the farmer owns, the higher would be the output. Thus, increase in size of land is expected to have direct influence on savings behavior of household.

10. Livestock (livestock): It refers to total livestock of the members' household measured in tropical livestock unit (TLU) and it is a continuous variable. Livestock are the farmers' important sources of income, means of transportation, source of food and draught power for crop cultivation and it is a proxy for the wealth status of the households in the study area. Livestock are also used as an insurance of rural livelihoods in case of crop shortfalls and they are means of saving. It is expected that livestock resource in number is positively related to the magnitude of savings.

11. Distance to the nearest saving association (Dista): It is a continuous variable and distance is measured in terms of Kilo meters. The close nearness of saving association to the beneficiaries would save farm resources (time, labor) which otherwise would have been spent to access different financial products and services and it might also motivate farmers to join the institution. Rural saving association which is located at far distant areas, on the other hand, might discourage members' participation in the saving and it becomes difficult to follow up and control the operational system of the institutions. Therefore, it is hypothesized that distance to saving association office is negatively related to the saving behavior.

12. Membership to cooperatives (Memb): Membership to cooperatives is one of the channels through which new technologies are transferred to farmers. The farmers' membership to cooperatives those established to facilitate the agricultural production of farmers is expected to increase savings of households.

3.7. Validity and Reliability

The results of a research study are only useful to the extent that they can be accurately and confidently interpreted. The issue of accuracy and confident interpretation of results is at the center of validity. Researcher checked internal validity which refers to the extent to which the results obtained in a research study are a function of the variables that are systematically manipulated, measured, and observed in the study. External validity refers to the extent to which the results of a research study are able to be generalized confidently to a group larger than the group that participated in the study. Rarely is a researcher interested in drawing conclusions only about the participants in a study. Usually, the researcher would like to claim

that the results that are obtained for the participants are also applicable, or generalizable, to a larger population. Researcher developed a conceptual scheme that explicitly describes the components of the research process and their interrelationships, and checked construct validity, convergent and identify new validity issues that researchers need to consider. Generally, researcher checks internal validity for research design; statistical conclusion validity for data analysis; and external validity for the robustness of research findings.

To test reliability research design researcher Cronbach's alpha statistic which computes the interitem correlations or covariances for all pairs of variables and for the scale formed from them. At least two variables must be specified with alpha. Cronbach's alpha (Cronbach, 1951) assesses the reliability of a summative likert rating scale composed of the variables (called items) specified. Scales can be formed by using the raw item scores or standardized item scores.

The reliability alpha is defined as the square of the correlation between the measured scale and the underlying factor. Alpha represents the expected correlation of one test with an alternative form containing the same number of items. The square root of alpha is the estimated correlation of a test with errorless true scores (Nunnally and Bernstein, 1994). Because it concerns reliability in measuring an unobserved factor, alpha is related to factor analysis. The test should be designed to measure one factor, and, because the scale will be composed of an unweighted sum, the factor loadings should all contribute roughly equal information to the score. Generally to test reliability researcher uses Cronbach's alpha, item-test correlation, item-rest correlation and average inter item correlation tests

CHAPTER FOUR

4. RESULTS AND DISCUSSION

This part of the thesis presents the results and discussion parts of the study. It is divided into two major sections. The first section presents results of the descriptive statistics comprising of demographic, socioeconomic and institutional characteristics. In the second section, econometric results of the multiple linear regression model was presented and discussed.

4.1. Descriptive Results

4.1.1. Demographic characteristics of respondents

The main demographic variables included in this analysis were sex, age, experience, marital status, religion, family language, family size, and education status of respondents. The results showed that 92.16 percent of the households were male headed and the remaining 7.84 percent of households were female headed (Table 4.1).

TABLE 4.1: DISTRIBUTION OF RESPONDENTS BY DEMOGRAPHIC CHARACTERISTICS

Characteristic	Response	Frequency	Percent
Sex	Female	16	7.84
	Male	188	92.16
Marital status	Married	195	95.59
	Single	7	3.43
	Widowed	2	0.98
Religion	No religion	6	2.94
	Traditional	11	5.39
	Orthodox	9	4.41
	Catholic	17	8.33
	Protestant	146	71.57
	Muslim	15	7.35
Major language	Sidamigna	192	94.12
	Wolaitigna	8	3.92
	Oromigna	4	1.96
Education	No	144	70.59
	Yes	60	29.41

Source: Own field survey (2015).

Similarly, 95.59 percent of the respondents were married and 3.43 percent were single. Regarding the religion of the respondents, 71.57, 8.33, 7.35, 5.39 and 4.41 percent were Protestant, Catholic, Muslim, traditional and Orthodox religion followers, respectively. The

study area is a home for different ethnic groups who speak different languages. However, around 94 percent of respondents can speak and communicate by Sidamic language. The result showed that only 29 percent of household heads had formal education. From those attained formal education, the majority had primary education, with very few having attained secondary education (Table 4.1).

TABLE 4.2. AGE AND FAMILY SIZE OF HOUSEHOLDS

Age group	Frequency	Percentage
Below 18	37	18.13
19-35	57	27.94
36-50	52	25.49
51-65	41	20.09
66 and Above	17	8.33
Family size		
1-3	34	16.66
4-6	108	52.94
7-10	47	23.03
10 and above	15	7.35

Source: Own field survey (2015).

As can be seen in the table below, 73.52 percent of the respondents are found within the productive age group and only 26.48 percent of the total population is found within the unproductive age group (Table 4.2). The mean age of all the sampled farmers was about 40 years with minimum age 18 years and maximum age 80 years (Table 4.3).

Labor by being important input for agricultural production, family size plays a significant role in income generation. From the total of household, 69.6 percent households have family size within the range of 1 to 6 and the remaining 30.4 percent household have family size the range of 7 to 12 and above (Table 4.2). And average family size of respondents was found about 5 persons per household. The minimum family size in the study area was 2 persons per household and the maximum was 12 persons per household (Table 4.3). This shows that farmers had easy access to farm labor from family members.

TABLE 4.3: AVERAGE AGE AND FAMILY SIZE DISTRIBUTION OF HOUSEHOLD

Variable	Mean	Std. Dev	Minimum	Maximum
Age	40	12.31	18	80
Family size	4.95	2.26	2	12

Source: Own field survey (2015).

4.1.2. Socio-economic characteristics of respondents

4.1.2.1. Distribution of respondents by occupation practice

Among the households included in the study, 4.41 Percent of the respondents were not participating in agriculture based job opportunity, while 95.59 Percent of the respondents were participating in agriculture based job opportunity in the study area. As the data shows, agricultural land availability, 70.59 Percent of respondents reported that there is availability agricultural land and 29.41 Percent of respondents reported there is no open land in their respective Kebele. About 75.98 percent of the sample household heads were fulltime farmers (Table 4.4).

TABLE 4.4: DISTRIBUTION OF RESPONDENTS BY OCCUPATION AND PLOT FALLOWING PRACTICE

Characteristic	Response	Frequency	Percent
Availability of land	No	60	29.41
	Yes	144	70.59
Participation in agriculture based job	No	9	4.41
	Yes	195	95.59
Occupation	fulltime farmers	155	75.98
	Salaried employee	6	2.94
	Business men/traders	34	16.66
Grown crops	Maize	28	13.75
	Haricot bean	9	4.41
	Both	126	61.76
	Other crops	23	11.27
	Fallowed	9	4.41

Source: Own field survey (2015).

Farmers whose main occupation is farming are expected to have lower saving than those engaged in additional employment or businesses. This is because the latter are more able to finance their farming activities. Furthermore, about 61.76 percent of respondents grew maize and haricot bean together in the previous season. About 13.75 percent households grew only maize and 4.41 percent grew haricot bean solely. And the remaining 11.27 percent cultivated other crops in the previous season (Table 4.4). As focus group discussion, this implies that almost every plot of land was being ploughed every year that lead to loss of fertility and land degradation.

