



**St. Mary's UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

**FACTORS AFFECTING CREDIT CONSTRAINT AND RURAL HOUSEHOLDS'
ACCESS TO FORMAL CREDIT IN ETHIOPIA:
THE CASE OF SEBETA CITY ADMINISTRATION**

By

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**St. MARY University
July 4, 2016
Addis Ababa**

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THE CASE OF CITY ADMINISTRATION**

**A Thesis Submitted to St. Mary's University
Institute of Agriculture and Development Studies
In Partial Fulfillment of the Requirements for Masters of Science in
Development Economics**

**By:
Wakjira Lucho**

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July 4, 2016
Addis Ababa**

DECLARATION

I declare that this thesis is my own original work and to the best of my knowledge all sources of materials used for this study have been duly acknowledged. This thesis has been submitted in partial fulfillment of the requirements for MSc in Development Economics and never submitted to any University for award of a degree.

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ENDORSEMENT AND APPROVAL

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LIST OF ABBEREVATION AND ACRONOMY

CBO: Community-Based Organizations

CSA: Central Statistical Authority

HDI: Human Development Index

GDP: Gross Domestic Product

MFI: Micro Finance Institutions

MOFed: Ministry of Finance and Economic Development

NBE: National Bank of Ethiopia

SACCOs: Saving and Credit Cooperation

RUSACCO: Rural Saving and Credit Cooperation

UNDP: United Nation Development Programe

WB: World Bank

ABSTRACT

This study has aimed to identify factors affecting credit constraint and rural households' access to credit in Sebeta City Administration. A total of 190 households, 24% of them female headed households, were included in the study. Logistic regression was applied in order to identify factors affecting credit constraint and rural households' access to credit. The study result revealed that only 15% of households included in the survey had access to formal credit service even though 60% of them indicated that they needed the service. Many of them are not applying for credit for two major reasons, small loan size offered by the institutions and lack of awareness about the process and procedures of the organizations.

Regarding access to credit, the result of the survey indicates that four continuous variables, age, aging, family size and number of livestock in tropical livestock unit significantly affect access to credit. Similarly, four categorical variables, namely Extension package, Sex of the household head, Ownership of irrigable land and Group membership significantly affect rural household's access to formal credit. However, education level, income and land size don't have significant impact on credit access. Number of livestock owned negatively influence access to credit while family size and aging have positive impact on access to formal credit. Furthermore, the result of the study revealed that male headed households are more likely to access credit compared to female headed households. Finally, ownership of irrigable land, and group membership positively affected access to formal credit service while access to extension service had negative effect on access to formal credit.

With respect to Credit Constraint, the study result indicates that 57.3% of the households included in the study are credit constrained households. From the continuous variables, age of the household and number of livestock owned have significant impact in determining credit constrained households while number of dependent children, education, family size and land size seems to be insignificant in determining credit constraint. From the dummy variables, Sex of households has impact on credit constraint while group membership is insignificant in identifying credit constraint. Aging and number of livestock owned negatively affected credit constraint. As people become older, they accumulate enough wealth which can serve as a collateral to access credit. Livestock ownership had negative impact on credit constraint since livestock can be easily converted to cash;

people with larger number of livestock may prefer to sell their animals to meet their financial needs instead of accessing credit from financial institutions.

The finding of the study also indicated that most of the explanatory variables expected to affect access to credit were found to be in line with theoretical and empirical findings of other studies. It also shed light on the need to revisit the loan size currently provided by financial institution and importance of awareness creation activities to promote farmers understanding about credit and saving

CHAPTER ONE

1. INTRODUCTION

1.1 Background

Ethiopia is one of the poorest nations in Sub-Saharan African countries. In 2014, the Per capita income of the nation was \$ 530; according to Human Development Index (HDI), it is ranked 173rd from 187 countries (UNDP, 2015). Agriculture remained the backbone of the country's economy; it directly supports 85% of the population, 43% of the GDP and over 70% of export value (*Ibid*). Increasing agricultural productivity level is considered to be the most vital requirement for sustaining economic growth in Ethiopia. The country's capacity to address poverty, food insecurity and various other socio-economic problems is highly dependent on the performance of this sector.

According to MoFED (2003), growth in agriculture implies higher incomes of the agricultural population and hence increased consumption. Thus domestic demand for industrial goods and services particularly trade will expand, providing the industrial and trade sectors an impetus for growth. The expanded domestic market will lay a firm foundation for accelerating growth of the non-agricultural sectors.

The importance of rural credit services can be best understood by their potential contribution to the development of the agricultural sector. Credit is necessary for small-scale farmers to increase their agricultural productivity and farm income. Modernizing agriculture requires significant amount of credit to finance use of purchased inputs such as fertilizer, improved seeds, insecticides, additional labor and so on.

Gurley and Shaw (1967) have stressed the role of credit market imperfections as an obstacle to rapid economic growth. The message from strand of literature revealed that financial deepening in the form of smoothly functioning insurance and credit markets is a prerequisite for economic development.

Despite the importance of credit for rural households to increase production and productivity of agriculture sector, their access to institutional credit is limited due to various factors.

1.2 Statement of the Problem

The banking sector does not satisfy the growing demand for credit and many borrowers turn to the informal sector to meet their needs. It has been estimated that only 5% of farmers in Africa and about 15% in Asia have had access to formal credit (Swain, 2001).

Most of the existing literature focused on the supply side, presence of rural financial institutions in the locality of farmers, and ignored the demand side. For example, the targeted and highly subsidized government credit schemes which were based on the supply- leading approach are thought to be among the principal causes of financial crisis in Africa. These government provided credit schemes have been plagued with a culture of default and the presence of political interest which limits their efficacy (Adams, 1984).

One of the key constraints financial institutions face in providing more access to credit is the fact that smallholder farmers are unable to provide sufficient collateral. Land, the main asset owned by smallholder farmers, cannot be used as collateral in the case of Ethiopia. According to Ethiopia's Proclamation No. 456/2005, land is the property of the state and peoples of Ethiopia, farmers have only "right of use". As a result, the risk of advancing loans to farmers is very high. From the demand side, farmers are sometimes discouraged to apply for loan for various reasons such as insufficient loan size, lack of adequate information about the requirements, group liability and so on. As a result, despite the importance of credit to modernize agriculture, to create opportunities for off-farm income generation activities and to improve productivity of rural farm households, many farmers are not accessing formal credit.

There is no consensus among scholars also as to what determine households' access to credit and factors affecting credit constraint. For example some researchers such as Zeller *et al* (2002) argued that gender appeared to have no impact on credit access while others argued that women are especially discriminated against formal financial markets. Furthermore, since such kind of study has not been conducted in the study area, , this paper is helpful in bridging the knowledge gap and

can positively contribute to the ongoing debate on factors that affect rural household's access to credit service.

1.3 Objective of the Study

General Objective of the study is to assess the rural households' access to credit in Sebeta City Administration

Specific Objective

- Determine level of access to formal credit by rural households in the Sebeta City Administration
- Identify determinants of rural households' access to credit in the study area
- Identify factors affecting rural households' credit constraint

1.4 Research Questions

- What is the level of rural household's access to formal credit in Sebeta City Administration?
- Which factors are important in determining access to formal credit?
- What is the level of credit constraint in the study area and which factors are crucial in influencing credit constraint?

1.5 Scope and Limitation of the Study

The scope of this study covers only rural households in Sebeta City Administration and the finding of the research may not represent the existing situation in Oromia as a whole. While collecting data on income obtained from off farm income generation activities, households had difficulty to recall proceedings obtained from different sources as they have little or no practice of recording their cost and profits. As a result the quality of data collected on income may not accurately reflect the reality on the ground.

1.6 Significance of the Study

This study will help to bridge the knowledge gap regarding what determines rural household's access to credit in the study area as well as factors affecting credit constraint. The finding of the study can be used by the financial institutions to revisit their current operation system and to understand the presence of immense potential market for their product. The policy makers can also use the finding of this paper to facilitate the way farmer's access formal credit and to coordinate all concerned stakeholders to improve the saving habits of the community under consideration.

1.8 Organization of the Study

This paper is organized as follows, the first chapter covers introduction and the second part deals with literature review. In the literature review part previous researches relevant to the topic has been consulted. Chapter three covers research methodology which includes sampling method, description of study area, specification of model and data analysis method. Chapter four presents and discusses the major findings of the study. The last part, chapter five, deals with conclusion and recommendation based on the findings of the research.

CHAPTER TWO

2. REVIEW OF LITERATURE

2.1 Theoretical Literature Review

2.1.1 Concept of Credit

The word 'credit' has been given several and varying number of meanings, some people refer to it as 'loan' while others used the term 'borrow' to qualify credit. Others defined credit as a loanable fund which permits the purchasing of services, money or goods in the present, based upon the promise to pay for time at some time in future. From this it can be inferred that credit provide the means for the temporary transfer of assets or the use of such assets from a man or organization that has them, to a man or organization that has not.

Baker and Hopkins (1979), however, made a clear distinction between credit and loan. He referred to credit as an assets or a financial reserve which the farmers can call upon when needed provided he has not used his credit 'asset' by exchanging it for a loan. When a farmer makes the exchange of his credit for a loan, then he starts incurring an interest charge, also he uses up part of his capacity and hence part of his ability to acquire additional liquidity in the future by borrowing.

Olajide (1981), defined credit as 'monetary' or financial aspect of capital resources: capital resources being broadly defined as goods employed but necessarily used up to the course of production and went further to indicate that, it can take the form of: Money in cash or bank over drafts. In kind as forms of biological and physical capital purchase and supplied producers.

Miller (1975) defines credit as a device for facilitating the temporary transfer of purchasing power from one individual or organization to another. Credits provide the basis for increased production and efficiency through specialization of function. Thus the skilled farm manager with small financial resources may be brought together with those with substantial financial resources but who lack farm management ability. The product of such a union will be more productive than the individual elements operating separately.

