DETERMINANTS OF SAVING IN RURAL HOUSEHOLD: THE CASE OF BAKO DISTRICT, WEST SHEWA, ETHIOPIA

M Sc THESIS

BY

TILAHUN TOLEMARIAM NAGASA

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TilahunTolemariamNagasa

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APPROVAL SHEET

SCHOOL OF GRADUATE STUDIES
JIMMA UNIVERSITY

As thesis research advisor, we hereby certify that we have read and evaluated this research thesis prepared, under our guidance, by TilahunTolemaraim entitled '**Determinants of Saving In Rural Households the Case of Bako District, West Shewa**'. We recommend that it be submitted as fulfilling the thesis requirement.

Leta Sera (PhD)   _____   _____

Major Advisor   Signature   Date

Haile Girma (Msc)   _____   _____

 Co-Advisor   Signature   Date

As member of the board examiners of the M Scthesis open defenseexamination, we certify that we have read, evaluated the thesis prepared by TilahunTolemariam and examined the candidate. We recommended that the thesis be accepted as fulfilling the thesis requirement for the degree of Master of Science in economics (economic policy analysis).

_____   _____   _____

ChairpersonSignature Date

_____   _____   _____

Internal examiner   SignatureDate

_____   _____

External examiner   Signature   Date

DEDICATION

This thesis manuscript is dedicated to my mother BirqiFul'a and my wifeKedamituHailu, for theirco-operation in the success of my dream.

STATEMENT OF AUTHOR

I hereby declare that this thesis is my work and that all sources of materials used for this thesis have been duly acknowledged. This thesis has been submitted in partial fulfillment of the requirements of MSc degree at Jimma University and is deposited at the University Library to be made available to borrowers under rules of the Library. I declare that this thesis is not submitted to any other institution for award of any academic degree, diploma, or certificate.

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Name: TilahunTolemariam

Signature: _____

Jimma University, Jimma

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ABBREVIATIONS AND ACRONYMS

CSP	Country Strategy Paper
ECOWAS	Economic Community of West African State
GDP	Growth Domestic Product
GTP I	Growth and Transformation Plan I
GTP II	Growth and Transformation Plan II
IMF	International Monetary Fund
LDC	Less Developing Countries
MPC	Marginal Propensity to Consume
OLS	Ordinary Least Square
SSA	Sub-Saharan Africa

USD	United States Dollar
WB	World Bank

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ABSTRACT

Saving is the most fundamentaleconomic variable to be investigated within an economy on an individual and also household basis. Saving is the act of reducing present consumption for future consumption. And it is important to maintain and expand an economy's capital structure and in turn lays foundation for long run economic growth. The study was concerned on determinants of rural household saving in case of Bako district, West Shewa, Ethiopia.The study applied multi-stage sampling technique to conduct the study. So, out of 28 rural kebeles found in Bako district four kebele's were selected randomly.There are 8600 household heads in these Kebeles, from these 147 rural household heads were randomly selected as the representative of rural

household in the study area. Tocarry out the study; descriptive statistics such as mean, standard deviation, and percentage and econometric modelOrdinary Least Square method were applied through Stata Software version 13. From the regression results age, family size, land size, income, number of livestock, tax and expenditure on annual festival are explanatory variables which are significantly determining rural household saving. In this case age, income and number of livestock are statistically significant at one percent; whereas, family size, land size, tax and expenditure on annual festival are statistically significant at five percent.So, give training for the rural households on family planning to reduce the family size, providing modern agricultural inputs at low cost, give training for rural households how they are rearing and fattening only certain livestock and obtain high income, encourage the rural households to engage in non-farm activities in order to enhance their income, and aware the rural households to reduce high expenditure on annual festival are the policy implication provided to enhance the household saving in rural areas.

Key words: saving, rural household saving, economic growth,Bako, West Shewa

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Saving is the most fundamentaleconomic variable to be investigated within an economy on an individual and also household basis.Saving is a macroeconomicvariable which highly affect an economic growth of the country. But, the development of a microeconomic theory based on individual choices and preferences is essential for understanding of household saving behavior as well as determinants of household saving (Nakijoba, 2018). According to Jeffrey (2011),saving is the act of reducing present consumption for future consumption. And it is important to maintain and expand an economy's capital structure and in turn lays foundation for long run economic growth.

On the other hand, to save means use less resource in the present in order to use it in the future. During the Classical period of time, saving has been recognized as the most important factor of growth. So, to lead the developing countries to the line of development, rate of saving must be enhanced. For the individuals and households, savingprovides a mitigation of safety against future incident, while for the nation; savingprovides the funds needed in the developmental efforts. As Roald (2002) examined, saving is especially important in farm households because of the impact on future production and consumption possibilities. Thefall in farm saving has visible effect on the survival of farmer. So far it is not necessaryhaving more money to save; to have preference is enough to set aside regularly small amount of money. It is known that the higher the amount of moneyhas been saved is the higher will be their profit in the future (Marsida, 2016).

In any national economy,household sector is the back bone and household's saving activities will highly determine the economic growth of the country. However, a household saving behavior is determined by a combination of economic, social, demographic and cultural factors. Assessing all these variables effect on the household saving; have the highest importance for the foundation of the policies aimed at motivating household savings (Ileana and Costanta, 2012).So, before

designing policies and incentive mechanism to increase the household saving capacity, identifying its determinants is beginning scenario.

Moreover, economic theory assumes that households' saving is the variation between household's income and consumption. Income is the households' earning that is obtainedfrom different sources during a givenperiod of time. The basis of income can be salary from job, business profit,corporate profit, interest payment, earning from farm production, etc. On the other hand, consumption is the total amount of goods and services that is consumed by the households during a given year. Consumption includes expenditure on food, clothing, house rent, education, traveling, ceremonies and harvest. Thenthe difference between income and consumption is saving; which is set aside for different purposessuch asfor future consumption as well for further investment (Jessica, 2014).

Therefore, saving has always outlinedhighly in both theoretical analysis and policy design in both developed and developing economies. This prominence derived from its assumed direct theoretical linkage to future economic growth and current expenditure levels through its link to consumption (Alemayuand Haile, 2006). That mean households income not consumed is set aside for further consumption and investment. Subsequently, through consumption household living standard will be improved which lead for more production and also investment has irreversible effect on economic growth of a nation.

However, there is low saving in developing countries predominantly the continent of Africa has been known as having an unsatisfactory growth in saving rates, which slows down capital accumulation. Africa's low saving rate influences the ability of banks to lend to small enterprise due to the limited availability of capital. Particularly, the Sub-Saharan countries saving rate is below 17%. So Ethiopia is not unique to the region (AroHailesillasie*et al*., 2014). Then the question is that, how to improve the saving of the households which is the engine of economic growth. Therefore, this study dealt with the determinants of rural households saving.

Although household's saving is the largest component of domestic saving in developing countries like Ethiopia. But, the ability, willingness and opportunity of household to save overtime can therefore significantly influence the rate and sustainability of capital accumulation

and economic growth in developing countries (Bautista and Lamberte, 1990). And there is a lack of sufficient domestic saving in most developing countries and as a result of this; more reliance is placed on foreignsavings in the form of capital flows into the country. The issues such as high level of unemployment, low wages, the engagement of a large proportion of the population in the informal sector and poor performance of the economy leads to low saving (Reddy*et al*.,n.d).

As Mark (2001) was reviewed, there are a number of unique features of low-income countries that make saving behavior different from the high-income countries. First, on average the incomes of households are low; thatleadminimum standards for survival and productivity, opportunities for sustaining savings over the long term or even the short term are limited. Second, majority of the populations in low-income countries are engaged in the agricultural sector. This has keyimplications for the attribute of the income fluctuations facing the households. In particular there are strong and unpredictable inter-annual fluctuations in incomes mainly caused by the fact that a major production input and rainfall is unpredictable and unstable.

In economics, national saving is the summation of public and private saving. But, private saving can be divided into household and business saving. Many Ethiopian families/households save little for retirement and or for other purposes. Now a day's government encourages individuals to develop saving habit in financial institutions, this is reviled by expanding the branches of commercial banks and government starts to pay salary to its employee through banking system (Wogene, 2015). However, the rural households saving need further investigation. Hence, this paper was to investigate the determinants of rural household saving inthe study area.

1.2. Statement of the Problem

Saving is the most essential economic variable to be studied for the economic growth and development of any country. Saving is the portion of personal disposableincome set aside for future consumption. In developed countries, income is generated at a higher rate which encourages peoples to have moresaving and use for the investment which leads high capital formation and high economic growth. But, in developing countries income standard is uncertain and leads to more consumption rather than saving (J. Amudha and K.S Aravamudhan, 2015).

Especially, Sub-Saharan Africa has the lowest savings rate in the developing world. While the figure is different from country to country, gross domestic savings in the region averaged about 18% of gross domestic product (GDP) in 2005, compared with 26% in South Asia and nearly 43% in East Asia and Pacific countries (WB,2005). There are many reasons; such as low and uneven income and lack of access to financial services have been imagined to contribute to Sub-Saharan Africa (SSA) low formal saving rates.

Moreover, a study in Ethiopia indicated that saving culture of the society was poor despite the performance improvements of saving rates. The possible causes identified for poor saving include lack of appropriate saving products, lack of incentive to save, high debt, low income level, high inflation rate and the like (AronHaileselasie*et al*.,2014). So, it is interesting to deal with such problems to improve saving behavior and to enhance rural household saving.

Wogene (2015) studied determinants and rural household saving behavior in Dale Woreda,Sidama Zone, Ethiopia by using OLS method. His research result illustrates dependency rate, income, household family size, marital status and livestock size determines the rural household saving. Kifle (2012) studied determinants of saving behavior of cooperative member's survey in Tigrai region, Ethiopia by using multi-regression model. And his finding indicates gender, age, member's education, household size and household income are significantlydetermines saving behavior of cooperative member. However, there is no empirical study on determinants of rural household saving in case ofBako district, West Shewa zone;in addition the previous studies did not incorporated, the variable like annual expenditure on festival. Despite Bako rural households highly engaged on rain-fed agricultural production and some irrigation, the living standard of the peoples is no more improved due to low saving and the

behavior of the peoples toward saving is less, as researcher observed. So, the study is trying to fill the gap through assessing determinants of rural household saving in the study area and add annual expenditure on festival as new variable which highly affect the rural household saving.

1.3. Objective of the Study

1.3.1. General objective of the study

The main objective of the study is to assess the determinants of saving in rural households in case of Bako district, West Shewa Zone.

1.3.2. Specific objective of the study

- ✓ To study determinants of rural households saving in the study area.
- ✓ To examine the income variation among rural households in the study area.
- ✓ Todistinguish where the rural households save their income.
- ✓ To recommend the needed policy options.

1.4. ResearchQuestions

1. What are the factors which affect rural household saving?
2. What is the income pattern among rural households?
3. Where the rural household wants to save?
4. What are the policies option needed to raise the rural household saving?

1.5. Significance of the Study

The study would have strong significance in empirical examining of determinants of household saving and understanding household saving behavior in rural area. And the study isoffering empirical evidence on determinants of household saving; it would give awareness for households concerning to the importance of saving, the way of saving and give direction where households would save their income. Additionally, the study is serve as input for economic policy makers how they can change the household saving behavior, and initiates households to save more. Finally, the study is used as a reference for further studying; mostly at national level.

1.6. Scope of the Study

The study washaving geographical, content and methodological scope. The geographical scope of the study was focused on Bako district, West Shewa Zone, Oromia regional state, Ethiopia. The content of the study is focuses on determinants of saving in rural households. Methodologically, the study employs socio-economic methods of data collection and analysis.

1.7.Limitation of the Study

While the study was concerned only based on financial savings, it would not stand for the aggregate saving of rural households. In addition, rural households did not keep documentation of their farm operation, income, consumption expenditure and savings; the information provided by rural households mainly depends on the household's ability to remember what they did in earlier periods. Thus, computations based on such data are likely to have some intrinsicfaults.On the other hand some peoples did not want to give appropriate information. Furthermore, there is the problem of empirical literature on determinants of savingand rural household saving behavior in less developing countries including Ethiopia.

1.8. Organization of the Paper

The thesis is organized into five main chapters. The first chapter focused on background of the study, statement of the problem, objective, significance, scope, and limitation of the study. Chapter two consist theoretical and empirical literatures. Chapter three incorporates description of the study, data type and sources, sample size and sampling techniques, descriptive statistics analysis, econometric model and definition of variables. Results and discussion was presented under chapter four. Lastly chapter five dealt with summary and policy implication.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Theoretical Literature

2.1.1. Definition and importance of saving

Saving can be known as the cash or physical products set aside for future use. Peoples in rural and other low-income communities can save when they are guided and encouraged by the government and financial institutions.As Romer(1996) presented, the saving may be used for conventional consumption later in life, or bequeathed to the individual's children for their consumption, or even used to erect monuments to the individual upon his or her death. But as long as the individual does not value saving initself, the decision about the division of income between consumption and saving is driven by preferences between presents and future consumption and information about future consumption forecast. For peoples in rural region, saving is made through traditional way in secret place such as in wall, underground, roof, and pot. Gradually, the traditional way of saving in rural region has been minimized; and the people shifted their saving pattern in form of physical assets like gold, land and house (Subhashree, 2013).

Households need fund or saving in the future for various reasons; such as: to purchase durable consumer goods, children education, acquiring a home and health care (Marie-Therese, 2007). As Keynes(1936) study was indicated household save;in order to build a reserve against unforeseen contingencies, for smoothing consumption at different stage in life cycle due to income fluctuations, to enjoy interest and appreciation and to enjoy a gradually increasing expenditure and to enjoy a sense of financial freedom and independence. Furthermore, saving creates to have a decent standard of living when the households are retired and saving can provide income if the households are unemployed or ill to work.

In addition according to Gregory and Joe (2010), saving can play in alleviating material hardship for low income households. Yetin a strong economy, households across the economic range are subjected to unanticipated changes in economic needs or resource, commonly referred to as

economic shocks. Events which areaffecting income can take a number of forms and can be described generally in three ways: first reduce earnings;for instance, loss of jobs, and exit from the household of an income earning member through separation, divorce; second reduced public income support such as loss of eligibility or reduction in benefits, as through termination of time-limited benefits, unintendednoncompliance with procedural requirements or a change in program eligibility criteria; and third reduced private income support example loss of child support, informal child care, or other financial support from extended family, friends or charitable organization. Then when all these unexpected income change happened the households need income which may be deposited in terms of cash or in kind. However, there are different factors which affect the household saving particularly in rural area. So, it is important to investigate those factors to improve the rural household saving.

