THE DETERMINANTS OF SAVING CULTURE: A STUDY ON SAVING AND CREDIT COOPERATIVE IN DOYGANA WOREDA, KAMBATA TAMBARO ZONE, ETHIOPIA.

HENOK GEREMEU GIZAUW

WOLKITE UNIVERSITY, WOLKITE, ETHIOPIA

JANUARY, 2020

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HENOK GEREMEU GIZAUW

MAJOR: ZERIHUN BIRBIRSA (PHD)
CO-ADVISOR: SAMUEL GEMECHU (MBA)

A THESIS SUBMITTED TO THE
DEPARTMENT OF MANAGEMENT,
WOLKITE COLLEGE OF BUSINESS AND ECONOMICS, SCHOOL OF GRADUATE STUDIES

WOLKITE UNIVERSITY
WOLKITE, ETHIOPIA

IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE
DEGREE OF

MASTER OF BUSINESS ADMINISTRATION

JAN, 2020

Declaration

I hereby declare that this MBA specialty or equivalent thesis dissertation is my original work and has not been presented for a degree in any other university ,and all source of material used for this thesis/dissertation have been duly acknowledged.

Name: Henok Geremeuw Gizauw

Signature _____

Date_____

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_____	_____	_____
Name of major advisor	Signature	Date
_____	_____	_____
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As members of the Board of Examiners of the final master's degree, we certify that we have read and evaluated the thesis prepared by Henok Geremeuw under the title Determinants of saving culture at saving and credit cooperative in Doyagena woreda, Kambata Tambar zone, Ethiopia'' and recommend that it be accepted as fulfilling the thesis requirement for the degree of master with specialization in master of business administration.

_____	_____	_____
Name of the Chairperson	Signature	Date
_____	_____	_____
Name of Internal Examiner	Signature	Date
Busha Temesgen (Dr.)_____	___ __	Feb. 19, 2020_
Name of External Examiner	Signature	Date

Final approval and acceptance of the thesis is contingent upon the submission of the final copy of the thesis to the School of Graduate Studies (SGS) through the Department/ School Graduate Committee (DGC/SGC) of the candidate's department/school.

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_____	_____	_____
DGC/SGC	Signature	Date

ACKNOWLEDGMENTS

All praise and thanks to God, the Lord of existence, the most Gracious, the most Merciful. First, I would like to express my deepest gratitude to my advisors, Dr. Zerihun Birbirsa (PhD) and Samuel Gemechu (MBA), for his fruitful support, invaluable comments and guidance at various stages of the study. I would like to express my deepest thank for those who have paid the price, my dear wife – Lemlem and my special daughter, Biruktete Henok, You really paid the price. Thank you so much for your priceless support and patience, really. I would also like to convey my sincere thanks to my parents, especially my mother Faintish Gomosa as she was there from the first day till now in all aspect. Last but not least; this paper has been made possible through the direct and indirect support and cooperation of various persons for whom I wish to express my appreciations and gratitude especially to my friend Qidmach kifaluw, saving and credit cooperatives members and cooperative office experts .

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LIST OF ACRONYMS

ASCAS	Accumulation Savings and Credit Association
DOWCO	Doyagena Woreda Cooperative Office
GDP	Growth Domestic Product
GTP	Growth and Transformation Plan
LPMA	linear probability model
MFIs	Microfinance Institutions
MoFED	Ministry of Finance and Economic Development
MLE	Maximum Likelihood Estimation
OLS	Ordinary Least Squares
SACCOs	Saving and Credit Cooperatives
RUSACCOs	Rural Saving and Credit Cooperatives
ROSCA	Rotating Savings and Credit Association
UN	United Nation

ABSTRACT

Saving is the strategic variable in achieving financial security and growth affecting both individual and national wellbeing. However, saving level in Ethiopia particularly in rural areas is limited and little is known empirically about its factors. This study was initiated with the objective of identifying the determinates of saving culture used by rural households and identifying major factors affecting rural households' savings in Doyagena woreda, Kambata Tambaro Zone, Ethiopia. primary data for the study were obtained through the use of Semi-structured interview questionnaire from 217 respondents systematically selected by stratified sampling technique from four rural Keble saving and credit cooperative. In order to achieve the objectives, a study was used qualitative research approach. For the purpose of data analysis, frequency distribution, mean, standard deviation, chi-square test, t-test and Binary logit econometric model were used. Nine variables included in the study, which are gender, age, education, income, access of credit, distance, training, interest rate and financial literacy. From the Binary logit results that income, education, finical literacy, training, gender (being male), positively and significantly affects household saving. However, the study also found that other determinants of household saving like distance of the household head (Households reside in the rural area), access of credit and people in the old age negatively and significantly affects household saving while interest rate is insignificant variable. Based on these findings, the researcher recommended that emphasis should be given towards strengthening different educational opportunities (formal and non-formal education),and financial institutions should provide saving services by establishing satellite branches reasonably near to the rural households' residences to promote rural households' savings. Moreover, SACCOS should put strategies to diversify the income of member's and policy interventions should center on increasing awareness to inspire members saving. Therefore, emphases have to be given in designing strategies for awareness to bring change in members' saving culture in the study area.

Keywords**: **RUSACCO, Saving, saving culture

CHAPTER ONE

INTRODUCTION

This chapter consisted of background of the study; statements of the problem, basic research question, objective of the study, scope and limitation of the study, significance of the study, and organization of the study.

1.1. BACKGROUND OF THE STUDY

Saving is the strategic variable in achieving financial security and growth affecting both individual and national wellbeing. Saving is about income that is not consumed by immediately buying goods and services (Prinsloo, 2000; Manyama, 2007). Saving constitutes the basis for capital formation, investment and growth of a country (Nga, 2007; Nwachukwu and Odigie, 2009).

According to Popovici (2012) unexpected events in the life-cycle of individuals make saving an important element in fulfilling the financial gap. Household savings could be intended to address household expenditure but rural households are constrained due to seasonality of cash flows, work culture and income; as a result of which saving is seasonal and irregular, too. Saving culture is also critical for individual welfare in that, at individual level it helps households smoothen their consumption and finance productive investments in human and business capital Karlan *et al.* (2013).

Saving has been considered as one of the factors affecting growth to lead the developing countries to the path of development. Saving is an important factor of households' welfare in developing countries. On the other hand, without savings, households have few other mechanisms to smooth out unexpected variations in their income. For individuals and households savings provide a cushion of security against future contingencies whereas for nation savings provide the funds needed in the developmental efforts (Abebe, 2017).

Although household saving is meant to cover consumption expenditure at large households in developing countries in general are financially constrained due to seasonality of cash flows, poor saving culture and the resulting low income that makes saving seasonal and irregular, too. Mobilization of saving is also critical for household welfare in that it helps households' smoothen their consumption and finance productive investments in human and physical capital

(Karlan *et al.*, 2013) as cited in (Bogale, 2017). In addition, saving enable households to maintain a relative stable life time level of living. It is also likely that households refrain from current consumption to save for payment for children's education (Yao *et al*., 2011).

In many developing economies particularly Africa, saving and investment are necessary engines for capital formation hence economic growth. It has been argued that saving constitutes the basis for capital formation and capital formation constitutes a critical factor of economic growth. Available statistics however indicate low saving culture base and investment in this part of the world (Issahaku, 2011). As a result, economists, international organizations, and governments in developing countries have placed increasing emphasis on the saving culture to increase rural households' savings and achieve sustained economic growth and development (Kifle, 2012).

Rural households' savings in developing countries particularly in Sub-Saharan Africa remains limited and far behind from other parts of the world. Chaia *et al.* (2009) combine a number of data sources to estimate that only about 20% of households in Sub-Saharan Africa saved their money in formal financial institutions. This is due to high levels of unemployment, low level of income, the engagement of a large proportion of the population in the informal sector and poor performance of the economy (Karim, 2010).

Similarly, in Ethiopia rural households' savings is found to be limited and only six million households save money in formal financial institutions with an average of 875 Birr per year (Aron *et al.*, 2013). The average share of gross domestic saving in the year 2012 was 12.4% of the GDP (Girma *et al.,* 2014). The average gross saving rate as percentage of GDP of Ethiopia was also 21% (Tsega and Yamane, 2014). Recognizing this fact, the country has planned to promote rural households savings among citizens so as to mobilize adequate saving. In the five years Growth and Transformation Plan (GTP) of the country, it is envisaged to increase saving rate of GDP. The strategy of the government that have been indicated to mobilize domestic saving resource are creating enabling environment such as increasing financial sector accessibility to rural areas and service diversification by financial sector (MO FED, 2014).

Analysis of saving culture and its parameters at micro level is crucial in that without such microeconomic data, it is very difficult to interpret aggregate savings trends at national level (Orazio and Miguel, 2013). The national saving rate statistics that forms important part of capital

accumulation for economic growth are the aggregated result of household saving. Thus, it is important to study the saving culture of households to interpret aggregate results.

According to the annual report of Doyagena woreda cooperative office (DOWCO,2017), even though there is some progress in saving culture from time to time, substantial effort is required at all levels to bring the fragmented savings available at the rural areas to the financial institutions. In the rural area where banks are not expanded and the majority of the rural population has no access to formal banking institutions, In this regard, understanding the nature of household saving culture is critical promote savings and investment. Without savings, households will have few mechanisms to smooth unexpected variations in their income. Since saving is one of the few means of accumulating assets in the absence of credit and insurance markets, the capacity to save becomes critical for increasing social mobility and enhancing future income-earning possibilities. As such it is important to examine the determinants of saving culture of members in rural saving and credit cooperative in Doyagena woreda.

1.2. STATEMENT OF THE PROBLEM

Globally, rural households' savings is growing in some developing countries. For example, in China and Bangladesh but the situation is not the same in most African countries. With this regard, researches done in developing countries, particularly in sub-Saharan Africa, indicated that many rural households have poor saving culture. As a result, low level of household saving culture is said to be one of the reasons for slow and stagnant economic growth in the developing countries (Devaney, 2014). Similarly, in Ethiopia rural households low saving culture is a series problem and formal financial saving is found to be limited (Dereje, 2010).

Ethiopian economy faces resource (financial) gap where the savings-investment gap has been widening from an average of 1.1% of GDP during the Imperial period (1960-74) to 6% of the GDP during the Derg period(1974-91) and further to 11.7% of the GDP in the EPRDF (Tadese,2011). So, saving is more of meant for meeting contingencies but sometimes it also acts as a form of investment for households. But people are not inclined towards saving due to a very delicate reason for lack of awareness and other socio culture factors (Tsega and Yemane, 2014).

The saving culture of the society in general is poor despite the performance improvement of saving rate from 6 percent in 2006 to 9.5 percent in 2011 which is the poorest saving rate in the

world and even in the Sub-Saharan countries the cause of which are many and diversified. In Ethiopia, majority of the population is living in rural sector where there is limited access to financial institutions. The financial sector was found to be not effective to reach the rural societies at the same time with lower transaction cost (Tsegabrihan, 2009).

The saving culture in Ethiopia particularly in rural areas is very low and little is known empirically about its patterns and determinants. Savings in rural Ethiopia are mainly made out of the income from agricultural activities. It is also characterized as seasonal and irregular as the cash flow through sale of agricultural product and availability of work is seasonal. This reduces their financial capacity to save or poorly respond for incentives that promote savings culture in the Country (Teshome, Kassa *et al*., 2013).

Doyagena woreda annual report (2017), the woreda has important income generation potentials but their contribution to livelihood of households is very limited. Most income generation activities are geared towards satisfying daily needs. Savings should affect food security through its impact on access to food through mechanisms that affect a household's ability to purchase and/or produce food. Woreda annual report indicates that (DWCO, 2017), the financial outreach of the rural farm household in the woreda is limited. The report indicated that about 65 percent of active working age populations need a service from financial institutions. Besides to this, household saving practice and culture in Doyagena is very low and found at worst level, no adequate practice has been performed to educate the community about saving culture. This was happened due to lack of adequate empirical result about the public savings practice and factors hindering the public to save. One observes inadequate and fragmented savings in the rural areas of the woreda (DWCO, 2017). Moreover, formal banks are not available and thus mobilization of saving is usually conducted by informal financial institutions. There is no study conducted on microeconomic level on the determinants of household saving culture in Doyagena Woreda.

Therefore, this study attempts to fill the gap by investigating the determinants of saving culture of RUSSACOs members and focused on analyzing the data using Binary Logit model to show clearly the determinants of saving culture in case of RUSACCOS members qualitatively in Doyagena woreda.

1.3. RESEARCH QUESTIONS

There are many questions concerning household saving culture remain unclear yet. This research was conducted to answer the following basic questions in the study area.

1. Does saving culture determine household saving practice in Doyagena woreda?
2. How factors affecting saving culture in RUSSACCOs?

1.4. OBJECTIVE OF THE STUDY

1.4 .1.GENERAL OBJECTIVE

The general objective of this study was to investigate the basic determinants of household saving culture at saving and Credit Cooperative in Doyagena Woreda, Kamala Zone.

1.4.2. SPECIFIC OBJECTIVE

1. To describe the characteristics of saving culture in RUSSACCOs.
2. To identify factors affecting saving culture in RUSSACCOs

1.5. HYPOTHESES OF THE STUDY

Hypotheses for this study were developed based on the studies conducted by researchers and different variables identified.

$H_{1:}$ Age has significant impact on saving culture of Sacco's members.

$H_{2:}$ Gender has significant impact on saving culture of Sacco's members.

$H_{3:}$ Education has significant impact on saving culture of Sacco's members.

$H_{4:}$ Training has significant impact on saving culture of Sacco's members.

$H_{5:}$ Financial literacy has significant impact on saving culture of Sacco's members.

$H_{6:}$ Distance has significant impact on saving culture of Sacco's members.

$H_{7:}$ Income has significant impact on saving culture of Sacco's members.

$H_{8:}$ Loan has significant impact on saving culture of Sacco's members.

$H_{9:}$ Interest has significant impact on saving culture of Sacco's members

$H_{9:}$ Interest doesn't have significant impact on saving culture of Sacco's members

1.6. SIGNIFICANCE OF THE STUDY

This study has far-reaching significances in empirical investigation of household saving culture and economic development. The study findings help to understand the saving culture of households; provide empirical evidence about households saving culture that can be used to members and teach the community; and contribute to pervious literature gap by developing a conceptual understanding of saving culture of households.