4.1.2.2. Distribution of respondents by land and livestock holding

The land holding signifies the economic system as it acts as an economic unit for any physical asset to be considered. The land reflects the accumulated saving, capital transfer and revaluation of assets. Land is considered as the biggest asset for the rural households as it can be accumulated in terms of money and productive asset at the time of financial emergency. Households have different informal arrangements to acquire additional land whenever the need for more land arises. Leasing in and leasing out of land is a common practice among farmers in most parts of study area. Such informal land transactions entail some payments either in cash or in kind. Sampled households were requested to indicate whether they have leased in or leased out land. The result indicated that only 39.1 percent of the sample households leased out land to other farmers. Farmers did not only lease out land but also rent-in land whenever possible. Renting-in land tends to be more common than renting-out (partly due to the small average farm size). About 56.37 percent of the respondents had rented-in land during the crop season.

Based on distribution of agricultural land; majority of rural households have farm size ranging from 0.6 to 1 hectare and 1.1 to 1.5 hectares, while only about 9.8 Percent and 8.3 Percent have land size less than 0.5 hectare and greater than 3 hectare respectively (Table 4.5). The survey results indicated that 9.8 percent of the respondents have a farm size of 0.5 hectare or less, 23.52 percent of the respondents have a farm size of 0.51 to 1 hectare, about 25 percent of the respondents have a farm size of 1.1 to 1.5 hectare, 12.74 percent of the respondents have a farm size of 1.51 to 2 hectares.

According to the study the average farm size was 1.45 hectares with a standard deviation of 0.381 (Table 4.5). This depicts majority of households who owned land has below one hectare for agriculture based job opportunity. Because of the heavy population pressure in the study area, land is a very compulsory constraint for farming. Having enough land increases the income of members' savings and credit cooperatives. As the income of the households increases, individuals tend to save money today for future use. As indicated in Table 4.6, the average farm size holding of the farm households in the study areas including Leasing in land is 1.45 hectare. So, rural households are often faced with shortage of cultivable land, through which they can increase their output.

TABLE 4.5: DISTRIBUTION OF SAMPLE HOUSEHOLDS BY CULTIVATED LAND HOLDING

Farm size in hectare	Frequency	Percentage
0-0.5	20	9.80
0.51-1	48	23.52
1.1-1.5	51	25.0
1.51-2	26	12.74
2.1-2.5	21	10.29
2.51-3	21	10.29
> 3	17	8.33
leased out		
Yes	80	39.1
No	124	60.78
Rented in		
Yes	115	56.37
No	89	43.62

Source: Own field survey (2015).

Livestock holdings is also one of the major assets for rural households in the study. Often the number of livestock owned by a household is considered as a measure of wealth. In a mixed farming system the contribution of livestock to crop production cannot be undermined. Due to the multifunctional nature of livestock in the study area, they provide draught power; they are an alternative source of income, and serve as a store of wealth. Livestock products are also important contributors to household food. As to the livestock, it was calculated in Tropical Livestock Unit (TLU) adopted from Storck, et al. (1991), (See Appendix for livestock conversion factors).

The average livestock in TLU owned per respondent was 4.95 with Standard deviation of 2.26 with minimum 1 and maximum 12 owned in TLU (Table 4.6). According to focus group discussions, Livestock are the farmers' important sources of income, means of transportation, source of food and draught power for crop cultivation and it is an alternative for the wealth status of the rural households in the study area. Livestock are also used as an insurance of rural livelihoods in case of crop shortfalls and they are means of saving.

TABLE 4.6: THE SIZE OF THE LAND HOLDING OF THE SAMPLE HOUSEHOLDS

Variable	Mean	Std. Dev	Minimum	Maximum
Farm size	1.45	0.381	0.125	5
Livestock in TLU	4.95	2.26	1	12

Source: Own field survey (2015).

4.1.2.3. Income, expenditure and saving Pattern of the rural households

Economic theory tells that saving represents the difference between income and consumption. Income includes earning from all sources during a year and is net of all costs incurred in producing that income. Consumption is the total amount of goods and services consumed by the rural household during a year and include expenditure on food, clothing, housing, travel, health care, social ceremonies, etc. Saving may be made in kind such as jewelry, livestock, grain, or some other commodities or may be in cash.

Increasing the volume of savings going to physical investments through formal financial institutions by consolidating relatively small private savings into larger blocks of savings to fund large profitable investments is very important. Income, expenditure and saving have an important identity function. Income is a positive factor that analyses the savings of a household. The rural households experience a very low level of income as many of the rural families earn their livelihoods from the agriculture, many are daily wage workers, petty traders and other self-employed activities. The level of income is very low but the marginal propensity to consume is very high among these categories of people. So, the saving rate of those households is very low.

The major source of income for the sample farmers was on-farm activities (from crop production, forest and perennial crop production). The amount of income generated from on-farm activities varied from one sample farmer to another ranging from Birr 650 to a maximum amount of Birr 20000 per annum with standard deviation of birr 12450.9. An average income generated form farming activities was about Birr 4468.56. The second source of income for the sample farmers was off farm activities. Of the total sample members, all respondents reported that they have got income from off-farm activities. The minimum and maximum income from off-farm activities is ranging from Birr 300 to a maximum amount of Birr 18500 per annum with average off farm income Birr 6554.23. While the household annual income from livestock lies between 450 ETB per annum to 9000 ETB per annum with an average earning amount 3606.09 ETB per annum. Additionally, income may come from irregular sources like (safety net, remittance from relatives, from different ceremonies etc). The average income from irregular sources was Birr 1120.71, while ranging from Birr 100 to a maximum amount of Birr 6500 per annum with standard deviation of birr 3129.09 (Table4.7).

TABLE4.7 : INCOME, EXPENDITURE AND SAVING PATTERN OF THE RURAL HOUSEHOLDS

Source of household income	Mean	Standard deviation	Minimum	Maximum
Income from farming	4468.56	12450.9	650	20000
Income from Livestock	3606.09	6712.8	450	9000
Income from off farm activities	6554.23	7191.4	300	18500
Irregular income like marriage ceremony, relatives, safety net…	1120.71	3129.09	100	6500
Expenditure				
Expenditure on food	2406.67	4519.6	700	10200
Expenditure on non food	6221.18	16296.42	1000	25000
Savings				
Saving magnitude	1200.98	4812.64	200	7000

Source: Own field survey (2015).

In this study, expenditures were summarized into two main expenditure components (expenditure on food and non-food). The survey results revealed that the sample respondents' average food expenditure amount to 2406.67 Birr, and non-food expenditure constituted 6221.18 Birr, respectively. The food consumption expenditure of sample households ranged from Birr 700 to 10200, and the standard deviation of food expenditure was 4519.6. From all the expenditures of sample households, expenditure for non-food items (inputs, health problems etc), ranged from Birr 1000 to 25000, and the standard deviation of food expenditure was 16296.42 (Table4.7).

The annual savings of the sample respondents indicated the differences between total income and total expenditures of households. The amount of saving within the preferred frequency ranges from 200 Birr to 7000 Birr. The average saving is 1200.98 Birr with standard deviation of Birr 4812.64 (Table4.7).

4.1.2.4. The pattern of saving behavior in rural households

The roles of financial institutions are encouraging the allocation of resources to the most economically viable investment opportunities to improve economic efficiency and accelerate economic growth. The objective of this study regarding the pattern of saving behavior in rural households in reforming the financial system is to convert relatively short-term savings and deposits into long-term financing, which is needed by capital investments. The highest number of respondents 69.11 percent had the experience of saving only less than 7 months followed by those respondents (13.23 percent) having experience of saving for 7 to 11 months. Looking at the saving practice of the respondents the average saving year is found to be 5 months and the minimum is 0.25 months and the maximum 5 years (Table 4.8). Almost

7.84 percent of the respondents have more than 2 years of saving practice. Moreover, 37.25 percent of respondents who started saving practice save their money when they got it followed by 27.45 percent of respondents who save on monthly bases. Additionally, about 16.17 percent of respondents had a habit of saving at every end of a week.