Mostly, in the literature on economic development, much of the attention in saving has been focused on the relation between saving and growth. However, saving is not only about buildup or economic growth. It is about evenly distribute consumption in the face of volatile and unpredictable income and helping to guarantee the living standard of poor people whose lives are difficult and uncertain. As more recent theories emphasize, the main motive for saving in poor income countries are likely to be for precautionary or against random decrease in income as short-term shock absorber (Birdsall, 2000).It implies that future consumption would be determined by current saving of the economies. In other words present saving will determines the future consumption of households.

2.1.2.Saving and consumption theory

2.1.2.1. Absolute income hypothesis

In economics, saving and consumption are the two side of coin. That mean it is difficult to study saving theory without regardingthe consumption, hence a portion of income not consumed is saved.In the first time a systematic theory of aggregate consumption expenditure by households was developed through Keynes (1936). Keynes assumed consumption expenditure (C)is a function of current disposable income (Y^d).

$C = a + bY^d$ a- is autonomous consumption and b- is marginal propensity to consume.

He states that consumption increase as income increases but not as much as the increase in income;it means that marginal propensity to consume (MPC) is less than one. So, as the income increase, the increment is partially saved for future uses. In absolute income hypothesis assumption MPC is between zero and one. MPC declines with increase in income, implying that marginal propensity to save increase as income increases. The implication of this is that low income families save a lower percentage of their income as compared to high income families. However, Keynes treated consumption on a very common sense level, he relied almost fully on insight like most of economists of his day, his methods included neither mathematical theory nor detailed econometrics.

2.1.2.2. Relative income hypothesis

Another income hypothesis is relative income hypothesis which was developed by Duesenberry (1949) after the Second World War. In this hypothesis a household's consumption expenditure is a function of relative income.He projected that an individual consumption function that depended on the current consumption of other people it means individuals care about status. As a result for any given relative income distribution, the percentage saved by a family will tend to be a unique, invariant and increasing function of its percentile position in the income distribution. The percentage saved will be independent of the absolute level of income. So, as it is presented in this hypothesis the household consumption is not based on the absolute income; but, depend on the relative society's consumption. Therefore, as the relative society's consumption rise the household consumption also rise and the saving will decline, contrary individual saving will rise when the relative societies consumption decline because his/her consumption as well decline. Actually, it is right in some extent as a few households are considering their neighbors and decide their consumption theoretically. Although it's intuitive and empirical success, the relative income hypothesis was rapidly replaced by the life cycle/permanent income hypothesis.

2.1.2.3.Life cycle and Permanent-income Hypothesis of Consumption

As saving is the distribution of income over time for households, it is a source of financing investment for the country. So, under both life cycle and permanent income hypothesis theories, consumer choose how much to consume in each period in order to maximize their lifetime

utility, subject to inter-temporal budget constraint. Accordingly, current consumption does not follow current income, different from the Keynesian model where

$C_t = C(Y_t)$, estimated as $C_t = a + bY_t + u_t$, $0 < b < 1$,

Where, a- is autonomous consumption

b- is induced consumption or marginal propensity to consume

u_t- error term

Y_t- disposable income

Lifetime utility: according to Romer in finite horizon, utility is the sum of consumption over the

time and given by $U(C_t) = \sum_{t=1}^{T} u(C_t)$

Infinite horizon (Williamson) indicates $U(C_t) = \sum_{t=0}^{\infty} \beta^t u(C_t)$

Period utility $u(.)$ is increasing and strictly concave: $u' > 0, u'' < 0$, C_t is consumption in period t.

β is the discount factor, where $\beta = \dfrac{1}{(1+\rho)}$ and ρ is the discount rate/ time preference rate.

Intertemporal budget constraint $A_{t+1} = (1+r)(A_t + Y_t - C_t)$

Where r is constant, A are assets. Lifetime budget constraint under:

$$\text{Finite horizon } \sum_{t=1}^{T} C_t \leq A_0 + \sum_{t=1}^{T} Y_t, \qquad A_T = 0$$

$$\text{Infinite horizon } \lim_{t \to \infty} \frac{A_t}{(1+r)^t} = 0$$

$$\sum_{t=0}^{\infty} \frac{C_t}{(1+r)^t} \leq A_0 + \sum_{t=0}^{T} \frac{Y_t}{(1+r)^t}$$

Under both finite and infinite time horizon, consumption is less than the sum of actual asset and disposable income.

Optimization $L = \sum_{t=0}^{T-1} \beta^t u(C_t) + \lambda \left[A_0 + \sum_{t=0}^{T-1} \frac{Y_t}{(1+r)^t} - \sum_{t=0}^{T-1} \frac{C_t}{(1+r)^t} \right]$

First order conditions C_t and C_{t+1}:

$$\frac{\partial L}{\partial C_t} = u'(C_t) - \lambda = 0$$

$$\frac{\partial L}{\partial C_{t+1}} = \beta(1+r)u'(C_{t+1}) - \lambda = 0$$

Euler equation: Intertomporal Euler equations are given by;

$$\beta(1+r)u'(C_{t+1}) = u'(C_t) \quad t = 0,\ldots,T-1$$

$$\frac{u'(C_t)}{\beta u'(C_{t+1})} = 1 + r$$

$$u'(C_{t+1}) = \left(\frac{1+\rho}{1+r}\right)u'(C_t)$$

Consumption grows over time if $r > \rho$. if $r = \rho$, then

$$u'(C_t) = u'(C_{t+1})$$
$$C_t = C_{t+1}$$

Permanent income: Optimal consumption in every period;

$$C^* = \frac{1}{T}\left(A_0 + \sum_{t=0}^{T-1}\frac{Y_t}{(1+r)^t}\right) = Y^P$$

If $r = \rho = 0$ this becomes:

$$C^* = \frac{1}{T}\left(A_0 + \sum_{t=0}^{T-1}Y_t\right)$$

Saving will then be the difference between current income and permanent income:

$$S_t = Y_t - C^*$$
$$S_t = Y_t - Y^P$$

The core standard economic model of household saving or life cycle/permanent income hypothesis is described as: people have stable, time consistence preferences between current and future consumption, and experience a marginal benefit of a money spent in any period that decline as the amount spent in that period rises. The central prediction of this model is often characterized by a proposition that households will seek to smooth consumption over the life cycle. However, this is not quite right, it is marginal benefit of consumption that households will seek to smooth (so money will be spent in periods where the marginal benefit from additional spending is highest until the marginal benefit of additional is equalized across periods) and this

can imply quite variable consumption if for example needs are changing. Variable consumption is not, on its own, evidence of inadequate saving(Thomas*etal.*, 2012). Additionally, life cycle and permanent income hypothesis models have different drawback. In developing countries specifically for rural households it is difficult to distinguish the current and permanent income (optimal consumption). Because the incomes of rural households are based on farming; so, the income of the society is uncertain. Consequently, it is difficult to say saving is the difference between current income and permanent income. But, the rural households save what they actually obtained after deduction of all consumption expenditure.

2.1.3. Saving Category

Mostly saving can be sighted from two broad categories; these are private saving and public saving. Private saving is done by private sector of the economy. Private saving is further divided into two; household saving and business saving. Household saving refers to saving done by families and individuals whereas, business saving refers to purchase of new capital equipment or the expansion of its operations. Public saving on the other hand, is saving done by the government sectors which are the difference of taxes and government expenditure (Safo, 2015). However, this study is directed to household saving which is done by families and individual especially rural household heads saving.

In other words some researchers viewed the private domestic saving in three ways; voluntary, involuntary and forced saving. Voluntary saving relates to the voluntary self-denial from consumption by private individuals out of personal disposable income and companies out of profits. Involuntary savings is saving brought about through involuntary reductions in consumption. All forms of taxation and systems for compulsory lending to government (including national insurance contributions) are forms of involuntary saving. Forced saving is saving that comes about as result of price rising and the reduction in real consumption that inflation involves if consumers cannot defend themselves(A.P. Thirlwall, 2002).

2.1.4.Saving and Economic Growth

The economic growth of a country can be referred to as the economy's capacity to boost productivity of goods and services on comparison with earlier time period. So, saving has been considered as an engine for economic growth. The fact that accumulating saving can be considered as the source of capital stock to which play a crucial role in creating investment, production and employment. And all these activities eventually enhance the economic growth of the country(Dhanya, 2015).

According to G. Mankiw (2009) on the other hand, economic growth is macroeconomic phenomenon that give details the amazing difference in income and standard of living across countries. According to Solow growth model, how much a nation saves and invests is a key determinant of its citizen's standard of living. Higherthe national saving means higher public saving; higher private saving, or some combination of the two. Much of the debate over policies to increase growth pointed on which alternative polices is likely to be most effective. The government can affects national saving by influencing private saving; the saving done by households and firms. In particular, how much people decide to save depends on the encouragements/incentives they face, and these encouragements are changed by a variety of public policies. Many economists argue that high tax discourage private saving by reducing the rate of return that savers earn.However, many disagreements among economists over public policy are rooted in different views about how much private saving responds to the incentives.

2.1.4.1.Economic growth and overlapping generation model

The overlapping generation model allows for heterogeneity across young and old consumers. It implies that demographic trends and generational incidence of tax can be important of national saving and the current account. An overlapping generation's frame work suggests, for example, that the large government budget deficit of the 1980 and the concomitant increase in old age entitlement program may have contributed to United State low saving rate and high current account deficits. Japan's high saving rate and large current account surpluses, on the otherhand, may have been due to partly to the saving behavior of relatively young labor force. The overlapping generations approach captures the essence of life-cycle theory of consumption and

saving. According to this view, individuals or families with finite horizons arrange their saving so as to maintain a more or less constant consumption level through youth, middle age, and retirement. The permanent income consumer effectively lives forever. And an economy peopled by representative permanent income consumer yields very different predictions about aggregate saving than one peopled by overlapping generations of life cycle consumers. The overlapping generations' model also makes distinct predictions about the response of aggregate saving to output changes, and these provide a potentially powerful empirical basis for distinguishing between the permanent income and life cycle theories. The following equation, abstracted from demographic change by assuming that each generation hence, the aggregate population is constant size. This is based on $\beta(1+r)=1$

$$S_t^P = B^P{}_{t+1} - B^P{}_t = S^Y{}_t - S_{t-1}{}^Y = \left(\frac{\beta}{1+\beta}\right)\left[\Delta\left(y_t^Y - \tau_t^Y\right) - \Delta\left(y^0{}_{t+1} - \tau^0{}_{t+1}\right)\right]^1$$

It is sometimes argued that countries with rapid trend growth in per capita incomes (Japan is example) will also have high saving rates and if other things are equal. This equation shows higher per capita output growth will raise aggregate private saving if the growth in the output young people produce rises more than the growth in that of old people. The basic reason is that one's saving when young depends positively on contemporaneous earnings and negatively on old age earnings. A rise in expected aggregate output growth raises the aggregate saving rate here when the young are net savers because the growth accrues to a succession of different generations (Maurice and Kenneth, 1996).

2.1.4.2. The miracle of Japanese and German growth

According to G. Mankiw (2009), Japan and German are two success stories of economic growth. Although today they are economic superpowers, in 1945 the economies of both countries were in disaster. World War II had destroyed much of their capital stocks. In the decade after the war,

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[1] S_t^P - stand for individual holdings of financial assets

$S_t^Y - S_{t-1}{}^Y$ - indicates net saving by private sector (difference of saving at young age and old age)

$\left[\Delta\left(y_t^Y - \tau_t^Y\right) - \Delta\left(y_{t+1}{}^0 - \tau_{t+1}{}^0\right)\right]$ - shows difference of disposable income during young and old age

$\dfrac{\beta}{1+\beta}$ - saving portion of additional income((dy) in order to smooth consumption

however, these two countries experienced some of rapid growth rate. Are the postwar experience of Japan and German so surprising from the standpoint of Solowgrowth model? Consider an economy in steady state. Now suppose that a war destroys some of the capital stock. That means capital stock drops, level of output immediately falls. But, if the saving rate-the fraction of output devoted to saving and investment is unchanged, the economy will then experience a period of high growth. Because output growth; at the lower capital stock, more capital is added by investment than is removed by depreciation. This high growth continues until the economy approaches its former steady state. Hence, although destroying part of the capital stock immediately reduces output, it is followed by higher than normal growth. The relevant fact about growth of both Japan and German save and invest a higher fraction of their output. So, the Solow model shows that the saving rate is a key determinant of the steady-state capital stock. If the saving rate is high, the economy will have a large capital stock and a high level of output. If the saving rate is low, the economy will have a small capital stock and a low level of output.

Additionally, at the beginning of the 20th century, households in East Asian countries were just as poor as many of those in Sub-Saharan Africa today, but they directed to turn the situation around through high saving rates of their personal disposable income. For attaining a high level of development inside the economy, national saving is an important factor which is obtained from each economic sector including households. Higher saving leads to less consumption expenditures by the households and brings more opportunities of investment, high employment opportunities, improvement in the quality of diverse range of products among many other beneficiaries and thus causes higher economic growth (Aisha andKashif, 2013).

For instance Thailand is one of the South East Asia; which is developing country depends on capital as an important factor for economic growth. The major source of capital comes from internal and external saving. Internal saving includes: domestic saving such as household saving (the largest part of saving in Thailand), business saving (the second largest part of saving in Thailand), and public saving). When the country has sufficient high internal rate of saving, so it would not need the external saving which make a country expose to the uncontrollable risk from the world economic crisis to the country (Pinchawee, 2011). Evidently, the household saving will highly influence the economic growth of the country; so, it is important to examine the determinants of household saving particularly in rural area.

2.1.5. The Relationship between Saving and Investment

For the world as a whole, saving and investment are alike so that factors that influence the total saving of all nations combined without doubt influence total investment. But, for any particular country, investment may differ considerably from saving to the extent that countries rely on direct investment, loans from foreign financial institutions and individuals and loans and grant from multilateral and bilateral development agencies. In fact one of the most widely used models of economic growth, the neoclassical model, implies that, in the long run, the rates of growth of both total and per-capita product are unaffected by the rate of saving. A country with a high rate of saving will have more capital per worker, higher labor productivity and wages and higher per-capita income, all other things equal. But, once equilibrium is achieved, the rate of growth of per capita income is determined by factors unrelated to saving and investmentwhich are labor and capital (Andrew, 1988).