2.1.2 Lender's Monopoly

Hoff and Stiglitz (1996) have proposed many competing theories of the rural credit markets in developing countries. Their first theory hypothesizes that village moneylenders in the informal market are monopolists, charging as high an interest rate as they can to maximize profits. Although a certain degree of monopoly power is present in the sense that there are often high transaction costs of switching lenders, this characterization is not complete if we are to gain a thorough understanding of this highly complicated market. A high explicit interest rate is not always the best way to maximize profits especially when interlinkages are present. Further, the monopoly theory does not explain the coexistence of the formal and informal credit market despite the fact that formal interest rates are substantially below those charged in the informal sector.

2.1.3 Credit Rationing

According to Wikipedia, credit rationing refers to the situation where lenders limit the supply of additional credit to borrowers who demand funds, even if the latter are willing to pay higher interest rates. It is an example of market imperfection, or market failure, as the price mechanism fails to bring about equilibrium in the market. In other words, at the prevailing market interest rate, demand exceeds supply, but lenders are not willing to either loan more funds, or raise the interest rate charged, as they are already maximizing profits.

Stiglitz and Weiss (1981) developed a model to illustrate how credit rationing can be an equilibrium feature of the market, in the sense that the rationed borrower would be willing to obtain the funds at an interest rate higher than the one charged by the lender, who will not be willing to lend the extra funds, as the higher rate would imply lower expected profits. The reason for that is adverse selection, the situation where the lender is faced with borrowers whose projects imply different risk levels (types), and the type of each borrower is unknown to the lender. The main intuition behind this result is that safe borrowers would not be willing to tolerate a high interest rate, as, with a low probability of default, they will end up paying back a large amount to the lender. Risky types will accept a higher rate because they have a lower chance of a successful project (and typically a higher return if successful), and thus a lower chance of repayment.

Holmstrom and Tirole (1998) provide an example of credit rationing where asymmetric information does not lead to adverse selection, but instead moral hazard. High effort implies a high probability of a successful outcome, and low effort implies a lower one, but also gives a

benefit to each borrower, in terms of higher leisure. So there is an incentive by borrowers not to exert high effort, even though doing so will result in higher probability of a successful outcome. The fact that the lenders cannot observe the borrowers' behavior implies that there is a minimum level of firm assets needed for banks to provide the loan. If a firm does not have the minimum amount of assets available, then its project will not be financed, and we will have credit rationing.

Moral Hazard:- Maitreesh and Timothy (1999) tried to explain moral hazard in terms of hidden action. Once a borrower has taken a loan, the project's payoff depends in part on the borrower's actions, including levels of labor and other inputs. Ordinarily, we would expect the borrower to choose these actions such that the marginal benefit of each action equals its marginal cost. That is not necessarily the case with asymmetric information. In the absence of collateral, the lender and borrower do not have the same objectives because the borrower does not fully internalize the cost of project failure. Moreover, the lender cannot stipulate perfectly how the borrower should run the project, in part, because some of the borrower's actions are not causelessly observable

Adverse Selection:- The adverse selection theory of credit markets originates with the paper by Stiglitz and Weiss (1981). The theory rests on two main assumptions: that lenders cannot distinguish between borrowers of different degrees of risk, and that loan contracts are subject to limited liability (i.e, if project returns are less than debt obligations, the borrower bears no responsibility to pay out of pocket). The analysis is restricted to involuntary default, i.e, it assumes that borrowers repay loans when they have the means to do so.

A lender can try to deal with this information problem directly, by trying to assess these characteristics, or indirectly by offering loan terms that only good risks will accept. The typical method for separating good risks from bad risks is to ask the borrower to pledge collateral. Risky borrowers are likely to fail more often and lose their collateral. If the bank offers two different contracts, one with high interest rates and low collateral and the other with the opposite, risky borrowers will select the former and safe borrowers the latter. But poor people by definition do not have assets that make useful collateral, meaning that lenders have no effective way to separate good risks from bad.

2.1.4 Credit Constraint Theory

Stiglitz and Weiss(1981) publication of ‘‘Credit Rationing in Markets with Imperfect Information’’ is a milestone of credit constraints theory. After that, a large number of papers investigate the credit constraints as credit rationing from the financial supply side. But, more and more researchers found that credit constraints result not only from formal financial sectors credit rationing but also from demand side of risk aversion, cognitive biases and demand depression.

Theory of discouraged borrowers put forward by Kon & Storey (2003) indicated that imperfect credit screening mechanism will give biased signal to borrowers and lead them not to apply loan since wrongly feel they will be rejected.

It is important but difficult to measure credit constraints. Researchers all over the world make great strength to develop better methods from indirect measures by sensitivity (including consumption and liquidity) to direct survey to identify credit constraints. Survey is considered as a better method since sensitivity of critical variables may not come from credit constraints.

Boucher, Carter and Guirkingner(2008) divided credit constraints into supply-side and demand-side, and deemed high transaction cost and high risk cost of loan contract discouraged rural households’ borrowing. In the past, most of studies used the probability of access to formal loan to measure credit constraints and later they expanded to take effective financial demand, the replacement of informal loan and the limit of formal loans scale into consideration.

2.1.4.1 Demand Side Credit Constraint

The precondition of effective credit demand is that the borrower can afford the interest cost of loan, so those who are ‘‘afraid of incapability to repay’’ and ‘‘interest rate is too high’’ as ‘‘unconstrained’’ group. Households that are not applying for credit due to ‘‘Complex procedure and extra requirement’’, ‘‘inconvenience comparing to informal loan’’, ‘‘bad service of bank’’, ‘‘too far away’’, ‘‘too expensive to find mortgage or guarantee’’, and ‘‘too small loan amount’’ can be attributed to the problem of imperfect financial service and high transaction cost. ‘‘No relationship and no loan’’, ‘‘never know farmers can apply loan’’, and ‘‘ignorant of loan conditions and

procedures” can be attributed to cognitive biases for credit market. Therefore, when rural household reply any of the above choices, they are considered as demand-side credit constrained.

2.1.4.2 Supply Side Credit Constraint

Supply-side credit constraints can be identified through various ways and two of them are considered in this study: firstly, loan application rejected for non-ability reasons, including “no mortgage or guarantee”, “no relationship”, and “shortage of capital of bank”; secondly, amount of loan received by rural household is less than his/her expected loan amount. If any of the above two conditions are satisfied, it can be attributed to supply-side credit constraints.

2.2 Empirical Literature

2.2.1 Determinants of Access to Credit

Hussien (2007) stated that the probability of choosing the formal credit sector is affected by gender, educational level, household labor and farm size. He further explained that education, credit information and extension visit are more likely to increase the information base and decision making abilities of the farm households including the ability to compare pros and cons of choosing appropriate credit and production technology.

A study by Atieno (2001) identified the main features of the lending policies of formal and informal credit organizations that determine access to and use of credit by small scale entrepreneurs indicates that income level, distance to credit sources, past credit by small scale entrepreneurs, past credit participation and assets owned were significant variables that explain the participation in formal and informal credit financial markets. Hussein (2007) independently supports this finding that indicates smallholder farmers being more likely to prefer the informal sector to the formal sector with respect to flexibility in rescheduling loan repayments in times of unexpected income shocks. On the other hand, Hossain (1988) noted that Grameen Bank experience shows that most of the conditions imposed by formal credit organizations like collateral requirements should not be a barrier to poor smallholders in obtaining credit. The poor farmers can access loans with minimum default if effective procedures for disbursement, supervision and

repayment have been established. The smallholder farmers may have sufficient titled collateral to qualify for the formal credit but they may refuse the low interest formal loans and instead opt for high interest informal ones that do not require any collateral. Land is an important collateral however in the case of Ethiopia it cannot be used as collateral as the proclamation gives farmers only usufruct right.

Getaneh (2005) indicated that group lending approach locks out the very poor farmers. This implies that the co-borrowers tend to self-select themselves into a group of homogenous members that effectively discriminates against other potential members to reduce risk of carrying the burden in case of default. The proximity of farm households to formal lending organization is one of the factors that influence the borrowing decisions of farm households. It was identified by Hussein (2007), who pointed out that farm households are discouraged to borrow from formal credit sector if it is located farther. This is attributed to transaction costs especially transportation cost, which increases with lender- borrower distance which raises the effective cost of borrowing at otherwise relatively lower interest rate in the sector. However, a number of the lending organizations especially microfinance institutions that provide mobile banking services minimized the need for transport.

The use of extension package, in effect, requires adequate labor supply, thus a positive effect of household labor on the choice of credit for the farm input which increases with the number of productive members of the farm households. It has also been cited that, low level of education of the heads limits the access of credit by households. Zeller *et al*(2002) argued that gender appeared to have no impact on credit access while others argued that women are especially discriminated against formal financial markets.

Age of household heads goes with characteristic which may differentiate their ability of credit access. Older people tend to have more experience and have been constituted wealthy for long which may serve as collateral and increase their trust and confidence to financial institution (Zeller *et al*, 2002). Old people are privileged and less demanding (risk averse) while young people are more credit seekers but disadvantaged.

Furthermore, engagement in off-farm income generating activities tends to build confidence to borrow and it can be source of good source of finance to ensure repayment.

2.2.2 Empirical Literature on Constraints to Access Credit

In developing countries it is believed that if farmers obtain formal financing, the productivity from the application of additional input would increase returns. According to Kashyap and Stein (1999), they revealed that if the productivity from a farm is low then this directly affects the effective use of credit as an avenue of increasing output.

According to study undertaken by Odendo *et al* (2002), agricultural credit is insufficient and as such it hampers improved agriculture production efforts. The issue of accessibility is made more difficult through the commercial banks' lending policies such as loan amounts, bureaucracy's and time consuming, complicated application procedures and restriction of credit for specific purposes. The findings of Cheng (2009) revealed that age has positive effect on supply side credit constraint. He articulated that risk aversion preference is decreasing with the raise of income and it is enhanced with age growing. The accumulation of family asset is related to age; so age has positive effect on supply side constraint. However, the finding indicated that capability variables such as education don't have significant effect on credit constraint.