The study would be of great value to the saving and credit cooperative at Doyagena wordas. The study also provided research findings concerning the area of study. Saving and credit cooperative would benefit from this in that individuals will get information on the relevant channels of saving their income so as to improve their saving culture.

This study has importance through providing adequate information for saving and credit societies, cooperative promoters', development workers and other stakeholders about how to make RUSACCOs operationally efficient. Other researchers will also benefit from this study as they will use the information given in this study to come up with conduct other future research.

1.7. SCOPE

This study was geographically limited to Doyagena and also only covers saving and credit cooperatives determinate factors to become operationally effective and their future prospects for development. However, this area specific study may not be a guarantee to generalize beyond this study area.

1.8. LIMITATION OF THE STUDY

Moreover, getting reliable data were been difficult due to unavailability of well documented and organized secondary data. But great effort has been made to convince the sample respondents about the objective of the study and give promises to keep the information given confidential.

1.9. ORGANIZATION OF THE THESIS

The thesis was organized into five main chapters. The first chapter focused mainly on the background, statement of the problem, research questions, objectives, hypothesis, significance, scope and limitation of the study. Relevant literature related to the study was reviewed in chapter two are introduction Theoretical Literature Review, empirical literature review, variable identification and conceptual framework. Thirdly, chapter three focused with the description of the study area, research design, and methods of the study. And chapter four includes data analysis and interpretation. As well as finally chapter five focused on conclusion and recommendations.

CHAPTER TWO

RELATED LITERATURE REVIEW

2.1. INTRODUCTION

This section is prepared based on the research objectives. The first part reviews the theories which are relevant to the study objectives. Then, it analysis the relevant literature as available that focuses on determinants of saving culture. This chapter widely explores empirical literature on gender, age, education, financial literacy, income, interest rate, credit access, distance, and Training.

2.2. THEORETICAL LITERATURE REVIEW

There are several hypotheses of saving that are implied from consumption theories (hypothesis) as the amount of income not consumed is saved. These include the Keynesian Absolute Income Hypothesis, the Duens berry's Relative Income Hypothesis, Friedman's Permanent Income Hypothesis, and Modigliani Life Cycle Hypothesis. These hypotheses are discussed very briefly as part of theoretical literature.

The Keynesian absolute income hypothesis asserts that individuals save out of their current income to smooth the expected consumption over time. The effect of the defensive savings is realized through its impact on current consumption, as individuals postpone their current consumption in order to maintain the utility level of consumption in the future if income drops (Njung'e, 2013). Thus saving is only possible if someone has more than enough to meet the basic needs and can only save what is left after paying for such basic needs(Otto,2009, as cited in Michael, 2013).

Keynes (1936) developed the absolute income hypothesis. The theory posits positive relationship between absolute income and saving. Such proposition is supported by much empirical evidence. This finding is consistent with the view that saving rise after income exceeds subsistence consumption. This finding challenges the recent revolution of microfinance institutions to mobilize micro-saving from the poor. The implication of this finding is for Financial Institutions to target the middle and high income groups for saving mobilization and reduce the pressure to mobilize micro saving from the poor.

According to relative income hypothesis of Duisenberg higher growth rates lead to higher saving rates, which is inconsistent with the lifecycle or permanent-income theory, since the Lifetime resources of an individual increases as growth rate increases (Nayak, 2013).

The permanent income hypothesis on the other hand states that people will spend money at a level consistent with their expected long term average income. A household will save only if his or her current income is higher than the anticipated level of permanent income, in order to guard against future declines in income. According to this hypothesis, income growth is one of the primary determinants of domestic saving through its effect on the lifetime income of working population. This is because, higher rate of income growth raises the aggregate income of active workers relative to those not earning labor incomes and this will raise the life time sources of workers on which consumption and saving depends (Nayak,2013).

Modigliani & Brumberg (1954) developed the life cycle hypothesis. The theory assumes no bequest motive and the individual aim at zero saving during the whole life; saving in one period of life will be matched with is saving in another. With the assumption of rising income, individuals should borrow when young, save for retirement when middle aged and dissave when retired (Deaton, 1992). With the life cycle hypothesis, age of an individual has a role in consumption and saving. The life cycle hypothesis is supported by much empirical evidence. Thus financial institutions that target households for saving should focus on middle age and working groups. Freidman (1957) developed the permanent income changes. The theory states that permanent income changes (shocks) are consumed and temporary income changes are saved. However, the empirical evidence is contradictory with some studies support the permanent income changes and others reject it.

Finally, Franco Modigliani and Richard Brumberg's life-cycle hypothesis presume that individuals base consumption on a constant percentage of their anticipated life income. With population growth, there are more young people than old, more people are saving than are not saving, so that the total not saving of the old will bless than the total saving of the young, and there will be net positive saving. If incomes are growing, the young will be saving on a larger scale than the old are not saving so that economic growth, like population growth, causes positive saving, and the faster the growth, the higher the saving rate (Nayak, 2013). The life cycle hypothesis identifies growth in per capita income as one of the important determinants of

saving rates, because people are forward looking and base their savings decisions on lifetime income. But in reality the current level of income also plays a significant role in explaining saving behavior (Ahmad and Hussein, 2010).

2.3. Importance of Saving Culture

The financial sector plays a vital intermediary role in channeling resources from the unproductive use (resource suppliers) to its productive use (resource demanders). The system of financial intermediation can affect economic performance and growth directly through the role it plays in resource allocation. Financial sector development is at the heart of resource mobilization, industrialization, boosting investment and accelerating economic growth. In particular, the financial system can affect saving and investment decisions and hence capital accumulation and technological innovation by reducing information and transaction costs, creating mechanisms of risk sharing, facilitating trade and payments among economic agents and providing various supporting services. The study of saving culture has a contribution to change personal culture and economic growth in the country. Credit and Saving Institution take more shares in serving clients in the market (Befekadu, 2007).

It is emphasized that importance of understanding saving culture for several reasons having national and individual dimensions. The national dimension is that household saving is the main sources of investment for both government and corporate sectors. But individual saving has only short and long term goal mainly financial security. So, the national dimension will result in GDP growth and this in turn leads to rise in households' income that could bring higher households saving. The approach is true for India as it has been elsewhere in Asia (Rajesh, 2013).

2.4. EMPIRICAL LITERATURE REVIEW

2.4.1. Financial institutions and mobilization of household saving

Formal financial institution that was engaged in saving and credit/loan service deliveries in rural communities. Such institution is formal in that it possesses modern accounting and reporting systems that could help evaluate their performances every time. The saving and credit cooperatives have been considered as main type of formal institutions that have involved in saving mobilization in Africa. However, the main problems of such institutions to handle the poorer households' saving needs and mobilizing issues particularly that of the poor in rural areas

of developing countries is constrained by limited access to the rural poor, distance from members, lack of trust due to awareness problems by households and inadequacy of formal institutions (Birhanu, 2015).

According to Egwu and Nwibo (2014) rural women in sub-Sahara African found it difficult to increase their agricultural production and processing due to the lack of collateral to obtain fund from financial institutions to expand production as household property and security belong to the man who invariably are regarded as the head of the household. Access to financial services deeply helps the pro-poor to manage their financial resources and relieve them from abject poverty. However, providing financial service requires sound and sustainable financial institution that understands the financial needs and service requirements of the pro poor. The significance of deposit service to the poor is as important as loans services if they are given due attention and tailored to the saving patterns of the poor (Woldemichael, 2010).

Most people in Ethiopia make little or no use of the formal savings and lending institutions. Some use informal institutions that occur within the informal sector of the economy. We know that saving in the informal institutions did not yield interest for the depositors and so could not help for mobilizing resource. As a result it is not used for investment to yield income and, of course, most of the time depositors have expected to pay for saving service to their changing financial needs. In developing countries we observe a variety of informal institutions that enable transactions which are particular to the poor (Birhanu, 2015).

According to Woldemichael (2010) access to deposit services in financial institutions enables the poor to efficiently manage their financial resources. It helps in consumption smoothing during economic shocks and provide an opportunity to accumulate large sums of money for future investment and household outlays. In Ethiopia, for centuries, partly due to inaccessibility of commercial bank branches, absence of postal saving services and lack of strong cooperative movement, deposit services to the poor has been largely dominated by widely accepted and practiced informal mechanisms such as *'Iqub*', '*Iddir'*, buying livestock and jewelry and hiding cash at home. The aim of the financial institutions during the GTP period has been establishing an accessible, efficient and competitive financial system. In relation to this, emphasis has been given to strengthening modern payment and settlement system, developing access to financial

services, supporting the bank system with modern technology and extending the information exchange system to microfinance institutions, among others (MO FED, 2014).

The household head living area was another independent variable expected to affect its saving culture. The living area was categorized as rural and urban districts. According to the result of this study, there is no significant relationship between household saving culture and household head living areas. This finding is inconsistent with the preceding research findings (Abdelkhalek *et al.*, 2009). The reasons for these contradictory conclusions might be due to the current similar awareness of saving and better access to financial institutions between rural and urban households.

Sebhatu (2012) also indicated that as financial institutions are far to the households' house, they would have been spent more resources (time, labor) to access financial products and services. According to the result of this study, there is significant relationship between household saving culture and household head living areas.

More importantly, the longer distance from the finical institution likely to discourage the households from participating in market oriented production that increase their income and possible encourage to save in financial institutions (Essa et al., 2012). The expected effect on saving was negative.

2.5. 2.Determinates of Saving

People, who save more regularly, as opposed to those who do not, will be more likely to have positive individual saving culture. Saving regularity would likely lead to higher probability of having positive saving shows that saving regularity is significantly related to the probability of having positive saving. Regularly setting aside part of income as saving would likely lead to higher probability of having positive saving. (Mahdzan and Tabiani, 2013).

Researches on factors affecting rural households savings on micro data drawn from the developing countries has lagged far behind the pace set in advanced nations. It would appear that there has been limited hypothesis testing in the developing countries beyond macro formulations of the consumption function. Furthermore, very little of the development literature attempts to isolate the impact of personal saving, since few studies provide meaningful disaggregation (Kelley and Williamson, 2009).

Besides, few studies assess the factors of savings at the individual level generally due to the lack of data. Turner and Manturuk (2012) examined how individual, institutional, and structural determinants the decision-making processes that guide households' savings in New York. The results showed that individual factors such as obligation to family, upbringing affect households' toward savings and their confidence in their ability to save. Institutional factors such as incentives, disincentives, and organizational culture shape households' trust in financial institutions and their willingness towards participating in savings programs was studied.

A household study on determinants of saving asserts that three factors were influence household saving behavior in Africa. One of these was the ability to save which in turn depends on a household's disposable income and expenditure. The second was the propensity or willingness to save as influenced by socio-cultural and economic factors like the family obligation to educate children. The third one was the opportunity to save and returns on savings. In addition, household size has a negative effect on household savings suggesting that larger household are more resource constrained than small ones with disposable income and consequentially a lower level of savings (Newman et al., 2008; Orebiy`s et al., 2005).

Net Savings may be more appropriate than gross savings when concern is growth rates and development, since net saving indicates domestic resources available for additions to the capital accumulation (Collins, 1991). The role of savings in the development process is well documented in the literature of economic growth. Low level of domestic savings is said to be one of the reasons for slow and stagnant economic growth in the developing countries (Agrawal et al., 2010 and Bordoloi and John, 2011). Thus, the revival of growth in emerging economies can be expected to require more investable resources for sustainable growth. Though international capital flows (foreign savings) are encouraged for the additional resources, the primary contribution for investment in developing countries like Ethiopia comes from their own savings.

Household composition, individual characteristics, demographic, economic and social features of households affect saving pattern and culture of households in a given society. The variations in such factors lead to variations in national saving rate over time (Schultz, 2005). In Ethiopia reports indicated that about six million households save money in financial institutions with average of 875 Birr per year. The saving rate as percentage of GDP is 9.5 which is very low as compared to that of China, Bangladesh and South Africa (Aron et*al.* 2013).

Fernandez et al. (2009) investigate the determinants of savings from eight countries in Europe. In accordance to the life-cycle economic approach that people tend to save more as they reach retirement, they have found that age has a positive impact on savings. Furthermore, the results show that the probability to save is rising with age, but at a progressively lower rate.

Historically, marriage has been viewed as a source of financial security continues to be a determining factor for economic well-being. Pooling resources for a married couple may provide a cushion for them to accumulate assets without going under in times of crisis. The expected effect of rural household saving on single households was negative (Grinstein-Weiss *et al*., 2006).

The Age is another important factor influencing saving culture in many empirical studies. The elderly and young are expected to consume out of post saving while those within the working age are expected to accumulate saving (Quartey &Blank son, 2008). Moreover, the study by Hussein (2007) on the culture of farm household saving in Ethiopia (South East) showed that the age is highly significant in determining the saving rate of farmers.

Akpokodje et al (2014) conducted a study on determinants of household savings in Nigeria. They found out that the effect of age and dependency ratio as demographic characteristics on saving is mainly derived from the life-cycle model which postulates that when the share of the working population relative to that of retired persons' increases, savings is likely to increase. They concluded that the youth and the elderly have low incomes and low savings. Those in middle age have higher productivity, income and save more.

Rehman et al. (2010) investigated the determinants of households saving in Multan district of Pakistan. Data of 293 respondents were drawn through field survey in 2009-2010 by adopting stratified random sampling technique. Questions were asked directly from head of household about their education level, family status, age, region of residence, assets, income etc. Sample contains information about rural and urban households. To observe households saving culture in Pakistan especially in Multan district, they have practiced Multivariate regression model. The study analyzed the determinants of household savings based on data collected from Multan district through stratified random sampling technique in 2009-2010. They have found that their study supported life cycle hypothesis. Age has positive relationship and square of age is negatively related to household savings. Education of household head, children's educational

expenditures, family size, liabilities, marital status and value of house are significantly and inversely affecting household savings.

Newman et al. (2008) investigated the determinants of household savings in rural Vietnam. Cross Sectional data of 2324 households from 12 provinces of Vietnam were taken by Vietnam Access to Resources Household Survey (VARHS) in 2006. They did percentage analysis on collected data and concluded that wealthier households were more likely to save; negative effects of age of household head were found; no education effects were found; financial savings were low and share of formal savings were relatively small in rural Vietnam. It was suggested that Govt. should improve savings institutional framework.

