SMALLHOLDER FARMERS' PARTICIPATION IN MICROFINANCE SERVICES: THE CASE OF OMO MICROFINANCE INSTITUTION IN GIMBO DISTRICT OF KAFFA ZONE, SOUTHERN ETHIOPIA

MSc THESIS

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Smallholder Farmers' Participation in Microfinance Services: The Case of Omo Microfinance Institution in Gimbo District of Kaffa Zone, Southern Ethiopia

By

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A Thesis

Submitted to School of Graduate Studies, Jimma University College of Agriculture and Veterinary Medicine in Partial Fulfillment of the Requirements for Degree of Masters of Science in Agricultural Economics

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DEDICATION

The thesis is dedicated to my family and my best friends who supported and shared unforgettable pain in my life during my MSc study.

STATEMENT OF THE AUTHOR

By my signature below, I declare that, this thesis is my own work and affirm that all sources of materials used for this thesis have been fully acknowledged. I have followed all ethical and technical principles of scholarships in the proposal writing, data collection, data analysis and accomplishment of this thesis.

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BIOGRAPHICAL SKETCH

The author was born on June 25, 1990 in Wolaita Zone, Boloso Bombe District. He has completed his primary education in Areka Primary School and attended high school education at Areka Senior Secondary School; located in Boloso Sore District (1997-2008).

Then after, he joined Hawassa University in 2008 and graduated with BSc degree in Agricultural Resource Economics and Management in July, 2011. After his graduation, he worked for Boloso Bombe District Agricultural Development Office as coffee, tea, and spices extension communication expert (2011-2013). He then joined Bonga Agricultural Research Center under Southern Agricultural Research Institute as junior researcher in June 2013 and served there until he joined Jimma University for his MSc study in Agricultural Economics in September 2016.

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ACRONYMS AND ABBREVIATIONS

AEMFI	Association of Ethiopian Microfinance Institutions
CIMMYT	International Maize and Wheat Improvement Center
IFAD	International Fund for Agricultural Development
GDOOMFI	Gimbo District sub branch Office of Omo Micro Finance Institution
GDOARD	Gimbo District Office of Agriculture and Rural Development
MFDR	Microfinance Development Review
MFIs	Micro-Finance Institution
NGOs	Non-Governmental Organizations
OMFI	Omo Micro Finance Institution
ROSCAS	Rotating Savings and Credit Associations
SNNPRS	Southern Nations, Nationalities and Peoples Regional State
SSA	Sub Saharan Africa
TLU	Tropical Livestock Unit

SMALLHOLDER FARMERS' PARTICIPATION IN MICROFINANCE SERVICES: THE CASE OF OMO MICROFINANCE INSTITUTION IN GIMBO DISTRICT OF KAFFA ZONE, SOUTHERN ETHIOPIA

ABSTRACT

Microfinance institutions have enabling role for agricultural production; as credit is used for investments that increase the production and productivity of agriculture and saving ensures a safe storage of money, that can be channeled to its most productive use. However, some weaknesses of the institutions coupled with household related characteristics are still hindering farmers' utilization of services. This study was conducted in Gimbo district of Kaffa zone, Southern Ethiopia with specific objectives; to examine households' participation in saving and credit services of Omo Microfinance Institution, identify the determinants of credit participation and loan amount received, and assess major challenges and opportunities of microfinance service provision in the district. The study was based on the data collected from 200 sample households selected through two-stage sampling technique. In addition, data collected from key informants' interview and different secondary data sources were also used. Both descriptive statistics and econometric model were used to analyze the data. A double hurdle model was employed to assess the determinants of households' credit participation and the amount of loan received. Econometric model result showed that sex, education level, family size, land size, distance from service provision center, extension contact, perception on group lending, and perception on loan provision time were found to be significant in influencing the probability of credit participation. Furthermore, sex, education, family size, land size, livestock holding, and extension contact were found to be significantly affecting loan amount received. The result suggests the need for improvement on delayed loan disbursement time for credit service and attractive incentive structure coupled with convenient withdrawal system to be developed for saving in order to increase households' participation in the services.

Key words: Credit Participation, Determinants, Double Hurdle, Saving Mobilization

1. INTRODUCTION

1.1. Background of the Study

The formal financial market could not provide adequate access to financial service, specially, credit for the poor for several reasons such as; lack of collateral, high income variability of the borrowers, small size of loans and high transaction cost, and thinking the poor do not save (Mujeri, 2015). On the other hand, informal credit failed to serve the poor mainly because of small size of the loan and high lending rate (Mamo and Deginet, 2015). Due to these limitations, microfinance institutions, which encompass a wide range of financial service providers that vary in legal structure, mission, and methodology, were established to offer different financial services to clients who do not have access to banks or other formal financial services (Muluken and Mesfin, 2014).

As the provision of credit has the possibility of mobilizing resources to more productive uses, it has the potential for raising farm income and poverty reduction. Credit encourages farmers to access agricultural inputs at the right time of production; empowers farmers to manage and mitigate risks; and provide the means for households to smooth consumption throughout the year without rationing (Mamo and Deginet, 2015). Microfinance services, particularly saving and credit, allow poor households to diversify their sources of income and generate employment opportunity and moreover, considered as the essential pathway to move toward out of poverty and hunger (Addo et al., 2013).