In addition as Abhaykuma (2017) assessed the process of economic growth of a country depends on the amount of capital formation in various sectors of economy. The amount of capital formation depends on the amount of savings and their sensible investments. The savings and investments are not only essential to meet the present and future expected requirements but also essential to meet the unexpected requirements.

For instance as Louis (2005)studied in China, domestic saving finance the mass of any country's investment. Questions about levels of investment are therefore closely linked to questions on saving. The theoretical literature on determinants of saving is rooted in consumption theory and consequently, largely centers on factors affecting households. High enterprise investment is financed partly by a large excess of saving over investment of households channeled by the banking system and the government transferred to enterprises. In this case the household formal saving in financial institutions delivered to the enterprises in the form of loan; however, when the households are saving in informal way the financial institution lending capacity will decline, then the investment of the country would be less.

Furthermore, according to Birdsall*et al*.(1999) the inspiration for saving in poor countries is either to provide a cushion against stochastic decrease in income, or to finance investment. Atthe

margin investments available to the poor are likely to have higher returns than investments available to rich.Rich, creditworthy households are likely to drive down the marginal returns of their investments to their borrowing rate for formal sector investments. By contrast, poor households with very low marginal returns to labor may have an array of high-payoff investments that they are unable to finance because of their high rates of time preference and rapid increases in the marginal utility of present consumption as consumption declines.Thus, a change in the policy environment that raises the rate of return to investment in the assets of the poor while simultaneously increasing marginal returns to their labor spurs growth by increasing savings and investments in the aggregate and by inducing investments with particularly high rates of return.So far it is essential to examine the determinants of household saving.

2.1.6.Saving Trends in Africa

Thesignificant importance of saving for maintenance of strong and sustainable growth in the world economy for external adjustment and for the improvement of the international debt problem is well recognized. Consequently, the declining trend in the saving rates of many countries, industrial as well as developing has been a major source of concern. This decline has been associated with lower rate of capital accumulation and growth in the world economy(Aghevli, 1990).But, still now there is controversial ideas whether saving determine economic growth or economic growth determine saving. However to improve the living standards, reduce unemployment, raise the investment and to mitigate unforeseen economic shocks of the nation which may occur due to drought, disease and war the saving rate of the country should be enhanced.

There are various causal factors to the levels of high poverty in Africa and inadequateroutineeconomic growth in Africa and poverty reduction as compared with other regions. These include bad governance by unaccountable and greedyleaders and intra-state conflicts; low savings and investment rates; poor health, education and infrastructure; high dependency ratios; weak management of and access to public services; misconceive economic and policies; deterioration terms of trade and continuing dependence on primary exports; poor agricultural performance(Jonathan*et al*, 2004). From all these problems the study concentrated on determinants of saving and how to cope up with the problems of low saving in rural area.

Both in developed and developing countries household sector cover the largest portion of the population. While household savings are highly determining the economic growth of any country, there are different problem in developing countries which hinders saving capacity of households particularly in Sub-Saharan Africa. Such as less growth in disposable income, subsistence farming system, high income tax obligation, high unemployment, lack of confidence in the future, high consumption, illiteracy, saving is hold in non-financial form and high dependency ratio. The economic choices of the poor are constrained by their market environment. For instance, some may save little because they lack a safe place to put their savings (Abhijit, 2007).

According to Marie-Therese (2007), while ordinary households enjoy the luxury of permanent jobs that come with automatic saving mechanisms such as medical aid and retirement plans or own their successful enterprise that ensure adequate income to support savings for necessary and unnecessary future needs, poor households mostly cannot even pay for very necessary current consumer goods and services.

Enormously poor people are those who are currently living on no more than $1 per day per person. A common illustration of the extremely poor is that they have few real choices to make. Certainly, some people surely work as they can which may not be particularly hard, because they are starving and weak and earn barley enough to cover their basic needs, which they always try to fulfill in the least expensive way. Historically, poverty lines in many countries were originally set to capture this definition of poverty the budget needed to buy a certain amounts of calories, plus some other crucial purchase like housing. Poor person was essentially defined as someone without enough eat(Abhijit, 2007). The basic reason is; in poor countries income of the society is based on subsistence farming system so far the agricultural products are based on weather condition of the country. Therefore, income of the household may rise or fall; if the weather condition is bad income of the household would fall and the household saving capacity also declines and vice versa.

In addition, as Mustafa and Seymour (1987), point outs a serious problem face in many developing countries is the saving gap, which essentially means that these countries find it difficult to finance investments needed for growth from domestic saving. Since saving depends

on income, low income levels that are characterized in developing countries translate into low levels of saving. And the problem of poor families access to modern financial intermediary; in LDC it is limited to urban center so, rural households get an opportunity to save in modern financial institutions is less.

In developing countries,economic fluctuations and climate risk lead to important income variations and leave the households vulnerable to severe hardship. In addition, the social coverage is restricted and the credit and insurance markets are not well developed. Households saving in Africa classified into; formal and informal but, more than 80% of the saving is not done in financial asset. In addition most of saving in Africa is in terms of assets rather than cash, which means that to save for another to invest, is insignificant. Within Africa the Sub-Saharan Africa's saving is also less than the household saving in North Africa. Furthermore, Africa's annual saving as a percentage of GDP lags behind that of developing economies in Asia. And, the volatility of saving growth rate in Africa is far higher than that of developing countries of Asia (Touhami*et al*, 2010). So, there are different constrains of saving in Africa such as: inflation and currency devaluation, prefer to holding physical goods than cash, informal saving more acceptance than formal saving, low presence of formal institutions, fragmented financial markets, risk of institutional failure or bankruptcy and high transaction cost and low or no return and etc.

Furthermore, there are no hard and fast rules on the determination of how well national and domestic savings should perform in any given year. Thus, in this discussion of how well savings are doing in any economy, the standard is usually to compare that economy to other economies of similar size and structure, or to compare the same countries' saving performance over time, or even to compare actual performance to planned performance. In this case SSA's saving performance is far below that of other developing regions, notably Southeast Asia. Some of the best saving rate in Africa may be found in Angola where the domestic saving rate has averaged 28 percent in 1980-96, and Gabon with an average saving rate of 38 percent for the same period. These are all accounts outlines in a region where a majority have domestic saving rate of fewer than 15 percent of GDP and sometimes negative savings. Their high saving rates can be attributed to their being relatively small economies with large oil exports. The public sector dominates saving in these two countries (Aryeeteyand C. Undry, 2000).Furthermore, the

following table 2.1 was taken from study done by Adeolu*et al* (2010); it shows the gross domestic saving in different regions of African countries:

Table 2.1: Annual Average Gross Domestic Saving by Region percent share of GDP in Africa

	1980-1985	1985-1990	1990-1995	1995-2000	2000-2006	2006-2008
East Africa	5.8	9.0	5.6	4.8	2.8	2.6
South Africa	-3.0	6.7	10.9	4.1	17.9	16.7
Middle Africa	9.9	9.1	11.9	15.2	28.3	24.6
North Africa	22.1	22.6	13.8	14.3	19.2	20.6
ECOWAS	6.1	7.8	8.0	7.7	9.7	7.2

From table 2.1 above almost through out of the years the domestic saving of East African region was low including Ethiopia. Especially, between 2006-2008 years, the domestic saving of East African countries extremely reduced to 2.6 percent of the region's gross domestic product. Therefore, it is essential to encourage the households to save more; to change the minimum gross domestic saving of these East African countries.

2.1.7. DomesticSavingand Economic Growth in Ethiopia

According to J.W. Prinsloo (2000) described, gross saving in the national accounts represents that the portion of total income generated during a certain period, which is not consumed during that period. Consequently, saving is preserved income resulting from the postponements of consumption. It is measured as a balancing item in the current income and outlay account of the domestic institutional sectors, i.e. private households, companies and the general government.Mainly, saving by the household sector is defined as that part of current income, after the payment of direct taxes that is not consumed or transferred as part of household current consumption. Similarly, saving includes current expenditures madein the form of a reduction in household liabilities, such as repayment of capital on loans for housing and consumer durables. By contrast, any portion of the current expenditure of households not financed by current income but rather by the use of credit represents an increase in the financial liabilities of individuals and is treated as negative saving.

Particularly, Ethiopia is a country which is found in Sub-Saharan Africa with above 80 million peoples. Ethiopia experienced with poverty for a long period of time so government of Ethiopia faces a host of challenges. Its main challenge is to further diminish the country's poverty levels, given the large population still living below poverty line. Agriculture, on which the majority of population depends, is attributed by low productivity, as it is still largely subsistence, rain-fed and fragmented smallholding, and uses inefficient traditional technology. Thus, releasing the sectors growth potential will require substantial investment to address issues such as land tenure, rural infrastructure, and access to credit, irrigation facilities, technology, extension services and settlement patterns, among other (Africa development bank group, 2015).

By all available indicators, Ethiopia is one of the poorest countries in the world. Gross domestic product per capita is around USD 115, while life expectancy, educational enrollment, and other indicators of well-being are all extremely low. Agriculture continues to dominate the economy, contributing 45% of GDP, but since it account for 80% of employment, its productivity is obviously low. The country suffers spells of drought, with resulting famines, and such conditions have a strong pressure on the performance of the whole economy. Ten years development strategy known as Agricultural Led Industrialization was laid out. Major objectives are promotion of economic growth, and poverty reduction. Assisted by restoration of peace, good weather, and changes in macroeconomic policies, the economy registered increased rates of growth during 1992-93 to 1996-97. Nevertheless, domestic saving, a mere 5% of GDP in 1998-99 are not enough to meet investment needs (Arne*et al*., 2002).

Ethiopia economy has experienced rapid growth in recent years. Although growth in agricultural gross domestic product from 1998-2007 was less rapid than in other parts of the economy, agriculture also performed well, grow faster than the rural population. However, poverty is still severe in Ethiopia and is afford an important role to agriculture as source of both growth and development for the broader economy. This is essential given that agriculture is an income source for most of the population (Dorosh and Thurlow, 2012). However, as poverty is measured by consumption expenditure, it is declined in recent time from 38.7% in 2004/05 to 29.6% and 2010/11 and is estimated to have further declined to 23.4% in 2014/15. The governments of Ethiopian pro-poor policies and spending have enabled the country to uplift about 20 million people out of poverty.

As African development Bank Group indicates, the Ethiopian GTP I focused on infrastructure development and promoting good governance pillars, the country strategy paper 2011-2015have been instrumental in facilitating the government's achievement of its development objectives. In this context, the bank has come out as one of the country largest development partner in the infrastructure sector, the second in energy sector, and third in transport sector. Furthermore, bank has continued to make good progress in improving support effectiveness. Especially improvements include alignment of support to national development priorities and utilization of common procedures. And in recent period of time Ethiopian government proposed the second growth and transformation program (GTP II). This is focused on infrastructure development and promoting economic governance. Then a Country strategy paper (CSP) is formulated with objective of supporting green economic transformation secure on the country's agriculture base and expanded private sector involvement. However, to meet this objective it is necessary to encourage and aware the rural household, how they are increasing their saving capacity and change saving behavior of the households. So, the study wasdealt with determinants ofrural households saving.

Table 2.2: Ethiopia's domestic saving and investment as a percentage of nominal GDP under three political regimes(1961-2009)

Period	Average domestic savings (%GDP)	Average investment (% GDP)	Policy regime
1961-2009	12.76	18.98	Average over 48 years
1961-74	21.9	20.0	13 years: peaceful period, apparently free market system under a feudal regime, first instance of development effort
1975-92	11.6	16.3	17 years: central command economy, less stable period, frequent war and conflict
1993-2009	6.9	21.1	16 years: existing regime, free-market system, private sector encourage

Source: Ministry of Finance and Economic Development, Addis Ababa, Ethiopia.

Ethiopia is experiencing a severe resource gap. Since 1960, domestic savings have been low: from 1961-62 to 2008-09, average domestic savings and investment as percentage of nominal GDP were 12.8 percent and 19 percent respectively as indicated in table 2.1, between 1961 and 74, average domestic savings were about 22 percent of GDP, while the investment ratio was slightly lower at 20 percent. With the severe and profound development deficit, the country was not in position to invest even as much as its average saving rate. One of the major factors that has been hold back full mobilization of domestic saving in general and private saving in particular is the developing stage of the financial sector, both the banking and non-banking sectors. One way to increase private savings is to encourageself-control when it comes to festival and marriage and mourning ceremonies. Transforming this culture could contribute substantially to increasing private saving (Tseagbirhan, 2010).

Despite sustained growth, bottle neck of the Ethiopian economy remains its large saving-investment gap and associated external borrowing requirement. The current account deficit of the last two years, at about $7^{1/2}$ billion dollars and over 10 percent of GDP, is not sustainable. In the short term, macroeconomic policies should be geared towards reducing the external account deficit and its attendant risk. To this end, the authorities' objective of rapidly rising exports is the first option. However, at the same time, imports and large-size public investments projects with substantial external borrowing requirements need to be paced according to the actual export performance.

Specifically, public sector import needs to be cubed in short term aiming at reducing demand for external credit. This would allow building up the foreign reserve buffer and avoid volatility in foreign exchange availability. Reaching the authorities ambitious five year GTP II growth objectives and sustained investment rates of almost 40 percent of GDP without aggravating external imbalances will require mobilizing domestic resources and raising domestic savings, particularly in the public sector the main user of external borrowing(IMF, 2016). So, it is important to encourage the households save more; which is essentially improve the living standard of households as well as highly affect the sustainable economic growth of the country.

2.2. Empirical Studies

2.2.1. Determinants of rural household saving

The economic growth is the common goal of all nations. Everybody wants to lives with more comfortable, better standard of living than ever before and holding a better welfare because of the surge in their economic growth. Governments in each country aim to reduce the poverty and increase the level on national income. Therefore, to achieve the main target of economic growth, governments may implement various kinds of policies such as encourage saving, stimulating investment and production in their countries (Pinchawee, 2011).

Saving is the share of income not spent on current expenditures. Every country likes to have a higher rate of savings. Therefore,necessities of identifying the determinants of low saving are very important to a country. It is evident that government saving have been recorded a negative value over a prolonged period and such public low saving has resulted from substantial fiscal deficit(T.M Thulani, 2016). Therefore, it is important to enhance private saving; particularly household saving to prevail the sustainability of the country's economic growth.The issue of increasing saving is great importance for maintaining of economic growth and development. The growth of output of any economy depends on capital accumulation and capital accumulation requires investment and an equivalent amount of saving to match it.