Issahaku (2011) identified the age composition and assets do not have a major effect on saving. The factors that make household investment are occupation, expenditure, assets and saving. Any assessment or policy pertaining to finance and development by government, the private sector or financial institutions geared towards improving saving and investment in Nadowli must integrate these factors. Primary data were collected from the households of Nadowli. Interviews and discussions were vigorously pursued with sample households and this was mainly geared towards resulting appropriate responses to some of the frequently asked questions about saving and investment. This paper studied on a microeconomic approach of estimating the determinants of financial saving and investment in one of the most underprivileged district capitals in Ghana, the Nadowli in the Nadowli District of the Upper West Region. Two separate compound linear regression models were fixed for saving and investment. The variables used saving, investment, household income, dependents, assets, educational status as the determinants of saving. The paper found that age composition and assets do not have a significant effect on saving. The factors that constrain household investment are occupation, expenditure, assets and saving. In view of the untold of saving and investment potentials in Nadowli, the government, financial and non-financial institutions and other corporate bodies have a part to play to obtain advantage of these potentials and opportunities.

Abid and Afridi (2010) assessed the household savings culture of urban and rural household in district Muzaffarabad in Pakistan. The Dependent variables was the urban and rural household savings and income, total family size, distance and education of the household on savings form was independent variables .Results specified that income and distance have positive education

and family size have negative effects on savings culture of household .The analysis concluded that there was a strong relationship occurs between saving culture of household and recommended variables.

Floro and Seguin (2012) studied the gender effects on aggregate savings by investigating the hypothesis that shifts in women's relative income, which affects their bargaining power in the household, have discernible effects on household saving, and by extension on aggregate saving due to differing saving propensities by gender. An analytical framework for pooled and non-pooled savings households was developed to examine why women and men's saving propensities may differ and how a change in women's wage earnings relative to men's influences household savings which constitutes a significant component of gross domestic saving. An empirical analysis was conducted using panel data for a set of 20 semi-industrialized economies, covering the period 1975-95. The results indicate that as some measures of women's discretionary income and bargaining power increase, aggregate saving rates rise, implying a significant effect of gender on aggregate savings. These findings demonstrate the importance of understanding gender relations at the household level in planning for savings mobilization and in the formulation of financial and investment policies.

However, the findings by Gina *et al*., (2012) indicated that education, employment, level of social support, and degree of economic strain have a weak association with saving among rural, low-income individuals in Africa. Ndikumana (1999) found out that financial development in sub-Sahara Africa represented by the structure, nature and relative size of financial instruments and financial institution in a country is an important factor in enhancing the mobilization of saving and channeling of saving into productive investment sector.

Education has been included as a proxy for human development which increases the human productivity and capabilities, thereby increasing personal income as well as savings (Zhanget al., 2013). This is the indirect positive effect of education on saving culture through increased income. On the contrary, Kulikov et al. (2007) found that education as a human wealth ensures employability and stability of income and, hence, it can have negative impact on saving. Education can affect saving directly through financial literacy. Higher financial literacy also will result in higher saving (Browning & Lusardi, 1996). Financial literacy enable people to know the

risk and return characteristics of different financial products and it also enable them to understand the complex procedures used in accessing financial products.

Economic features of households such as income are also important factors at affecting the household saving. Different studies confirmed that an increase in income was found to increase saving significantly. For instance, the study by Popovici (2012) indicated that an increasing income increased the level of total savings by1.7 percent. Moreover, Nwanchukwu and Egwaikhide (2007) found that income has a positive and significant effect on the private saving in Nigeria. In the same manner, the change in livestock holdings in TLU, access to credit, training participation, contact with extension agents, choosing saving institution and saving motives increases the level of household savings by 1044.47, 2631.3, 1388.83, 109.29, 2538.88, and 4463.67 Birr among the savers household, respectively (Girma *et al*.,2013).

Ersado et al., (2010) investigated the fluctuations in household consumption and savings culture before and after economic shocks in Zimbabwe, which have a low income country with 67% of its population living in rural areas. The major tremors of the economy in 1990s contain drought and macroeconomics alterations. The survey were undertaken by the central statistical office (CSO) and the data were comprise on socio demographic characteristics, incomes, incomes from household together with agricultural consumption and other expenditure on weekly basis .Durable and nondurable items on a monthly or yearly basis. It concluded that the changes in consumption and savings culture before and after the scarcity and structural changes. Aside this various studies examined that how a rural and urban population care for itself against income difference and to what amount the people use savings to charming consumption in comeback of sudden shocks, often due to weather inconsistency (Deaton, 1992; Paxson, 2001, Kazianga and Udry, 2006). A number of studies of (McKiernan, Radcliffe, and Vino pal, 2009) concluded that Assets play the significant role for low income families by experiencing financial hardship payments, and food insecurity.

Kibet *et. al* (2009) analyzed determinants of saving culture by smallholder farmers and entrepreneurs in Kenya by using multiple regression analysis. One of his findings indicated that interest rate on deposits has some positive influence on the saving culture of farmers. Increase in interest rates is expected to motivate farmers to save since it implies that they get better returns

on their saving. The rate of interest determines the saving rate of the individuals on a view to encourage people towards saving (Nayak, 2013).

Mahlo (2011) estimated the relationship between household savings and interest rate in South Africa and his result showed that there was a positive relationship but Simleit *et al.* (2011) found a negative effect on rural household savings. In most cases the interest rate obtained from saving discourages savers and it was expected interest rate had negative effect on rural households' savings.

According to Thomas.K.Shaw 2007, Current ordinary savings lack incentive for members to increase average savings' balances even when they do pay some interests on account. Ordinary savings accounts have an interest structure to encourage members to increase their balances. This determines which members are the best candidates for fixed deposit account based on their ability to increase savings balances to earn from higher interest rates. Some SACCOs offer ordinary savings account as the basic account to be opened when a member joins, others offer current saving products as the basic account while the rest may offer their members a choice when joining of either the current savings account or the ordinary savings account as their base account.

According to Raba (2013) growth in income, degree of financial depth, and saving interest rate have significant positive impact on savings culture whereas age, dependency ratio and real interest rate have significant negative impact on savings in Ethiopia.

Obi-Egbedi *et al.* (2014) analyzed determinants of saving culture using multiple regression analysis and they found out that education, occupation, income of household head and household size affect rural household savings significantly.

The main factors influencing the choice of savings institutions include: security for saving membership to the savings institutions and being able to qualify for group assistance. According to Shem (2012), personal attributes include: individual level of monthly income; individual level of education; individual's age; gender; size of household and; major source of income. Institutional characteristics are: interest rate on loans; distance from financial institutions; collateral for loan; time required to process a loan; minimum balance requirement; loan repayment method; restrictions on loan use; loan repayment period, and; loan amount.

Obayelu (2012) using Tobit regression analyzed saving culture of households and found out that large household size would reduce saving rate and thus reducing the number of children can help beef up savings to protect families from income shortfall. Moreover, he pointed out that diversification into non-farming activities was found to increase saving rate of the rural household heads. Households involved into non-farm activities were found to save more as compared to those not involved.

Tsega and Yemane (2014) used cross sectional survey data and applied Tobit regression analysis and they found that incomes, age, sex, marital status significantly affect household saving.

Similarly Njung'e (2013) by using linear regression model found that savings is positively related to total income, gender and education but negatively to employment status, age of the household head.

Egwu and Nwibo (2014) investigated the determinants of saving culture of rural women farmers in EbonyiState of Nigeria using multi-regression analysis. They found that lack of access to productive resources and low returns to agricultural production has been identified as a bane to the saving capacity of the rural women.

Michael (2013) conducted study using multiple regression analysis found that savings culture of households are versatile and are influenced by demographic and economic factors based largely on income. The findings showed that the main predictors of the probability of an individual to have savings account were income, distance, and national health insurance registration, place of accommodation, sex, age and education. On the other hand, the main determinants of the level of savings were namely income, locality, and sector of employment, national health insurance registration, age, education, household size and marital status.

To identify the major determinants of household saving culture, the socio-demographic characteristics of household head were the first variable. Household's head age, marital status, educational level, dependency ratio, gender of the household, and personal saving culture of the household head were considered in this variable. Various studies have been conducted in developed economy to understand the effects of socio-demographic variables on saving culture of households. According to (Gedela, 2012; Callen and Thimann, 1997) males have better saving culture than females because males have a higher level of financial knowledge, financial skills, and perceived earlier childhood consumer practices than females.

To the contrary, (Abdelkhalek *et al.*, 2009) concludes Moroccan women were more savers than Moroccan men were. Aktas *et al.*, (2012) suggest that female labor participation on household's working activities can significantly affects the household's saving culture and a household with greater share of working female has higher saving culture. Regarding education status an individual with a higher education level is twice more likely to be saving money than an individual with a secondary education level (ACT Research, 2011).

There are some empirical studies in Netherlands by kalwij (2013), Canada by Gagnon et al (2006) and Uganda by Kiiza and Pederson (2002) which shows that female households had better saving culture than males because of the life developed style by the community and they are expected to cover the principal household consumption and costs in any social interaction where as in the other empirical study in Philippines by Bersales& Mapa (2006) shows that male households has better saver because the female has no power to control income even their own income.

In addition to the above demographic variables, personal saving cultures of households were also studied. Personal saving culture of a particular household can be positive or negative. Positive personal saving culture by far includes manner of regularly managing income by putting money aside from the monthly income, spending money in systematic manner through planning, designing the means of managing unexpected expenses, and feeling about family future and shield he/she from adduction and so on. Whereas negative personal saving culture includes not regularly manage money or earned income, spending the major part of income as it is obtained, not taking in account of unforeseen expenses, spending money without plan, not feeling about family future and so on. These concepts reflect the personality of individual household head. Personality refers to the characteristics of a person that account for consistent patterns of feelings, thinking, and behaving (Pervin*et al.*, 2005, p. 6). In this study, personality was used in terms of saving habit. ACT Research (2011) suggests unsystematic and unplanned saving culture significantly hinders the motive to save.

Turner and Manturuk (2012) examined how individual, institutional, and structural determinants impact the decision-making processes that guide participants' savings culture. Results showed that individual factors such as obligation to family, upbringing, and employment experiences affect participants' attitudes toward savings and their confidence in their ability to save.

Institutional factors such as incentives, disincentives, and organizational culture shape participants' trust in financial institutions and their attitudes towards participating in savings programs was studied. This study used in-depth interview data collected from 48 people who participated in save NYC in 2009. At the time that people signed up for the program, they were asked if they would be willing to be contacted later for a survey about their participation. Of the 879 participants who agreed to be contacted. This study sought to understand the experiences of participants in a unique matched savings account program in the specific context of New York City.

There are some empirical studies such as Collins (1991) and Sinha (1998), which shows the family value plays an important role in the saving culture of household and economic development. In their study, marriage is important for saving performance since marriage is morally and socially responsible for collective interest and it has important factor for financial planning. The married households save more than singles due to their multiple source of income (the income of the partners) and economies of scale with respect basic expenditure.

In the study of Mosk (2010) shows that widowed household save more than married and unmarried household because they face unanticipated and extra risk of life such as rearing children alone. Therefore, marital status was one factor of household saving performance.

Nga (2007) examined a general idea of households' savings in South Africa. She identified the main factors responsible for the lack of a commitment to saving which are particularly relevant in the case of rural households. The major factors were: lack of income (due to unemployment), inadequate income, over-consumption (due to obvious consumption, procedural rationality and the bandwagon effect) and market failures, such as unfinished or even no information, lack of financial literacy, cultural and political factors.

Similarly a study conducted by Touhami *et al.* (2009) also investigated the micro-econometric determinants of households saving in Morocco. He concluded as income significantly explains the cross-sectional variation of the saving status of households in Morocco. The fundamental reasons or importance and role of households to save were highlighted. Experiential investigations carried 17 out to date also appear to support these broad propositions acknowledged for developing economies.

Financial literacy has a significant impact on individual saving, as more knowledge on financial matters enable individuals to make more substantive financial plans and more informed decisions regarding allocations of their money and saving. Hence, it is predicted that the relationship between financial literacy and individual saving is positive. Mwangi and Kihiu (2012) established that the probability of a financially illiterate person remaining financial excluded is significantly high. Financial literacy impacts to a great extent on the financial management (Olima 2013).

Financial planning is the process of making a reasonable decision about effective use and management of income in the future. According to the inter-temporal income-smoothing motive of savings, people want to smooth their income and consumption over their lifetime (Arent, 2012). The concern about smoothing the earned income across consumption and saving requires sound financial plan and people plan about future expectations or actions. Therefore, the plan and awareness about future expectation may influence the decision of people to save or not to save. In addition, (Lim *et al.*, 2010) concluded that the attitude or life expectation and planning horizon of household affect the level of their saving.

According to the Grameen Bank model, there is emphasis on savings as a prerequisite to access loans where clients should access the savings at anytime. However, these savings always act as security for loans and clients cannot access it at any time they wish to do so. If the savings requirements are too high then members who cannot meet the stated amounts are automatically pushed out of the credit programmed (Nabulya 2007).

A study conducted by Girma *et al.* (2014) identified determinants of rural households' savings in East Hararghe Zone, Oromia Regional State, Ethiopia. Nine significant determinant explanatory variables of rural households savings were identified which includes household head's education level, livestock holdings, access to credit service, income, investment, training participation, contact with extension, forms of savings and saving motives.

Michael (2013) conducted study using binary logistic and Ordinary regression least method and found that savings culture of households are versatile and are influenced by demographic and economic factors based largely on income. The findings showed that the main predictors of the probability of an individual to have savings account were income, locality, and national health insurance registration, place of accommodation, sex, age and education. On the other hand, the

main determinants of the level of savings were namely income, locality, and sector of employment, national health insurance registration, age, education, household size and marital status.

A study by, Ozcan (1996) income level has a negative impact on the private saving rate and growth rate of income is not statistically significant. From a policy point of view, financial depth and development measure of Turkey suggests that countries with deeper financial systems will tend to have higher private saving rates. Private credit and real interest rates try to capture the severity of the borrowing constraints and the degree of financial repression for Turkey. Moreover, negative impact of life expectancy rate lends support to the life-cycle hypothesis.

Hufner and Koske (2010), study household saving rates in G7 countries since the 1970s in a panelco-integration framework. They found that disposable income, real interest rates and inflation are important determinants of household saving in most of those countries. Demographics, government indebtedness, the depth of the financial system and wealth effects (through house and stock prices) are found to play a role in a smaller number of countries.