TABLE 4.8: THE PATTERN OF SAVING BEHAVIOR IN RURAL HOUSEHOLDS

Saving year	Frequency	Percent	Saving frequency	Frequency	Percent
For less than a month	66	32.35	Every end of a week	33	16.17
1 to 6 month	75	36.76	Every end of a month	56	27.45
7 to 11 month	27	13.23	Every end of two months	25	12.25
one year to 2 years	20	9.80	When I got money	76	37.25
More than 2 years	16	7.84	Other alternative	14	6.86
Total	204	100	Total	204	100
Mean time=5 months	Minimum= 0.25 months		Maximum= 5 years		

Source: Own field survey (2015).

4.1.2.5. Mode of Savings of the rural households

Most of the rural people have a discouraging attitude towards saving. Saving may be in form of physical or financial. In rural areas people save in different ways. Some people save in form of liquid asset or cash in hand, some save in form of gold, silver, and other precious metals, some save in form of cereals measured in terms of sack, saving in terms of animals like goats, cows, ox and in form of assets like motor cycle, etc are done. Large part of saving accumulation in developing countries is real assets. Households have their own preference of portfolio and for each portfolio choice they have their own socio economic reasons.

TABLE 4.9: PORTFOLIO CHOICE OF SAVING MODES

Saving portfolio	Frequency	Percentage
Money saving	53	25.98
Physical saving	67	32.84
Both	84	41.17
Total	204	100.00

Source: Own field survey (2015).

In this study it was found that 28.98 percent of the respondents prefer to save their wealth in the form of money saving, 32.84 percent prefer to save their wealth in the form of physical asset and the remaining 41.17 percent prefer to save their wealth in both forms (Table 4.9). Security,future value and liquidity are the three major criterias considred by the respondents while decidng saving portifolio.

4.1.2.6. Institutional preference of individuals for savings

Sound financial sector reform is needed to bring the bulk of capital accumulation in a country through the formal financial system, away from the informal financial institutions. Financial institutions are required to achieve "financial efficiency and stability"; that is, intermediating between savings and investments with minimum intermediation costs and with minimum risks of disruptions and crises. Home, micro finances, saving and credit cooperatives and Banks are institution in order of preference of the respondents for saving their money.

Results reveal that majority (38.72 percent) of the household heads saved with them at home while (21.07 percent) respondents saved in the microfinance institutions,. However, only7.84 percent respondents saved in Banks (Table 4.10). Also, about 10.78 percent of the respondents saved within cooperative and 16.66 percent respondents saved in the form of rotatory or *equb* while only 4.90 percent of the respondents save their money in relatives home/pocket. The reason for increasing personal savings may be for easy access to savings for immediate use. This study showed, an insufficient availability of the financial institutions where the rural people save.

The result also shows a moderately high level of emerging formal savings (Bank and cooperatives) among the rural entrepreneurs. This might increase their access to formal savings to boost their level of rural enterprises.

TABLE 4.10: PREFERENCE OF SAVING IN FINANCIAL AND NON-FINANCIAL INSTITUTIONS

Where household Saves	Frequency	Percent
Self deposit at home	79	38.72
In relatives/other home	10	4.90
Rotatory (like *Equb*)	34	16.66
Bank	16	7.84
Microfinance institutions	43	21.07
Cooperatives	22	10.78

Source: Own field survey (2015).

4.1.2.7. Factors influencing savings behavior of rural households

Rural savings could also be intended to address other forms of household expenditure which include children's education, smoothening consumption during off-seasons and unforeseen events such as illness and other emergencies. Some of the respondents (7.84 percent) gave interest earned from saving as a motive to save, from the given reasons. Like what is assumed in theory, households not only save for future consumption but also for future investment.

This may explain the reason for insensitivity of saving to interest rates as found in numerous empirical studies. Households then find it prudent to directly engage in investment rather than save to get return from savings.

In the study area co-operators save primarily to accumulate capital for future investment, build up a buffer stock for contingencies and accumulate enough funds to pay for future planned expenditure on durable goods (which includes livestock, appliance, housing, and so on). Reasons for saving varied for households, the principal reasons for saving were, for emergencies/ Illness, to obtain loans, for housing/ purchase appliances (14.21%) and for security (12.74%). Most rural household heads were found to save mainly to pay for emergencies and to offset the bills of unexpected illness (25%). Meaning, the highest percentage of respondents saving motive emanates from the need to cover family from unforeseen events or to provide a buffer against events (precautionary motive). Other reasons for saving by the households were to be able to access credit from the financial institution with which they saved (17.15%), purchase farm input (8.82) and for children's education (6.86%). The reasons why rural households save are presented on (Table 4.11). According to the focus group discussion lack of enough income, high cost of living, fear of indebtedness, low attitude toward saving, and social responsibility of rural respondents were responsible for not saving. A study by Browning and Lusardi (1996) states that three factors were found to be determinants of the saving behaviour of households in Africa. One of these was the ability to save which in turn depends on a household's disposable income and expenditure. The second was the propensity or willingness to save as influenced by socio cultural and economic factors like the family obligation to educate children. The third one was the opportunity to save and returns on savings.

TABLE 4.11: THE DISTRIBUTION OF RESPONDENTS ACCORDING TO PRINCIPAL REASONS FOR SAVING.

Variables	Frequency	Percentage
Obtain loans/credit	35	17.15
Security /Retirement	26	12.74
Emergencies/ Illness	51	25
Housing/ Purchase appliances	29	14.21
Purchase farm input	18	8.82
Education	14	6.86
Ceremonies	6	2.94
Interest	16	7.84
Other	9	4.41

Source: Own field survey (2015).

4.1.2.8. Savings and Earners Expectation of Future Earnings Over the next Five Years

The rural people are mostly engaged in agricultural and non agricultural activities mainly on a daily wage basis. So their income is not fixed as many socio economic factors are responsible for the fluctuation in their income. Around 41.17 percent of people expect their income to be decreased in the next five years because of the growing age of the working population, 31.86 percent of the population feel their income will keep pace with inflation, 12.25 percent people expect their income can outstrip inflation in a certain period of time and around 14.7 percent of the population expect there to fluctuate in the next five years (Table 4.12).

TABLE 4.12: EXPECTATION OF FUTURE EARNINGS OVER THE NEXT FIVE YEARS

Expectation of future savings	No. of Households	Percentage
Expect income to decrease	84	41.17
Expect income to keep pace with inflation	65	31.86
Expect income to outstrip inflation	25	12.25
Expect income to fluctuate	30	14.70
Total	204	100.0

Source: Own field survey (2015).

4.1.3. Institutional characteristics of sample households

Table 4.13, presents the summary statistics of some institutional characteristics of households in the study area. Membership to cooperatives was one of the channels through which new technologies were transferred to farmers on how and where to save. The farmers' membership to cooperatives included those established to facilitate the agricultural production of farmers such as input supply cooperatives and saving associations.

TABLE 4.13: INSTITUTIONAL CHARACTERISTICS OF SAMPLE RESPONDENTS

Characteristic	Response	Frequency	Percent
Membership to cooperatives	No	71	34.80
	Yes	133	65.20
Needed credit	No	24	11.76
	Yes	180	88.24
Received credit	No	140	68.63
	Yes	64	31.37

Source: Own field survey (2015).

It was observed that about 65.2 percent of households were members of agricultural production oriented cooperatives. Such participation in cooperatives facilitated communication between farmers and other bodies such as researchers, extension officers and microfinance on saving. According to the result, although the number of farmers' membership to input supply and related cooperatives was small, all smallholder maize producers were members of various non-agriculture oriented institutions and organizations such as religious groups (in churches and mosques), *Idir, Ikub* and others.

About 88.24 percent of households needed credit to undertake agricultural production. In addition to this, from those who needed credit only 31.37 percent got credit services for agricultural activities (Table 4.13). The remaining 68.63 percent of households could not get the service due to various reasons such as absence of the service for the intended purposes and too high interest rate imposed by money lenders.

Trainings were a best tool to pass on new information and to correct misconceptions concerning savings. In the study area about 23.04 percent of the sample farmers did not attend training and 76.96 percent of respondents had training on saving (Table 4.14).