2.2.3 Determinants of Households Demand for Credit

A number of factors have been identified by previous studies as the key factors determining rural households' overall demand for credit and demand for different credit sectors. Total savings or total value of assets relative to production/consumption scale was identified as an important factor determining household's overall need for credit. Covariate and/or idiosyncratic shocks would also affect the overall demand for credit. High interest rates and other transaction costs including tedious paper work, bureaucratic loan process associated with formal loans (Foltz, 2004), collateral risk (Boucher and Guirkinger, 2007), asymmetric information and also the political reasons and the availability of formal credit institutions (He, 2007) have been identified as the main obstacles to the demand for formal credit markets.

2.3 Role of Rural Credit in Transforming Agriculture

Credit is important tool in the transformation of traditional agriculture into a modern sector through the purchase of inputs, farm equipment and adoption of new technologies (Kebede, 1995). It can be used as an instrument for market stability and can act as a powerful tool for rural farmers for establishing storage facilities and providing transport systems thus enhancing their bargaining power.

Formal credit finance access is critical to the smallholder farmers in enhancing economic growth through agriculture because it improves the competitiveness of farming enterprises, reduces poverty, expands employment opportunities and diversifies export. Agricultural credit is particularly vital to smallholder farmers if they are to produce a marketable surplus and thereby contribute to the development process (World Bank, 1975a).

According to Nyoro *et al* (2002), lack of working capital and low liquidity limit the farmers' ability to purchase productivity enhancing inputs like seeds, fertilizers and pesticide. In spite of the relatively high adoption rates of these inputs, the quantities used are low and indeed, access to formal credit has been found to enhance agricultural productivity through the improvement of technical efficiency of maize production in Kenya (Kibara, 2005). Credit programs have also been instrumental in encouraging farmers to take up new technologies and it is also argued that financial credit is the most flexible form of transferring economic resources to the poor as one can buy anything that is for sale with cash obtained through credit. It is further identified that credit employs property that would otherwise lie idle. However, the involvement of smallholder farmers in agricultural productivity and domestic markets in most developing countries remains low due to a range of constraints like inaccessible credit facilities, high cost of inputs resulting from fuel prices which are increasingly on the rise, climate change and poor infrastructure.

2.4 Problems in Rural Finance

In rural credit markets, problems which are present in all credit markets are aggravated, due to the special environment. Below, a framework will be presented for dividing these problems into three groups, problems related to screening, incentives, and enforcement of credit.

Screening Problem

The presence of risk and the related problem of imperfect information are common to all rural credit markets. With regard to financial markets, Stiglitz (1994) goes as far as to say that their —essential role is to obtain and process information. The screening problem entails assessing the risk of the borrower, which may vary considerably. With information asymmetry comes the risk of adverse selection. The information is said to be asymmetric: —when two parties enter a contract, one may have information that would—if it were known to the other party—change the nature of the contract (Long, 1994). An interest rate set high to cover the risk of default, may attract only borrowers with very risky projects, since only projects with high variance can generate outcomes that make the loan profitable for the borrower. However, a negative outcome is particularly disadvantageous for the credit. A credit that raises interest rates to compensate for risky projects makes the composition of the loan portfolio even more risky, which is a consequence of adverse selection.

Incentive Problem

The problem of borrowers' incentives is often referred to as moral hazard. Moral hazard is another phenomenon arising from incomplete information. It means that after the contract is closed between the lender and the borrower, the borrower may have incentives to change his course of action in ways negative for the lender (Milgrom and Roberts, 1992). After receiving a loan for a specific project or purpose, the borrower might want to change to a more risky project. Another temptation facing the borrower is to invest little effort in making his project a successful one since it is not mainly his own money which is at stake. Lenders usually try to restrict this behavior, either through providing incentives for project fulfillment or through closer monitoring. If the borrower does alter his plans, little time will lapse before it comes to the lender's knowledge.

Enforcement Problem

When payment is due, the problem of enforcement arises. Besley (1994) defines a pure enforcement problem as —a situation in which the borrower is able but unwilling to repay. He argues that the problem of enforcement is the central difference between rural credit markets and

other credit markets, since normal institutions for enforcement credit, as courts and police, are often underdeveloped or nonexistent, in the rural areas of developing countries.

Different mechanisms affect the problems described above, and are used to alleviate them. If lenders could spend infinite resources on accessing information about the borrower and enforcing the contract, problems of screening, monitoring and enforcing contracts would not exist. Many institutions and market practices can be seen as responses to the problems of limits to commitment and asymmetric information. Commitment is limited whenever it is prohibitively costly to write and enforce detailed contracts. Information is asymmetric whenever it is too costly for one party to find out about the characteristics or actions of another party market arrangement that limit the problems without being too expensive are sought after.

2.5 Overview of Financial Sector in Ethiopia

The financial sector in Ethiopia consists of formal, semiformal and informal institutions. The formal financial system is a regulated sector which comprises of financial institutions such as banks, insurance companies and microfinance institutions. The saving and credit cooperative are considered as semi-formal financial institutions, which are not regulated and supervised by National Bank of Ethiopia (NBE). The informal financial sector in the country consists of unregistered traditional institutions such as Iqub (Rotating Savings and Credit Associations), Idir (Death Benefit Association) and money lenders. The components of each category are discussed in detail in the following headings.

2.5.1 The Formal Sector

The major formal financial institutions operating in Ethiopia are banks, insurance companies and microfinance institutions. Ethiopia is still one of the most under banked countries in the world with one bank branch serving over 33,000 people (NBE, 2015).

2.5.1.1 Formal Banks

Banking in Ethiopia started in 1906, with the establishment of the Bank of Abyssinia that was owned by the Ethiopian government in partnership with the National Bank of Egypt then under British rule (www.nbe.gov.et). But a well-structured banking system started to evolve starting in

the 1940s-after the Italian departure. A government owned bank-the State Bank of Ethiopia-was established in 1942, and a number of foreign bank branches and a private bank were operating in competition with the government owned commercial bank until they were nationalized and merged into one government owned mono-bank in 1976 (*Ibid*).

As indicated in the table below, currently, there are 19 banks operating in the country, of which 16 are private banks while the remaining three are state owned banks, namely Commercial Bank of Ethiopia (CBE), Development Bank of Ethiopia (DBE) and Construction and Business Bank (CBB). The total number of bank branches in the sector reached 2693, with a larger concentration of them (35%), located in the capital city, Addis Ababa. More specifically, the state-owned Commercial Bank of Ethiopia (CBE) - the largest bank in Ethiopia alone controls about 36.3% of the branch networks and 34% of the capital.

Although one can observe a strong growth and revival of the private sector since liberalization in the 1990s; yet, the state-owned banks seem to dominate the industry. As of the June 2015, the state owned banks account for 41.9% of total branches and 43.5% of the total capital.

Table1: Capital and Branch Network of Ethiopian Banks as of June 2015.

S/N	Name of Bank	Capital “ Million ETB”		Branches	
		Amount	Share	Number	Share
1	Commercial Bank of Ethiopia	10,716.40	34	977	36.3
2	Construction & Business Bank	731.20	2.3	120	4.5
3	Development Bank of Ethiopia	2,269.20	7.2	32	1.2
Total Public Banks		13,716.70	43.5	1129	41.9
4	Awash International Bank	2,540.30	8.1	207	7.7
5	Dashen Bank	2,377.20	7.5	164	6.1
6	Abyssinia Bank	1,594.30	5.1	136	5.1

S/N	Name of Bank	Capital “ Million ETB”		Branches	
		Amount	Share	Number	Share
7	Wegagen Bank	2,061.90	6.5	119	4.4
8	United Bank	1,475.00	4.7	128	4.8
9	Nib International Bank	1,925.30	6.1	115	4.3
10	Cooperative Bank of Oromiya	1,058.70	3.4	141	5.2
11	Lion International Bank	601.60	1.9	88	3.3
12	Oromia International Bank	771.70	2.4	152	5.6
13	Zemen Bank	650.00	2.1	7	0.3
14	Buna International Bank	559.30	1.8	82	3
15	Berhan International Bank	622.30	2	71	2.6
16	Abay Bank	591.00	1.9	89	3.3
17	Addis International Bank	32	1.2	399.60	1.3
18	Debub Global Bank	22	0.8	202.60	0.6
19	Enat Bank	11	0.4	392.10	1.2
Total Private Banks		17,822.80	56.5	1564	58.1
All Banks		31,539.50	100	2693	100

Source: NBE (2015)

2.5.1.2 The Insurance Company

Likewise to banking, the insurance market is undeveloped, uncompetitive and there exist paucity of information on the kind of insurance that is currently present. Insurance market for crop and livestock is missing in most part of the country. Most of Ethiopian farmers don't have access to crop and livestock insurance service. The current practice of bulk of insurance coverage and business in Ethiopia is targeting the corporate market and focuses mainly on general insurance.

The insurance sector is dependent on the banking sector for much of its new business. Most Ethiopian insurance companies have sister banks and its common for these banks to refer their

clients to their sister insurance companies, but this is largely restricted to credit life insurance products.

The 1990's liberalization stimulated private sector participation in the financial sector. This has led to the formation of a number of private insurance companies. According to the National Bank of Ethiopia (2015), there are 17 insurance companies with a total of 377 branches operating in the country. In terms of ownership, all insurance companies except the Ethiopian Insurance Corporation (EIC), are privately owned. Private insurance companies accounted for 77.6 percent of the total capital, while the remaining share was taken up by the single public owned enterprise, the Ethiopian Insurance Corporation. Of the total insurance branches, 52.8 percent are located in Addis Ababa. Private insurance companies owned 82.5 percent of the total branches.

2.5.1.3 Microfinance Institutions

The development of microfinance institutions in Ethiopia is a recent phenomenon. The proclamation, which provides for the establishment of microfinance institutions, was issued in July 1996. Since then, various microfinance institutions have legally been registered and started delivering microfinance services (Wolday, 2000). In particular, the Licensing and Supervision of Microfinance Institution Proclamation of the government encouraged the spread of Microfinance Institutions (MFIs) in both rural and urban areas as it authorized them among other things, to legally accept deposits from the general public (hence diversify sources of funds), to draw and accept drafts, and to manage funds for the micro financing business (Getaneh, 2005).