Abdelkhalek *et al.,* (2009), in Morocco also found current income strongly affects the saving level and the household's size is significant only in the urban case: an additional person reduces the household saving. For the life cycle hypothesis, the results are not significant. They also found that Moroccan women save more than men when they took into account the interaction between gender and income. The results suggest that the self-financing of rural household activities may be due to the lack of access to formal financial intermediaries.

Klause *et al. (*1992) studied households saving in developing countries and found that income and wealth variables affect saving strongly. Touhami *et al.* (2009) also investigate the micro-econometric determinants of households saving in Morocco. They concluded as income significantly explains the cross-sectional variation of the saving culture of households in Morocco.

Kahangi and Muturi (2013) conducted a study on determinants of low income household savings in Kenya among the poor in the slums of Mathare, in Nairobi, Kenya to determine the effect of age, education, income and household size on savings. The study employed survey design and SPSS for analysis of data. It assessed five factors which are associated with savings among the poor in the slum. Age, income and gender were found to have a great influence on the savings of

the section of the society assessed. Though education level and household size were observed to contribute to varied level of savings, their influence on the amount of individual's savings was determined to being significant.

Among the economic factors the interest rate is considered as an important factor affecting the level of savings. Many studies have indicated a positive effect of interest rates on savings in several countries. No such evidence has been concluded in others. Still other ones have reported an inverse relationship between interest rates and savings (Frączek, 2011).

Workineh (2013) empirically investigated the significance of some macroeconomic variables in determining domestic saving in Ethiopia by using times series data from 1970/71 to 2010/11.The results shows that growth rate of income play a stronger positive role in determining both the short run and long run behavior of domestic saving in Ethiopia. The saving decision may depends on income, wealth, real interest rate and other potential factors such as individuals habit, such as preferences for spending now, or postpone their consumption, so that they can have a greater consumption in the future period (Ahmad and Hussin, 2010).

Empirical studies revealed that savings of rural household increases with the amount of credit received, (Desta, 2004). Therefore, the amount of credit received was expected to have positive relationship with household saving.

Beckman (2013) in the study on financial literacy and household savings in Romania found that individual who are financially literate, especially with regard to inflation are more likely to invest in pension funds and save using more than one interest-bearing saving instrument. The study concluded that financial literacy has a positive impact on saving culture in Romania.

A study conducted in Malaysia by Delafrooz and Laily (2009) sort to assess the extent to which financial literacy affected the saving culture. The researchers utilized a quantitative methodology through issuing questionnaires to about 2246 workers in the public and private sectors. The results reveal that saving culture is considerably affected by the person's financial literacy in which case one with a low level of the same is not intended to save and ultimately face financial issues in future.

Additionally, the study by Sabri and MacDonald (2010) shows that financial literacy was positively related to the saving culture. The two researchers had studied 3850 students from 11

Malaysian universities using questionnaires as the data collection instrument. They distributed the questionnaires to 350 participants who were selected randomly from the target campuses. The study findings suggest that the respondents with a greater comprehension of his or her finance seem to engage in efficient saving behavior.

(Mark *et al.,* 1999) stated the determinants of household savings in Australia. They also found out that interest rate has no significant effect on household savings. However, income level, age and household asset were found to have positive significant effect on savings. Household size was also found to have negative significant effect on savings.

Gender differences in household saving culture among single person households were investigated using data from the 2007 Survey of Consumer Finances (SCF). Using logistic regression analysis, Fisher (2010) found that women were less likely to save in the short term if they were in poor health, but health made no difference for males. Women with low risk tolerance were less likely to save in the short term and to be regular savers.

Nieuwland (2013) sought to examine the role, if any, that the Gender plays as a determinant of the household saving rate using a simple analysis of 33 countries. Results suggested that, when included in a model with other structural determinants, the sex ratio had a positive, statistically significant effect on the personal saving rate. Further, when examined by age cohort only the sex ratios of the older cohorts were found to be positively and significantly related to personal saving. According to the author, this result contradicts some of the current available theory on sex ratios and saving. Overall, it appears that the sex ratio does have a positive effect on the savings rate and should be included as a structural determinant in future saving rate analyses.

2.6. CONCEPTUALFRAMEWORK

In line with the aforementioned theories, Figure 1.1: Conceptual framework this study has hypothesized a positive relationship between saving culture and each of the independent variables as follows:

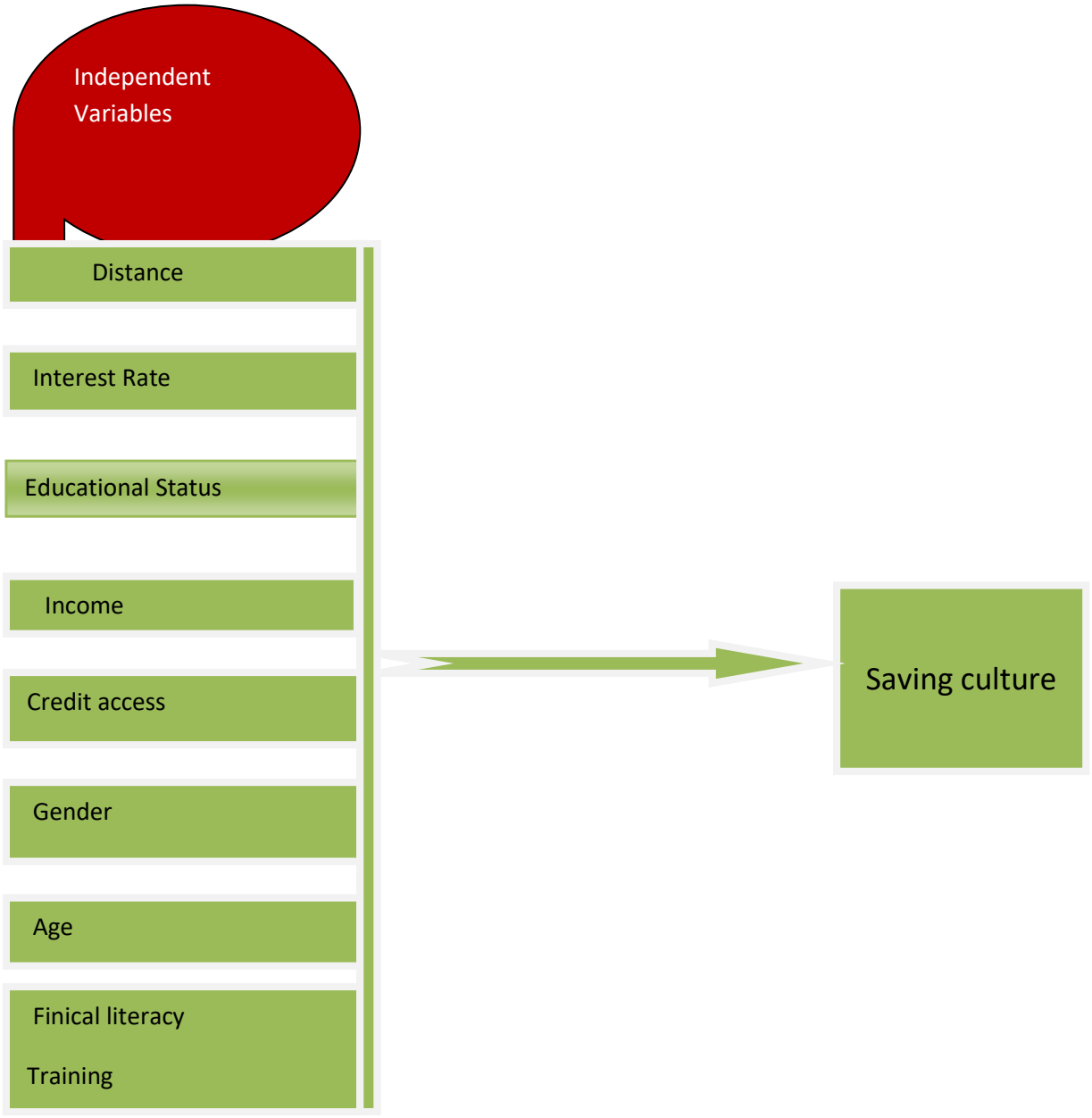


Figure 1. 1: Conceptual Framework

Source own survey, 2019.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. INTRODUCTION

This chapter describes the methodology followed and used to achieve the aforementioned objectives of the study. Overall, the chapter has the following set; research approach, research design, target population, sample and sampling technique, Source of Data and Method of Collection, method of data analysis, Model specification, Variables Definition and Measurements of the study.

3.2. DESCRIPTION OF THE STUDY AREA

Kambata zone Doyagena is one of the one hundred twine four word as of the SNNPR covering an area of 471.3 km^2. Topologically the woreda lies on an elevation ranging from 1,200 to 2,950 meters above sea level. The total population of the woreda is estimated about 721,339 with a density of 11 inhabitants per square kilometer. The woreda has three agro-ecological zones, Dega (40fgklbd %) Wayne dega (57.96%) and kola (3%). The annual average temperature of the zone is 15.10c^0 and the mean annual rainfall ranges from 1200 to 1300 mm. There are 13kebele in Doyagena. Most part of Doyagena is dega in which elevation is 2700 mm and other parts are Wayne dega and kola (Annual Doyagena Woreda reported, 2017).

3.3 .THE RESEARCH DESIGN

The major focus of the study was explanatory of information related to saving of rural households by collecting cross sectional data from the study area. So, the research design used for the study was explanatory research design to answer research questions. Moreover, Binary logistic regression model was applied for independent or explanatory variables which show a significant effect on the saving status of rural households.

3.4 .TARGET POPULATION

The total populations of the research study are all the members of Doyagena who are 476 in number.

3.5. SAMPLING TECHNIQUE

Stratified Sampling method was used to come up with the sample size, members, cooperative office and other committee. Stratified random sampling is used where the researcher draws simple random samples from certain aggregation units of interest (from certain census block groups) when the strata are heterogonous geographic units and also from successively smaller aggregations until the individual subject level is reached.

3.6. DATA SOURCE AND METHODS OF DATA COLLECTION

To collect the necessary information, the study used both the primary and the secondary source of data. The primary data was collected from the sample members of saving and credit cooperatives members from sampled Keble's by using semi a structured interviewed questionnaire. The study was design both close ended and open ended questions to allow deep investigation of household saving culture in Doyagena. Secondary data was gathered from the different records of woreda, Annual report Cooperative office, journals, Agricultural and Finance and Economic Development.

3.7. SAMPLE SIZE

The mathematical formula used for determining the sample size, the researcher adopted a simplified formula recommended by Taro Yemane (1967), assuming a 95 % confidence level which is assuming e =5%.

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

Where:

n = sample size required

N = number of population

e = is the level of precession

$$\boldsymbol{n = \frac{476}{1+476(0.05)}^2 = 217}$$

For this particular study, the researcher applied the above simplified formula, the sample size which is very necessary for the study was determined as follows.

Table 3. 1.selected cooperatives

s	The selected Saving and credit cooperatives	Total number of members.	Sample size
1	Dinka	N1=150	n 1 =217 ×150/476=68
2	Amacho	N2=150	n 2 =217 ×150/476=68
3	Wqbta	N3=76	n 3 =217 ×76/476=35
4	Hwora	N4=100	n 4 =217 ×100/476=46
	Total	476	217

Source: own survey, 2019

3.8. METHOD OF DATA ANALYSIS

Based on the type and objective of the study, appropriate analytical tools and statistical software employed. The data gathering through questionnaires was coded, filled into computer, analyzed and presented in the form of tables and graphs by using STATA software.

The tools for quantitative data analysis were descriptive statistics. Percentages, frequencies, mean and standard deviation were employed for demographic variables and objective one. In addition, chi-square test was used in identifying the relationship between rural households saving status and dummy independent variables and t-test was used to test the differences between rural households saving status and continuous independent variables. Moreover, Binary logistic regression analysis was applied for identifying significant factors affecting rural households saving. After collecting data, it was summarized and analyzed using descriptive and inferential statistics to investigate the determinants' impact on the saving culture effectiveness through log it regression analysis to determine each independent variables impact on the dependent variable. The purpose of using logit regression equation on this study was to effectively describe, understand, predict, and control the stated variables. Data analysis is a technique of setting order, structure, and meaning to the mass of data collected. It involves analyzing what has been collected and making deductions and inferences (Kombo& Tromp, 2006).

3.9. ECONOMETRIC MODEL SPECIFICATION

When the dependent variable in regression is binary the analysis could be conducted by using linear probability and index models *i.e.* log it or probit. But the result of linear probability model may generate predicted values less than zero or greater than one, which violate the basic principles of probability. However, the index models log it or probit models generate predicted values between 0 and 1, they fit well to the non-linear relationship between the probabilities and the explanatory variable. Each model has its own strength and weaknesses, but in this study log it model is preferable to probit model as it has more plausible feature such as simplicity: The equation of the log it is very simple, inverse linear zing transformation for the log it model is directly interpretable as log-odds, while the inverse transformation probit model does not have a direct interpretation (Gujarati, 2009).

As discussed in the above the study used binary logistic model to estimate the determinants of saving culture at saving and Credit Cooperative in Doyagena Woreda, Kamala Zone.

In binary logistic regression model the dependent variable is dichotomous in nature taking a value of 1 or 0. Although the Ordinary Least Squares (OLS) method may compute estimates for the binary choice models, certain assumptions of the classical regression model were violated. These include non-normality of disturbances, hethroscedastic variances of the disturbances, and questionable value of as a measure of goodness of fit (Gujarati, 2009).

$Y_i = \beta_o + \beta_i x_i + u_i$---------- (1)

Where: = 1 if the respondents have saving practice=1

= 0if the respondents have no saving practice

β_oIs intercept, is parameter to be estimated, is variable in question, and is disturbance term. This model is a typical linear Regression model, but because the regression is binary or dichotomous, it is called a linear probability model (LPM).However, in a regression model, when the dependent variable is dichotomous in nature, taking value 1 or 0; use of linear probability models becomes a major problem. This is because predicted value can fall outside the relevant range of zero to one probability value. Thus, if linear probability models are used, results may fail to meet statistical assumptions necessary to validate conclusions based on the hypothesis tested. Gujarati (2003) recommended Log it and probit models to overcome the problem associated with LPM.