Regarding the contents of training in farmer's development unit, about 33.75 Percent of the respondents were reported it mainly focuses on the use and application of fertilizer, while nearly 22.29 percent of the respondents reported that the training focuses on skill development in improving saving utilization. Concerning the relevance of training contents in all issues, about 33.3 Percent of the respondents indicated that, it is mismatch with respect to the households' need/gap and about 30.39 Percent of the respondents indicated that the contents are loosely relevant. This implies the content of training in the rural areas was not relevant to needs of rural households and focuses mainly in crop production skill, life skill

and organizational management and lacks other agricultural fields and agribusiness concept trainings. Accordingly, rural youths did not get proportionate attention as it was placed in the package documents in the inclusive involvement of saving institutions. The main reason revealed in the finding is that the contents of the training, lack adequate institutional and human capacity, the capacity of the extension workers and training mechanisms did not address the interest and problem of rural households.

calculated according to the person involved in each category do not add up to 100 Percent. According to information gathered from focus group discussion youth have limited access to participate in skill and policy trainings because both development agents (Das) and service providers focus on adult farmers who has land. Key informant interview also supports this idea by mentioning that, DAs and other extension workers have no time to address youth with no land or pieces of land because extension workers are busy in addressing farmers with land and better assets. Regarding the youth organization the FGD revealed that it's one of the failed structure which can't carry out its responsibility properly and needs restructuring and tie it with local stakeholders.

TABLE 4.14: DISTRIBUTION OF RESPONDENTS BASED ON CONTENTS AND RELEVANCE OF TRAINING

Characteristics	Frequency	Percent
Training		
No	47	23.04
Yes	157	76.96
Training Contents of FDU		
Skill Sharing in farm/ management	37	23.56
Skill sharing in saving	35	22.29
Skill sharing in compost preparation	25	15.92
Skill in improved seed/fertilizer application	53	33.75
Other	18	11.46
Relevance of training contents for rural households		
It is highly relevant	84	41.17
It is loosely relevant	62	30.39
It is mismatch	68	33.33
I don't know	43	21.07

Source: Own field survey (2015). Note**:** - *Multiple responses were possible; percentages

4.2. Econometric Result

4.2.1. Model Specification Tests

Test of the appropriateness of the model and the explanatory variables included in the model is critical step before analysis and drawing implications. Taking into account the very nature of the cross sectional data used tests for multicollinearity, heteroscedasticity, normality and endogeneity problems were conducted.

Multicollinearity test

Multicollinearity refers to a situation with a high correlation among the explanatory variables within a multiple regression and it is a sample problem and a state of nature that results in relatively large standard errors for the estimated regression coefficients, but not biased estimates (Andren, 2007). The data was tested for multicollinearity. It is expected that no single explanatory variable should be a linear function of another. The results showed that there is no indication of any trouble of multicollinearity. It can be investigated by calculating Variance Inflation Factor (VIF) for each of the explanatory variables. If a mean values of VIF are larger than 10; there is evidence of multicollinearity problem that calls for serious concern. VIF values were computed for all variables and they were ranging between 1.84 and 7.71. Moreover, the mean value of the factors (VIF) was 4.47 (Annex 4). Hence, multicollinearity was not a problem among the explanatory variables.

Heteroscedasticity test

Heteroscedasticity is mainly prevalent in cross-sectional data set such as the one used in this study. Some of the main causes are: variance of dependent variable increase with increase in the level of dependent variable, variance of dependent variables increases or decreases with changes in independent variables and outliers in the data set. The first step in addressing the problem of heteroscedasticity is to determine whether or not heteroscedasticity actually exists. Therefore, following the techniques mentioned by (Andren, 2007) to identify the problem of heteroscedasticity, the Breusch-Pagan test method was used to detect the problem of heteroscedasticity. The Breusch-Pagan test is a popular test procedure presented in most econometric text books. And it is slightly more general than the Goldfeld-Quant test, since it allows for more than one variable at the time to be tested. According to The Breusch-Pagan test, the chi-square was 2.74 with Prob > chi2 equals 0.0821 at 10 percent level of confidence (Annex 5). Since the Prob > chi2 was 0.0821 which is less than 10 percent level of confidence, the null hypothesis of homoscedasticity is rejected and researcher conclude that there is heteroscedasticity in the data even though as such not problematic in this case.

Some of the methods used to correct for heteroskedasticity are transformation of data into natural logarithms, the weighted least squares (WLS) and robustness of the standard errors (Gujarati, 2004). Andren (2007) illustrated the effects of heteroskedasticity on estimates for various models and provided the robustness of the standard errors of the estimator as best remedial way of correcting heteroskedasticity. Heteroskedasticity-robust methods are valid at least in large samples whether or not the errors have constant variance. So a variance matrix estimator should be robust in the presence of heteroskedasticity of unknown form (Wooldridge, 2000). For this study, a robust standard errors method was used to address heteroskedasticity.

Normality test

If the underlying disturbances are not normally distributed, the estimator is inconsistent. And a unifying treatment includes several distributions such as the exponential, lognormal, and Weibull (Greene, 2003). One of the assumptions made in this study is U_i is normally distributed with zero mean and a constant variance ($\sigma^2{}_u$). In order to confirm the assumed distribution, Skewness/Kurtosis tests is one of used methods in Stata (Colin and Pravin, 2009). According to sktests below, the joint adj chi-square was 4.23 with Prob > chi2 equals 0.1121 at 10 percent level of confidence (Annex 6). Since the Prob > chi2 was 0.1121 which is greater than 10 percent level of confidence, the null hypothesis of Normality in distribution of error term is accepted and researcher concluded that this was an indication of assumption that Ui is normally distributed at least 10 percent level of significance.

Endogeneity test

Endogeneity problem exists when an independent variable in the model is explained by other variables and correlated with error term within the equation. Neglecting the problem of Endogeneity in the equation introduces a simultaneity bias. A more difficult problem arises when a model excludes a key variable, usually because of data unavailability. One possibility is to obtain a proxy variable for the omitted variable. Loosely speaking, a proxy variable is something that is related to the unobserved variable (Wooldridge, 2000). Although researcher explicitly recognizes that gender and human capital affect rural savings, researcher can never estimate them, since gender and human capital are a vague concept and not observed. The omitted variables bias can be solved, or at least mitigated, by obtaining a proxy variable for the omitted variables. Consequently, in the model specification, one possibility was using sex variable as a proxy for gender and education variable as a proxy for human capital.

Therefore, in this study, the independent variables were not explained within the model in which it appeared in multiple linear regression model. And to solve the potential endogeneity problem in the multiple linear regression model, few variables suspected of causing the problem were added in the model and consistence was achieved. Therefore, the independent variables and the error term are not linearly related, ensuring that variables measuring savings are independent from the variables in the error term.

Test to check omitted variables

In order to confirm omitted variables tests, Ramsey RESET test using powers of the fitted values of savings was used. According to Ramsey RESET test below, F (3, 198) was 1.8 with Prob > F equals 0.1204 at 10 percent level of confidence (Annex 7). Since the Prob > F was 0.1204 which is greater than 10 percent level of confidence, the null hypothesis of model has no omitted variables was accepted and researcher concluded that this was an indication of assumption that model has no omitted variables at least 10 percent level of significance.

4.2.2. Multiple regression model results

The determinants of rural household savings were analyzed using the ordinary least square regression technique. Table 4.15 shows the multiple regression results of savings against socioeconomic and institutional variables. A multiple regression model showed that twelve out of thirteen variables were statistically significant at influencing savings of rural households. These include age, family size, education, training, membership to cooperatives, distance to savings associations, farm and off-farm income, expenditure, farm size, and livestock.

The R-squared of 0.8131 implied that 81% of the variation in the level of savings of the household heads is jointly explained by the independent variables. Also, the overall significant of the model as measured by the F-statistics of 63.59, showed that the model is significant at 1 percent level. This means that the overall model has a good fit. In addition, a number of independent variables were statistically significant at various levels of significance.