Legal Frame Work of Micro-Finance Institutions

In an attempt to enhance the development and soundness of the micro-financing business; Micro-Financing Business Proclamation No. 626 /2009 was ratified by the House of People's Representative. According to the Proclamation No. 626 /2009, the main purpose of a micro-financing institution shall be to collect deposits and extend credit to rural and urban farmers and people engaged in other similar activities as well as micro and small scale rural and urban entrepreneurs, the maximum amount of which may be determined by the National Bank.

As it is depicted in the Table2, total number of active borrowing clients of the microfinance institutions in Ethiopia reached over 2.4 million customers in 2011. From the total loan disbursement, the three largest Microfinance share was Birr 5.1 Billion. According to the market share based on the number of clients, Amahara Credit and Saving Insti (ACSI), Dede-bit Credit and Saving (DECSI) and Oromia Credit and Saving Share Company (OCSSCO) accounted for 28.1%, 16.1% and 20.4%, respectively. With respect to market share in terms of the total loan provision, Amhara Credit and Saving Inst (ACSI) accounts for 28.2%, Dede-bit Credit and Savings Inst (DECSI) and Oromia Credit and Savings (OCSSCO), market shares are 26.9 and 18.6%, respectively.

Table 2: Microfinance Institutions in Ethiopia

No.	Microfinance Institutions	No. of borrowing clients	Amount of loans provided (Birr)
1	Amhara Credit and Saving Inst (ACSI)	694,993	1,940,827,401
2	Dede-bit Credit and Savings Inst (DECSI)	396,648	1,849,942,011
3	Oromia Credit and Savings (OCSSCO)	503,000	1,280,000,000
4	Addis Credit and Savings Inst (ADCSI)	156,148	566,826,000
5	Africa Village Financial Services (AVFS)	17,359	14,974,452
6	Aggar Microfinance	5,854	19,130,224
7	Benishangul Gumuz Microfinance	28,874	51,762,087
8	Buusaa Gonofaa Microfinance	48,908	76,548,872
9	Digaf Microfinance	1,27	1,334,920
10	Diredawa Microfinance	5,923	16,285,631
11	Dynamic Microfinance Inst	261	2,224,932
12	Eshet Microfinance	24,116	40,588,029
13	Gambela Microfinance	880	1,173,831
14	Gasha Microfinance	6,991	14,736,312

No.	Microfinance Institutions	No. of borrowing clients	Amount of loans provided (Birr)
15	Ghion Microfinance	233	286,268
16	Harar Microfinance	2,706	7,101,769
17	Harbu Microfinance	17,984	23,808,751
18	Lefayeda Credit and Savings	303	623,441
19	Letta Microfinance	925	4,790,020
20	Meket Microfinance	2,959	2,329,562
21	Meklit Microfinance	14,224	23,029,053
22	Metemamen Microfinance	10,218	8,720,938
23	OMO Microfinance	327,888	585,102,740
24	PEACE Microfinance Inst	17,206	45,507,171
25	Shashimene eddir yelimat Agar (SEYAMFI)	4,144	10,959,365
26	Sidama Microfinance	47,810	28,334,552
27	Specialized Financial & Promotional Inst (SFPI)	33,342	50,807,161
28	Tesfa Microfinance	162	203,576
29	Wasasa Microfinance	53,981	113,970,892
30	Wisdom Microfinance	45,331	101,205,955
31	Somali Microfinance		

Source: National Bank of Ethiopia 2011

2.5.2 Semi- formal

The major sources of credit for the bulk of the rural population are friends and relatives. According to the 1983-84 Agricultural Survey of the Ministry of Agriculture (Ministry of Agriculture, 1984), friends and relatives had accounted for as high as 78% of the total credit extended to the peasant sector during the survey period (Aredo, 1993)

2.5.2.1 Semi-formal finance (SACCOS)

According to Aredo (1993), Savings and credit co-operatives (SACCs) can be designated as semi-formal financial institutions. They are outside the control of the central authorities with respect to ownership of assets and management. The SACCOS in Ethiopia have recent origins. The oldest ones were established in the late 1960s, and they grew very slowly until 1978. One reason behind such slow growth was the political and social instability which followed the 1974 uprising. SACCOS have been growing fast since 1978 (*Ibid*)

Most cooperatives have access to some financial products, but more sophisticated services like warehouse receipts and insurance are rare. Although significant progress has been made in recent years, many rural financial institutions generally have insufficient capital, reach, and capacity to provide agricultural cooperatives with services at the scale they need.

According to Kifle (2011), there are 14,453 SACCOs in the country, yet they provide less than one percent of the country's total financing, and many struggle with low capacity management and governance. As of May 2014, there were 32 different kind of cooperatives with 56,044 primary cooperatives operating in all regional states of Ethiopia with aggregate membership size of 9,165,267 (6,949,589 male and 2,215,678 female) and capital amounting to 8.8 billion birr (*Ibid1*).

The regional distribution of primary cooperatives shows that Oromia 29.3 %, SNNP 20.9%, Addis Ababa 21.6%, Amhara 13% and Tigray 8%. The remaining five regions (Somalia, Afar, Gambella, Beneshangul and Harare) and Dire Dawa city collectively accounted for 6.8% of the number of cooperatives in the country (*Ibid 2*).

Challenges of SACCOS

SACCOs in Ethiopia are entangled with various constraints that need to be addressed in order to enable them deliver effective and efficient services for their clients. Some of the major weaknesses of SACCOs in Ethiopia are summarized below:-

- **Weak Governance**

Management committee members have no knowledge about financial management. In most cases SACCOs are unable to employ high caliber management staff and the burden of due diligence is left to members who may have limited education on management.

- **Weak Financial Management System**

The financial system in place including accounting and audit works are very weak. Most of the primary SACCOs are not maintain proper financial records and produce reports timely. Similarly,

the accounts of the societies are not timely audited with three to four years lag in the case of certain primary societies

- **Lack of Differentiated Products**

Cooperatives have not yet provided demand driven products that could address the needs of their members there are no planned and structured ways of developing new products or revising the existing.

- **Policy and Regulatory Environment**

The regulation is very restrictive in that it does not allow SACCOS to engage in income generating activities (other than lending to members) or to lend to non-members thereby greatly constraining their capital base and ability to diversify their portfolio. Lending to members constitutes the main source of income with saving as the only source of loanable funds. Unfortunately, savings in most SACCOS is not attractive partly due to the low interest rate on savings. Hence, SACCOS are often faced with serious shortage of finance for loans. The dependence of SACCO loans on member-personal guarantor(s) also restricts access as finding such guarantor has remained problematic. Both spouses have to agree to become personal guarantors for a loan. The loan may not be approved if one of the parties refuses the request to become a guarantor. Even members of other SACCOS cannot become guarantors for loans.

- **Inappropriate Loan Security Requirements**

The personal guarantor requirement inhibits some from borrowing because, given that the guarantor has to be a non-borrower and cannot borrow until his obligation as guarantor is settled (or transferred), getting a guarantor is difficult. It is sometimes argued that the low level of operation of SACCOS as well as the 100% security (through borrower's own savings and guarantee) rendered risk assessment unnecessary.

2.5.3 Informal Finance Sector

In both rural and urban areas in Ethiopia, it is common that neighboring family households organize themselves and develop their own institutions, popularly known as Community-Based Organizations (CBOs). The nature of the CBOs highly varies from social, religious and financial concerns, but are all aimed to address the needs of the people. In most communities, membership in traditional community associations such as iddirs, iqqubs and mehabers are very common. More importantly, these traditional institutions also play a crucial role in savings and beneficiary mobilization in the informal financial sector.

Iqqub

Iqqub is a savings association where each member agrees to pay periodically a small sum into a common pool so that each, in rotation, can receive one large sum. All savings and loan associations with a rotating fund 'have savings as a core feature', according to Miracle *et al* (1980).

The iqqub is not limited to urban areas; it is also common in the rural areas though perhaps practiced to a lesser degree. A national rural household survey by the Central Statistical Office (CSO) shows that the annual contribution to iqqub per household is birr 18.9 and per capita annual contribution is 3.75 Birr (Aredo, 1993).

The economic logic underlying the widespread use of the iqqub can be approached in two ways. The traditional approach analyses iqqub in the framework of financial intermediation as it is the case with similar Rotating Savings and Credit Associations (ROSCAs). A new approach analyses ROSCAs (and hence the iqqub) in terms of 'the logic of collective action'. According to the first approach, financial transaction is undertaken implicitly through the borrowing and lending activities of the participants while according to the second approach the ROSCAs are more like a pooling of resources needed to gain the benefits of some kind of collective action than like a combination of contracts involving mutual loans and debt service payments: the logic of the ROSCAs is the logic of collective action, not the logic of the market (*Ibid*).

Iddir

An Iddir is the most common informal institution in Ethiopia, common in both rural and urban areas. It is an association made up by a group of persons united by ties of family and friendship, by living in the same district, by jobs, or by belonging to the same ethnic group and as an object of providing mutual aid and financial assistance in certain circumstances. According to Salole (1986) the original purpose of the iddir was the burial of the dead. Today, the iddir provides a much wider range of services including financial and material assistance and consolations to a member in the event of difficulties as well as entertainment as the case may be.

In practice Iddir is a sort of insurance programme run by a community or a group to meet emergencies. Iddir, unlike the insurance system is very popular among people because it is culturally appropriate, flexible, easily accessible and cost-effective. It is basically a nonprofitmaking institution based upon solidarity, friendship, and mutual assistance among members. The risks covered by iddirs include funeral expenses, financial assistance to families of the deceased and, in some cases, coverage of other risks such as medical expenses, losses due to fire or theft, etc. Almost every iddir has its own by-laws specifying the duties and rights of members, procedures and functions of officials.

Mehabers

Another common CBO is the Mehaber, which is a religious, informal institution that aims to raise funds for medical and burial expenses. It is widespread among the Orthodox Christians of Ethiopia, as it typically draws its members from the church. Members usually meet on a monthly basis for food and drink, and commonly support each other in times of difficulty.

Money Lender

The money lender (known as arata-abadari) has been active in Ethiopia for centuries and until the beginning of the twentieth century represented the only source of loans. Condemned by the church, outlawed by the state and frowned upon by society, the money lender kept his financial dealings secret and kept no account open to scrutiny (Aredo, 1993).