These models use Maximum Likelihood Estimation (MLE) procedures and ensure that probabilities are bound between 0 and 1. Both log it and probit transformations estimate cumulative distribution, thereby eliminating the interval 0, 1problem associated with LPM.
The logistic cumulative probability function can be represented by

$$p_i = f(z_i) = \frac{1}{1 + e^{-z_i}} - - - - - - - - - - - - - - - - - (2)$$

Where $p_i$the probability is that i th person will be in I-first category,
z_i=$\beta_o + \beta_i x_i + u_i$ where $\beta_o$is intercept of the model; $\beta_i$is model parameters to be estimated; x_i are the independent variables and e represents base of natural logarithms, which is approximately equal to 2.718. In equation (2), Z can range from positive infinity to negative infinity. The probability of a farmer perceiving climate change lies between 0 and 1. If we multiply both sides of the equation (2)
By $1 + e^{-z_i}$weget:

$(1 + e^{-z_i})p_i = 1 - (3)$

Dividing by P and then subtracting 1 we get:

e^{-z_1}=$\frac{1}{p_i}$=$\frac{1-p_i}{p_i}$ $- -$ (4)

By definition; however,e^{-z_i} =1/e^{z_i} so that the equation (4) becomes

$$e^{-z_i} = \frac{1-p_i}{p_i} - (5)$$

By taking the natural logarithm of both sides of equation (5), we get:

$z_i = \log\left(\frac{1-p_i}{p_i}\right) -$ (6)In other words:

$$z_i = \log\left(\frac{1-p_i}{p_i}\right) = \beta_o + \beta_i x_i - - - - - - - - - - - - - - - - - (7)$$

This makes the logistic probability model.

Therefore, it can be noted that the logistic model defined in the equation (7) is based on the log it of Z, which constitutes the stimulus index. Marginal effects can also be computed to show changes in probability when there is a unit change in independent variables. Marginal effects are computed as:

$$\frac{\partial pk}{\partial xk} = \frac{\beta k e^{-zk}}{(1+e^{-zk})^{z}} ---------------------- (8)$$

$$z_i = \beta_i x_i + u_i ------------------- (9)$$

Where: z_i is the perception by the it has saving culture, x_i is the vector of explanatory variables of probability has saving culture of by the, Therefore, there is some relationship between educational status and saving culture. e i, β_i is the vector of the parameter estimates of the regressors hypothesized to influence the probability of saving culture.

Binary Logit *Model*

The choice of the log it model is premised on the fact that ordinary least squares assumes a continuous dependent variable while in the case of Household saving the response is a binomial process taking the value 1 for saving and 0 for non-saving. The parameters of this model were estimated by using the maximum likelihood estimation rather than the movement estimation in which OLS regression technique rely on. The log it method gives parameter estimates that are asymptotically efficient, and consistent. Indeed, the log it approaches is known to produce statistically sound results (Gujarati, 2009). Probability of saving is specified as the value of the cumulative distribution function which is specified as function of the explanatory variables.

Logistic regression analysis extends the techniques of multiple regression analysis to research situations in which the outcome variable is categorical. Generally, the response variable is binary, such as (save or no save, presence or absence, success or failure etc) in logistic regression.

Assumptions of Logistic Regression

Assumptions that should be considered for the efficient use of logistic regression as given below (Hosmer and Lemeshow, 1989).

Logistic regression assumes meaningful coding of the variables. Logistic coefficients were difficult to interpret if not coded meaningfully. The convention for binomial logistic regression is to code the dependent class of interest as 1 and the other class as 0.

Logistic regression does not assume a linear relationship between the dependent and independent variables.

The dependent variable must be categorical.

The independent variables need not be interval, no normally distributed, online early related and no equal variance within each group.

The groups must be mutually exclusive and exhaustive; a case can only be in one group and every case must be a member of one of the groups.

Larger samples are needed than for linear regression because maximum likelihood coefficients are large sample estimates.

The log it regression equation should have a linear relationship with the log it form of the dependent variable.

Absence of Multicollinearity

3.10. Concepts and Operational Definition of Variables

Savings and Credit Cooperatives (SACCO)

Savings and credit cooperatives is a set of financial services namely savings, credit and technical Services like training, to the members in rural, semi urban, urban and metropolitan areas for enabling them to build asset, to reduce their vulnerability and improve their living standards. These include petty trading, crop and livestock production, cloth, fruit and vegetable selling and others.

Household: Family, a basic unit is the household, which includes its different family members, their resources and capabilities.

Rural Area: Rural area is the area,. The main occupations of the rural people are based on agriculture and petty business

Saving culture: The ability and practice of putting aside the excess of the money or resources of the profits or income one earns; being able to use resources wisely; becoming thrifty.

Dependent variable

The dependent variable in this study is the level of saving culture in RUSACCO. It is operationally defined as: It is determined the level of saving culture. The dependent variable for the binary logistic analysis has dichotomous in nature representing the preferred status of the member in RUSACCO.

The response variable in this study is the status of saving culture at Doyagena woreda. The saving culture of members are identified either save out of income or no save out of income. The response variable is a dichotomous category and my interest of the study is no saving out of income. Thus, coded as the value 1 for 'save out of income' and 0 for 'no save out of income'.

Independent variables

The independent variables selected for the study are: gender, education, age, training, distance, finical literacy, income, credit availability and interest rate.

Gender: it is a dummy variable that assumes a value of "1" if the head of the household is male, "0" if they are female. Several studies have shown that gender has an effect on saving culture. In sub-Sahara Africa, women own fewer assets than men (LeBeau *et al*., 2004). In rural SSA, women's ability to accumulate assets is governed by family and community norms, which historically have favored men to the disadvantage of women. Gedela (2012) found that male headed households save more than female headed households. The expected effect of sex on female headed households was negative. (Grinstein-Weiss *et al*., 2006).

Age (AGE): it is a continuous variable, defined as the household heads age at the time of the study measured in years. Is the period from the respondent's birth to the time of the interview. The data was collected by using continuous variable. Among the selected Russacos the study will identify the average age of the group members and tested how much contribution this variables for those effective of saving culture. Rehman *et al.* (2010) found that age has positive relationship with household savings. The life-cycle hypothesis suggests that there exists a relationship between age and saving rates. When the age of the households increases their saving status going decreases. Therefore, the expected effect of age on rural households saving was negative.

Education level (EDUL): it is a dummy variable and 1 is assigned for literate, 0 for illiterate. Education affects saving culture by influencing the level of saving and the options for asset accumulation available to the household. Kulikov *et al.* (2007) found that education as a human wealth promotes rural household saving. It was expected, therefore, households who are literate have a higher probability of saving it had positive effect for literate households.

Annual Income (ANINC): it is a continuous variable and operational zed as the total annual earnings of a family from sale of agricultural produce, off-farm and non-farm activities. Income level which shows that when the income level of households increase the saving rate will also increase by some presents. Income is operationally defined as income obtained from off-farm and on-farm activities that are expressed in Birr per year.data was collected by using dummy variable (yes or no). The income generating activities which is preferred by the members are save or not, after that the study was assessed the determinates of saving culture on the members income generating actives.

Abdelkhalek *et al.* (2009) indicated that income strongly affects the saving level of the household. The expected effect of this variable on rural household saving was positive.

Distance from financial institutions (DISTFIN): it is a continuous variable measured in kilometers. Households near to financial institutions have a location advantage and can contact easily and have more access to information than those who live more distant locations. Chemonics International (2007) identified distance remains a major barrier to formal financial saving and other markets in rural areas. As rural households far from formal financial institutions, the expected effect on saving was negative.

Training is dummy: - the woreda cooperatives office provides training and support for the members to achieve their goals. The study focused how many of the members gain saving culture related training and how many of them not. From this the contribution of training on that effective continuity was tested. Data's was collected as members gain technical training yes (1) not (0).

Financial literacy is dummy: - the woreda cooperatives office provides awareness rising and support for the members to achieve their goals. The study focused how many of the members gain saving culture related financial literacy and how many of them not. From this the contribution of financial literacy on that effective continuity was tested. Data's was collected as members gain financial literacy yes (1) not (0).Beckman (2013) in the study on financial literacy

and household savings in Romania found that individual who are financially literate, especially with regard to inflation are more likely to invest in pension funds and save using more than one interest-bearing saving instrument.

Credit/Loan. Is also the amount of loan borrowed by the respondents out of its common funds after joining SACCO? It is a dummy variable that assumes a value of "1" if the household is credit users and "0" otherwise. Some financial institutions like saving and Credit Share Company and saving and Credit Cooperatives put saving as the primary principle for credit access from their institution. Therefore, this principle helps the rural households to improve their saving status. Households with better access to credit have higher tendency to save more than that of households who do not access to credit service. Empirical studies revealed that savings of rural household increases with the amount of credit received (Desta, 2004). Therefore, the amount of credit received was expected to have positive relationship with household saving.

Interest rate (IR): It is the percentage of the balance in a deposit account that the savers receive as income from their deposit. It is measured by the sample households earning as interest from their deposit in a year. The interest could encourage or discourage rural households and this could in turn influence their willingness to save in financial institutions. Mahlo (2011) estimated the relationship between household savings and interest rate in South Africa and his result showed that there was a positive relationship but Simleit *et al.* (2011) found a negative effect on rural household savings. In most cases the interest rate obtained from saving discourages savers and it was expected interest rate had negative effect on rural households' savings.

3.11. RELIABILITY TEST

Reliability indicates the extents to which variables or set of variables is consist [tent in what it supposed to measure (Hair, 2007). In this study, Cronbache's Alpha reliability test was used to measure the internal consistency and reliability of the questionnaire. According to Hair et al. (2006), if Cronbache's Alpha (α) is greater than 0.7, it means that it has high reliability and if α is smaller than 0.3, then it implies that there is low reliability. As explained in the below, to cheek the reliability of the instrument 25questionnaires were distributed to members who are not part of the study.

Table 3. 2 Reliability test result

No	Variables	Items reliability(Cronbache's Alpha)	No of items
1	Gender	94.38 %	217
2	Age	98.84 %	217
3	Education	38.9%	217
4	Income	0.00219 %	217
5	Distance	16.99 %	217
6	Training	34.24%	217
7	Finical literacy	90%	217
8	Credit access	90.5%	217
9	Inters rate	102.82%	217

Source: own survey, 2019

3.12. VALIDITY OF THE INSTRUMENTS

Validity can be defined as the accuracy and meaningfulness of the inferences which are based on the research results. Validity can also be taken as utility. In other words, validity is the extent to which differences found with a measuring instrument reflect true differences among those being tested (Kothari, 2004). The researcher gained useful insights from his advisor and experts/societies for pilot test feedback especially about the content validity and clarity of questions and instructions in all instruments.

3.13. ETHICAL CONSIDERATION

The study gave due consideration to ethical issues such as confidentiality and anonymity. Therefore, the participants were first communicated as to the purpose and significance of the study and that their responses were used only for academic purpose and kept confidential. They were also assured that their names and their identity would remain anonymous.

The contribution of many researches has been quoted in this research; the researcher has given due respect and consideration to their authors and researches to cite this worth in reference.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1. INTRODUCTION

This chapter portrays the findings obtained from descriptive analysis and T-test and chi-square etc; data obtained through the questionnaire. For descriptive analysis, tools such as tables and percentage were used. Chi-squares and T Tests also used where necessary. For analysis of determinate factories log it model were also employed to know the saving culture of members in saving and credit Cooperatives of Doyagena wordas

Table 4.1.Descriptive Statistics

R.NO	Variable	Mean	St.diviation	Min	Max
1	Gender	1.373272	.4847918	1	2
2	Age	56.85253	13.58704	23	81
3	Education	1.442396	.4978191	1	2
4	Income	20325.36	6019.486	3500	30000
5	Distance	3.557604	.9514364	1	5
6	Training	.5391705	.4996158	0	1
7	Finical literacy	.5898618	.4929958	0	1
8	Loan	.4239618	.4953272	0	1
9	Interest rate	.4470046	.5075383	0	1
10	Saving culture	.543788	.4992314	0	1

Source: own survey, 2019

The data comprised a sample of 217 members, who were members of saving and credit cooperative in Doyagena woreda. The response variable considered in this study was the saving culture of the members (either save or not save).The study takes into consideration the respondent's background to give general information about respondents and to assist the researcher understanding on the findings. Variables included here are gender, age, educational status, income, distance, training, finical literacy, loan, interest rate and saving culture.

4.3. Respondents' Saving Culture and Gender

From Table 4.3.below x^2 (chi-square) Pr< 0.05 (at 95% confidence). Here bothchi- square chi2 are significant. Therefore, showed that the mean difference of gender between households/members having saving culture and those not having was found statistically significant at 1 % level of significance. Gamma (-0.3460) shows there is negative relation between perception of climate variability and gender.

The results also indicate that female individuals have no equal chance at being members in saving and credit cooperative .Since both male and female individuals are not given a chance to share their knowledge, the outcome for the analysis is likely to be of greater value with regard to the saving culture.

Floro and Seguino (2002) studied the gender effects on aggregate savings by investigating the hypothesis that shifts in women's relative income, which affects their bargaining power in the household, have discernible effects on household saving, and by extension on aggregate saving due to differing saving propensities by gender. An analytical framework for pooled and non-pooled savings households was developed to examine why women and men's saving propensities may differ and how a change in women's wage earnings relative to men's influences household savings which constitutes a significant component of gross domestic saving. An empirical analysis was conducted using panel data for a set of 20 semi-industrialized economies, covering the period 1975-95. The results indicate that as some measures of women's discretionary income and bargaining power increase, aggregate saving rates rise, implying a significant effect of gender on aggregate savings. These findings demonstrate the importance of understanding gender relations at the household level in planning for savings mobilization and in the formulation of financial and investment policies.

Table 4. 3. Respondents' saving culture and Gender

Saving culture	Gender		Total
	Male	Female	
No have saving culture	53	46	99
	53.54	46.46	100
	38.97	56.79	45.62
have saving culture	83	35	118
	70.34	29.66	100
	61.03	43.21	54.38
Total	136	81	217
	62.67	37.33	100
	100	100	100
Person chi2(1)= 0.4977		pr= 0.011	
Likelihood ratio chi2(1)= 0.5051		pr=0.011	
Crammer´s V= -0.1730			
Gamma= -0.3460		ASE=0.125	
Kendall´s tau-b= -0.1730		ASE=0.067	

Source: Calculated by author based on survey data in 2019.

4.4. Age of the Respondents

The descriptive statistics result from below Table 4.4.The average age of respondents was about 62. Therefore, showed that the mean difference of gender between households/members having saving culture and those not having was found statistically significant at 1 % level of significance. Gamma (-0.3460) shows there is negative relation between perception of climate variability and gender.