The first major contribution to savings literature comes from Ando and Modigliani's, lifecycle hypothesis, whose basic assumption is that individuals spread their lifetime consumption evenly over their lives by accumulating savings during earning years and maintaining consumption levels during retirement. Moreover, the life cycle theory suggests that age has an impact on savings. The young and the retired people are not savers. Age of household head was significant and had a positive effect on saving of rural households up to the mean age.

Age has direct relationship with savings of younger individuals. Reasons behind positive sign may be that households of lower age group need more earnings to sustain in the critical situations of country. Mostly people are job holders or labor class in these groups that's why they have to save more for precautionary purpose for future need (marriage, emergencies, education of children, etc). And age squared inversely related with savings when households become elder and elder at 5 percent level of significance. This finding is consistent with findings of Rehman *et al.* (2010)] that showed square of age is highly significant and inversely related to savings. It indicates that up to age of 40 years, rural households can increase their savings significantly but beyond that their savings will decline due to low efficiency in old age or due to reduced potential of work in this age. It proves the presence of life cycle hypothesis in higher income group. Therefore, the higher the dependency ratio of a nation, the lower will be the saving rate. Thus, implying what is called the level of effect of the life-cycle theory. Findings of this study are matched with Gonzalez and Ozcan (2008) and Rehman *et al.* (2010). The same findings are given by Burney and Khan (1992) and Ahmad and Asghar (2004).

Family size is found to be negatively related to savings rural households. Due to more members of the family, their savings decline. People with large families do rarely save compared to those with small families. This implies that an increase in household size will decrease rural household savings. Other variables remaining constant, results of regression denote that a rise of one member of family diminishes their savings by an average of 391.9 Birr.

Since, education is used as a proxy for human capital. According to this study, the education level of household head was highly significant affecting positively savings of rural households at 1 percent level of significance. Remaining other variables constant, one year increases of education among rural households, increase the savings magnitude of respondents by an average of Birr 235.2. This study showed also that educated households exhibited higher levels of savings. Most of the literature and common consensus tells us that education increases the awareness of household and help them to calculate the present and future benefits and costs and decide on saving or dis saving. This is because educated farmers are likely to access information easily, and make well informed decisions with better management of farming activities and savings. Findings of Gina A.N. et.al ,2012 in Ethiopia,

East Hararge Zone, Oromia Regional state showed this positive relationship between head of household education and household saving.

Similar to education level of head of household, training farmers about savings is important for households to improve their skills and practices and to have knowledge savings. Training was positively related with savings of farmers at 1 percent level. Keeping other variables constant, the average saving of those who are trained is higher by about 713.9 Birr than their counter parts. Trainings helped households to obtain information and to correct misconception concerning savings. Therefore, building the capacity of the existing farmers' training centers and expanding their coverage as well as strengthening the field level training programs are highly demanded to improve savings of rural household.

Membership to cooperatives was found to be positively related and significantly affecting savings in the study area at 1 percent level. Holding other variables constant, the average saving of those who are members to different cooperatives is higher by about 229.9 Birr than their counter parts. Farmers` cooperatives played an important role in organizing members to save in different organizations and in creating ways to mobilize or attract saving.

The households those were closer to the office of saving association and institution had more contacts with agents. Thus, distance to the saving center was found to be negatively related and significantly affecting saving in the study area at 1 percent level of significance. Holding other variables constant, if distance increases by one kilometer, the savings magnitude of rural household decreases by an average of Birr 38.57. Those households who were closer to saving association and institution enabled to participate in agricultural meetings, field days, demonstration and best available practices**.** As result, households who are closer to the saving association and institution, save more than their counterparts.

The amount of on-farm income**:** It represents the amount of annual income of farm household generated from on-farm activities. The higher the amount of annual income might reflect households' strategy of improving its agricultural production and productivity to secure the household basic needs and gradually to change the household members' life style. It was hypothesized that on-farm income is positively related to the magnitude of annual savings. On-farm income influences the savings magnitude by positively and significantly at one percent probability level of significance, confirming the hypothesis. Multiple linear regression model showed that Marginal propensity to save is 0.20. Meaning, a one Birr increase in on farm income, leads into by an average 0.20 cents increase in the amount of savings, holding

other variables constant. Findings of this study goes in line with findings of Wener and Earnst (2003), who found income of the households positively related to the magnitude of savings.

TABLE 4.15: MULTIPLE LINEAR REGRESSION MODEL RESULTS

Variable	Robust Coefficient	Standard Error	t-Value
Sex	50.67297	121.1133	0.42
Age	26.79553	14.3889	1.86*
age2	-316.6757	136.0743	-2.33**
Family size	-391.9033	45.60103	-8.59***
Education	235.2135	18.74864	12.55***
Training	713.9078	175.3249	4.07***
Membership	229.9233	18.70842	12.29***
Distance	-38.57359	12.13979	-3.18***
Onfarm income	0.2030316	0.067825	2.99***
Offarm income	0.5191921	0.129009	4.02***
Expenditure	-0.759415	0.126337	-6.01***
Farm size	34.83426	1.750116	19.90***
Livestock	14.74517	0.221285	66.63***
_cons	4.099525	1.108461	3.70***
F(13, 190) = 63.59		R-squared =	0.8131
Prob > F = 0.0000		Adj R-squared =	0.8003

***, ** and * indicate level of significance at 1, 5 and 10 percent, respectively.
Source: Model output (2015).

Additionally, the findings indicated that off-farm income had a positive and significant effect on saving at one percent level of significance. Multiple linear regression model showed that Marginal propensity to save is 0.51. Meaning, a one Birr increase in off farm income, leads into by an average 0.51 cents increase in the amount of savings, holding other variables constant. Interestingly, rural households that diversify their livelihood into non-farm activities tend have higher saving than other households.

Expenditure on social/religious ceremonies: It includes wedding, death of family member, funeral (*teskar*), holidays, "*mahber or zikir*' and religious ceremonies. Celebration of one or more of these ceremonies needs much material and financial resources which are sometimes beyond what the households could afford. Expenditure on social issues is inversely related to the savings magnitude and statistically significant at one percent level of significance. Therefore, a one Birr increase on social and religious ceremonies will decrease the amount of savings by an average of 0.75 cents, other variables are held constant.

Farm size of Land holdings**,** it is associated with the savings magnitude of rural households positively and significantly at one percent level of significance. Furthermore, it was found out

that landholding strongly influence the rate of total saving, since the size of land holding influences income and income influences savings positively. A one hectare increase of farm size of rural households will increase the savings by an average of Birr 34.83 under the effects of other variables remaining constant. The same results were reported by Azhar, (1995) landholdings strongly influence the rate of total saving, since the size of land holding influences income and income influences savings positively. This implies that land holding has an influence on the savings magnitude in the study areas.

Raising livestock affected savings significantly and positively at 1 percent level of significance. This is consistent with the hypothesis that increased number of livestock increases the level of saving. The implication of the result was that livestock are an important source of cash in rural areas to increase the savings amount. Hence, having them offer a means for a better propensity to save. Under normal condition, savings in livestock represents the most practiced form of savings in the study area. When livestock increases by a unit of TLU, the savings magnitude of respondents increased by an average of Birr 14.74 while the effects of other variables remain constant. Similar empirical evidences were reported on household savings in Pakistan by Azhar, (1995).

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

Consolidating relatively small private savings into larger blocks of finance that can be used to fund large profitable investments and increasing the volume of savings that going to physical investments through formal, supervised financial institutions are important instruments to achieve sustainable economic growth. Again mobilizing savings through microfinance institutions in Ethiopia is one of the policy instruments used to enable rural households to increase their output and productivity, induce technology adoption, increase input supply, increase income thereby helping them reduce their poverty and attain food security.

Descriptive statistics indicated that the mean age of all the sampled farmers was about 40 years. Furthermore, some of the significant explanatory variables of rural household savings in the study area were household head education level, livestock holdings, membership to cooperatives service, income, age, training participation. This study shows rural farm households indeed save in respective of their low economic status. However, as these households mainly use the informal saving institutions, their savings is hardly traced in the national account. Policy-wise, efforts should be made to encourage the rural households to save through trainings and using the formal channel. Consequently, policies targeting and encouraging training, membership to cooperatives and access to education of rural households would promote savings of rural households in the study area.