Prior to 1974, money lenders were often rich landowners. Following the nationalization of land, landlords have disappeared as a social class, and their roles as money lenders are being replaced by rich traders. The financial operations of money lenders are simple, cost-effective and flexible compared to those of the banking system. Interest rates, which are never stated in the agreement

made with the borrower, are influenced by the extent of personal relations, degree of risk involved, availability of funds in the community, length of the maturity period and extent of competition from the formal financial market (Mauri, 1987, pp. 13-16). There is no adequate information on the size of the interest rate it is assumed to range from a minimum of 24% to a maximum of 900% per year (*Ibid*).

CHAPTER THREE

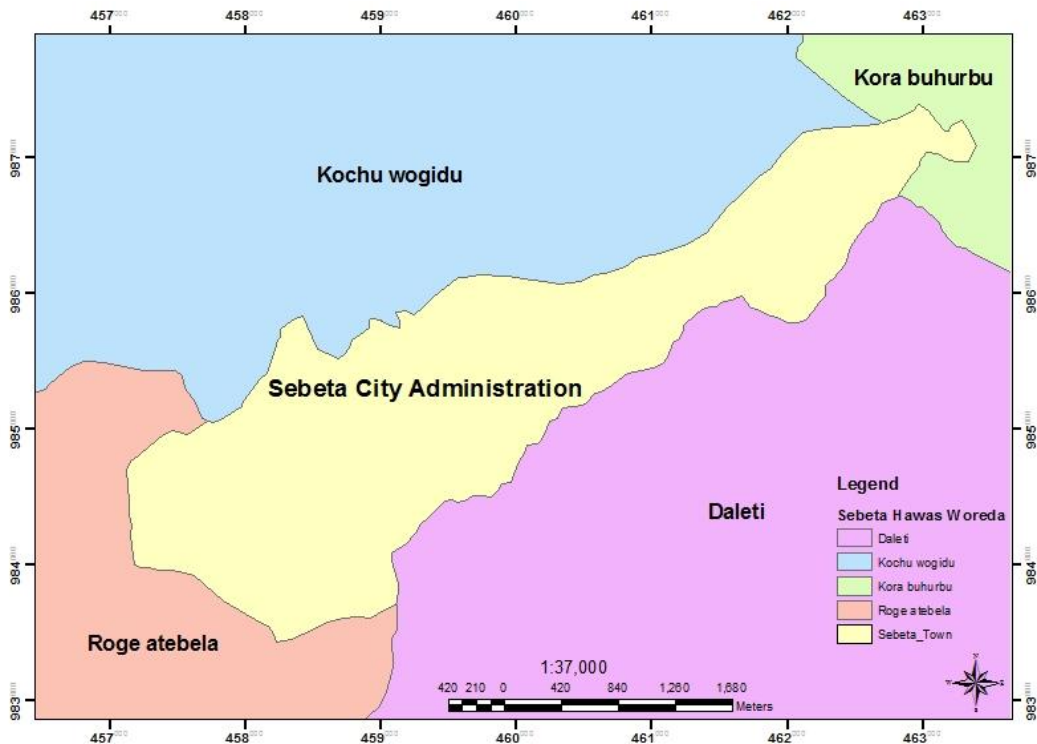
3. RESEARCH METHEDOLOGY

3.1 Description of the Study Area

Sebeta City Administration is one of the towns found in Oromia National Regional State, Finfine rounding Oromia Special Zone, at a distance of 25km to the South west of Addis Ababa to the direction of Jimma main road. Sebeta has given the status of Zone and it is also serving as the capital of Sebeta Hawas Woreda. The town is divided in to nine Kebeles (the lowest political administrative Units). It covers a total area of about 9800 hectares. The study area is located between $8^{\circ}53'50''\text{N}$ and $8^{\circ}55'59''\text{N}$ latitude, and $38^{\circ}36'36\text{E}$ to $38^{\circ}40'\text{E}$ longitude.

It has an altitude of 2,356 meters above sea level. According to 2007 CSA census, the population of Sebeta town was 49,331 where male and female account for 24,356 and 24, 975, respectively. But, based on the 2013 Sebeta Administration Report, number of population is projected to be 120,427 (male 62,134 and female 59,293).

Figure 1: Map of Sebeta City Administration



Source: Shape File Adopted from CSA 2007

3.2 Research Design

This research adopted a descriptive survey design. Descriptive research helps to study characteristics of the study subject, estimate proportion of population that have particular characteristic and to discover association/correlation among different variables. Therefore, descriptive survey was deemed the best strategy to fulfill the objectives of the study.

3.3 Sampling Technique

A multistage sampling technique was used to select 190 respondents from the City Administration. Firstly, purposive sampling is used to choose two Kebeles from the Woreda because they are the only rural Kebeles under the City Administration and farmers in this area depend on agriculture to sustain life. In order to include representative women in the study, stratified random sampling was used. First, the households were stratified into male and female headed. Then, systematic random sampling was used to select sample households from each stratum.

3.4 Data Collection

With respect to primary data collection, structured and semi structured questionnaire was used to collect required information from the selected households and key informants. In addition, secondary data were consulted to strengthen the finding of the study.

3.5 Analytical Method

The stated objectives were achieved using one empirical model to estimate the desired variables. In the first objective, only descriptive method was used to analyze the data. In the second and third objective, both descriptive and logistic regression were used in the analysis of categorical and continuous variables.

3.6 Model Specification

Empirical Model Specification

“Access “ refers to actual receiving of credit facility from formal financial institution. The response in this case is dichotomous (binary choice variable); includes a “yes” or “ no” type. However, whether the households are constrained or not is derived from their response to the following questions. Do you need credit? Why didn’t you access formal credit? Was the amount of credit received enough? Those households that replied “ I don’t need credit” were included in unconstrained group. If the answer was yes, follow up question was asked to know whether they were credit constrained or not. Those households that received credit but replied the amount is insufficient were considered as credit constrained households. Furthermore, those who didn’t apply for credit due to small loan size, lack of awareness about the conditions and procedures, and those households’ whose application was rejected due to unclear reasons were also included in constrained group. However, those household who replied, “ I have enough money”, “loan received was enough” and “afraid of risk” were considered as unconstrained groups. As a result, the final choice in this case of credit constraint is also binary “ Yes” if constrained and “ No “ otherwise.

According to Brooks (2008), both the logit and Probit are non-linear models and are estimated using maximum likelihood (ML) method. They are the most widely used model when the dependent variable happens to be dichotomous (Gujarati, 2004). Probit has a normal distribution while logit has a logistic (slightly flatter tails) distribution. The choice of probit versus logit

regression depends, therefore, largely on the distribution assumption one makes. The logit regression model in practice has been used by many researchers because of its comparative mathematical simplicity. The logistic regression is powerful, convenient and flexible and is often chosen if the dependent variable is of categorical nature or it is not normally distributed. Some of the study variables are categorical and therefore this study will apply binary logit model to identify the factors that influence access to credit.

Logistic Probability Model is Econometrically Specified as

$$P(X_i) = \frac{e^{\alpha+BX}}{1 + e^{\alpha+BX}} = \frac{1}{1 + e^{-Z}} = e^Z \quad \text{Where } Z = \alpha + Bx$$

- ✓ Where, P_i is the probability that an individual access credit given X_i
- ✓ X_i represents the i th explanatory variable, a vector of household socioeconomic, demographic, institutional and communication characteristics and
- ✓ e denotes the base of natural logarithms,
- ✓ α and β are parameters to be estimated

Central to the use of logistic regression is the logit transformation of P given by Z , that is, to get linearity, we take the natural logarithms of odds ratio equation. The logistic transformation is given by:-

$$Z = \ln\left(\frac{P_i}{1 - P_i}\right) = \alpha + \beta_1X_1 + \beta_2X_2 + \dots + \beta_nX_n + U_i$$

- ✓ Where Z_i is the indicator of smallholder farming household access to credit or not,
- ✓ U_i is the error term.

3.7 Variables and Expected Signs

Table 3: Variables Expected to Affect Access to Credit and Expected Sign

List of variables	Description	Expected sign	Remark
Age	Age of the household head in years (continuous)	-ve or +ve	Based on previous studies
Aging	Age square of household head (continuous)	+ve	Previous studies
Education	Education level of a household head (years)	+ve	Based on previous studies

EXTS	Extension service by farmer (0= No, 1 = yes)	+ve	Based on previous studies
FSIZE	Family size of the household	+ve	Based on previous studies
GRPM	Group Membership (0=No, 1= Yes)	+ve	Based on previous studies
LANDSIZE	Total land size in Hectare	+ve	Based on previous studies
Income	Value of Total produce and income generated from off farm activities.	+ve	
IRL	Have irrigable land (0 = No, 1= Yes)	+ve	Own observation
SEXHH	Gender of head of household (Dummy 1= Male, 0= female)	+ve	Based on previous studies
TLU	Number of total livestock measured in tropical livestock unit	-ve	As they can be cash sources for buying inputs.

From the personal observation of the researcher, cultivation of irrigable land is labor intensive and inputs need for such purpose is more expensive compared to rain fed agriculture. As a result, household need additional finance in order to cover all the necessary expenses which increases demand for credit.

Table 4. List of Variables Expected to Affect Credit Constraint

List of variables	Description	Expected sign	Remark
Age	Age of the household in years (continuous)	-ve or +ve	Based on previous studies
Aging	Age square of household head (continuous)	-ve	Based on previous studies
DCHILD	Number of dependent children under 15	-ve	Based on previous studies
Education	Education level of a household head (years)	+ve	Based on previous studies
LANDSIZE	Total land size in Hectare	+ve	Based on previous studies
GRPM	Group Membership (0=No, 1= Yes)	+ve	Based on previous studies
SexHH	Sexof household head (Dummy 1= Male, 0= female)	+ve	Based on previous studies
TLU	Number of total livestock measured in tropical livestock unit	-ve	Based on previous studies

CHAPTER FOUR

4. RESULTS and DISCUSSIONS

4.1 Characteristics of Sample Households

This section presents demographic, institutional and socioeconomic characteristics of households included in the survey such as age, sex, number of dependent children, education level of household head, size of land holding in hectare, livestock size, participation in extension package, ownership of irrigable land, income from farm and off farm income generation activities.