(Dynan and Edelberg (2006) suggest that population ageing has had a material effect on the pattern of the household aggregate saving rate over time. Kibet and Ouma (2009) has found that age is negatively correlated with saving, such that, older people save less and the younger save more.

Table 4. 4.Response of Respondents by age (Two-sample t test)

Group	Observation	Mean	Std.error	Std. Dev.	Min	Max
No have saving culture	99	61.93939	1.158071	11.52266	Pr(|T|>|t|)=1.000	
have saving culture	118	52.58475	1.286715	13.76005	Pr(T>t)=0.000	
Combined	21`7				t=5.3669	

Source: Calculated by author based on survey data in 2019.

4.5. Educational Status

Result of Table 4.5.show that literate are 55.76 %(171) and illiterates are 44.24 %(98). From Table 4.3 x^2 (chi-square) Pr< 0.05 (at 95% confidence). The chi-square result showed that the mean difference of education status between households/members having saving culture and those not having was found statistically significant at 1 % level of significance .Here both chi2 are significant. Gamma (0.7326) shows that there is strong positive relation educational status and saving culture.

.In Ethiopia saving and credit cooperatives initially emerged through some scholars and urban employees. Sample members' education status helps them not only to understand how to make money but also to prudently and profitably handle cash in financial institutions, which are found in nearby areas. Oliveira et al. (2003) also found that education level of the household heads related the magnitude of savings. Therefore, it is hypothesized that education level of the members' head is positively related to the magnitude of annual savings.

Table 4. 5. Respondents' saving culture and Education

Saving culture	Education		Total
	Literate	Illiterate	
No have saving culture	78	21	99
	78.79	21.21	100
	64.48	21.33	45.52
have saving culture	43	75	118
	36.44	63.56	100
	35.54	78.13	54.33
Total	171	98	217
	55.76	44.24	100
	35.54	78.13	54.33
Person chi2(1)=39.1554		pr= 0.000	
Likelihood ratio chi2(1)=40.8269		pr=0.000	
Crammer´s V= 0.4247			
Gamma= 0.7326		ASE=0.072	
Kendall´s tau-b= 0.4247		ASE=0.060	

Source: Calculated by author based on survey data in 2019.

4.6. Income of Respondents

From below Table 4.6. the average income of respondents in study area was 20325.35. The average income of respondents who have saving culture was 21282.71 and the average income

of respondents those who have no saving culture was 19208.08. Two-sample t test shows that Pr(|T|>|t|<5% showed that the mean difference of Income between households/members having saving culture and those not having was found statistically significant at 1 % level of significance .Meyers and Lee (2003) found a positive relationship between savings and income earned.

Table 4. 6.Response of Respondents by Income (Two-sample t test)

Group	Observation	Mean	Std.error	Std. Dev.	Min	Max
No have saving culture	99	19208.08	622.5735	6184.528	0	
					Pr(|T|>|t|)=0.0060	
have saving culture	118	21282.71	527.3112	5728.066	Pr(T>t)=	0.0119
Combined	217	20325.35	408.6294	6019.93	t=-	2.5357

Source: Calculated by author based on survey data in 2019.

4.7. Financial Literacy

Table 4.7. Shows 58.99% of respondents responded there was financial literacy. Of respondents feel there was financial literacy, 78.56% adapted saving culture. Of respondents didn't have financial literacy, only 16.95% adapted saving culture. From table 4.6, x^2 (chi-square) Pr< 0.05 Here both chi2 are significant. Therefore, showed that the mean difference of gender between households/members having saving culture and those not having was found statistically significant at 1 % level of significance. Gamma (-0.3460) shows there is negative relation between perception of climate variability and gender.

Gamma (0.8370) shows that there is strong positive relation between financial literacy and saving culture. Beckman (2013) in the study on financial literacy and household savings in Romania found that individual who are financially literate, especially with regard to inflation are more likely to invest in pension funds and save using more than one interest-bearing saving

instrument. The study concluded that financial literacy has a positive impact on saving culture in Romania.

Table 4. 7.Respondents' saving culture and financial literacy

Saving culture	**financial literacy**		Total
	No	Yes	
No have saving culture	69	30	99
	69.70	30.30	100
	77.53	23.44	45.62
have saving culture	20	95	115
	16.95	83.05	100
	22.47	78.56	54.38
Total	89	128	217
	41.01	58.99	100
	100	100	100
Person chi2(1)= 61.9136		pr= 0.000	
Likelihood ratio chi2(1)=64.9248		pr=0.000	
Crammer´s V= 0.5341			
Gamma= 0.8370		ASE=0.049	
Kendall´s tau-b= 0.5341		ASE=0.058	

Source: Calculated by author based on survey data in 2019.

4. 8.Distance

The descriptive statistics result from Table 4.8. The average distance between nearest market and farmers' household is about four (4) kilometer. And maximum and minimum distance to nearest financial institution is 5 kilometer 1 kilometer respectively. This shows many farmers have no market access near to their houses. Two-sample t test shows that Pr(| T | > | t | <5% showed that the mean difference of distance between households/members having saving culture and those not having was found statistically significant at 1 % level of significance .More importantly, the longer distance from the finical institution likely to discourage the households from participating in market oriented production that increase their income and possible encourage to save in financial institutions (Essa et al., 2012). The expected effect on saving was negative.

Table 4. 8.Response of Respondents Distance to financial institution (Two-sample t test)

Group	Observation	Mean	Std.error	Std. Dev.	Min	Max
No have saving culture	99	4.060606	.472239	.4698715	1	5
					Pr(| T | > | t |)=1.000	
have saving culture	113	3.135595	.96224	1.04526	Pr(T>t)=0.0000	
Combined	217	3.557604	.0645877	.9514364	t=8.1400	

Source: Calculated by author based on survey data in 2019.

4.9. Training

Table 4.9. Shows 48.08% of respondents responded they participated in training. Of respondents participated in training, 38.14% adapted saving culture. Of respondents didn't participate in training 61.82% adapted saving culture. From Table 4.8, x^2 (chi-square) Pr< 0.05 .Here both chi2 are significant Showed that the mean difference of training between households/members having saving culture and those not having was found statistically significant at 1 % level of significance. Gamma (0.3394) shows that there is positive relation between participate in training and saving culture. According to Girma *et al.* (2013), the participation of household heads on trainings positively affects their saving.

Table 4. 9. Respondents' saving culture and Training participation

Saving culture	Training		Total
	participate	Not participate	
No have saving culture	55	44	99
	55.56	44.44	100
	55	37.61	54.62
have saving culture	45	73	118
	38.14	61.82	100
	45	62.39	54.38
Total	100	117	217
	48.08	53.92	100
	100	100	100
Person chi2(1)= 6.5743		pr= 0.010	
Likelihood ratio chi2(1)= 6.5995		pr=0.010	
Crammer´s V= 0.1741			
Gamma= 0.3394		ASE=0.125	
Kendall´s tau-b=0.1741		ASE=0.067	

Source: Calculated by author based on survey data in 2019.

4.10. Credit Access of Respondents

Table 4.10 shows 42.40% of respondents responded they have loan. Of respondents save loaned only 16.95% adapted saving culture. Of respondents didn't have loan 83.05% adapted saving culture. From table 4.10, x^2 (chi-square) Pr< 0.05 . Here both chi2 are significant. Showed that the mean difference of credit access between household's members having saving culture and those not having was found statistically significant at 1 % level of significance. Gamma (-0.8578) shows that there is strong negative relation between loan and saving culture.

Table 4. 10.Respondents' saving culture and credit access

Saving culture	Loan		Total
	No	Yes	
No have saving culture	27	72	99
	27.27	72.73	100
	21.60	78.26	45.62
have saving culture	93	20	113
	83.05	16.95	100
	78.40	21.74	54.38
Total	125	92	217
	57	42.40	100
	100	100	100
Person chi2(1)= 68.5815		pr= 0.000	
Likelihood ratio chi2(1)= 72.3700		pr= 0.000	
Crammer´s V= -0.5622			
Gamma= -0.8578		ASE=0.044	

Kendall´s tau-b= -0.5622	ASE=0.056

Source: Calculated by author based on survey data in 2019.

4.11. Interest Rate

From Table 4.11, x^2 (chi-square) Pr>0.05 (at 95% confidence). Here both chi2 are significant. Showed that the mean difference of inters rate between households members having saving culture and those not having was found statistically insignificant at 1 % level of significance .. Gamma (-0.1639) shows that there is very weak relation between interest rate and saving culture.

Table 4. 11.Respondents' saving culture and interest rate

Saving culture	Interest rate		Total
	No	Yes	
No have saving culture	52	47	99
	51.52	47.47	100
	42.15	49.47	45.62
have saving culture	70	43	113
	59.32	40.63	100
	57.35	50.53	100
Total	171	95	217
	55.76	43.75	100
	100	100	100
Person chi2(1)= 2.3434		pr= 0.309	
Likelihood ratio chi2(1)= 2.7269		pr=0.256	
Crammer´s V= 0.1040			

Gamma=	-0.1639	ASE=0.133
Kendall´s tau-b=	-0.0521	ASE=0.063

Source: Calculated by author based on survey data in 2019.

4.12. Application of Inferential Statistics

Inferential analysis is used to test the hypotheses developed for the research by investigating the relationships between the nine independent variables (age, gender, education, income, financial literacy, training, distance, credit availability and interest rate) and dependent variable (saving culture). The inferential analyses included are Pearson Correlation, Multicollinearity and l Regression.

In this section, the results of inferential statistics are presented. For the purpose of assessing the objectives of the study, Pearson's Product Moment Correlation Coefficient and regression analyses were in use.

4.13. Correlation among Variables

Brooks (2008), Correlation between two variables measures the degree of linear association between them. To find the association of the independent variables with the dependent, correlation coefficient was used. Values of the correlation coefficient are always ranged between. A correlation coefficient of indicates that a perfect positive association between the two variables; while a correlation coefficient of indicates that a perfect negative association between the two variables. A correlation coefficient of zero on the other hand, indicates that there is no linear relationship between the two variables. The Table 11 below indicates the correlation coefficients for the relationship between saving culture and its independent variables has linear and strong correlations.

Pearson correlation coefficient(r) is used to test if a linear relationship exists between two variables. The correlation coefficient is a statistical measure association between two numerical variables (Zikmund, 2003). It is the most widely used for summarizing the degree of relationship and direction between two variables. The correlation coefficient is a standardized measure of an observed effect, it is a commonly used measure of the size of an effect and that values of ± .1 represent a small effect, ± .3 is a medium effect and ±. 5 is a large effect (Brooks 2008). Accordingly the effect size of each independent factors of the saving culture in Sacco's

members' saving has a large and positive effect in which all have greater than correlation coefficient as observed in the correlation Table.4.8. Therefore, the other effect factors require further findings.

Pearson Correlations are conceivably the most basic and most useful measure of association between two or more variables (Marczyk, et.al, 2005). Pearson correlation analysis was used in this paper to provide evidence of association between the two variables called independent and dependent. Pearson correlation coefficients reveal magnitude and direction of relationships either positive or negative and the intensity of the relationship. Another good overview of the data is a correlation Matrix, which gives an overview of what variables tend to go up and down together and in what direction. It's a good first past at relationships in data before delving into regression. Pearson correlation is a statistical test that assesses the strength of the relationship between two numerical data variables (Saunders et al., 2009).

Table 4. 12.Correlation

Variables	Gender	Age	Education	Income	Distance	Train	FL	loan intest2
Gender	1.000							
Age	-0.0647	1.000						
Education	-0.2846	0.1021	1.000					
Income	0.0748	0.0326	0.2144	1.0000				
Distance	0.1991	-0.0649	-.5135	-0.0728	1.0000			
Training	0.0254	-0.2808	-0.1258	0.0682	0.1243	1.0000		
Finical	-0.6156	-0.1459	0.1202	-0.0874	-0.3689	0.0373	1.0000	
Loan	0.4561	0.0774	-0.2948	0.1065	0.2426	0.0448	-0.5738	1.0000
Interest rate	0.2031	-0.0313	0.2581	0.1408	0.0183	0.0858	-0.4666	0.2555 1.0000

(Source: own survey, 2019).Correlation is significant at the 0.00 level (1-tailed).

Therefore, the relationship of independent variables and dependent variable is measured via Pearson Correlation. The significance level is0.05 in the Pearson Correlation test, which means there is 95% of confidence level. Therefore, the hypotheses only can be accepted if the significant p-value is less than 0.05 (Malhorta, 2010).

The correlations are shown in Table 4.11. The results indicate how each of the independent variable influenced saving culture and the significance of each of the effects.

Table 4. 13.Hetroskedascity Test

Brensch-Pagan/Cook-Weisberg test for Heteroscedasticity	
Chi2(1)	11.69
p>chi2	0.0006

Source: own survey, 2019

From above table there is no Heteroscedasticity problem because p>chi2 is less than 5%.

Table 4.14.Model Summary

A total of nine independent and two dummy variables were considered in the econometric model. Out of the independent variables, eight were found significantly affecting the level of saving culture. The dependent variable in the study was level of members expressed by the of member's saving culture.

The model results show that the logistic regression model correctly predicted 77.67% of the total sample Members. Moreover, as indicated table 4.14, the result of Pseudo R-Squared was good fit to represent the data analysis.

Table 4. 14.Model Summary

Model	Number of observation	Pseudo R-Squared	Prob>x2	LR chi2(11)
1	217	0.7767	0.0000	232.36

(Source: own survey, 2019).

Based on final log it analysis and as indicated in the Table 4.14, the nine variables which determines the saving culture were age ,gender, educations, Income, credit access, distance, training ,interest rate and finical literacy of the members.

Garson (2008) notes that Nagelkerke R2 is normally higher than Cox-Snell R2 and is the most-reported of the pseudo R2 estimates. Therefore, based on the results in Table 4.14 which show

that Pseudo R-Squared was 0.7767, it means that the independent variables entered in the model explained 77.67% of variance in the dependent variable.To test the significance of the log it model; the log-likelihood ratio test, the pseudo-R2 are used. The computation result for pseudo R2 is 0.7767 this results show that the models are statistically acceptable as 77.67% of the variation is explained in the log it model (Table 4.14). For the Wald test, the calculated wald chi2 (8) is 232.36 The chi-square test shows that the model is significant at 1 percent level of significance showing that the overall model is a good fit and p value is too small, Prob> chi2 = 0.00. Hence, data fits the log it model very well. (See Table 4.14).