Income:income is basic factor of saving. Both the Keynesian and Permanent income hypothesis indicate that a positive effects of income on saving. Wogane(2015) studied the determinants of rural household saving by using ordinary least square model and the coefficient of household annual income was significant and the result indicates positiveeffect on household saving. A research which was done by Girma*etal.* (2014) through applying multinomial logit model indicates annual income has positive effect on rural household saving and significant at 5% probability level. Furthermore, according to Safo(2015), income is a good predictor of saving behavior of household heads and it has positive effect on household saving and significant at 5% level.

Cultivatedlandsize: the economic activity of rural household is based on agriculture; so, land plays a great role. According to Wogane(2015), there is inverse relationship between land size

and saving because of people having more land can spent more throughout. Similarly,Alebacho and Yohannis (2018) examined the indirect relationship between land sizes of holding and household saving by applying ordinary least square method.The result suggested that households having more land holding can save less than the household have less land holding. The study concluded that peoples having more land holding can spent very large amount of money throughout the year.

Contrary the study result of (Eric*et al.,* 2018), indicates the positive effect of land holding on household saving and it was significant. So, the study concluded that land holding is a measure of wealth in most of Africa. Also households with more access to land can make long term investments in their properties to increase their farm incomes. Accordingly, the researcher expects the positive relationship between the two. That mean as land size increase the household production increase and the saving capacity of household also increases.

Age: in basic life cycle model, the age distribution of household has an effect on the total personal saving rate because the saving rates of individuals are assumed to change with their age. An increase in the quantity of elderly households in the population is likely to diminish the aggregate savings rate because retired household are assumed to dissave, or at least save less than those of working age. Similarly, an increase in the fraction of population that is pre-working age is also expected to reduce the aggregate personal saving rate as parents spend a large share of their income on taking-care of their children (Nagiand Prof. Vassilis, 2008). Additionally, Safo(2015) investigated saving behavior of households' heads in rural communities: case study of Shama district in Western region of Ghana by using logistic regression model; and, the result shows an increase in the age of household heads has probability of reducing saving and it is significant at 5% level

Familysize: other commonly cited in the relevant literature, which exert influence on household saving, are the types of the family (the civil position of the party saving money). Workineh(2014) analyzed determinants of saving behavior of women in urban and the study result indicates that the negative relationship between saving and family size.

Also Nakijoba(2018) used OLS regression technique and his finding indicates; family size is found to have strong negative effect on the saving of household heads and statistically significant at 1%. And the researcher suggested that the prediction from a simple life cycle model do well in as much as the household saving is associated with a drop in the household size. This is related with the higher consumption expenditure necessary due to extra child in the family. Thus, in rural area the households have more children because the society has less awareness on family planning. In general as family size increase the saving capacity of household head would be decrease.

Levelofeducation: household heads with more years of education have higher saving rate (Steven*etal*., 2015). As Kodom(2013) research indicates; there is positive relationship between saving and education. So, there is direct relationship between household saving and years of schooling. Additionally, Safo(2015) study indicates, education level has direct effect on household saving and significant at 5% level.Contrary, Alebacho and Yohannis (2018) study indicates negative effect of rural household educational status on saving. They reason out it as households prefer educating of their children and wish to provide better studies through spending more and save less.

Access to financial institution: financial institution is place where the peoples can save their income and take loan from it. So, the accessibility of the financial institution to household home determines the saving habit of the households. As Safo (2015) study was indicated the coefficient of access to financial institution is positive and significant at 5% level, he put access to financial institution or not in terms of dummy variable. Then, households who are access to financial institution save more as those who are not access to financial institution save less. Additionally, as Jessica(2014) analyzed, despite the importance of saving for poor households, only 41% of adults in developing countries have saving accounts, and , in many settings fewer than half of the people who open accounts ever use them for depositing or withdrawals. Access to low-cost saving accounts can profoundly affect the amounts households save, invest, and consume.

Expenditure on annual festival: the households are celebrating different annual festivals; during a given year so they may pay high expenditure on consumption goods. This unnecessary expenditure can affect the saving capacity of households as the researcher observed.

Dependency ratio: it is the number of dependent in a given family divided by the number of working age. Dependence ratio of household had a negative and significant influence on household saving decision. This show that a negative correlation between dependency ratio and probability of saving in the household. This result consistent with the prior research; that is a significant inverse relationship exists between dependency rates and saving rates in less developed countries (Saliya and Abdell, 2018).

In addition, according to (Ileana and Costanta, 2012) there is inverse relation between saving and dependency ratios is because children increase the need for expenditure which is considered as consumption expenditure in the standard income accounting structure. They do not contribute towards production. Hence a high dependency ratio imposes a constraint on the society's potential for saving. This hypothesized link between high dependency ratios and low saving is direct.However, from this conclusion it difficult to the say children does not contribute toward production. Because in rural area children are support their families in a different farming activity.

Land taxes: taxes are compulsory payment from each rural household to the government annually. Then tax which is paid to government has its own effects on the saving capacity of households. That mean as tax paid per year increases the saving capacity of households can decline. According to G. Mankiw (2009) high tax rates reduces private saving particularly household saving by reducing the rate of return that households earn.

Number of livestock owned by households: livestock contribute to household livelihoods through a variety of direct and indirect pathways. Firstly, livestock provide cash income or income in kind through the sale of animals and/or the sale and consumption of milk, meat, eggs and other animal products; second, livestock are a form of savings (capital growth through herd growth) and insurance, as the sale of animals provides immediate cash to deal with significant or unexpected expenditures (for example, school or medical fees). Third, livestock provide manure,

draft power and transport services, which can be used on the household farm or exchanged on the market (for example, rental of bull for ploughing). Fourth, being a source of wealth, livestock not only contribute to social status but, possibly facilities access to financial services, both in formal and informal market (Ugo*et al.*, 2011). So, as the number of livestock owned by household increase their saving capacity also increases.

2.3. Conceptual Framework

Figure 2.1: Conceptual Framework of Rural Household Saving

Demographic factors
- Income
- Education level
- Age
- Family size
- Dependency ratio
- Expenditure on annual festival

Rural Household Saving

Households resource
- Cultivated land
- Number of livestock

Institutional factors
- Access to financial services
- Income tax
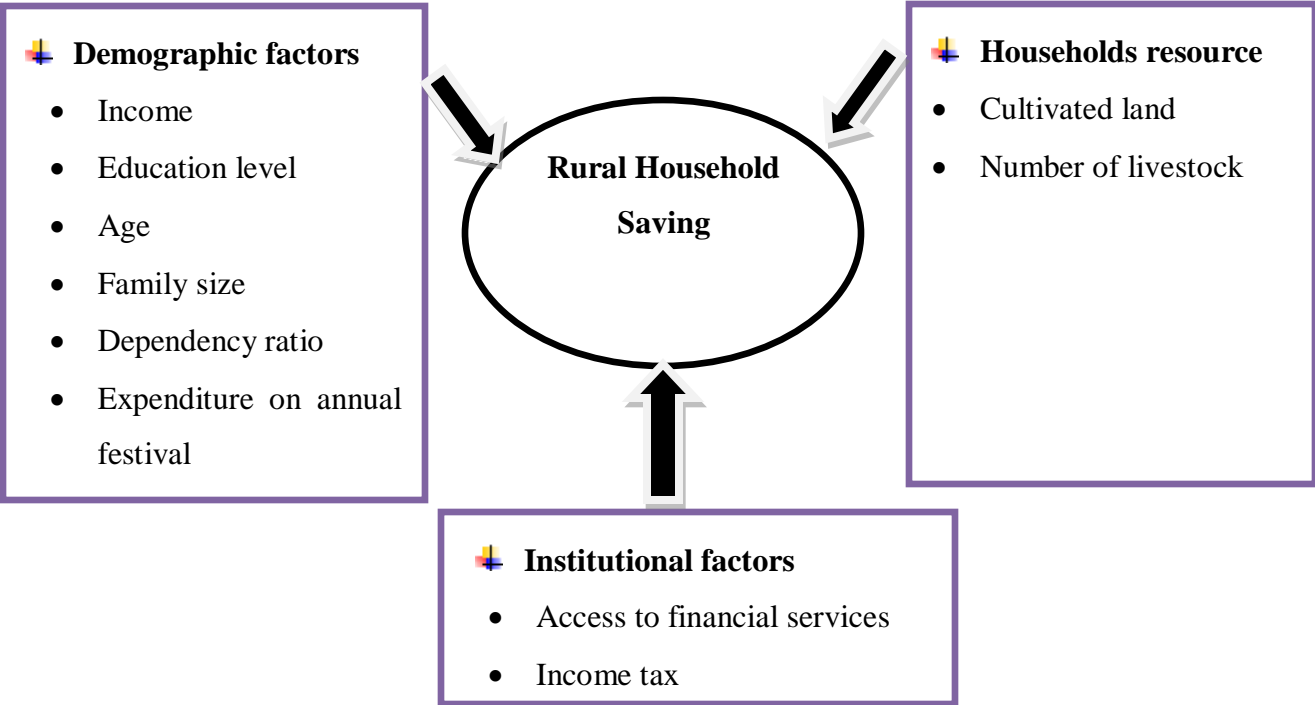
CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1. Description of the Study Area

Oromia regional state is one of the largest states with land size and population which is found in Ethiopia. It is sub-divided into 20 administrative zones. Within this state there are different weather condition and societal cultures. So, the peoples in all zones produce different products based on types of weather which is found in the area and the income of the societies are vary. From these zones the researcher directed to West Shewa zone particularly Bako district. Bako district is an area found in central Ethiopia located in West Shewa zone on all-weather highways between Addis Ababa and Neqemte. This district has a longitude and latitude of $9^08'N37^003E/9.133^0N37.050^0$ with elevation of 1650-2800 meters above sea-level, getting about 1266 mm annual rainfall. Religion composition such as Muslims, Protestant, Orthodox Christians, Adventists, Catholic and *Wakefata* are found in area. And there are 1,025,561 total populations from these 1,002,712 peoples are surviving in rural area. The livelihood of the rural community basically depends on rain-fed agriculture and irrigations. Maize, teff, cheese, nug, sugarcane are the main crops cultivated in this area (Bako district Administration office, 2014).

3.2. Data Types and Sources

Both qualitative and quantitative data is used in this study. Questionnaires and interview havebeen designed in order to gather the necessary and appropriate information. Questionnaires were prepared and given to enumerators. Under this method the enumerators were appointed and given training and they wereproviding with schedules containing relevant questions to collect data from household heads. Besides, face to face interview was conducted between researcher and the managers of kebeles, microfinance, and commercial banks to get extra information. Primary and secondary data were used for this study. Primary data collection would be conducted from rural households' heads, microfinance institution and from different commercial Banks which are found in the district. And secondary data was gathered from published documents on rural household saving, research report, and journals.

3.3. Sample Size and Sampling Techniques

As the information gathered from district administration indicates, there are 32 kebeles found in this district, from these four kebeles are municipally administered towns. But, 28 kebeles are found in rural area. In this study multi-stage sampling technique was applied. In the first stage West Shewa zone was selected purposively because there is little empirical evidence on determinants of household saving in this area particularly in Bakodistrict. In the second stage by taking into account timeand scatter distributions of households'; four kebeles were selected randomly. Finally the kebeles found in Bako district have more or less homogenous in weather condition and the population in the study area is more or less homogenous in terms of the activities of life, income earning, production system and consumption. So, it is possible to apply random sampling to collect data from the household heads. There are 8600 household heads found in these four kebeles according to district administration. Then based on this information the researcher wasapplyingsimple random sampling and researcher adopts a simple mathematical formula suggested by C.R.Kotheri (2004) to get the sample size.

$$n = \frac{z^2 pqN}{e^2(N-1) + z^2 pq}$$

$$n = \frac{(1.96)^2 \, 0.11 \, x \, 0.89 \, x \, 8600}{(0.05)^2 (8600-1) + (1.96)^2 \, x \, 0.11 \, x \, 089}$$

$$= \frac{3234.3967}{21.8736} = 147$$

Where, n- the minimum number of sample size

　　　　N- the total number of household heads in four kebeles

　　　　e- accepted error margin (0.05)

　　　　z- confidence level (95%) and which is 1.96

　　　　p- proportion of sampled population (0.11)

　　　　q- estimate of the proportional of population to be sampled (0.89)

Table 3.1 Name of kebele and number of household head selected randomly

S.N	Name of kebele	Target population	Number of household head selected
1.	Sadenqixe	2251	37
2.	Kortucanco	2198	37
3.	Oda gibe	1999	36
4.	Tulu sangota	2152	37
Total		8600	147

3.4. Method of Data Analysis

In order to analyze determinants of household saving both descriptive statistics and econometrics model (OLS model) were applied.

3.4.1. Descriptive statistical analysis

Descriptive statistics are important to have clear image of the attributes of the sample units. It is possible to compare and contrast among household head saving by applying descriptive statistics. The descriptive statistics have been used in study includes; mean, standard deviation, and percentage. Additionally, these statistical tools were used to assess the quantitative variables such age, income, family size, number of livestock, land size, income tax of selected household head.

3.4.2. Econometrics Model

The study was conducted by using Ordinary Least Square (OLS) method. The reason why the researcher employs OLS method is since saving is continuous variable case; so, OLS can measure a rate of change of dependent variable to independent variables in a good manner (Gujarati, 2004). So, to look the effects of each independent on dependent variable the researcher choose this model.

3.4.3. Definition of Variables

It is necessary to identify the potential explanatory variable that would influence rural household saving.

Household income: it is continuous variable measured in terms of money. The higher the amount of annual income obtained by household head the higher saving. As Wogene(2015) studied determinants and behavior of rural household saving in case of Dale Woreda, Sidama Zone by using OLS model, coefficient of annual income was significant and positively related to saving i.e. rural households saving capacity increases with increase in income level.

Age: it is continues variable and measured in yearsstarting from born to the time up to the data was collected. Lawrence*et al.* (2009) were studied determinants of household saving in rural areas of Kenya throughapplying least square technique, accordingly age of household particularly farmers has negative effects on the rural household saving but it is not statistically significant.And the researcher expectsthe variable may has positive/negative effect on rural household saving.

Education Level: it is dummy variable. This represents the level of formal schooling completed by household head. Household heads with higher educational status have higher saving rate (Steven*et al*., 2015). In addition Haile*et al*. (2017) studied saving habits and its determinants in Amharanational regional state, Ethiopia by using multi-covariate model and the results indicates that the positive relation between community saving habit and educational status. Accordingly, in this study it is expected that educational status has positively determine the rural household head saving.