A total of 190 households were included in this study, women headed households accounts for 24% of individuals interviewed. The average age of household in the study area is 46.21. Average family size of households included in the study is 4.87 and average number of dependent children per household is 1.63. Average family size of the respondents is slightly below the mean family size for the country.

Land is the most important asset in the Woreda. Mean landholding of the respondents is 2.28 hectare which is twice as large as national average for the country. Another important asset of rural households is livestock; it is measured in terms of number of tropical livestock unit. The mean livestock size of the households is 8.9.

With respect to education which was measured in terms of year of schooling, mean year of schooling for the respondents is 3.78 which seems to be very low.

Regarding purpose for which the credit was used 46% of respondents used it for trade, 22.5% of them used it for livestock fattening, 24% of them for the purchase of agricultural inputs, 6.8% for expansion of irrigation channel and 3.4% of them used it for land rental.

Table 5: Summary of Sample Household Characteristics

	N	Minimum	Maximum	Mean	Std. Deviation
Age of head of household	190	22	76	46.21	11.634
Number of dependent children below 15 years	190	0	6	1.63	1.260
Education level of household head	190	0	12	3.78	4.073
Family size of the household	190	1	10	4.87	1.874
Total size of land owned in hectare	190	0.00	7.00	2.2817	1.10074
Loan size	190	2000.00	5200.00	3851.7	889.01
Total livestock owned in Total livestock unit	190	0.00	39.00	8.9632	7.54467
Total value of income from farm & off farm	190	8000.00	224000.00	57942.1053	46338.46398
Valid N (listwise)	190				

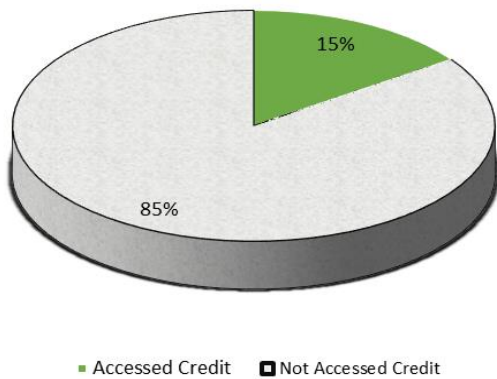
4.2 Number of Households with Credit Access

This section looks at the level of formal credit access by sample households included in the study. As shown in Figure 1, result of the survey indicates that

only 15% of the respondents in the study area had accessed formal credit. However, as depicted in table 6, 60% of the respondents indicated that they are interested to take loan from formal financial institutions.

Table 6: Demand for Credit

Figure 2: Level of Credit Access by Sample Households



	Frequency	Percent
Demand for credit		
No	76	40.0
Yes	114	60.0
Total	190	100.0

4.3 Factors Affecting Rural Households' Access to Credit

This section deals with the effect of continuous and discrete variables on access to credit. 7 continuous variables and 4 categorical variables were hypothesized to have effect on rural households' access to formal credit in Methodology section of this document. "Continuous Variable" quantitative variables that can be easily measured while "categorical, discrete or dummy

variable” refers to the variables that are qualitative in nature and can only assume nominal values such variables usually indicate the presence or absence of a “quality” or an attribute.

4.3.1 Descriptive Statics

With respect to gender, 65.5% of those who managed to access formal credit were male and 34.5 % were female. Similarly, 77.6% of those who failed to get access to formal credit were male and 22.4% were female.

Among the farming households who managed to get access to formal credit, 86.2% accessed extension service while 13.8% were not exposed to extension service. On the other hand, from households who failed to access formal credit, 54.7% of them use extension package while 45% do not use extension package.

Table 7: Summary of the Attributes of Smallholder Farmers Access to Credit (for categorical variables)

Variable	Households Accessed Credit (Yes = 1)			Households Not Accessed Credit (No = 0)			P- value
	Obs.	Freq.	Percent	Obs.	Freq.	Percent	
Gender							0 .1
Male	29	19	65.5	161	125	77.6	
Female	29	10	34.5	161	36	22.4	
Participation in extension package				161			0 .000
Yes	29	25	86.2	161	88	54.7	
No	29	4	13.8	161	73	45.3	
Group Membership				161			0 .097
Yes	29	29	100.0	161	74	46.0	
No	29	0	0.0	161	86	53.4	
Own irrigable land				161			0 .035
Yes (= 1)	29	11	37.9	161	75	46.6	
No (=0)	29	18	62.1	161	86	53.4	

4.3.2 Logistic Regression Analysis

This part presents the findings of the factors influencing smallholder farmers' access to formal credit in the study area using logistic regression analysis. The regression emphasis is on analyzing both the categorical and continuous variables together and not one at a time.

In the Research Methodology part of these research, 11 variables of which 4 are categorical and 7 are continuous variables were hypothesized to affect rural households' access to formal credit.

Overall Significance and Goodness of Fit of the Model

- Overall Significance of the model or null hypothesis: - . Chi-square is used to test the existence of relationship between the dependent variable and independent variables as a whole. As indicated in Table 8, Chi-square value is 57.7 and it is statistically significant at 1% hence we reject the null hypothesis which states that there is no relationship between the dependent variable, access to credit, and the independent variables. However, some of the variables are individually insignificant in explaining rural households' access to credit.
- Goodness of Fit: In order to assess the goodness of fit of the model, percentage correctly predicted, -2Log-likelihood and Nagelkerke R Square was used. The results obtained from the Table 8, indicates that overall the model correctly predicts 87.4% expected outcome , Nagelkerke R Square= 0.456 and - 2Log-likelihood is 104.6
- Therefore, given the above points, it is possible to conclude that the model is significant in explaining determinants of rural households' access to credit in the study area even though some of the variables are not significant individually.

The result in the table 8 indicates that four of the continuous variables, age, aging, family size and Number of livestock in tropical livestock unit significantly affect access to rural credit. On the other hand, all the four categorical variables, Extension Package, Sex of the household head, Ownership of irrigable land and Group membership significantly affect rural household's access to formal credit. However, education level, income and land size donot have significant effect on credit access.

Though education level in terms of year of schooling shows positive sign, it is statistically insignificant. The finding of the study contradicts with findings of Hussein (2007) who concluded

that higher level of education is associated with the ability to access and comprehend information on credit terms and conditions. The reason for insignificance of the variable might be attributed to low level of education in the study area which is only 3.7 years of schooling.

With respect to land size, its insignificance might be associated with the fact that the financial institutions in rural area do not take into consideration size of land while providing loan to clients. For MFIs, the loan size depends on the number of terms the client has taken loan from them and the loan size is very small compared to agricultural input price. Furthermore, farmers in Ethiopia are not allowed to take loan from financial institutions presenting their land as a collateral.

Table 8: Summary of Logistic Regression Result for Access to Credit

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
AGEHH	-0.216	0.1	4.6	1	0.031**	0.806
AGING	0.002	0.001	4.3	1	0.036**	1.002
EDUHH	0.053	0.08	0.436	1	0.509	1.054
EXTENSION(2)	-1.639	0.883	3.44	1	0.064*	0.194
FSIZE	0.427	0.159	7.232	1	0.007***	1.533
GROUPMEM			6.747	2	0.034**	
INCOME	0	0	0.496	1	0.481	1
IRRIGABLE(2)	1.596	0.731	4.773	1	0.029**	4.935
LANDSIZE	0.218	0.303	0.518	1	0.472	1.244
SEXHH(1)	2.07	0.755	7.517	1	0.006***	7.923

TLU	-0.14	0.082	2.867	1	0.09*	0.87
Constant	-19.799	40193.12	0	1	1	0
Percentage Correct = 87.4						
- 2log likelihood = 104.6						
$\chi^2 = \text{Chi-square} = 57.7, \text{Sign} = 0.000$						
Nagelkerke R Square= 0.456						

*, **, *** represents significance at 10%, 5% and 1%, respectively.

4.3.2.1 Elaboration of Significant Explanatory Variables

Aging (Age square): Many scholars use age square as a good proxy variable to estimate aging. This variable has positive effect on accessing credit. The possible explanation is as the individual becomes older, they are less likely to take risky business. As a result financial institutions favor old people. The odd ratio in favor of accessing formal credit increasing by 1.002 as aging increase by 1 unit. The result of the study is similar to the finding of Zeller *et al* (2002).

The Age of Household Head (AGEHH): The age of household head has negative effect on access to credit. With increase age, the household accumulates enough wealth and depends on own finance to meet their financial needs. They may not prefer to visit MFIs or SACCOs to get their services. As the age of the household increase by one year the odd ratio in favor of accessing formal credit declines by 0.806.

Number of Livestock in Tropical Livestock Unit (TLU): Livestock in the rural areas constitutes accumulation of wealth, security against emergencies, dowry and also used as a cultural privilege. They can also be easily converted into cash when demand arises. Due to these reasons it was hypothesized to have a negative relationship with the dependent variable, as the total number of animals in the household increase, the household would be less likely to go for credit. This can be attributed to increase wealth and income base of farm households which makes more money available in the households. The result of the logit model also revealed that the variable has a negative relationship; farmer with lesser number of animals uses formal credit than farmer with larger livestock size. The odd ratio in favor of accessing formal credit use decreases by a factor of 0.87 when the livestock number increases by one unit. The result is consistent with the prior expectation.

Access to Extension Service: -Normally, extension service is expected to motivate farmers to use improved inputs and increase demand for credit. Access to extension by smallholder farmers was significant at 6% level of significance, however, with negative effects on access to credit. This implies that the cost of fertilizer is high compared to the amount of credit given by the finance institution as a result farmers may prefer not to request the service. Furthermore, there is no input credit scheme in the study area and farmers are expected to pay 100% cash up front to purchase fertilizer and improved seed.

Family Size of Households: Family size is significant at 5% significance level with positive sign. Proper management of farm and off- farm income generation activities requires adequate labor supply, thus household labor affect access to credit positively. On the other hand, households with large number of children may need credit for consumption smoothing purpose. The study result shows that as the family size increase by one unit the odd ratio in favor of accessing credit increases by 1.533. The finding of the study concurs that of Hussien (2007).