Table 4. 1.Results of the Econometric Analysis

Logistic regression result					Marginal Effects After Log it	
Variable	Coef.	Std.error	Z	P>lZl	$\frac{dx}{dy}$	X
Gender*	8.742962	2.430467	3.60	0.000	.9438904***	1.37327
Age	-.915936	.0331547	-2.76	0.006	-.0098884***	56.8525
Education*	3.603866	1.103608	3.27	0.001	.3890735***	1.4424
Income	.0002027	.0000704	2.88	0.004	.0000219***	28325.3
Distance	-1.574463	.6356563	-2.48	0.013	-.169979**	3.5576
Training*	2.738328	.9486977	2.89	0.004	.3424162***	.539171
Financial literacy*	7.201807	2.097549	3.43	0.001	.9003458***	.589862
Loan*	-7.451078	1.838666	-4.05	0.000	-.9053123***	.423963
Interest rate*	.9523897	1.220906	0.78	0.435	.10282	.447805
constant	-11.54491**	5.641542	-2.05	0.041		

Number of observation	217
LR chi2(11)	232.36
Prob>chi2	0.0000

Pseudo R-Squared	0.7767

Source : Calculated by author based on survey data in 2019.

*** Significant at 1%; ** significant at 5%, and * significant at 10% probability level.

(*) $\frac{dx}{dy}$ for discrete change of dummy variable from 0 to 1

Gender (G): The gender effect showed that, being male household head and household saving are positively and significantly correlated even at 1% level of significance. Gender is identified as an important variable in the household saving culture. The result of logistic regression shows that being male group mambers increases the probability of saving culture by 94.38%., other factors remain constant.

Gedela (2012) found that male headed households save more than female headed households. The expected effect of sex on male headed households was positive and vice versa. Even if gender was not well captured in the study by Kibet et al., (2009), but, they found positive relationship between saving and being male. empirical study in Philippines by Bersales& Mapa (2006) shows that male households has better saver because the female has no power to control income even their own income.

Age (A): The log it models also showed that negative and significant relationship between age of cooperative members and saving culture. A one year increase in the age of members of cooperative leads to decrease in the probability of saving culture by 0.98 %, other factors being constant.

The finding result is similar with the previous research done by but opposite to previous research done by (Rehman Hafeez, F.M, 2010). It was significant at 1% level of significance. The study of Foley and Pyle(2005) which concluded that the young and elder population saves more than the middle aged population but another study such as Attanasion (1997) shows individual's age is expected to be negatively correlated with the saving which is the older people saves less and the younger people save more.

Education (E): The education effect showed that, being educate household head and household saving are positively and significantly correlated even at 1% level of significance. The result of logistic regression shows that a one unit increase members of awareness increases the probability of saving culture by 38.9%, other other factors being constant.

The findings of (Tsega and Yemane, 2014) that shows education level has positive contribution for household savings. But the result is similar with the finding of Girma et al. (2014) that shows education has positive effect on households saving and statistical significant.

Income (I): The log it models showed that positive and significant relationship between income of cooperative members and saving culture. The result of logistic regression also shows that yearly income increases in one birr causes increases the probability of saving culture by 0.00219% from average yearly income 28325.3birr, other factors being constant.

This result is consistent with studies by (Tsega and Yemane, 2014) and Rehman et al. (2010) that shows rural households saving is significantly and positively associated to households' income. The model result indicates that saving and income has strong association i.e. higher incomes raise the capacity to save.

Distance (D): The log it models showed that negative and significant relationship between distance of cooperative members and saving culture. The result of logistic regression shows that distance to financial institution increases by one unit causes decreases the probability of saving culture by 16.99% from average distance 3.56 KM, other factors being constant.

Chemonics International (2012) identified distance remains a major barrier to formal financial saving and other markets in rural areas. As rural households far from formal financial institutions, the expected effect on saving was negative. The transaction cost of saving will increase with the distance especially if we consider the opportunity cost in terms of time. Hence, negative relationship is expected between household saving and distance to the nearest formal financial institution. Sebhatu (2012) also indicated that as financial institutions are far to the households' house, they would have been spent more resources (time, labor) to access financial products and services.

Training (T): The training effect showed that, being trainee household head and household saving are positively and significantly correlated even at 1% level of significance. The result of

logistic regression shows that training increased by one unit, the probability of saving culture of SACCO's members is increased by 34.24%, other factors being constant.

According to Girma *et al.* (2013), the participation of household heads on trainings positively affects their saving

Finical literacy (E): The finical literacy effect showed that, being literate household head and household saving are positively and significantly correlated even at 1% level of significance. The result of logistic regression shows that financial literacy increased by one unit, level of saving culture of SACCO's members is increased by 90%, other factors being constant.

Browning & Lusardi (1996)Show that the Financial literacy enable people to know the risk and return characteristics of different financial products and it also enable them to understand the complex procedures used in accessing financial products. The results of the findings were consistent with the prior findings that remarked higher financial literacy is associated with higher saving (Browning and Lusardi, 1996).

Credit access (CR): The log it models also showed that negative and significant relationship between credit of cooperative members and saving culture significantly correlated even at 1% level of significance. The result of logistic regression shows that a one birr increases in credit access causes decreases the probability of saving culture by 90.5%, other factors being constant.

Kibet *et al.,* (2009), conducted a research in rural areas of Kenya. They found that household income, nature of businessmen occupation, gender, and education level of household head positively influenced the saving culture of the rural households in Nakuru district, while credit access, age, and dependency ratio negatively influence household saving.

Interest rate (IR): The log it models also showed that an insignificant on the saving culture of members.

(Mark *et al.,* 1999) stated the determinants of household savings in Australia. They also found out that interest rate has no significant effect on household savings. However, Income level, age and household asset were found to have positive significant effect on savings. Household size was also found to have negative significant effect on savings

Table 4. 2: Summary of results of tests of Hypotheses

NO	Hypotheses	P-Value	Reference table	Significant/ Insignificant
H1	Gender of RUSACCOs members towards raters has positive impact on saving culture.	0.000<0.05	Table.4.14	Significant
H2	Age of RUSACCOs members towards raters has positive impact on saving culture.	0.006<0.05	Table.4.14	Significant
H3	Education of RUSACCOs members towards raters has positive impact on saving culture.	0.001<0.05	Table.4.14	Significant
H4	Distance of RUSACCOs members towards raters has positive impact on saving culture.	0.013<0.05	Table.4.14	Significant
H4	Traing of RUSACCOs members towards raters have positive impact on saving culture.	0.013<0.05	Table.4.14	Significant
H6	Income of RUSACCOs members towards raters has positive impact on saving culture.	0.004<0.05	Table.4.14	Significant
H7	Financial literacy of RUSACCOs members towards raters has positive impact on saving culture.	0.001<0.05	Table.4.14	Significant
H8	Loan of RUSACCOs members towards raters has positive impact on saving culture.	0.004<0.05	Table.4.14	Significant
H9	Interest rate of RUSACCOs members towards raters has negative impact on saving culture.	.435>0.05	Table.4.16	Insignificant

Source, own survey, 2019.

CHAPTER FIVE

5. CONCLUSIONSANDRECOMMENDATIONS

5.1.Summary of finding

The data comprised a sample of 217 members, who were members of saving and credit cooperative in Doyagena woreda. The response variable considered in this study was the saving culture of the members (either save or not save).

Therefore, showed that the mean difference of gender between households/members having saving culture and those not having was found statistically significant at 1 % level of significance. Gamma (-0.3460) shows there is negative relation between perception of climate variability and gender.finical literacy level enhances households' awareness to decide to save money in Russacos. Households with accesses to credit service determine saving negatively and significantly. The result of logistic regression shows that a one birr increases in loan causes decreases the probability of saving culture .As the finding also shows that, the levels of income of the indicated respondents were somewhat satisfactory and earned yearly. Households with high annual income would like to save in Russacos. Income was found to determine saving positively and significantly. Distance to financial institutions had negative and statistically significant effect on the saving decisions and amount of savings of rural households. Thus, the researcher revealed that availability of financial institutions encourage saving as a result, it affects household saving positively and significantly.

5.2. CONCLUSIONS

Generally, based on the result of logistic regression, it is possible to conclude the effect of the explanatory variables on household saving as; In this study efforts were made to analyze the saving culture of households in rural areas of Doyagena wordas. The study particularly addressed the households' decision to save and their level of saving using process.

Binary log it analysis showed that household heads' the Educational level of households positively and significantly affects households saving in Doyagena. As level of education increases households would be aware of the merit of saving as a result, household saving increase. Gender of the household head is another important determinant of saving. Being male household head and household saving is positively and significantly related. In this study, it is

found that households in the old age save less than households found in the middle age. Households in the old age negatively and significantly affect household saving.

Besides, finical literacy level enhances households' awareness to decide to save money in Russacos. Households with accesses to credit service determine saving negatively and significantly. The result of logistic regression shows that a one birr increases in loan causes decreases the probability of saving culture .As the finding also shows that, the levels of income of the indicated respondents were somewhat satisfactory and earned yearly. Households with high annual income would like to save in Russacos. Income was found to determine saving positively and significantly. Distance to financial institutions had negative and statistically significant effect on the saving decisions and amount of savings of rural households. Thus, the researcher revealed that availability of financial institutions encourage saving as a result, it affects household saving positively and significantly.

Finally, training the members and creating awareness improves saving culture in the community. Training of households positively and significantly affects households saving in Doyagena.

5.3. RECOMMENDATIONS

It is obvious that the level of saving culture in Ethiopia is very low; even it is less than from saving of low income sub-Saharan Africa countries. It is not secret that saving contributes a lot for economic growth and development. Thus, what measures should be taken to improve saving in the country in general and in Doyagena in particular? Based on the study findings the researcher recommends the following policy recommendations.

According to the result of the Binary log it model, educational level of sampled households was found to have a significant positive association with rural households' savings status. Literate households have the awareness regarding the importance of saving and practice rural households' savings than illiterate rural households. In order to make illiterate rural households have better understanding towards savings and make decision to save, emphasis should be given towards strengthening different educational opportunities (non-formal education and formal).

Men are expected to save more than women. But, most of the time men dominate women and control income and assets. Thus, in order to improve saving the government should enhance women empowerment and pave the way for women to increase their income. Moreover, there should be equality especially on the control of income and other assets among men and women.

To improve the saving culture of households in the study areas, SACCOs should emphasis old age save more and encourage the saving opportunities of the old men as well as formulating legislation for being financial institutions is put in place.

Credit access had negative and statistically significant effect on rural households' savings status. In order to make non-saver rural households to save and encourage the members, Russacos should have awareness creation, consult program and provide productive loan and follow up their credit utilization so that they can use it to generate additional income and this in turn motivates rural households to save in Russacos.

SACCOS should be given to create and strengthen awareness of members to save through finical literacy and awareness creation opportunities to attract more members through convincing to SACCO.

SACCOS should put strategies to diversify and support the income of member's to ensure effective contribution of SACCO in promoting members livelihood which improve the existence of it.it is essential to investigate the household saving culture, the determinants of saving and provide recommendations to policy makers.

Russacos in collaboration with cooperative offices, NGOs and other community based organizations should work on awareness creation activities in the study area though providing training to the rural households. In addition to awareness creation activities, Russacos should have in kind reward system to motivate non-saver households.

The Binary log it results revealed that distance from financial institutions had negative and statistically significant effect on the saving status of rural households. Hence, financial institutions should provide saving services by establishing satellite branches reasonably near to the rural households' residences. In addition, policy interventions should focus on increasing the

availability and accessibility of financial institutions in rural areas to promote rural households saving.

Generally, To improve the saving culture of households in the study areas, the households should able to avoid negative saving culture that may impair its saving culture and adopt good saving practices even at small amount of income. Each household should develop and implement financial planning each year for its day-to-day activities.

5.3. SCOPE OF FUTURE RESEARCH

Other factors were remained unsolved by the model and variables that can be considered for conducting further study in the area. These factors comprise income, financial literacy, interest rate, motive to credit and saving mobilization to SACCO. Researches might consider saving culture as dependent variable and can go for further study on the independent factors for interdependence of variables so that a depth understanding of the variables can be achieved and that it help to clearly identify more factors influence among variables in this saving culture.

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APPENDIX I- INTERVIEW SCHEDULE

QUESTIONNAIRES FOR THE RESPONDENTS

WOLKIT UNIVERSITYCOLLEGE OF BUSINESS AND ECONOMICSDEPARTMENT OF MANAGEMENT.

Questionnaire filled by members of saving and credit cooperative

Dear respondents,

The purpose of this questionnaire is to collect primary data from the members of saving and credit cooperative at Doyagena Woreda on the title of **"**determinates of saving and credit cooperative" for the academic requirement. Therefore, the response of your information is very critical important for my paper work accomplishment. The information obtained from you is very confidential and used only for academic purpose.

Thank you in advance for your honest and unbiased response!

Instruction

- No need to write your name
- Please, put the tick (√) mark in the box available for closed end questions and write your response the black space available

Section one: Biography of respondents

1. Member's characteristics

1.1. Sex of the member's ------- (male =1, female =0)

1.2. Age of the member's -------Years

1.3. Please tell me your marital status? ------ (married =1, unmarried =0)

1.4. Educational level of the household head? --- (illiterate=1, literate =0

Part II: Farm and non-farm income of household

3.1 How much did you earn from both farm and non-farm activities (total households)_____in years?

Part III: Saving

4.1 Have you ***saved*** from your earning in this year? 1. Yes 0. No

4.2 did you saved from your earning during last year? 1. Yes 0. No

4.3 did you saved from your earning before last year? 1. Yes 0. No

4.4 do you have saving culture? 1. Yes 0.No

4.5. If it is in the form of cash, how much did you save? _____

4.6. What is the distance in km to the nearest formal financial institution (bank)? _____

4.7. Do you have access to training? Yes =1 No =0 if yes

What are you suggestion for improving saving culture of members in RUSSACCOs?

5. Financial literacy

5.1. Do you have knowledge on methods of saving money? 1. Yes 0.No

5.2. Do you have adequate literacy on why people save? 1. Yes 0.No

5.3. Do you have goal of saving despite my knowledge on saving? 1. Yes 0.Noif yes

What are you suggestion for improving saving culture of members in RUSSACCOs?