Family size: it is continuous explanatory variable. There has been extensiveargue whether the number of children is positively or negatively correlated with the economic welfare of the family it has been argued that within the social settings of less developed countries children make a net economic contribution to their parents, at least in the long run. In these circumstances, couples with many children should eventually be better-off than those with few. Children's economic contributions may take the form of labor on the family farm, work activities, or the provision of income in cash or kind, from wage employment inside or outside agriculture (Napaporn*et al*, 1992).Their finding indicates that the higher the number of children, the lower mean value of the consumer goods and saving index, the housing quality index, and the total wealth score. And they concluded that fewer children mean lower associated expenses, thus freeing income for increased savings as well as for a higher standard of living.Mostly, as household family size

increase more income is allocated for consumption purpose and the household saving will decline.

Furthermore, Oliveria*et al*. (2004) found that family size to be related negatively to annual saving magnitude of rural households. Steven*et al.* (2015) used a standard two-stage least squares Tobit regression to study family size and household saving in Chinese; and find that household saving is decreasing function of family size, as measured by the number of dependent children and it is statistically significant at one percent.

Land size: it is continuous variable and measured in hectars. As the households land size rise the households saving can also increase since more land sizemeans more production and more income which has positive effect on saving. But, according to Wogene (2015) there is inverse relationship between land size and saving because of the households having more land can spent more throughout the year.

Annual expenditure on festival: it is continuous variable and measured in terms of money. If the household allocate more money on different annual festival, saving can be declined as the researcher observed.

Livestock asset of the household heads: it is continuous variable indicates the number of livestock households owns measured in Tropical livestock unit. Livestock are the farmer's important source of income, means of transportation, source of food and it is proxy for wealth status of rural household in the study area. Livestock are also used as an insurance of rural livelihoods in case of crop shortfalls and are means of saving. It is expected that livestock resource have positive effect on household saving.Girma*et al.* (2014) applied multinomial logit model, and his finding indicates household with more livestock holdings would like to save in both financial forms and in kinds and statistically significant at 5% probability level.

Dependency ratio: it is the number of dependent in a given family divided by the number of working age. According to Saliya(2018) dependence ratio of household had a negative and significant influence on household saving decision. This show that a negative correlation between dependency ratio and probability of saving in the household. This result consistent with the prior research; that is a significant inverse relationship exists between dependency rates and

saving rates in less developed countries.And in this study inverse relation between dependency ratio and rural household saving was expected.

Access to financial services: it is continues variable and measured in terms of kilometers. Financial institution is place where the peoples can save their income and take loan from it. So, the accessibility of the financial institution to household home determines the saving capacity of the households. As Safo(2015) studied, the coefficient of access to financial institution is positive and significant at 5% level;researcher was appliedlogit model and measure access to financial institution by access or not access as dummy variable. Accordingly, households who are access to financial institution were save more, whereas those not access to financial institution save less.

Land tax: taxes are compulsory payment from each household to the government sector annually. Then tax which is paid to government has its own effect on the saving capacity of households. That mean as tax paid per year increases the saving of households can decline.According to G. Mankiw (2009) high tax rates reduces private saving particularly household saving by reducing the rate of return that households earn.

Dependent variable

➢ Amount that household save annually in terms of money

$$saving = \alpha + \beta_1 inco + / - \beta_2 age + \beta_3 edu - \beta_4 famz + \beta_5 landz - \beta_6 \exp enfest$$
$$+ \beta_7 TLU - \beta_8 dr + \beta_9 afs - \beta_{10} it + \varepsilon$$

Where, α - the intercept

β - the coefficient parameters

inco- income   famz-family size   edu- education level

landz-land size   expenfest-expenditure on festival   TLU– tropical livestock unit

dr- dependency ratio   afs - access to financial service   it - income tax

Table 3.2 .Expected sign between dependent and each of explanatory variables

Variables	Description	Expected sign	Measurement
Income	Inco	+	Birr
Age	Age	+/-	Years
Education level	Edu	+	Dummy
Family size	Famz	-	Number
Land size	Landz	+	Hectars
Annual expenditure on festival	Expensfest	-	Birr
Livestock asset of households	Tlu	+	Tropical livestock unit
Dependency ratio	Dr	-	Ratio
Access to financial services	afs	-	Kilometer
Income tax	It	-	Birr

CHAPTER FOUR

4. RESULT AND DISCUSSION

This part discusses the finding of descriptive statistics and econometric analysis in line with determinants of rural household saving in the study area.

4.1. Descriptive Statistics Analysis

Descriptive analysis is largely the study of distribution of one variable. This study provides us with summary of the person and other subjects on any of a multiple of characteristics such as size, composition, efficiency, preferences, etc. This sort of analysis may be in respect of one variable (described as unidimensional analysis), or in respect of two variables (described as bivariate analysis) (C.R.Kotharine, 2004).

4.1.1Socio-demographic characteristics of sampled household

In this section, results obtained using statistical tools such as mean, standard deviation, percentage and frequency distributions are described and discussed.

Categorical variables

Table 4.1.1: Households' sex and household head's saving on average per year

Description	Household headsaving on average per year (in birr)		
	Mean	Std.dev.	Frequency
Male	3376.06	6034.48	95
Female	1170.90	2149.34	52
Total	2596.01	5116.47	147

Source: Own calculation

As it is indicated in above table 4.1.1, from total sampled household heads large numbers weremale headed households which means 64.63%;whereas,there are 35.37% of female headed household heads. Additionally, the mean value of male headed household saving is 3376. 06 birr;whereas, mean value ofsaving by female household headed is 1170.90 birr. These shows,in rural areafemale headed households are highly exposed to more consumption expenditure as

compared to male headed households especially on child cares and spend more on families' consumptions.

Table 4.1.2: Marital status and household head's saving on average per year

	Household saving per year on average (in birr)		
Description	Mean	Std.dev.	Frequency
Married	3413.31	6055.85	94
Divorced	-16.75	690.75	12
Widowed	1486.90	2296.81	41
Total	2596.01	5116.47	147

Source: Own calculation

As table 4.1.2 indicates the mean value of saving per year by married household head is 3413.31 birr; but, mean value of saving with divorced household is -16.75 birr per year. On the other hand, the mean value of saving through widowed household head is 1486.90 birr. As far as average saving per year via widowed household head is positive, the divorced average saving per year is negative; that mean those divorced household heads are survive with inunfavorable situation because they stay aliveas dependent households in the society. As a result of this challenges, divorced sampled household headed are take a loan either from micro-finance or neighbor to sustain their life.Additionally, the percentage of household heads marital status depicted in the following figure.

Figure4.1:Percentage of household heads marital status
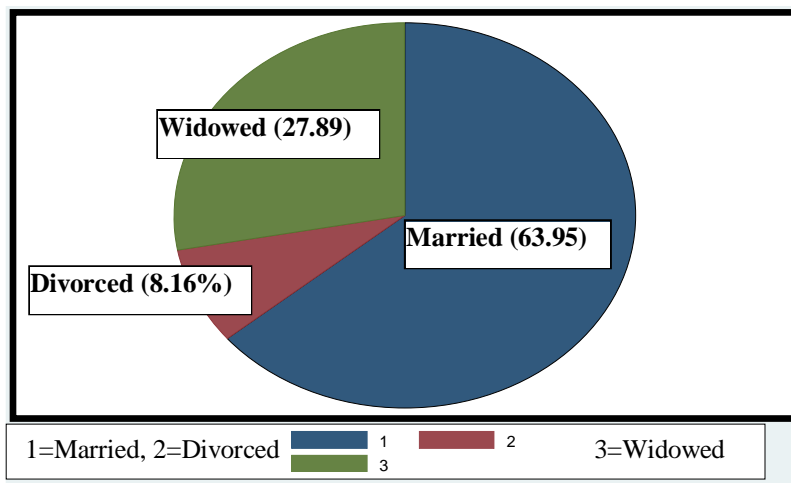
Source: Own calculation

Figure 4.1 shows the percentages of household head marital status, in this case there are 63.95% of married households;whereas, only 8.16% of widowed households in the sampled household heads.

Table 4.1.3:Educational attainment and household head's saving on average per year

	Household saving per year on average (in birr)		
Description	Mean	Std. dev.	Frequency
Illiterate	1423.04	3431.51	79
Primary educated	3195.26	4228.69	38
Secondary educated	5823.75	9770.08	20
Tertiary educated	3129.80	3244.50	10
Total	2596.01	5116.47	147

Source: Own calculation

According to table 4.1.3 the mean value of saving viva illiterate household head is 1423.04 birr. Although there are 79 (53.74%) illiterate household heads, however their saving has been less than the other households who categorized under primary, secondary and tertiary educational status. In other case, tertiary educated householdsare 10 (6.8%) but, the households' saving mean value is 3129.80 birr.As compared to other households, saving of tertiary educated householdsis higher than the others. So, as the educational status of rural household head increases the rural household saving will be increased per year on average. Furthermore, those household headswho have higher educational status know the importance of saving, save their income in financial institutions andcorrectlyhandle their consumption expenditure.

Table 4.1.4: Savingplace and household's saving per year on average

	Household saving on average per year (in birr)		
Description	Mean	Std.dev.	Frequency
Commercial bank	5956.61	8346.10	38
Micro-finance	546.39	1372	28
Home	1727.94	2706.58	81
Total	2596.01	5116.47	147

Source: Own calculation

As table 4.1.4 depicted,from total sample households 81(55.1%) household heads were saving in home and the household's mean saving is 1727.94 birr. But,38 (25.85%) household heads were saving in commercial banks; as compared to others the average saving through these households was higher than the other households who are saving in home. Therefore, therearedifferent reasons which lead high variation among those households in terms of saving. Such as if the household heads were saving in commercial banks or in micro-finance, money will noteasily exposed to theft or robbery, lost to fire or other type of disasters; the household cannot take it again and again for unnecessary expenditure. Additionally, financial institution offers account that earns interest rate, allowing households to take advantage of time value of money. The time value of money means money paid out or received in the future is not equivalent to money paid out or received today. Even though the government and different financial institutions are giving information on the advantage of saving in financial institutions, till now the rural household saving behavior is more or less directed to saving in home.

As the researcher observed there is fearing regarding to the use financial institutions in rural households. They expect as they loss their money when they deposit in banks, due to lack of education the rural households has the problem of properly signing the same signature when they used in banks. In order give high security the commercial banks need standardized or identical signature of the customers. However, it is difficult for rural households to provide their signature in the same way. On the other hand, due to high scatter distributions among the societies geographically, it is difficult for financial institution to give awareness and encourage them to open account in order to save their money. Furthermore, there is distance between the rural household home and the place of financial institutions. In this case during raining season it is not easy for households to go the area where financial institution exists since lack of road, time consuming to go the urban, and exposed to high transportation costs.

The following figure shows the household head saving place. In this case out of 147 household heads 55.1% are saving in home whereas, 44.9% are saving in modern financial institutions.

Figure 4.2: Percentage of household head's saving place

Commercial Banks (25.85%)

Home (55.1%)

Micro-finance (19.05%)

Household head saving place | 1 | 2 | 3
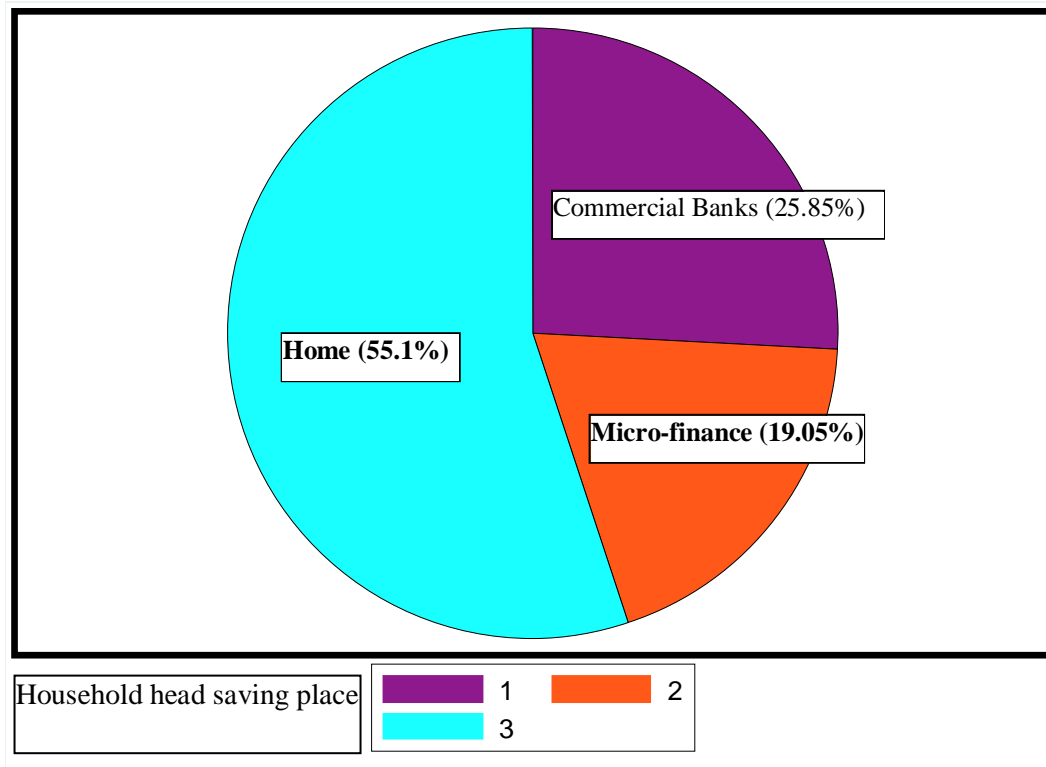
Source: Own calculation

Continuous variables

Table 4.1.5: Age and household head's saving per year on average

Description	Obs.	Mean	Std. dev.	Min.	Max.
Household saving if household age is $<= 65$	106	2885.49	5767.77	-3490	35120
Household saving if household ages is $>= 66$	41	1847.59	2725.48	-2320	12721

Source: Own calculation

The above table 4.1.5 shows the average saving of household heads whose ages are less than or equal to 65 and greater than or equal to 66 years old. In this study the maximum household's age is 80 years and minimum household age is 31 years. Accordingly, there are 106 (72.11%) household heads whose ages are less than or equal to 65 and those household head's mean saving is 2885.49 birr per year. On the other hand, there are only 41 (27.89%) household heads whose ages greater than 66 years in the sample and average saving of those households were 1847.59 birr per year. Additionally, the maximum household saving were found in household heads

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grouped in ages less than or equal to 65 years. So, as the household's age increase the saving would be increase for certain period of time, but later in retirement age saving would be decline.