5.2. Recommendations

Based on the findings of the study the following policy implications were forwarded:

1. Providing continuous training and follow up of rural households about savings is important. This calls for more efforts by the government and NGOs to increase farmer's trainings on roles of savings. If such knowledge is disseminated then farmers will improve on saving attitude resulting into increased saving magnitude, hence poverty alleviation.
2. Membership to farmers' cooperatives was found to affect saving positively and significantly. Therefore, it should be encouraged and strengthened to improve access to market information and other extension services. When farmers are better organized it becomes easier even for microfinance to offer extension saving mobilization services to

the rural households. Therefore, it implies that there should be clear agricultural oriented cooperatives.

3. Policies that motivate and mobilize income of rural households in farm and off farm activities would be likely to bring a tremendous improvement in savings.
4. It implies that there should be policies to improve savings of older households and encourage them to be in farming activities by providing them incentives. Also, according to the findings, older farmers were less likely to have contacts with banks and microfinance and were less willing to adopt savings. This is an important finding which younger farmers were comparatively more educated than the older farmers. Therefore, by increasing the education status of older farmers through adult based education government can increase the efficiency level of farmers.
5. The useful policy recommendations made by researcher should be implemented by the concerned bodies. This will go a line with contributing towards the achievement of self sufficiency in the nation
6. Provide competent supervision of savings and credit cooperatives. Savings and credit cooperatives are often supervised by the same government agency that is responsible for all kinds of non-financial cooperatives, including agricultural and marketing. In addition to the government body supervision, supervision by external should be employed.
7. Diversify savings instruments in order to attract different types of depositors, banks should be legally allowed to offer a diversity of types of interest bearing instruments.

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APPENDICES

Structured Questionnaires

Hawassa University, School of Graduate Studies, College of Business and Economics, Program of Management and Accounting and Finance, Hawassa, Ethiopia

This is a survey questionnaire on the DETERMINANTS OF SAVINGS BEHAVIOR AMONG RURAL HOUSEHOLDS IN CASE OF BORICHA WOREDA, SIDAMA ZONE, SNNPR. Purpose of undertaking this survey is partial fulfillment of requirements for the Degree of Master of Science in Accounting and Finance. The result of this study depends on your honest cooperation in responding this questionnaire. Whatever information you provide will be kept strictly confidential. This questionnaire should be completed for the 2015 farming season in Boricha Woreda. Thank you for your sincere cooperation in advance

PART 0. IDENTIFICATION

Respondent's name (household head) .....
Name of the data collector.....and Signature.....
Name of the supervisor.....and Signature.....
Date of interview: Day:…..……Month:.....Year:……..
Date checked: Day…..…..…… Month:.....Year:……..
Date entered: Day… …… Month……...Year:…….
Woreda:……. Kebele ……

PART I DEMOGRAPHIC VARIABLES

1.1 Sex of the household head---------- 1. Male 0. Female
1.2 Age of the respondent (year) ----------
1.3 Marital status-------1. Married 2. Single 3. Widowed 4. Divorced 5. Other_____
1.4 What is your family size including yourself? ----------
1.5 Religion-------- 1. No religion; 2. Orthodox 3. Catholic; 4. Protestant; 5. Muslim; 6. Other...
1.6 Major family language------- 1. Sidamigna 2. Wolaitigna 3. Afan oromo 4. Other specify---
1.7 Have you attained formal Education? 1. Yes 0. No
1.8 If yes Q1.7, years of formal Education? _____
1.9 If No Q1.7, Can you read and write? ------ (Yes =1, no =0)
1.10 What is your family size including yourself? ----------
1.11. From your family members the age between 15- 64 (including wife and husband): ---
1.12. From your family member the age below 15 years----------
1.13. From your family member the age above 64 years----------
1.14. Provide additional information on your household members and their relation to the household as per the table below

s.n	Name of household members	Sex	Age of household	Marital status	Relationship With household Head	Education level of households

Use the following codes; -Sex: 1= Male, 0= Female
-Marital Status: 1=single 2=married 3= divorced 4=widowed
-Relationship: 1=Wife, 2=Son, 3= Daughter, 4= Brother, 5= Sister, 6=Grandfather 7=Grandmother, 8=Aunt, 9=Uncle1, 0=other relative,
-Educational status: 1) Illiterate, 2= grade 1 to grade 8, 3. Grade 9 to 10, 4. Grade 11 to 12, 5. College diploma and above

PART II SOCIO ECONOMIC AND INSTITUTIONAL VARIABLES

2.1 Are you a member of any farmers' cooperative? 1. Yes 0. No
2.2 If yes, what are functions of cooperative? 1. Input supply/marketing
2. Savings and credit 3. Environment conservation. 4. Other, specify…..
2.3. If yes, Do you have any responsibility in cooperatives?___ (Yes=1,no =0
2.4 How many members are there in your households? Male____ Female_____
2.5. Distance to the nearest market _____Km
2.6. Distance to the nearest telephone center _____Km
2.7. Distance to the nearest school _____Km
2.8. Distance to the rural savings and credit cooperative office _____Km
2.9. Distance to commercial bank of Ethiopia branch _____Km
2.10. Distance to microfinance branch office _____Km

PART III. RESOURCE OWNERSHIP

3.1. Total owned land _____tsimad,
In which category your Farm
size fall in hectare
1. 0-0.5
2. 0.51-1
3. 1.1-1.5
4. 1.51-2
5. 2.1-2.5
6. 2.51-3
7. > 3
3.2. Did you rented out? 1. Yes 0. No
3.3. Did rented in? 1. Yes 0. No
3.4. Is there availability of open land in your locality? 1. Yes 0. No
3.5. Do you participate in agriculture based job? 1. Yes 0. No
3.6. What is your major Occupation 1. fulltime farmers 2. Salaried employee 3. Business men/traders
3.7. What is your major crop you produce? 1. Maize 2. Haricot bean 3. Both 4.other crops 5. Fallowed

3.8. What is *Income, expenditure and saving amount in this year*

Source of household income	
Income from farming	
Income from Livestock	
Income from off farm activities	
Irregular income like marriage ceremony, relatives, safety net…	
Expenditure	
Expenditure on food	
Expenditure on non food	
Savings	
Saving magnitude	

Animal type	Number including bought during 2015 (None =0)	If you would sell one of the livestock how much would you receive from the sale? (ETB)
Cattle		
1. Indigenous milking cows		
2. Crossbred milking cows		
3. Non milking Indigenous cows		
4.Non milking Crossbred cows		
5. Trained oxen for ploughing		
6. Indigenous bulls		
7. Crossbred bulls		
8. Indigenous heifers		
9. Crossbred heifers		
10. Indigenous calves		
11. Indigenous calves		
Goats		
12. Mature milking goats		
13. Other mature female goats		
14. Mature male goats		
15. Young female goats		
16. Young male goats		
Sheep		
17. Mature female sheep		
18. Mature male sheep		
19. Young female sheep (lamb)		
20. Young male sheep (Ram)		
Other livestock		
21. Mature trained donkeys		
22. Young male donkeys		

23.Young female donkeys		
24. Horse		
25. Mule		
26. Mature chicken		
27. Local Bee hives		
28.Modern Bee hives		

3.10. TRANSFER AND OTHER SOURCES OF INCOMEDURING 2015

Sources	Quantity/unit	Earned Income
1	2	4
1. Rented/sharecropped out land		
2. Rented out oxen for ploughing		
3. Salaried employment		
4. Farm labour wages		
5. Non-farm labour wages		
6. Non-farm agribusiness NET income (e.g. grain milling/trading)		
7. Other business NET income (shops, trade, tailor, sales of beverages etc)		
8. Pension income		
9. Drought/flood relief		
10.Safety net or food for work		
11. Remittances (sent from non-resident family and relatives living elsewhere)		
12. Marriage Gifts		
13. Sales of firewood, brick making, charcoal making, poles etc		
14. Sale of maize crop residues		
15. Sale of legumes crop residues		
16. Sale of wheat crop residues		
17. Sale of teff crop residues		
18. Sale of other crop residues		
10. sale of hay		
20. Quarrying stones		
21. Sale of dung cake		
22.Rental property other land and oxen		
23.		
24.		
25.		