Sex of the Household Head: Gender of households affects rural households' access to credit and level of significance is 1%. The odd ratio in favor of accessing formal credit for Men is 7.9 compared to female households. Theoretical and empirical studies show that one of the disadvantaged groups from the economic point of view is women. Though microfinance institutions work to reach women, because of the existing gender differences women are still less accessed to use formal credit.

Ownership of Irrigable Land: Ownership of irrigable land is another important factor that affect rural household's access to credit in the study area and the significance level is less than 5%. The odd ratio in favor of accessing credit is 5 times higher for those who own irrigable land compared to those who do not have irrigable land. Cultivation of irrigable land demands higher inputs compared to rain fed agriculture. Hence it increases demand for credit in order to finance additional resource required.

4.4 Factors Affecting Credit Constraint

This section deals with factors constraining rural households' access to credit. Constrained household in this study include households who accessed credit from financial institution but replied that amount they received is not enough, those farmers whose application is rejected and households who are discouraged to apply for credit due to lack of awareness and too small loan size. Access to credit does not imply absence of credit constrained; households may access credit and yet they can be credit constrained.

4.4.1 Descriptive Statics

The study result indicates that 57.3% of the households in the study area are credit constrained households. The main reason for high credit constraint in the area is attributed to small size of loan

offered by the financial institutions and lack of awareness regarding the requirements and procedures of financial institutions. As indicated in the previous section, mean loan size accessed by households is only Birr 3851.0. As indicated in Table 10, the main reasons for not taking credit

	Credit Constrained Households	Unconstrained households	% of credit constrained
Gender			
	Male	77	67
			53.5
Female	32	14	
			69.5
Total	109	81	57.3
Access to Credit			
	Yes	24	5
			82.7
No	85	76	
			53
Total	109	81	57.3

are, loan size is too small (28%), lack of awareness (20.5%), application rejected (1.2%) and only 28% of households responded that they have enough money to meet their financial needs

From those households who accessed credit from financial institution, 82.7% of them indicated that the loan size is not enough. Hence, they are considered as credit constrained households. Given the average land holding size of the sample households,

which is slightly above 2 hectares, the amount of credit they receive is not enough to cover cost of agricultural inputs like fertilizer and improved seed. Furthermore, many of the households in the study area need credit for grain trade and livestock fattening which need relatively high capital; the survey result indicates that 68.5% of the households that accessed credit used it for trade and livestock fattening.

Table 9: Categorical Variables and Constrained Households **Table 10: Reason For Not Taking Loan**

Reason	Frequency	Percentage
Loan size is too small	45	28
Application rejected	2	1.2
Have enough Money	46	28.6
Afraid of risk	26	16.1
Lack of Awareness	33	20.5
Timeliness of loan	5	3.1
Shortage of household labor	2	1.2

4.5.1 Logistic Regression

Nine variables were hypothesized to affect credit constraint in the Methodology Section of this document. Seven of the variables are continuous

and two of them are categorical or dummy variables. Logistic regression is applied to identify the significance of these factors.

Overall Significance and Goodness of Fit of the Model

- Overall Significance of the model or null hypothesis: - . Chi-square is used to test the existence of relationship between the dependent variable and independent variables as a whole. As indicated in Table 11, the Chi-square value for the model is 41.8 and significant at 1%, and it is statistically significant at 1% hence we reject the null hypothesis which states that there is no relationship between the dependent variable, credit constraint and the independent variables used in the model . However, some of the variables are individually insignificant in explaining credit constrained households.
- Goodness of Fit: In order to assess the goodness of fit of the model, percentage correctly predicted, -2Log-likelihood and Nagelkerke R Square was used. The results obtained from the Table 11, shows that overall the model correctly predicts 70.5% of the cases, Nagelkerke R Square = 0.266 and - 2Log-likelihood is 217.39
- Therefore, given the above points, it is possible to conclude that the model is significant in explaining factors affecting credit constraint in the study area even though some of the variables are insignificant individually.

The result of the survey reveals that from the continuous variables, age of the household and number of livestock owned have significant impact on determining credit constrained households while number of dependent children, education, family size and land size seems to be insignificant in determining credit constraint. From the dummy variables, Sex of households has impact on credit constraint while group membership is insignificant in identifying credit constraint.

In theory, educated rural household should easily understand loan procedure and relevant information and education is an indication for personal ability. But we could not find evidence that education relieve credit constraints. The finding of this survey concurs with that of Cheng(2009). This might be attributed to the fact that the level of education in the study area in terms of year of schooling is very low, 3.7.

Table 11: Summary of Logistic Regression Result for Credit Constraint

	B	S.E.	Wald	df	Sig.	Exp(B)
AGEHH	0.154	0.073	4.407	1	.036**	1.167
AGING	-0.002	0.001	6.106	1	.013**	0.998
DEPCHILD	0.057	0.19	0.089	1	0.766	1.058
EDUHH	0.062	0.05	1.495	1	0.221	1.064
FSIZE	0.061	0.128	0.225	1	0.635	1.063
GROUPMEM			3.559	2	0.169	
LANDSIZE	-0.349	0.218	2.547	1	0.11	0.706
SEXHH(1)	0.729	0.42	3.015	1	.082*	2.072
TLU	-0.051	0.031	2.729	1	.099*	0.95
Constant	-23.457	40191.7	0	1	1	0
Percentage Correct = 70.5						
- 2 Loglikelihood = 217.39						
Nagelkerke R Square =.266						
$\chi^2 = \text{Chi-square} = 41.8$ Sign = 0.001						

*, **, *** represents significance at 10%, 5% and 1%, respectively.

4.5.1.1 Explanation of Significant Explanatory Variables

Aging (square of household head age): As indicated in Table 11, aging has significance in determining constrained households and it is significant at 5%. There is negative relationship between the age of the household and credit constraint. As aging increases by one year the odd ratio in favor of credit constraint declines by 0.998. The result of the survey supports findings of Zelleret *al* (2002). Old people are privileged and less demanding or risk averse. Old people seem to have accumulated wealth for long which may serve as collateral and increase their trust and confidence to financial institutions.

Age of Household Head (AGEHH):- The survey result indicates that there is a positive relationship between age of household and credit constraint and it is significant at 5%. As age increases by one year, odd ratio in favor of credit constraint increases by a factor of 1.167. This result enhances the findings of Cheng (2009). Risk aversion preferences decline with the raise of

income which is related to age. Hence age has a positive effect on supply side of credit constraint which means the credit offered by financial institution may not be sufficient for them. With increasing age, households want to get larger loan size which might be beyond the capacity of financial institutions.

Number of Livestock in Tropical Livestock Unit (TLU): The result of the logit model revealed that the variable has significant impact on credit constraint; it's significant at 10%. As it can be seen from the table 11 there is a negative relationship between numbers of livestock owned and credit constraint. As the size of livestock increase by one unit, the odd ration in favor of credit constraint declines by a factor of 0.95. The negative relationship could be attributed to the fact that livestock ownership indicates accumulation of wealth in rural households and it can be easily converted to cash easily. Therefore, accumulation of the wealth or ownership of asset gives financial institution confidence to advance loan to them. On the other hand, people with large number of livestock may not prefer to go to financial institution to meet their financial needs and instead depend on sell of their livestock. As a result if they donot need credit, they are considered us unconstrained group.

Sex of Household Head: - According to the survey result, gender has important impact on the credit constraint and it is significant at 10%. The odds of credit constraint is higher for male households compared to their female counterparts. The result of this survey supports the findings of many researches.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The finding of the study indicated that most of the explanatory variables expected to affect access to credit were found to be in line with theoretical and empirical findings of other studies. The unexpected insignificance of education level and size of land on credit access entails low level of farmers' education and land not being used as collateral. The amount of credit they receive is not associated with the size of land they own; it mainly depends on number of years they borrowed from the MFIs.

Analysis of impact of gender on access to credit indicates that men are more likely to access credit than their female counterparts in the study area. It shows that despite the various endeavors made to empower women headed households to access credit, they are still disadvantaged groups. Unlike access to credit, male headed households are more likely to be credit constrained compared to female headed households..

Generally, farmers in the study area have limited understanding about services provided by financial institutions, credit and saving. Furthermore, the size of loan offered by financial institutions is too small compared to demand for the product.

5.2 Recommendation

The major cause for low level of credit access is small loan size which in turn is attributed to farmers' lack of collateral. Land is the most important asset farmers in Ethiopia own. However, the proclamation No. 456/2005 gives farmers only the usufruct right and farmers cannot use their land as collateral to access credit; on the other hand the same proclamation Article 8, Sub-article 4 allows investors to use their lease right as collateral to access credit from financial institutions. The government of Ethiopia need to revisit its current land administration and use proclamation in order to ensure the way farmers can get credit from financial institution using their land holding right.

The loan size given by financial institutions fail to take into consideration up to date market information about the price of agricultural inputs. It is important to conduct market assessment prior to setting loan ceiling.

Farmers also expressed lack of awareness regarding conditions and procedures of financial institutions as among the main reasons for not accessing formal credit. The financial institutions need to make frequent awareness raising campaign in order to inform farmers the services they offer. Their presence in the Sebeta town doesnot guarantee demand for their product.

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ANNEXES

Annex I. Logistic Regression for Access to Credit

Annex 1.1 Case Processing Summary

Unweighted Cases ^a		N	Percent
	Included in Analysis	190	100.0
Selected Cases	Missing Cases	0	.0
	Total	190	100.0
Unselected Cases		0	.0
Total		190	100.0

a. If weight is in effect, see classification table for the total number of cases.