Table 4.1.6: Family size and household head saving per year

Description	Obs.	Mean	Std.dev.	Min.	Max.
Household head saving if family size is <=4	57	2132.18	4741.92	-2320	31400
Household head saving if family size is >=5	90	2889.77	5345.16	-3490	35120

Source: Own calculation

In this study, one household headhas one family size which is the minimum and twelve family sizes which is the maximum. In the above table 4.1.6 the average household saving who have more than or equal to five family members is 2889.77 birr. As compared to household head whose familymembers arebelowfive, the average household saving is relatively less. While there are only 57 (38.78%) household heads; but, mean saving of these households were 2132.18 birr.It means as family size increase household saving decline on average.

Table 4.1.7: Land size and household head saving per year on average

Description	Obs	Mean	Std.dev	Min.	Max.
Household head saving if land size is<=2.9 hectars	142	2311.49	4382.25	-3490	31400
Household head saving if land size is >=3 hectars	5	10676.2	13931.1	80	35120

Source: Own calculation

The above table 4.1.7 summarizes the average household head saving and land size. In this case the minimum household's land size is zero and the maximum land size is five hectars. Then, household head saving whose cultivated land size is greater or equal to three hectars, on average save 10676.2 birr. Whereas, mean value of household head whose land size is less than 2.9 hectars were save 2311.49 birr on average.

Table 4.1.8: Income and household head saving on average per year

Description	Obs.	Mean	Std.dev	Min.	Max.
Household head saving if income is <=14999	99	712.16	1391.4	-3490	5670
Household head saving if income is >=15000	48	6481.44	7374.95	-425	35120

Source: Own calculation

Economic studies have shown that income is the main determinants of consumption and saving. Rich people save more than poor people, both enormously and as percent of income. The very poor are incapable to save at all; as an alternative as long as they can take loan or draw down their wealth, they tend to save. That is they tend to spend more than what they earn and reducing the accumulated saving or going deeper into debt. So far, the household heads in these areas obtain income from different sources such as crop cultivation, planting trees, trading, participating in irrigation and the like. In this study the minimum household's income is 1300 birr and the maximum household's income is 50,000 birr per year. In the study area there is high income variation among rural households. Household heads that are engaged in irrigation and participate in non-farm activities obtain high income; whereas, those households who are only dependents on rain fed production activities get small amounts of income.

From table 4.1.8 there are 48 (32.65%) household heads whose income were above 15,000 birr. In relation to this, the average household saving is 6481.44 birr. However, there are 99 (67.35%) household heads whose income is below 14,999 birr,and average saving is 712.16 birr per year. In general, as the household income increase their saving per year increases. Moreover, the household income variation was depicted in the following figure.

Figure 4.3: Income variation among rural households in the study area
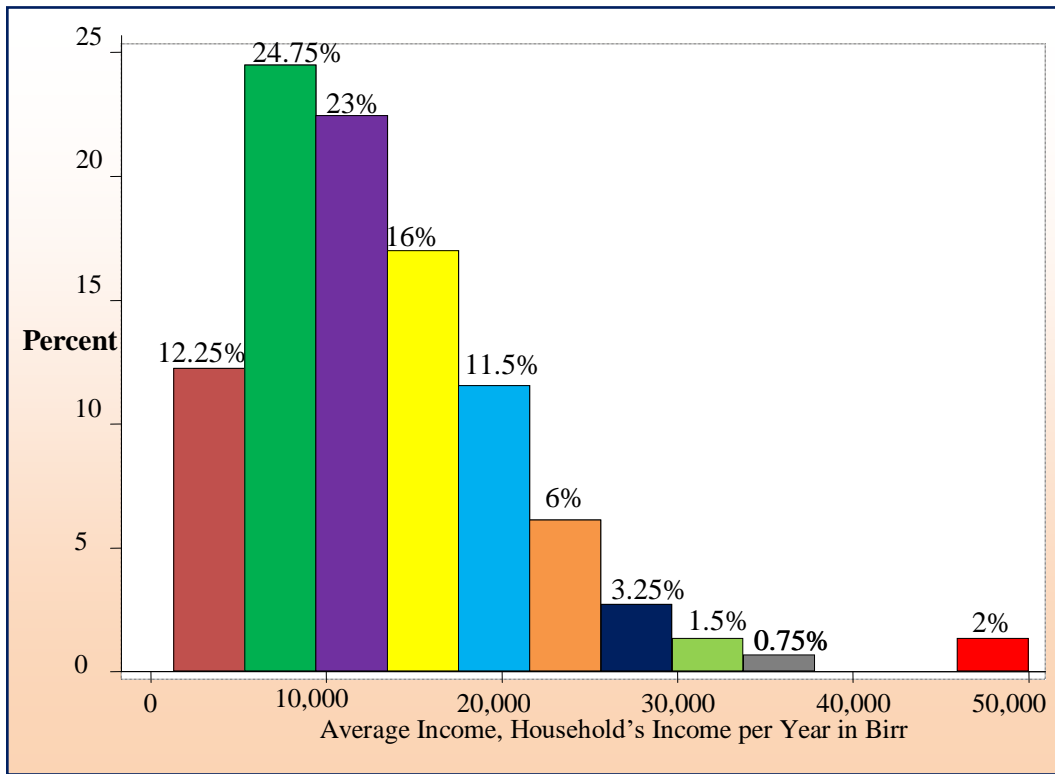
Source: own calculation

The above figure 4.3 shows income variation among the rural household heads in the study area. So, relatively 24.75% of households annually obtain around 10,000 birr on average. Whereas, only around 2% of household heads get approximately 50,000 birr per year on average. From this figure there is high variation among household heads in terms of income.In this case, those household head who participate in irrigation and non-farm activities obtain high income; whereas, household who are only based on only rain-fed production gets less income.

Table 4.1.9: Livestock assets in TLU and household head saving per year on average

Description	Mean	Std.dev	Min.	Max.
Household head saving if TLU is <=8	2499.15	5192.73	-3490	35120
Household head saving if TLUis >=8	9208.9	4579.85	3500	15650

Source: Own calculation

Householdhead livestock ownership is measured in TLU[2]; so, in this study the TLU is zero and the maximum TLU16.2 units.Here on table 4.1.9household heads who have above 8 TLU save 9208.9 birr on average per year. On the other hand, household head those having less than 8 TLU save 2499.15birr per year on average. Theoretically, having more livestock leads more rural household saving; however, in regression result there is inverse relationship between household head saving and number of livestock in the study area.

Table4.1.10:Tax and household head saving per year on average

Description	Obs.	Mean	Std. dev.	Min.	Max.
Household saving if tax is<=3445	145	2522.92	5101.17	-3490	35120
Household saving if tax>=3446	2	7895	4235.57	4900	10890

Source: Own calculation

Table 4.1.10 summarizesland tax and the average household saving per year. The maximum tax paid by household is 6890 birr and minimum tax is zero. There are 2 (1.36%) household head that are payingtax above 3446 birr, and the average saving ofthese household is 7895 birr. On the other hand, there 145 (94.64%) household heads paying above 3445 birr in a year and their mean saving per year is 2522.92 birr.

Table 4.1.11:Expenditure on festival and household head saving per year on average

Description	Mean	Std.dev.	Min.	Max.
Household saving if expenditure on festival is <=4000	2627.19	5144.86	-3490	35120
Household saving if expenditure on festival is >= 4001	335	205.66	190	480

Source: Own calculation

In the study area the minimum expenditure on annual festival is 500 birr and the maximum expenditure is 8000 birr. According to table 4.1.11 household heads whose festival expenditure above 4001 birr was save 335 birr on average. In other case, mean value of household saving who are spending less than 4000 birrwere 2627.19 birr. It is feasible to analyze that as the household head expenditure on different festival increase, the household saving were decrease.

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[2]TLU - Tropical livestock unit. The tropical livestock unit is represented as;
Calf -0.2   Cow-0.7   Bull/Ox-0.7   Camel-1.0
Heifer-0.6   Goat-0.1   Sheep-0.1   Donkey-0.6

Table 4.1.12:Distances from financial services (Fs) and household saving on average per year

Description	Mean	Std.dev.	Min.	Max.
Household saving if distance from Fs<=24	3186	6395	-3490	35120
Household saving if distance from Fs>=25	1787	2274	-1155	10890

Source: Own calculation

Distance from financial institution was measured in kilometer. The minimum distance between household's home and financial institution is 4 kilometer and the maximum distance is 48 kilometer. As it is indicated on table 4.1.12 the mean value of households who are far from financial institution above 25 kilometers were save 1787 birr. As the mean saving of household head found less than 24 kilometers were 3186 birr. Generally, households who are relatively near to financial institution are saving more; in contrast, household far from the financial institution save less.

Table 4.1.13: Dependency ratio in household members

Description	Mean	Std. dev.	Min.	Max.
Dependency ratio	1.26	0.90	0.13	3.5

Source: own calculation

Dependency ratio:it is the number of dependent in a given family divided by the number of working age. In this case the maximum dependent children are 3.5 on the household head in the study area.

4.2. Econometric Analysis

The previous part has provided some descriptions regarding the relations between household socio-economic variables and household head saving. But, the drawback of the descriptive statistical analysis is that each determinant has been calculated separately without taking into account the other variables. This section analyzes the determinants of household saving with ordinary least square estimation that takes the effects of all determinants at the same time.

Table 4.2: OLS regression result on determinants of rural household head saving

Explanatory Variables	Coefficients	Standard error	*t-value*	P>/t/
Sex	1033.76	1320.63	0.78	0.435
Age	-416.11	145.89	-2.85	0.005[**]
Marst	393.92	713.31	0.55	0.582

Famz	-429.70	104.11	-4.13	0.000*
Dr	7.09	4.39	1.61	0.109
Edu	-286.59	270.57	-1.06	0.291
Landz	-951.18	338.32	-2.81	0.006**
Inc	0.80	0.03	22.59	0.000*
TLU	-457.12	99.55	-4.59	0.000*
Tax	-0.97	0.30	-3.17	0.002**
Expenfest	-0.68	0.26	-2.58	0.011***
Afs	-16.19	14.85	-1.09	0.278
Savplc	39.91	253.72	0.16	0.875
Age^2	3.88	1.30	2.97	0.003**
Cons	7672.26	4575.24	1.68	0.096

R^2= 0.85 or 85% and Adj-R^2=0.84 or 84%, Observation=147, prob>F=0.000

Note: * 1% significant level, ** 5% significant level, *** 10% significant level

Data or model diagnosis

The model tested for heteroskedasticity by using Breusch-Pagan test and found that the stochastic term is constant. Additionally, the model tested for omitted variable by applying Ramsey RESET test and the test result shows that there is no omitted variable in the model. Furthermore, correlation matrix shows the correlation between two variables. And correlation matrix indicates the multicollinearity problem. If the coefficients of correlation between two independent variables have in absolute value equal or above 0.80, there is severe problem of multicollinearity (Gujarati, 1995). Correlation among the explanatory variables indicates no multicollinearitybetween someexplanatory variables. But, there is correlation between marital status and household head ages.

Table: 4.2depict the regression estimates for determinants of saving to household heads. The explanatory efficiency of regression model is measured by R^2 which is 0.85, shows that 85% of the variations in household heads saving were explained by independent variables found in the model. In other case, Adj-R^2 is 0.84whichindicate 84% of the variations in household heads saving wereexplained by explanatory variables in the model which are significant.

Sex: household sex is dummy variable and categorized as 1 if male and 0 if female. Thecoefficient of household sex is positive, but has no significant effect on the household head saving.

Age: age of the household head is measured in years starting from birth to the time data was collected. Accordingly, the coefficient of age has negative sign; which shows, as the household head age increase the household saving will decrease over the time. Though as the household save more for the first time; later as household head age increase the production and his/her productivityhas been decline, then the household head saving decline per year on average.So, based on the regression result as the household head age increase by one year the household saving was decline by 416.11birr on average and it is statistically significant at 5%.

Marital status (marst): the household marital status is dummy variable represented by 1 if married, 2 if divorced and 3 if widowed. Accordingly, the household marital status has negative coefficient, however it has no statistically significant effect on the household head saving.

Family size (famz): the household head family size is measured in numbers of children found in the family members.So, as the regression result indicates the coefficient of household family size has negative sign. Thus, as the family size increase the household head saving has been decreased per year on average. Itmeans that the household expenditure on education, health care, and food expenditures are increase over the time. In general, as the family size increases by one child the household head saving is decreases by 429.70 birr per year on average and it is statistically significant at 1%.

Dependency ratio (Dr): dependency ratio is the proportion of children and elderly above 65 years relative to the working age. So far indicated in the regression result dependency ratio has positive sign. However, dependency ratio has no statistically significant effect on the household head saving in this study. Mostly in rural area children above five years can support their families in different position such as rearing livestock, home working, cultivating plants and the like, through these activities children below fifteen years can help and minimize the household's expenditure on these activities. Additionally, elderly peoples who are above 65 years old can support their families in different activities in rural area.

Educational status (edu): In this study the household head educational status was dummy variable and replaced as 0 if illiterate, 1 if primary educated, 2 if secondary educated, and 3 if tertiary. As obtained from the regression result the educational status has negative effect on

household head saving. In economic assumption someone who has higher educational status have awareness on the importance of saving for future use and emergency expenditures.Nevertheless, educated rural household wants to teach their children because they know the advantage of education and paid high costs on the materials needed for their children and they send their children whose age are reached for education. So, the educated rural households exposed to high expenditure,in that case yearly saving of households were decline. But, the household head educational status is not statistically significant in this study.

Land size (landz): land size is measured through hectars owned by household heads. The coefficient of land size in the regression result is negative. It is known that land is an asset used for different purposes like agricultural production, house construction and the like. Particularly, the rural households use land for agricultural activities. As the researcher was expected household saving and land size have direct relationship, but reversely it has negative effect on the household head saving and statistically significant at 5%. Inthis case as the household land size increases; there is high expenditure on the agricultural input, then the households saving was decline.

Income (inc): householdsincome is measured in money, which is obtained mostly from agricultural income. In economic concept there is direct relationship between income and saving. According to the regression result indicates on table 4.2 coefficient of income has positive sign. Therefore, as the household heads income per year increases by 1 birr household head saving is increases by0.80 birr on average and it is statistically significant at 1%.