3.12 Apart from income earned from your own farming operations, did you have any off farm income? 1. Yes 0. No

3.13. If yes to No. 3.12, Please fill the following table by indicating how much you received from any sources of nonfarm/ off farm income?

	Payment in cash			Payment in kind			Both are added up
Sources of off farm income	Cash Frequency received(1) per year (1)	Average Cash received once (birr) (2)	Cash income (3) =1x2	Frequency in kind received per year (4)	Payment in kind Cash equivalent (birr) (5)	Kind income (birr) (6)=4x5	Total off farm income=3+6
Drought relief							
Safety net							
Remittances from friends and relatives							
Non-farm labor wages							
Other business NET income (trade, tailor, sales of beverages etc)							
Farm labor wages							
Marriage Gifts							
Rented out oxen, land, etc							
Pension income							
Othersources (specify)____							
Total							

3.12. Household savings

Saving family member (husband & wife only)	**Has bank account number (Yes=1, No=0)**	**Saving with (codes A)**	**Total amount saved during 2009/10 (TSh)**
1	**2**	**3**	**5**

Codes A

1. Saving home (persor
2. Commer or other bank
3. Rural micro-financ
4. SACCO (cr society)
5. Saving by lending money lender
6. Ot specify……..…

HOUSEHOLD EXPENDITURE

Section A: Food consumption

Expense Item	Bought in the last 12 months				
	Frequency of buying (e.g., 2 times per month)	Average quantity each time (e.g. 2 kg; 4 bundles etc)	Total quantity per year	Average price per unit (ETB)	Total value of purchased (ETB)
1	**6**	**7**	**8**	**9**	**10**
Staple foods					
1. Maize (dry)					
2. Maize (green)					
3. Maize flour					
4. Teff flour					
5. Wheat grain					
6. Wheat flour					
7. Barley grain					
8. Barley flour					
9. Rice					
10. Sorghum flour					
11. F/millet flour					
12. P/millet flour					
13. Cassava tuber					
14. Cassava chips					
15. Cassava flour					
16. Potatoes					
17.Potatoe chips					
18. Beans dry					
19. Beans flour					
20. Beans fresh					
21. Cowpea fresh grain					
22. Cowpea dry grain					
23.Cowpea leaves					
24.Groundnut fresh					
25. Groundnut dry					
26.Groundnut flour/paste					
27.Soybean grain					
28.Soybean flour					

Section A: Food consumption (contd)

Expense Item	Bought in the last 12 months				
	Frequency of buying (e.g., 2 times per month)	Average quantity each time (e.g. 2 kg; 4 bundles etc)	Total quantity per year	Average price per unit (ETB)	Total value of purchased (ETB))
1	**6**	**7**	**8**	**9**	**10**
29. Pigeonpea fresh					
30. Pigeonpea dry					
31. Pigeonpea split/flour					
32. Greengram					
33. Bananas (for cooking)					
34.					
35.					
Vegetables					
36. Tomatoes					
37. Onions					
38. Cabbage					
39. Spinach					
40. Kale					
41. Carrot					
42. Okra					
43. Pumpkin					
44. Egg plant					
45.Cucumber					
46.Pepper					
47. Garlic					
48.					
49.					
50.					
Fruits					
51. Oranges					
52. Mangoes					
53. Pawpaws					
54. Pineapple					
55. Bananas (ripe)					
56. Apple					

Section A: Food consumption (contd)

Expense Item	Bought in the last 12 months				
	Frequency of buying (e.g., 2 times per month)	Average quantity each time (e.g. 2 kg; 4 bundles etc)	Total quantity per year	Average price per unit (ETB)	Total value of purchased (ETB)
1	**6**	**7**	**8**	**9**	**10**
57. Guava					
58. Coconut					
59. Sugar cane					
60.					
Meat & other animal products					
61. Cow meat					
62. Goat meat					
63. Sheep meat					
64. Pig meat					
65. Chicken					
66. Turkey					
67. Ducks					
68. Bush meat					
69. Fish					
70. Eggs					
71. Milk					
72. Cheese/Ghee					
73. Butter					
74. Yoghurt					
75. Honey					
76.					
77.					

Section A: Food consumption (contd)

Expense Item	Bought in the last 12 months				
	Frequency of buying (e.g., 2 times per month)	Average quantity each time (e.g. 2 kg; 4 bundles etc)	Total quantity per year	Average price per unit (ETB)	Total value of purchased (ETB)
1	**6**	**7**	**8**	**9**	**10**
Beverages and drinks (contd)					
91. Water for livestock					
92. Water for other uses					
93.					
Fats, oils, sweeteners, snacks and others					
96. Cooking fat					
97. Margarine					
98. Groundnut oil					
99. Coconut oil					
100. Bread					
101. Biscuits					
102. Popocorn					
103. Cashew nuts					
104. Sugar					
105. Salt					
106. Chocolate					
107. Curry					
108. Ginger					
109.					
110.					
Meals eaten away from home (specify)					
111.					
112.					

Section B: Expenditure on non-food items in the last 12 months

Expense Item	Frequency of purchase (e.g., 2 times per month)	Average quantity each time (e.g. 2 kg; 4 bundles etc)	Total quantity per year	Average per unit price (ETB)	Total value of purchase (ETB)
1	**2**	**3**	**4**	**5**	**6**
1. Clothing					
2. Shoes					
3. Blankets					
4. Bed sheets					
5. Soap/washing products					
6. Electricity					
7. Fuel wood					
8. Charcoal					
9. Kerosene					
10. Batteries					
11. School fees					
12. School books and supplies					
13.Healthcare(medicare, treatment etc)					
14. Grain milling					
15. Land tax					
16. Church contributions					
17. Dowry					
18.Contributions to other associations/cooperatives					
19. Other membership fees					
20. Funeral group payments					
21. House building/construction					
22. Contribution to sports					
23. Guard/security					
24. Newspapers, magazines etc					
25. Travel expenses					
26. Mobile phone air time					
27. Radio/TV service charge					
28. Payment for extension advisory services					
29. Pay for improvement of communal services (roads etc)					
30. Kitchen utensils					

31. Personal care (soap, toothpaste etc)					
32. Furniture (tables, chairs, beds etc)					
33. Home repairs					
34. Purchase of cars					
35. Purchase of bicycle, motorcycle etc					
36. Repairs for vehicles, bicycles etc					
37. Petrol and engine oils for cars					
38. House rent					
39. Utility bills (electricity, water, telephone etc)					
40. Kerosene, charcoal, firewood, gas etc					
41. Cigarettes, tobacco etc					
42. Remittance payments					
43. Deposits to savings account					
44. Debt payments					
45. Ceremony and other entertainments					
46.					
47					

3.14. The period of saving behavior in rural households 1. For less than a month 2. 1 to 6 month 3. 7 to 11 month 4. One year to 2 years 5. More than 2 years

3.15. frequency of saving 1. Every end of a week 2. Every end of a month 3. Every end of two months 4. When I got money 5. Other alternative

3.16 In what form of Saving do you save? 1. Physical asset 2. Financial 3. Both

3.17. In which Institutions do you Prefer for Saving 1. Self deposit at home 2. In relatives/other home 3. Rotatory (like *Equb*) 4. Bank 5. Microfinance institutions 6. Cooperatives

3.18. What is your principal reason for saving. 1. Obtain loans/credit 2. Security /Retirement 3. Emergencies/ Illness 4. Housing/ Purchase appliances 5. Purchase farm input 6. Education 7. Ceremonies Interest 8. Other_____

3. 19. What do you expect about future savings 1. Expect income to decrease 2. Expect income to keep pace with inflation 3. Expect income to outstrip inflation 4. Expect income to fluctuate