Annex 1.2 Dependent Variable Encoding

Original Value	Internal Value
No	0
Yes	1

Annex 1.3 Categorical Variables Codings

		Frequency	Parameter coding	
			(1)	(2)
Group membership	No	87	1.000	.000
	Yes	102	.000	1.000
	8	1	.000	.000
Participation in Extention package		1	1.000	.000
	No	76	.000	1.000
	Yes	113	.000	.000
Own irrigable land		1	1.000	.000
	N0	104	.000	1.000
	Yes	85	.000	.000
Sex of household head	Female	46	1.000	
	Male	144	.000	

Block 0: Beginning Block

Annex 1.4 Classification Table^{a,b}

		Observed	Predicted		
			Household Access to credit		Percentage Correct
			No	Yes	
Step 0	Household Access to credit	No	161	0	100.0
		Yes	29	0	.0
		Overall Percentage			84.7

a. Constant is included in the model.

b. The cut value is .500

Annex 1.5 Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1.714	.202	72.202	1	.000	.180

Annex 1.6 Variables not in the Equation^a

		Score	df	Sig.	
Step 0	Variables	AGEHH	.848	1	.357
		AGING	.243	1	.622
		EDUHH	1.061	1	.303
		EXTENSION	17.189	2	.000
		EXTENSION(1)	5.581	1	.018
		EXTENSION(2)	12.541	1	.000
		FSIZE	6.607	1	.010
		GROUPEM	25.294	2	.000
		GROUPEM(1)	24.717	1	.000
		GROUPEM(2)	25.293	1	.000
		INCOME	.290	1	.590
		IRRIGABLE	6.692	2	.035
		IRRIGABLE(1)	5.581	1	.018
		IRRIGABLE(2)	.743	1	.389
		LANDSIZE	.006	1	.938
		SEXHH(1)	1.968	1	.161
		TLU	1.428	1	.232

a. Residual Chi-Squares are not computed because of redundancies.

Block 1: Method = Enter

Annex 1.7 Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step		57.720	13	.000
Step 1	Block	57.720	13	.000
	Model	57.720	13	.000

Annex 1.8 Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	104.634 ^a	.262	.456

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Annex 1.9 Classification Table^a

Observed			Predicted		
			Household Access to credit		Percentage Correct
			No	Yes	
Step 1	Household Access to credit	No	155	6	96.3
		Yes	18	11	37.9
Overall Percentage					87.4

a. The cut value is .500

Amex 1. 10 Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
AGEHH	-.216	.100	4.645	1	.031	.806
AGING	.002	.001	4.388	1	.036	1.002
EDUHH	.053	.080	.436	1	.509	1.054
EXTENSION			3.440	2	.179	
EXTENSION(1)	21.311	40192.970	.000	1	1.000	1800655360.324
EXTENSION(2)	-1.639	.883	3.440	1	.064	.194
FSIZE	.427	.159	7.232	1	.007	1.533
GROUPMEM			6.747	2	.034	
Step 1 ^a GROUPMEM(1)	16.786	40193.123	.000	1	1.000	19496269.945
GROUPMEM(2)	19.806	40193.123	.000	1	1.000	399690700.828
INCOME	.000	.000	.496	1	.481	1.000
IRRIGABLE			4.773	1	.029	
IRRIGABLE(2)	1.596	.731	4.773	1	.029	4.935
LANDSIZE	.218	.303	.518	1	.472	1.244
SEXHH(1)	2.070	.755	7.517	1	.006	7.923
TLU	-.140	.082	2.867	1	.090	.870
Constant	-19.799	40193.124	.000	1	1.000	.000

a. Variable(s) entered on step 1: AGEHH, AGING, EDUHH, EXTENSION, FSIZE, GROUPMEM, INCOME, IRRIGABLE, LANDSIZE, SEXHH, TLU.

Annex II. SPSS Logistic Regression Output for Credit Constrained

Annex 2.1 Case Processing Summary

Unweighted Cases ^a		N	Percent
	Included in Analysis	190	100.0
Selected Cases	Missing Cases	0	.0
	Total	190	100.0
Unselected Cases		0	.0
Total		190	100.0

a. If weight is in effect, see classification table for the total number of cases.

Annex 2.2 Dependent Variable Encoding

Original Value	Internal Value
No	0
Yes	1

Annex 2.3 Categorical Variables Codings

		Frequency	Parameter coding	
			(1)	(2)
Group membership	No	87	1.000	.000
	Yes	102	.000	1.000
	8	1	.000	.000
Sex of household head	Female	46	1.000	
	Male	144	.000	

Block 0: Beginning Block

Annex 2.4 : Classification Table^{a,b}

Observed			Predicted		
			Credit Constrained households		Percentage Correct
			No	Yes	
Step 0	Credit Constrained households	No	0	81	.0
		Yes	0	109	100.0
Overall Percentage					57.4

a. Constant is included in the model.

b. The cut value is .500

Annex 2.5: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.297	.147	4.096	1	.043	1.346

Annex 2.6: Variables not in the Equation^a

		Score	df	Sig.	
Step 0	Variables				
		AGEHH	14.136	1	.000
		AGING	18.617	1	.000
		DEPCHILD	4.010	1	.045
		EDUHH	2.469	1	.116
		FSIZE	.538	1	.463
		GROUPMEM	4.673	2	.097
		GROUPMEM(1)	3.029	1	.082
		GROUPMEM(2)	3.639	1	.056
		LANDSIZE	14.028	1	.000
		SEXHH(1)	3.692	1	.055
	TLU	4.350	1	.037	

a. Residual Chi-Squares are not computed because of redundancies.

Block 1: Method = Enter

Annex 2.7 : Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step		41.865	10	.000
Step 1	Block	41.865	10	.000
	Model	41.865	10	.000

Annex 2. 8: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	217.390 ^a	.198	.266

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Annex 2.9 : Classification Table^a

Observed		Predicted		
		Credit Constrained households		Percentage Correct
		No	Yes	
Step 1	Credit Constrained households No	43	38	53.1
	Yes	18	91	83.5
Overall Percentage				70.5

a. The cut value is .500

Annex 2. 10: Variables in the Equation

	B	S.E.	Wald	Df	Sig.	Exp(B)
AGEHH	.154	.073	4.407	1	.036	1.167
AGING	-.002	.001	6.106	1	.013	.998
DEPCHILD	.057	.190	.089	1	.766	1.058
EDUHH	.062	.050	1.495	1	.221	1.064
FSIZE	.061	.128	.225	1	.635	1.063
GROUPMEM			3.559	2	.169	
GROUPMEM(1)	21.170	40191.697	.000	1	1.000	1562977110.242
GROUPMEM(2)	21.864	40191.697	.000	1	1.000	3127772673.935
LANDSIZE	-.349	.218	2.547	1	.110	.706
SEXHH(1)	.729	.420	3.015	1	.082	2.072
TLU	-.051	.031	2.729	1	.099	.950
Constant	-23.457	40191.697	.000	1	1.000	.000

a. Variable(s) entered on step 1: AGEHH, AGING, DEPCHILD, EDUHH, FSIZE, GROUPMEM, LANDSIZE, SEXHH, TLU.

Annex 3: Reason for Not Taking Loan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Loan amount not enough	45	23.7	28.3	28.3
	Application rejected	2	1.1	1.3	29.6
	I have enough money	46	24.2	28.9	58.5
	Afraid of risk	26	13.7	16.4	74.8
	Lack of awareness	33	17.4	20.8	95.6
	Timeliness of loan	5	2.6	3.1	98.7
	Lack of labour power	2	1.1	1.3	100.0
	Total	159	83.7	100.0	
Missing	System	31	16.3		
Total		190	100.0		

Annex 4 : Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age of head of household	190	22	76	46.21	11.634
Education level of household head	190	0	12	3.78	4.073
Family size of the household	190	1	10	4.87	1.874
Number of dependent children below 15 years	190	0	6	1.63	1.260
Loan size in ETB	29	2000.00	5200.00	3851.7241	889.06881
Total size of land owned in hectare	190	.00	7.00	2.2817	1.10074
Total value of income from farm & off farm	190	8000.00	224000.00	57942.1053	46338.46398
Total livestock owned in Total livestock unit	190	.00	39.00	8.9632	7.54467
Valid N (listwise)	29				

Annex 5 : Conversion Factors to Estimate Tropical Livestock Unit Equivalents

Animal Category	TLU	Animal Category	TLU
Calf	0.25	Donkey (young)	0.35
Weaned Calf	0.34	Camel	1.25
Heifer	0.75	Sheep and Goat (adult)	0.13
Cow and Ox	1.00	Sheep and Goat (young)	0.06
Horse	1.10	Chicken	0.013
Donkey (adult)	0.70		

Source: Storck *et al.* (1991)

Annex 6. Questionnaire Used for the Study

I. Demographic Information

Name of household head -----Sex-----

Age -----Kebele ----- Marital Status (Married or not) ----- Education level (years) -----

Size of household ----- Number of dependent children below 15 years-----

Number of dependent elderly people above 75 years-----

II. Socio-economic and other variables

1. Do you need credit? Yes-----No-----
2. If yes, for what purpose?
 - a) to buy agricultural input ---- b) to expand business----- c) to buy oxen
 - d) Other (mention) -----
3. Did you take loan from any financial institution (bank, MFI, SACCOs) over the last 12 months? Yes-----No-----
4. If your answer for Q 3 is No, what is your main reason?
 - a) loan amount not enough ---- b) I have enough resource-----c) don't know the procedure-----d)application rejected----- e) I don't have collateral-----f) other(mention)-----
5. If your answer for Q3 is yes, a) was the amount of credit enough? Yes-----No----- b) Size of loan -----
 - c)for what purpose did you use the credit -----
6. Is there outstanding debt you have not paid yet (overdue)?Yes-----No-----
7. Did you take loan from informal sector or individuals (relatives, friends, money lenders)? Yes----- No----- If yes, amount -----
8. Do you participate in extension package (use fertilizer & improved seed)? Yes----- No-----
9. Do you engage in off-farm income generating activities or livestock fattening? Yes----- No-----
10. Are you member of any group (saving & credit, primary cooperative, etc) Yes----- No-----
11. Have you rented out your land over the last two years?Yes----- No-----
12. Have you rented in land over the last two years?Yes-----No-----
13. Size of land owned in hectare -----

14. Do you have irrigable land? Yes----- No----- If yes, Size -----

15. Amount of yield obtained from your farm last year (quintals): use the table below.

N0	Crop type (+ animal/poultry product)	Amount in quintals or kgs, specify for each
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

16. Type and number of animals (+ poultry) in the household)

N0	Animal/poultry tipe	Number
1		
2		
3		
4		
5		
6		
7		