Number of livestock: in this study the household ownership of livestock is measured in tropical livestock unit. Livestock is considered as the determinants of household saving as well as served as the method of saving. Even though the researcher was expected positive effect of livestock on household saving but it has inverse effect on the household saving as the regression result indicates.So, as the tropical livestock increase by one unit the household saving decrease by 457.12 birr on average and statistically significant at 1%. There are different reasons that lead negative effect of livestock on household saving, such as in rural Ethiopia the society rear livestock mostly for respecting their status not fattening and convert to money. In other case due to different sickness the livestock are exposed to death; so, the household head incurred to loss.

For this reasons, household head saving have negative relationship with number of livestock. According to Sinisa*et al* (2014) saving in form of cattle is subjected to disease and invitestheft; therefore savers give the highest priority tothe security when deciding where and how to save.

Land tax: tax is measured in money which is paid to the government through household head per year. It is obviouslyknown that, taxis compulsory payment from each household for the government. Mostly in rural area the society exposed with unnecessary expenditure throughkebele's managers for rural road construction and primary school construction. However, as the household said the money collected for these purpose were not used for the needed objective. So as the regression result indicates tax has negative coefficient and statistically significant at 5%. Accordingly, as tax expenditure increases by 1 birr the household head saving is decrease by 0.79 birr on average.

Expenditure on annual festival (expenfest): annual expenditure on festival is measured in money that the household head spend in each festival in a year. Accordingly, the annual expenditure has negative effect on the household saving and statistically significant at 10%. So, as regression result indicates as expenditure on annual festival increase by 1 birr the household head saving is decline by 0.68 birr on average.

Access to financial services (Afs): in this study financial services include credit and saving institution and commercial banks; as well as the accessibility of financial services is measured by kilometersalong with has negative sign. That means as the distance from financial serves increase the household head saving is decrease and vice versa. However, as regression result indicates the access to financial serves is not statistically significant.

Saving place (savplc): in this study saving place is dummy variable which is categorized as 1 if deposit in commercial banks, 2 if deposit in micro-finances and 3 if deposit in household's home. As the regression result indicates saving place has positive sign but, it is not statistically significant.

Age^2: the coefficient of household head age square has positive sign and statistically significant at 1%. So, it indicates the life cycle hypothesis theory, which means as age in years increases the household head saving was increase for a certain years later as the age in years reach stage of retirement the household head saving has been decline.

CHAPTER FIVE

5. SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary and Conclusion

Household saving make up a very important part of the national savings and their contribution to national saving rate cannot be underestimated. This implies that, household savings are decisive determinant of the provider of funds for investment. Particularly, household saving served for consumption smoothening in the future time. Consumption smoothening refers to behaviors that fluctuations in consumption relative to income fluctuations. Economistsbelieve that people make trade-offs based on marginal utility of consumption, which is high when the level of consumption low.Moving consumption from a high-income period to a low-income period increases the marginal utility of that consumption. For instance, farmers receive most of their income immediately after harvest, and very little at other times of the year. They can use savings as one strategy to ensure that they are able to consume about the same amount throughout the year (Jessica,2014).

For low-income countries, financial development is likely to have important implication for economic growth. So, study was analyzed the determinants of rural household head saving in case of Bako district, West Shewa, Ethiopia. In this study multi-stage sampling was applied. In the first stage West Shewa zone was selected purposively because there is little empirical evidence on determinants of household saving in this area particularly in Bako district.Then, there are 28rural kebeles found in this district, from these 4 kebeles were selected randomly. At the end by using simple random sampling method 147 household heads were selected to fit the study.

The results in this study are mostly the same with previous findings in empirical literature on saving in developing countries, although some unexpected results also arose in study. In this case demographics characteristics and socio-economic variables are incorporated in the study. Accordingly, the effects of the variables are summarized based on the result obtained from ordinary least squareestimation.

The household age is measured in years and statistically significant. As the regression result shows, the household head age has positive effect. As life cycle hypothesis indicates in the first level the saving of the households is low; but, later in working age saving will rise; contrary in the retirement age the household head start to consume what they saved in working age; so, the household saving start to fall. Family size is the other determinants of household saving and statistically significant. Therefore, as the numbers of household member increase the household head saving is decline; because there is more consumption expenditure. Land size is an asset owned by rural households. Although a different literature indicates there is direct relationship between land size and household head saving, in this study land size has negative effect on the rural household saving.

Household head's income is the variable which highly determines household head's saving in rural area. In this study household's income has positive effect on the rural household head saving. In this study number of livestock is measured in numbers owned by rural households such as cattle, sheep, goat and the like. Theoretically, as the number of livestock owned by rural household increase, the household's saving would increase. However, as regression result depicts TLU has negative effect on the rural household saving. Tax is compulsory payments from each household to the government, in order to provide different infrastructure and provide services to the societies. However, high tax payment has negative effect on rural household saving. Household's annual expenditure on different festival is measured in terms of money. In this study, higher annual expenditure on festival has negative effect on the household head's saving on average.

To sum up, in this study explanatory variable such as age, family size, income, land size, number of livestock, tax and annual expenditure on festival have statistically significant. And all these variables are determines the rural household saving.

5.2 Recommendation

In economics there are different literatures which are dealing with saving, economic growth, investment and other macroeconomic variables. Especially there is contradict view concerning to causal relationship between saving and economic growth. However, there are strong relations

among those economic variables.This study dealt with determinants of rural household savingat micro-level. Saving is the fractions of income not spend on current expenditures. Since a household does not know what will happen in the future, money should be saved to pay for unanticipated events or emergencies. Without saving, unexpected events can become large financial troubles.

Therefore, savings helps households become financially secure. Based on the results, the study suggested the rural household saving should be enhanced. Currently, the societies used family planning method to minimize the number of children, but in some place the peoples have no more awareness. Therefore, it is important if training on family planning will be given for the rural households to improve their saving capacity. Because if thenumber of family size decreases, the household head consumption expenditure alsodecreases and the household head saving will rises.

Ownership of land is other factor which determines the rural household head saving. Even though having more land size generate more production leads more household saving; in the study area some households renta portion of their land to the others and cultivate only some hectars of the lands. On the other hand, the households get less production because the society did not use modern production system or they use traditional production system and spend more on fertilizers, seed, herbicide, and pesticide. In this case increment in land size has negative effect on the rural household head saving. Therefore, the government should provide those agricultural inputs at low cost; the rural household should adopt the modern production system by using tractor which is used for ploughing the land within a short period of time.

Moreover, income is another variable which highly determine the rural household saving. Therefore, the household should be participating in irrigation and other non-farming work to get more income; through this the household saving will be increased as the household head income rises.In addition, more rural household save in home, but it is wise to store money at depository institution. Unlike money stored at home which could be lost to a fire, theft or some other type of disaster, money stored at financial institution is protected from loss. In the study area besides farming, the households are rearing livestock. But, in this area the households are only used for social status and keeping more livestock.On the other hand, there are different diseases which

affect the livestock and expose the peoples to other expenditure and leads reduction in household head saving. So, it is important for the rural households to give training how they are rearing and fattening only certain number of livestock.

In rural area the kebele's managers give different receipt in order to collect money as taxes in form of constructing rural road, to construct primary school and constructing water.The money which is collected and left at kebele level did not provide what the societies needed; but, reduce the rural household saving through imposing high tax payment burden. So, it is important to make transparency and allocating money which is collected in the different form for the desired activities.On the other hand, the government should follow the local manager how they are collecting the tax from the households.Lastly, the rural household spendingon various annual festivals is another variable which highly determines the rural household saving. In this case through reducing more expenditure on different annual festivals anniversary it is possible to improve the rural household saving.

REFERENCES

AbhaykumarGasti (2017). Saving and Investment Behavior of Rural Household: An Analytical Study of Households ofDharwad District ofKarnatska State. *Imperial Journal of Interdisciplinary,* vol.3, issue-4, No.2, pp.548-553.

Abhijit V. Banerjee and Esther Duflo (2007).The Economic Lives of the Poor.*Journal of Economic Perspectives*, Vol.21, No.1, pp, 141-167.

Adeolu O., Abiodun S. and Damilola F. (2010). What Determines Saving In the Economic Community of West Africa State (ECOWAS)?*Journal of Monetary and Economic Integration,* 10(2), pp.71-99.

AlebachoGoshim and YohanesTefera (2018).Determinants of Rural Household Saving: The Case of North Shewa Zone, AmharaRegional State, Ethiopia. *Journal of Investment and Management,* Vol.7, No.5, pp.151-156.

Africa Development Bank Group (2015). Federal Democratic Republic of Ethiopia Country Strategy Paper 2016-2020, *translated Document*.

Aghevli, B.B., Boughton, J.M., Villanueva, D., and Montiel, P.J (1990).*The Role Of National Saving In The World Economy: Recent Trends and Prospects-Occa Paper* (vol.67). International Monetary Fund.

Alemayehu, G., & Haile, K. (2006). Aggregate saving Behavior in Africa: a review of the Theory & the existing evidence with new empirical Results. *Ethiopian Journal of Economics*, *12*(683-2016-46855), 14.

Andrew Mason (1988). Saving, Economic Growth, and Demographic Change. *Population and Development Review*, Vol.14, No.1, pp, 113-144.

AroHaileselasie, Negus Abera and GetnetBaye (2014).Assessment of Saving Culture amongHouseholds in Ethiopia.*Journal of Economics and Sustainable Development,* Vol.4 (13).

Arne B., Bereket K., Abebe SH. and Mekonnen T. (2002). Growth and Poverty Reduction In Ethiopia: Evidence From Household Panel Surveys. *World Development*, Vol.31 (1), pp.87-106.

Aryeetey, E. and C. Undry (2000). "Saving in Sub-Saharan Africa", Prepared For Presentation At The Launch Workshop of AERC Collaborative Project on "Explaining Economic Growth Performance In SSA", Harvard.

Assoc./Prof.DrMarsidaAshiku (2016). Determinants of Individual Outcomes and Behavior ofthe Albanian Family in Household Savings.*Academic Journal of Interdisciplinary Studies,* Vol. 5, pp. 424, MCSER publishing, Rome-Italy.

Bautista, R. M., &Lamberte, M. B. (1990).Comparative saving behavior of rural and urban households in the Philippines.

BakoTibe District Administration (2014).

Birdsall N., Thomas C. Pinckney and R.H Sabot (2000).Natural Resource, Human Capital and Growth, *Working paper No.9*, Washington, D.C.

C.R. Kotherine (2004). *Research Methodology Methods and Technique (second revised edition).* Former Principal College of Commerce University of Rajasthan, Jaipur, India: New age international publisher.

David Romer (1996). *Advanced Macroeconomics.*United State of America: Publisher McGraw-Hill.

DhanyaJ. (2015). The Impact of Saving In Economic Growth: Empirical Study Based on Botswana *International journal of research in business studies and management* Vol.2, pp.10-21.

Dorosh P. and Thurlow J. (2012).Implication of Accelerated Agricultural Growth for Households Income and Poverty in Ethiopia A General Equilibrium Analysis.*Food and Agriculture in Ethiopia, Progress and Challenges,* 219-255.

Duesenberry, J.S. (1949). Income-Consumption Relations and Their Implication, In Llold Metzler *et al.*, Income, Employment and public policy, New York: W.W. Norton and Company, Inc.

Eric Asare, Eduardo segarra, Nakakeeto Gertrude, FafanyoAsiseh (2018). Explaining the Saving Behavior of Households in Ethiopia, Africa.*AppliedEconomics and Finance*, Vol.5, pp. 143. https://doi:10.11114/aef.v5i2.2923.

Gregory Mills and Joe Amick (2010). Can Saving Help Overcome Income Instability?

Girma T., Belay K., Bezabih E. and Jemal H. (2014). Determinants of Rural Household Saving In Ethiopia: The Case of East Hararge Zone, Oromia Regional State. *Journal of Economics and Sustainable Development*,vol.*6*,pp.177-183.doi:10.5897/JDAE2013.0507.

G. Mankiw (2009). Macroeconomics, worth publisher, Harvard University, 7th edition

Gujarat (2004): *Basic Econometrics*, Fourth Edition. The McGraw-Hill Companies.

Haile M., Zelalem G., Aweke A. ansEssey K. (2017). Saving Habits and Its Determinants in Amhara National Regional State, Ethiopia.*Arabian Journal of Business and Management Review (Oman Chapter)*, Vol.6, No.6, pp. 9-18.

Ileana Niculescu-Aron and CostantaMihaescu (2012).Determinants of Household Saving in EU. What policies for Increasing Saving? Bucharest Academy of Economics studies, Bucharest, Romania: published by Elsevier Ltd.

International Monetary Fund (2016). TheFederal Democratic Republic of Ethiopia, IMF country report No.16/322, Washington, D.C.

Ismail, A., & Rashid, K. (2013). Determinants of household saving: Co-integrated evidence from Pakistan (1975–2011). *Economic Modeling*, *32*, 524-531.

J. Amudha, V. AravamudhanVarathan, (2015). Saving and Investment Behavior of rural household in Salem.*International Journal of Multi Disciplinary and Development*, Vol. 2, pp.128-132.

Jeffrey M. Gough (2011).Determinants of the U.S. Household Saving Rate: An Econometric Analysis. *Issues in Political Economy*, Vol. 20, pp.28-44.

Jessica G. (2014). Products and policies to promote saving in developing countries. *IZA world of labor*. Evidence based policy making.

J.W. Prinsloo (2000). The Saving Behaviors of the South African Economy.*Occasional Paper,* No.14.

Kydd, J., Dorward*, A., Morrison, J., &Cadisch, G. (2004). Agricultural development and pro-poor economic growth in sub-Saharan Africa: potential and policy. *Oxford Development Studies*, *32*(1), 37-57.

Keynes, John Maynard (1936). *The General Theory of Employment, Interest and Money*. New York: Harcourt, Brace.

Kifle, T. (2012). Determinants of saving behavior of cooperative members survey evidence from Tigrai region, Ethiopia. *Journal of Research in Economics and International Finance (JREIF)*, *1*(5), 150-158.

KodomMichaiel (2013).Saving Habit and use of saving among households in GA-East Municipality, Ghana, Legon.

Lawrence K., Benjamin K., Desterio E., Shem A. and George O. (2009). Determinants of Household Saving: Case Study of Stallholder Framers, Entrepreneurs and Teachers in Rural Areas of Kenya. *Journal of Development and Agricultural Economics*, Vol.1 (7), pp. 137-143.

Louis Kuijs (2005). Saving and Investment in China.East Asia Pacific Poverty Reduction and Economic Management.*World Bank Policy Research Working Paper, Beijing, China.*

Marie- Therese Nga (2007). An Investigation Analysis into the Saving Behavior of Poor Household in Developing Countries: With Specific Reference to South Africa.