6. Credit Availability

6.1. Do you have any experience in using credit? 1. Yes 0.No

6.2. Do you have got loan from RUSACCO? 1. Yes 0.No

6.3. Would you like to improve savings to get more loans in the future?1. Yes 0.No

7. Interest rate

7.1. Have you got required amount of interest rate from RUSACCO?1. Yes 0.No

7.2. Do you think interest rate is more than OMF?1. Yes 0.No

7.3. Do you think saving interest rate in RUSACCO increases every time?1. Yes 0.No

Thank you for your time and cooperation. The information you have provided will be

Treated with utmost confidentiality.

APPENDIX TABLE1 DESCRIPTIVE STATISTICS

```
. tab savcul gender,col row
```

Key
frequency *row percentage* *column percentage*

	Gender		
sav.cul	1	2	Total
0	53	46	99
	53.54	46.46	100.00
	38.97	56.79	45.62
1	83	35	118
	70.34	29.66	100.00
	61.03	43.21	54.38
Total	136	81	217
	62.67	37.33	100.00
	100.00	100.00	100.00

```
. tab savcul eduction ,col row
```

Key
frequency *row percentage* *column percentage*

	Eduction		
sav.cul	1	2	Total
0	78	21	99
	78.79	21.21	100.00
	64.46	21.88	45.62
1	43	75	118
	36.44	63.56	100.00
	35.54	78.13	54.38
Total	121	96	217
	55.76	44.24	100.00
	100.00	100.00	100.00

APPENDIX TABLE 2 EDUCATION AND SAVING CULTURE

```
. tab savcul eduction ,col row
```

Key
frequency *row percentage* *column percentage*

sav.cul	Eduction 1	2	Total
0	78	21	99
	78.79	21.21	100.00
	64.46	21.88	45.62
1	43	75	118
	36.44	63.56	100.00
	35.54	78.13	54.38
Total	121	96	217
	55.76	44.24	100.00
	100.00	100.00	100.00

```
. tab savcul traing ,col row
```

Key
frequency *row percentage* *column percentage*

sav.cul	Traing 0	1	Total
0	55	44	99
	55.56	44.44	100.00
	55.00	37.61	45.62
1	45	73	118
	38.14	61.86	100.00
	45.00	62.39	54.38
Total	100	117	217
	46.08	53.92	100.00
	100.00	100.00	100.00

APENDIX3TABLE TRAING AND SAVING CULTURE

```
. tab savcul traing ,col row nokey chi2 lrchi2 V exact gamma taub
```

sav.cul	Traing 0	1	Total
0	55	44	99
	55.56	44.44	100.00
	55.00	37.61	45.62
1	45	73	118
	38.14	61.86	100.00
	45.00	62.39	54.38
Total	100	117	217
	46.08	53.92	100.00
	100.00	100.00	100.00

```
          Pearson chi2(1) =   6.5748   Pr = 0.010
 likelihood-ratio chi2(1) =   6.5995   Pr = 0.010
                Cramér's V =   0.1741
                     gamma =   0.3394  ASE = 0.123
          Kendall's tau-b =   0.1741  ASE = 0.067
           Fisher's exact =                 0.014
  1-sided Fisher's exact =                  0.008
```

```
. tab savcul gender ,col row nokey chi2 lrchi2 V exact gamma taub
```

sav.cul	Gender 1	2	Total
0	53	46	99
	53.54	46.46	100.00
	38.97	56.79	45.62
1	83	35	118
	70.34	29.66	100.00
	61.03	43.21	54.38
Total	136	81	217
	62.67	37.33	100.00
	100.00	100.00	100.00

```
          Pearson chi2(1) =   6.4977   Pr = 0.011
 likelihood-ratio chi2(1) =   6.5051   Pr = 0.011
                Cramér's V =  -0.1730
                     gamma =  -0.3460  ASE = 0.125
          Kendall's tau-b =  -0.1730  ASE = 0.067
           Fisher's exact =                 0.012
  1-sided Fisher's exact =                  0.008
```

```
. tab savcul eduction ,col row nokey chi2 lrchi2 V exact gamma taub
```

sav.cul	Eduction 1	2	Total
0	78	21	99
	78.79	21.21	100.00
	64.46	21.88	45.62
1	43	75	118
	36.44	63.56	100.00
	35.54	78.13	54.38
Total	121	96	217
	55.76	44.24	100.00
	100.00	100.00	100.00

```
          Pearson chi2(1) =  39.1354   Pr = 0.000
 likelihood-ratio chi2(1) =  40.8269   Pr = 0.000
                Cramér's V =   0.4247
                     gamma =   0.7326  ASE = 0.072
          Kendall's tau-b =   0.4247  ASE = 0.060
           Fisher's exact =                 0.000
  1-sided Fisher's exact =                  0.000
```

APENDIX4**TABLE INTEREST AND SAVING CULTURE**

```
. tab savcul traing ,col row nokey chi2 lrchi2 V exact gamma taub
```

sav.cul	Traing 0	1	Total
0	55	44	99
	55.56	44.44	100.00
	55.00	37.61	45.62
1	45	73	118
	38.14	61.86	100.00
	45.00	62.39	54.38
Total	100	117	217
	46.08	53.92	100.00
	100.00	100.00	100.00

```
          Pearson chi2(1) =   6.5748   Pr = 0.010
 likelihood-ratio chi2(1) =   6.5995   Pr = 0.010
               Cramér's V =   0.1741
                    gamma =   0.3394  ASE = 0.123
          Kendall's tau-b =   0.1741  ASE = 0.067
           Fisher's exact =                 0.014
  1-sided Fisher's exact =                 0.008
```

```
. tab savcul interest2 ,col row nokey chi2 lrchi2 V exact gamma taub

Enumerating sample-space combinations:
stage 3:  enumerations = 1
stage 2:  enumerations = 2
stage 1:  enumerations = 0
```

sav.cul	interest2 0	1	2	Total
0	51	47	1	99
	51.52	47.47	1.01	100.00
	42.15	49.47	100.00	45.62
1	70	48	0	118
	59.32	40.68	0.00	100.00
	57.85	50.53	0.00	54.38
Total	121	95	1	217
	55.76	43.78	0.46	100.00
	100.00	100.00	100.00	100.00

```
          Pearson chi2(2) =   2.3484   Pr = 0.309
 likelihood-ratio chi2(2) =   2.7269   Pr = 0.256
               Cramér's V =   0.1040
                    gamma =  -0.1639  ASE = 0.133
          Kendall's tau-b =  -0.0821  ASE = 0.068
           Fisher's exact =                 0.300
```

```
. tab savcul finacl1 ,col row nokey chi2 lrchi2 V exact gamma taub
```

sav.cul	finacl1 0	1	Total
0	69	30	99
	69.70	30.30	100.00
	77.53	23.44	45.62
1	20	98	118
	16.95	83.05	100.00
	22.47	76.56	54.38
Total	89	128	217
	41.01	58.99	100.00
	100.00	100.00	100.00

```
          Pearson chi2(1) =  61.9136   Pr = 0.000
 likelihood-ratio chi2(1) =  64.9246   Pr = 0.000
               Cramér's V =   0.5341
                    gamma =   0.8370  ASE = 0.049
          Kendall's tau-b =   0.5341  ASE = 0.058
           Fisher's exact =                 0.000
  1-sided Fisher's exact =                 0.000
```

APENDIX5**TABLE INCOME, DISTANCE, LOAN AND SAVING CULTURE**

```
. ttest income, by( savcul )

Two-sample t test with equal variances

   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      99    19208.08    622.5735    6194.528    17972.6    20443.56
       1 |     118    21262.71    527.3112    5728.066    20218.4    22307.02
---------+--------------------------------------------------------------------
combined |     217    20325.35    408.6294    6019.486   19519.93    21130.76
---------+--------------------------------------------------------------------
    diff |           -2054.631    810.2885               -3651.758  -457.5045
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =  -2.5357
Ho: diff = 0                                     degrees of freedom =      215

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.0060         Pr(|T| > |t|) = 0.0119          Pr(T > t) = 0.9940

. ttest distance , by( savcul )

Two-sample t test with equal variances

   Group |     Obs        Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+--------------------------------------------------------------------
       0 |      99    4.060606    .0472239    .4698715    3.966892    4.154321
       1 |     118    3.135593     .096224     1.04526    2.945027    3.326159
---------+--------------------------------------------------------------------
combined |     217    3.557604    .0645877    .9514364    3.430301    3.684907
---------+--------------------------------------------------------------------
    diff |            .9250128    .1136382                .7010251    1.149001
------------------------------------------------------------------------------
    diff = mean(0) - mean(1)                                      t =   8.1400
Ho: diff = 0                                     degrees of freedom =      215

    Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 1.0000         Pr(|T| > |t|) = 0.0000          Pr(T > t) = 0.0000

. tab savcul loan ,col row nokey chi2 lrchi2 V exact gamma taub

           |         loan
   sav.cul |         0          1 |     Total
-----------+----------------------+----------
         0 |        27         72 |        99
           |     27.27      72.73 |    100.00
           |     21.60      78.26 |     45.62
-----------+----------------------+----------
         1 |        98         20 |       118
           |     83.05      16.95 |    100.00
           |     78.40      21.74 |     54.38
-----------+----------------------+----------
     Total |       125         92 |       217
           |     57.60      42.40 |    100.00
           |    100.00     100.00 |    100.00

          Pearson chi2(1) =  68.5815   Pr = 0.000
 likelihood-ratio chi2(1) =  72.3706   Pr = 0.000
               Cramér's V =  -0.5622
                    gamma =  -0.8578  ASE = 0.044
          Kendall's tau-b =  -0.5622  ASE = 0.056
           Fisher's exact =                 0.000
  1-sided Fisher's exact =                 0.000
```

```
. sum gender age eduction income distance traing finacl1 loan interest2 savcnl
```

Variable	Obs	Mean	Std. Dev.	Min	Max
gender	217	1.373272	.4847918	1	2
age	217	56.85253	13.58704	23	81
eduction	217	1.442396	.4978191	1	2
income	217	20325.35	6019.486	3500	30000
distance	217	3.557604	.9514364	1	5
traing	217	.5391705	.4996158	0	1
finacl1	217	.5898618	.4929958	0	1
loan	217	.4239631	.4953272	0	1
interest2	217	.4470046	.5075383	0	2
savcnl	217	.5437788	.4992314	0	1

APENDIX6TABLE HOMOGENEITY TEST

```
. corr gender age eduction income distance traing finacl1 loan interest2
(obs=217)
```

	gender	age	eduction	income	distance	traing	finacl1	loan	intere~2
gender	1.0000								
age	-0.0647	1.0000							
eduction	-0.2846	0.1021	1.0000						
income	0.0748	0.0326	0.2144	1.0000					
distance	0.1991	-0.0649	-0.5135	-0.0728	1.0000				
traing	0.0254	-0.2808	-0.1258	0.0682	0.1243	1.0000			
finacl1	-0.6156	-0.1459	0.1202	-0.0874	-0.3689	0.0373	1.0000		
loan	0.4561	0.0774	-0.2948	0.1065	0.2426	0.0448	-0.5738	1.0000	
interest2	0.2031	-0.0313	0.2581	0.1408	0.0183	0.0858	-0.4666	0.2555	1.0000

APENDIXTABLE7 HETROSKEDASCITY TEST

```
. hettest

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

         chi2(1)      =    11.69
         Prob > chi2  =   0.0006
```

APENDIX8TABLE 8 RESULT OF LOGIT REGRESSION AND MARGINAL EFFECT

```
. use "C:\Users\user\Desktop\file of hen.dta", clear

. logit savcul gender age eduction income distance traing finacl1 loan interest2

Iteration 0:   log likelihood = -149.58807
Iteration 1:   log likelihood = -44.283373
Iteration 2:   log likelihood =   -38.8097
Iteration 3:   log likelihood = -33.546797
Iteration 4:   log likelihood = -33.399373
Iteration 5:   log likelihood = -33.399175
Iteration 6:   log likelihood = -33.399175

Logistic regression                             Number of obs     =        217
                                                LR chi2(9)        =     232.36
                                                Prob > chi2       =     0.0000
Log likelihood = -33.399175                     Pseudo R2         =     0.7767

------------------------------------------------------------------------------
     savcul |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------+-----------------------------------------------------------------
     gender |   8.742962   2.430467     3.60   0.000     3.979334    13.50659
        age |  -.0915936   .0331547    -2.76   0.006    -.1565755   -.0266116
   eduction |   3.603866   1.103608     3.27   0.001     1.440835    5.766898
     income |   .0002027   .0000704     2.88   0.004     .0000647    .0003408
   distance |  -1.574463   .6356563    -2.48   0.013    -2.820326   -.3285994
     traing |   2.738328   .9486977     2.89   0.004     .8789153    4.597742
    finacl1 |   7.201807   2.097549     3.43   0.001     3.090686    11.31293
       loan |  -7.451078   1.838666    -4.05   0.000    -11.0548    -3.847359
  interest2 |   .9523897   1.220906     0.78   0.435    -1.440543    3.345322
      _cons |  -11.54491   5.641542    -2.05   0.041    -22.60212   -.4876864
------------------------------------------------------------------------------

. mfx

Marginal effects after logit
      y  = Pr(savcul) (predict)
         =  .87688191
------------------------------------------------------------------------------
variable |      dy/dx   Std. Err.      z    P>|z|  [    95% C.I.   ]       X
---------+--------------------------------------------------------------------
  gender |   .9438904     .34101     2.77   0.006   .275531  1.61225   1.37327
     age |  -.0098884     .00482    -2.05   0.040  -.019326 -.000451   56.8525
eduction |   .3890735     .14086     2.76   0.006   .112989  .665158    1.4424
  income |   .0000219     .00001     2.27   0.023   3.0e-06  .000041   20325.3
distance |   -.169979     .07793    -2.18   0.029  -.322722 -.017236    3.5576
  traing* |   .3424162     .12038     2.84   0.004   .106473   .57836   .539171
 finacl1* |   .9003458      .0993     9.07   0.000   .705719  1.09497   .589862
    loan* |  -.9053123     .07268   -12.46   0.000  -1.04777 -.762853   .423963
intere~2 |     .10282     .14287     0.72   0.472  -.177204  .382844   .447005
------------------------------------------------------------------------------
(*) dy/dx is for discrete change of dummy variable from 0 to 1

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```