3.20. A re you a member to cooperatives? 1. Yes 0. No

3.21 Did you need credit? 1. Yes 0. No

3.22. Have you received a credit? 1. Yes 0. No

3.23. Have you training? 1. Yes 0. No

3.24. what do you assume about training Contents 1. Skill Sharing in farm/ management 2. Skill sharing in saving 3. Skill sharing in compost preparation 4. Skill in improved seed/fertilizer application 5. Other

3.25. what is relevance of training contents for rural households? 1. It is highly relevant 2. It is loosely relevant 3. It is mismatch 4. I don't know

Model Output

ANNEX TABLE 4: MULTIPLE LINEAR REGRESSION MODEL OUTPUT

Linear regression

Number of obs = 204
F(13, 190) = 63.59
Prob > F = 0.0000
R-squared = 0.8131
Root MSE = 423.65

Savings	Robust Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
sex	50.67297	121.1133	0.42	0.676	-188.2183	289.5643
age	26.79553	14.3889	1.86	0.064	-1.586976	55.17804
age2	-316.6757	136.0743	-2.33	0.021	-585.086	-48.26528
famlsize	-391.9033	45.60103	-8.59	0.000	-481.8496	-301.957
edu	235.2135	18.74864	12.55	0.005	198.2325	272.1945
training	713.9078	175.3249	4.07	0.000	368.1854	1059.63
memb	229.9233	18.70842	12.29	0.000	193.0265	266.8201
dista	-38.57359	12.13979	-3.18	0.002	-62.51347	-14.63371
onfaminc	.2030316	.0678255	2.99	0.003	.0692572	.3368061
offaminc	.5191921	.1290094	4.02	0.009	.2647259	.7736582
expnd	-.759415	.1263375	-6.01	0.005	-1.008562	-.5102675
Farmsize	34.83426	1.750116	19.90	0.004	31.38289	38.28563
Livestock	14.74517	.2212853	66.63	0.003	14.30881	15.18152
_cons	4.099525	1.108461	3.70	0.000	1.9132	6.28585

Model Specification Tests

ANNEX TABLE -5: TEST FOR MULTICOLLINEARITY

VIF test for Multicollinearity on explanatory variables

Variable	VIF	1/VIF
Farmsize	7.71	0.129702
Dista	7.56	0.132275
Farminc	5.93	0.168634
Age	5.31	0.188324
Offarminc	5.15	0.194175
Training	4.71	0.212314
Memb	4.67	0.214133
Expnd	3.93	0.254453
Edu	2.56	0.390625
Livestock	2.44	0.409836
Sex	1.86	0.537634
Famlsize	1.84	0.543478
Mean VIF	4.47	

ANNEX TABLE -6: TEST FOR HETEROSKEDASTICITY

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of savings

chi2 (1) = 2.74

Prob > chi2 = 0.0821

ANNEX TABLE -7: TESTS FOR NORMALITY

Sktests for Normality in distribution.

Skewness/Kurtosis tests for Normality					
Variable				joint	
	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
savings	204	0.0333	0.9092	4.23	0.1121

ANNEX TABLE 8. OMITTED VARIABLES TEST

Ramsey RESET test using powers of the fitted values of savings

Ho: model has no omitted variables

F(3, 198) = 1.8.

Prob > F = 0.1204

ANNEX TABLE 9: CONVERSION FACTORS USED TO COMPUTE TROPICAL LIVESTOCK UNITS

Animal category	LU
Calf	0.25
Weaned calf	0.34
Heifer	0.75
Cow and ox	1.00
Horse	1.10
Donkey (adult)	0.70
Donkey (young)	0.35
Camel	1.25
Sheep and goat (adult)	0.13
Sheep and goat (young)	0.06
Chicken	0.013

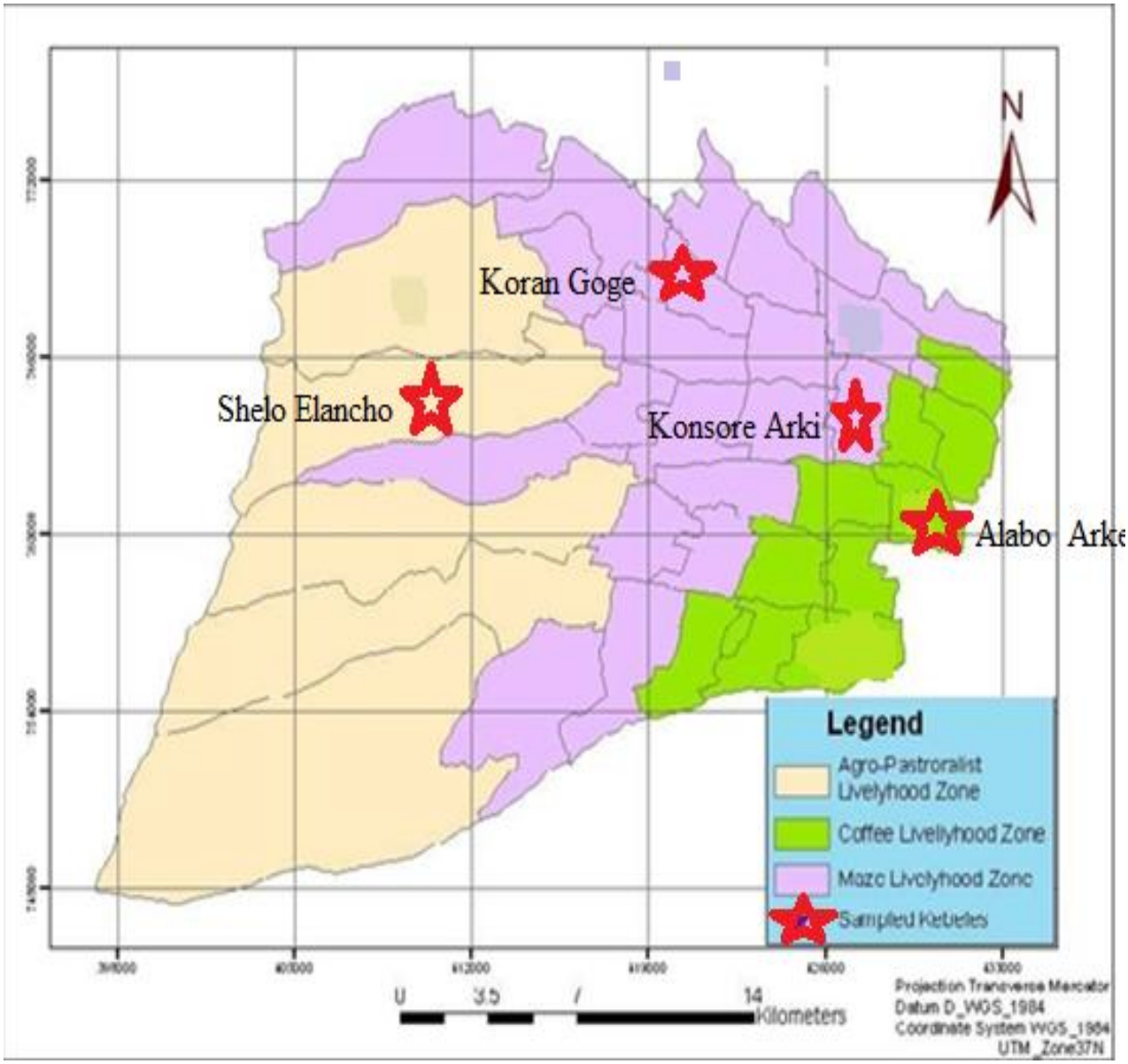
Source: Storck et al. (1991).

ANNEX TABLE 10: CONVERSION FACTORS USED TO COMPUTE MAN-EQUIVALENT

Age group	Male	Female
<10 years	0	0
10-14 years	0.35	0.35
15-50 years	1.00	0.80
>50 years	0.55	0.50

Source: Storck et al. (1991).

Annex Figure 11*: Livelihood Zones and Sampled Kebeles in Boricha Woreda*



Source: Bechaye (2011)