Mark R. Rosenzweig (2001). Savings Behavior in Low-Income Countries.*Oxford Review of Economic Policy,* Vol.17, No.1.

Maurice Obstfeld and Kenneth Rogoff (1996).Foundations of International Macroeconomics.The MIT press, Cambridge, Massachusett, London, England.

Mustafa Sawani and Seymour Patteson (1987).Informal Saving Practices in Developing Countries.*Journal of International Business and Cultural Studies*.

NagiBairamliand Prof. VassilisKostoglou (n.d).The Role of Saving in the Economic Development of Republic of Azerbaijan.

NakijobaSawuyah(2018). Micro Analysis of the Determinants of Household Savings: Empirical Evidence from Uganda. *International Journal of Innovative Research and Development,* Vol. 7 (1).pp.312-322.

NapapornH., John K., And Werasit S. (1992).The Impact of Family Size on Wealth Accumulation in Rural Thailand.*Population Studies*, Vol. 46, No.1, pp.37-51.

Oliveria, A., Donald. W, Mauricio, B. and Douglas, H., (2004). The Potential for Financial Saving In Rural Mozambican Households.*Saving and Development*, Vol.28, No. 2(2004), pp. 157-178.

PinchaweeRasmidatta (2011). The Relationship between Domestic Saving and Economic Growth and Convergence Hypothesis: Case Study of Thailand, Souderton.

Reddy M, Naidu V. and Vosika S (n.d). Determinants of Household Saving in an Emerging Economy: Market vs. Non-market Factors.

Roald Sand (2002). The Propensity to Consume Income from Different Sources and Implications for Saving: an Application to Norwegian Farm Households. Paper Presented At Work Shop On The Farm Household-Firm Unit: Its importance in agriculture and implications for statistics.

Safo-Kantanka, J. O. (2016). *Savings Behavior of Household Heads In Rural Communities. A Case Study of Shama District in the Western Region of Ghana* (Doctoral Dissertation).

Saliya, A. Y. (2018). Determinants of Urban Household Saving Behavior in Ethiopia: A Survey Study in Mekelle City. *ÜniversiteparkBülten, 7*(2), 82-95.

Sinisa B., Thi Minh C., Hamid E., Aziz A., and Noureddin D (2014). Saving Strategies of Rural Households in Eastern Bosnia.*Original Scientific Paper,* Vol. 15, pp.299-308.

Steve Williamson (1999). *Notes on Macroeconomic Theory*.Department of Economics University of Iowa, Iowa city, IA 52242.

Steven Lugauer, Jinlan Ni and Zhichao Yin (2015). Micro-Data Evidence on Family size and Chinese Household saving rate.

SubhashreeNayak (2013). Determinants and Pattern of Saving Behavior in Rural Households of Western Odisha, India.

Thirlwall, A.P. (2002). The mobilization of savings for growth and development in developing countries.*Icfai University Journal of Applied Economics*, 1(1), 7-30.

Thomas F, Carl E. and Andrew L. (2012).Raising household saving. British Academy Policy Center. Institute for Fiscal Studies, London.

T.M ThulaniNiwanthika (2016). Determinants of Personal Savings: Review Literature.

Touhami A., Florence A., Najat E. and Sabine M. (2010).A Micro Econometric Analysis of Household Savings Determinants in Morocco. Africa Review of Money Finance and Banking, pp7-27.

TsegabirhanWeldegiorigisAbay (2010). Domestic Resource Mobilization in Sub-Saharan Africa: The Case of Ethiopia, Addis Ababa.

Ugo Pica-Ciamarra, Lucas Tasciotti, Joachim Otte and Alberto Zezza (2011).Livestock Assets, Livestock Income and Rural Households.Cross-Country Evidence from Household Surveys. Washington, D.C.

WogeneMarkos (2015). Determinants and Behavior of Rural household saving: A Case of Dale Woreda, Sidama Zone. *International Journal of Multidisciplinary Advanced Research Trends*, Vol. 2, pp.7.

World Bank Economic Review (2005), Vol.14, No.3, pp.393-414.

WorkinehAyenew (2014). Determinants of saving Behavior of Women in Urban Ethiopia, Case Arba Minch Town.*Developing Country Studies,* Vol.4, No.21. Arba Minch, Ethiopia.

Appendix

JIMMA UNIVERSITY

College of Business and Economics

Department Of Economics

Research Thesis for Requirement of MSc Degree in Economics

Survey on Determinants of Saving in rural household in Case of Bako District

Dear respondent, this survey has been conducted by student of Jimma University, department of economics to study **"Determinants of saving in rural household in case of Bako district"**. This information is only used for academic purpose. I have been selected you randomly for this survey. Your participation is the matter for success of this study. However, your participation should be voluntary. Your views and opinions to the questionnaires will be direct to the determinants of savings. Your opinion matters even if you don't inform about the issue and there is no right and wrong answer. I am interested only in your opinion. I anticipate that it not take more than 15 minutes to complete the questionnaire. Your answer will be anonymous and strictly confident throughout the whole survey. Please encircle answer of your choice among the alternative provided for you to show your responses, and write down your opinion, reasons and suggestions in the space provide to complete this research questionnaire.

Name of Enumerator_____

I. Socio-Economic Questionnaires

1. Name of kebele the household head reside in-----------------------------------
2. Sex of household head

   A. Male (=1)   B. Female (=0)

3. Marital status:

   A. single (=0)   C. divorced (=2)

   B. married (1)   D. widowed (=3)

4. How old is the household head? ----------------
5. A number of families in household -------------
6. Can you estimate the age strata of your household members?

   A. from 1 month to 14 years old in number

      i. female----------

      ii. male-------------

   B. from 15 years to 64 in number

      i. female --------------

      ii. male-----------------

   C. 65 years and above in number

      i. female---------

      ii. male-----------

7. please indicate the last grade or year in school which you completed

   A. illiterate   B. primary   C. secondary   D. technical/university

8. Except farming on what work do you participate in?

   A. Trader   B. Carpenter C. Blacksmith   D. Pottery   E.Sewing

Specify if any------------------,-------------------,------------------,--------------------

9. How much land size do you have in hectars? --

10. For what purpose do you use your land?

    A. cultivation   B. grazing   C. both   D. Renting_____(in hectars)

11. If your answer is "A" how much hectars do you use? ---------------------------------------

12. If your answer is "B" how much hectars do you use for it? ---------------------------------

13. The following table consists types of crops so, mention how much do you obtain in quintals per year

Appendix Table 1: Types of crop and amount obtain in Quintals

S.N	Types of crop	Per year obtain (Qtls.)
1.	Maize	
2.	Teff	
3.	Nug	
4.	Sorghum	
5.	Cheese	
6.	Barley	
7.	Wheat	
8.	Beans	
9.	If any specify	

Appendix Table 2: Amount of crops used for consumption and for selling

S.N	Types of crop	Per year consumption (in Qtls.)	Selling per year	
			In Qtls.	(in birr)
1.	Maize			
2.	Teff			
3.	Nug			
4.	Sorghum			
5.	Cheese			
6.	Barley			
7.	Wheat			
8.	Beans			
9.	Sugar cane	------------------------------------	----------	
10.	If any specify			

14. Do you have livestock?

    A. yes   B. no

15. If your answer in question 14 is 'A', list the number and estimate in present value

Type of livestock	in number	present value (in birr)
A. oxen	-------------	-------------------
B. cow	-------------	-------------------
C. donkey	-------------	-----------------
D. sheep	--------------	----------------
E. goat	--------------	-----------------
F. bull	-------------	-----------------
G. horse	-------------	------------------
H. chicken	-------------	-----------------
I. heifer	--------------	-----------------
J. mule	---------------	-----------------

K. specify if any ---

----

16. Do you participate in irrigation activities?

   A. yes   B. no

17. If your answer in question 16 is "A" how much do you obtain per year (in birr)----------------

18. How much income do earned per year?

   A. From crop production (except irrigation income)? ----------

   B. Livestock production?

   C. Non-farm income?

19. From the total income how much do you pay for (in birr)

   A. fertilizer-----------------

   B. seed----------------------

   C. pesticide-----------------

   D. herbicide----------------

   E. for your children education-----------------

   F. health care----------------

   G. for clothes------------------

   H. other consumption expenditure----------------------

20. How much do you pay for tax per year? (birr)----------------, is there transparency between you and tax collector? if "**no**", justify the problems --

21. How much do you pay for annual festivals yearly? -------------------

22. Do have awareness on the importance of saving?

    A. yes   B. no

23. If your answer in question 22 is "A", mention the importance of saving

    ----

II. Information on rural household saving

24. Do you save your income after deduction of all expenditure?

    A. yes   B. no

25. If your answer in question 24 is "A" in what way do you save?

    A. in kind   B. in cash

26. If your answer in question 25 is "A" what kinds do you use to save your income--------------,--------------,-----------,----------------,-----------------------,-------------------------------

27. If your answer in question 25 is "B"; where do you save?

    A. in commercial bank   B. in microfinance   C. in home

 If any specify---

28. Can you guess the distance between a financial institutions and your home?(In KM)----------

29. If your answer in question 27 is "C"; what are the reasons which hinders you to use the modern financial institutions?--

    ----

    ---.

30. If you are saving in commercial bank, from which bank do you obtain account?

    A. Commercial Bank ofEthiopia   B. Oromia International Bank   C. Awash Bank

    D. Cooperative Bank of Oromia

31. If your answer in question 24 is "B" how much do you save per year? ------------------- (birr).

32. Can you borrow?

    A. yes   B. no

33. If your answer in question 32 is "A" from which do you borrowing?

    A. Microfinance   B. commercial bank   C. relative/neighbors   D. If any------------

34. If your answer for question 33 is "A" how much do you pay as interest rate? -----------

35. If your answer for question 33 is "B" how much do you pay as interest rate? -----------

36. If your answer for question 33 is "C" how do you pay as interest rate? -------------------

III. Questionnaires directed to microfinance/commercial banks to get additional information on the saving behavior of rural household.

1. Do you have any information on how the rural households are saving their incomes in your district?

  A. yes   B. no

2. If your answer is "A" what are methods the rural households use in order to save their income?--

3. How much households are saving in your financial institution?

4. What are the mechanism do you use to encourage the rural households save their income?

5. What is the awareness of households having on the use of modern financial institution?

6. Do the rural households have the problems on the use of modern financial institutions?

  A. yes   B. no

7. If your answer is "A" please mention the problems;

----

8. Can you lending for rural households?

    A. yes   B. no

9. If your answer for question 7 is "A" for how much households can you lending per year? ----

10. To get your lending; what are the criteria should the household fulfill? please mention:

Thank you for your cooperation in advance!

Appendix Table 3: OLS regression results

```
. reg sav sex marst age famz Dr edu landz inc TLU tax Expfest distanb savp age2
```

Source	SS	df	MS
Model	3.5995e+09	14	257106628
Residual	608993374	132	4613586.17
Total	4.2085e+09	146	28825247.7

Number of obs = 147
F(14,   132) =   55.73
Prob > F   = 0.0000
R-squared   = 0.8553
Adj R-squared = 0.8399
Root MSE   = 2147.9

sav	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
sex	1033.764	1320.635	0.78	0.435	-1578.582 3646.109
marst	393.9277	713.3186	0.55	0.582	-1017.087 1804.942
age	-416.1137	145.893	-2.85	0.005	-704.7045 -127.5229
famz	-429.7068	104.1141	-4.13	0.000	-635.6548 -223.7588
Dr	7.089276	4.392926	1.61	0.109	-1.600367 15.77892
edu	-286.5998	270.5781	-1.06	0.291	-821.8301 248.6305
landz	-951.1852	338.3233	-2.81	0.006	-1620.422 -281.9483
inc	.8081527	.0357685	22.59	0.000	.7373991 .8789064
TLU	-457.126	99.55143	-4.59	0.000	-654.0485 -260.2034
tax	-.9710243	.3061603	-3.17	0.002	-1.57664 -.3654091
Expfest	-.6850989	.2655536	-2.58	0.011	-1.21039 -.1598076
distanb	-16.19164	14.85585	-1.09	0.278	-45.57798 13.1947
savp	39.91268	253.7274	0.16	0.875	-461.9852 541.8106
age2	3.884635	1.305799	2.97	0.003	1.301636 6.467634
_cons	7672.268	4575.242	1.68	0.096	-1378.014 16722.55

Testing Multi-Collanearity among Variables

```
. corr sex marst age famz Dr edu landz inc TLU tax Expfest distanb savp age2
(obs=147)
```

	sex	marst	age	famz	Dr	edu	landz	inc	TLU	tax	Expfest	distan
sex	1.0000											
marst	-0.9574	1.0000										
age	-0.1208	0.1251	1.0000									
famz	0.1676	-0.1845	0.2427	1.0000								
Dr	-0.1710	0.2081	-0.0103	-0.0115	1.0000							
edu	0.3225	-0.3117	-0.4737	-0.1221	-0.1930	1.0000						
landz	0.0794	-0.0770	0.4257	0.4456	-0.0788	-0.1018	1.0000					
inc	0.2082	-0.1945	0.1298	0.4280	-0.1533	0.2171	0.6058	1.0000				
TLU	0.0913	-0.0576	0.3786	0.3723	-0.0885	0.0108	0.5496	0.6065	1.0000			
tax	0.1141	-0.1062	0.2062	0.2192	-0.1172	0.1835	0.3918	0.4694	0.3475	1.0000		
Expfest	0.2484	-0.2489	0.1021	0.4516	-0.0177	0.0871	0.4258	0.4653	0.2233	0.2459	1.0000	
distanb	-0.1194	0.1020	-0.0448	-0.1069	-0.0935	0.0882	-0.0605	-0.0695	0.0746	0.1414	-0.1509	1.000
savp	-0.2473	0.2386	0.2616	0.0574	0.1892	-0.4836	0.0443	-0.2659	-0.0256	-0.1689	-0.0422	0.070
age2	-0.1172	0.1234	0.9947	0.2262	0.0093	-0.4525	0.4212	0.1277	0.3857	0.2054	0.0818	-0.035

Testing Heteroskedasticity

```
. hettest
```

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
        Ho: Constant variance
        Variables: fitted values of sav


        chi2(1)     =    51.65
        Prob > chi2 =   0.0000
```

Testing omitted variable

. ovtest

Ramsey RESET test using powers of the fitted values of sav
        Ho: model has no omitted variables
                 F(3, 129) =   38.68
                  Prob > F =   0.0000