It is believed that satisfying client demand for safe and liquid savings instruments is just as important as satisfying their demand for credit. This is related with saving being source of funds for lenders and increased source of further investment for savers. However, little attention was given for savings mobilization (Mujeri, 2015). Thus, the level of saving which could have enormous benefit for savers and source of fund for the financial institution stayed away from institution due to low saving culture. Moreover, financial products are often developed in a top-down fashion, rather than adapted to the needs of different target groups. This is mainly due to that, only some Micro Finance Institutions infrequently conduct customer consultative groups meetings to gain perception about their performance in meeting client needs; showing that

product development is not supported by detailed market research to meet customer needs (Tony et al., 2014).

In Ethiopia, the issuance of the microfinance proclamation in 1996 has deepened financial outreach; bringing services nearer to where clients, particularly poor households, reside (Wolday and Tekie, 2014). However, the agricultural sector is still less financed due to its characteristics; small transaction (loan) sizes, lumpy cash flows, illiquid and perishable collateral, high covariance across borrowers and other individual/ household related factors which influence farmers' participation in microfinance service exploitation (Doreen and Philip, 2014).

Reports show that, total of 33 MFIs have been providing saving and credit service for poor households, who were neglected by banks. These MFIs mobilized total saving of Birr 14.2 billion, and their outstanding credit reached 18.7 billion and their total asset increased to be 29 billion (CIMMYT, 2015). All these indicators show that the contribution of MFIs to poverty reduction in the rural and urban areas due to their focus on low income parts of the society. To improve agricultural productivity and poverty reduction from a rural household and a nation as a whole, a powerful tool is provision of microfinance services to the poor in a sustainable way. That is why microfinance institutions (MFIs) are basically established to serve the poors who lack access to formal credit (Dereje *et al*., 2013).

Among a number of MFIs that are engaged in the provision of financial services for the poor, OMFI is the one which has been working in the southern Nations, Nationalities and Peoples Regional State (SNNPRS) in general and in the Gimbo District in particular. The institution is one of five largest MFIs in the country; Amhara, Dedebit, Oromiya, Omo and Addis Credit and Savings institutions (CIMMYT, 2015). According to GDOOMFI (2018) loan amount of 12,385,900 birrs was disbursed to 441 clients and total of 7, 613,130 birrs of saving was mobilized from 779 depositors in the year 2015/16; showing considerable contribution of Omo microfinance institution in serving low income segments of the society in the district.

Although consecutive reforms and efforts were made by the MFIs and conducive regulatory framework and substantial government support given for the institution to sustain the service, participation of smallholder farmers in the service is low and affected by various factors. Some of these factors are different socioeconomic factors; a lack of innovative demand-driven financial

services and lack of sustainable institutions that can provide for the huge unmet demand of smallholder farmers (Ebisa *et al*., 2013). It is crucial time for identifying different factors affecting farmers' participation in MFIs services to take immediate actions on the bottlenecks and improving the prevailing weaknesses in service provision.

1.2. Statement of the Problem

Ethiopia has a very low rural banking density and consequently one of the lowest financial inclusion ratios in Sub-Saharan Africa (SSA). Most of the bank branches are situated in urban areas as 35.5% of bank branches and 52.8% of insurance branches located in the Addis Ababa, leaving the rural areas under served, and rural poor became highly dependent on MFIs (Doreen and Philip, 2014; Frezer, 2016). Despite the fact that a country has achieved its rapid financial sector growth in the last couple of years, many households are still excluded from access to financial services in the jurisdiction, as only 33.86 percent of adults have account with formal financial institutions to have access and use of financial services (Baza and Rao, 2017).

Farm households need finance to buy improved agricultural inputs and farm implements to increase their income and break the perpetuity of the poverty cycle they are entangled with. It is unlikely to achieve sustained agricultural development without sustained use of improved agricultural technologies by smallholder farmers by providing rural financial services (Amogne, 2014). However, the poor have not only inadequate access to formal credit sources, but also low exploitation of services provided because of individual/household related factors and barriers imposed by lenders (Doreen and Philip ,2014 and Doan *et al*., 2010). The inability to acquire formal credit made the poor to rely on a variety of informal credit sources such as local moneylenders; relatives, friends, or merchants. But, the problem with informal credit providers is they are not ideal as they tend to be expensive and unreliable (Mamo and Deginet, 2015).

There are various microfinance institutions and saving and credit cooperatives that are trying to solve the financial service problem of the poor by playing a vital role in terms of credit access, saving mobilization and to some extent micro-insurance services to the excluded majority (CIMMYT, 2015). Despite some success stories about MFIs in Ethiopia, some weaknesses of the institution in addition to household characteristics are still hindering poor's participation in service utilization and attaining objective of MFIs. These problems are; lack of flexibility in the

loan provision and repayment period, low saving interest rate and high interest for loan, low amount of loan allowed, and lack of effective support services such as training, advise and follow up (before, during and after) loans provision (Ebisa *et al*., 2013). Due to these reasons, MFIs provide less than seven percent of the total national loan portfolio, even with government-owned MFIs playing the major role in the sector (Amogn, 2014).

It is clear that there are important benefits that saving provides to both savers and the institution; however, some microfinance programs were not effective in mobilizing savings and showed little interest in doing so. Due to this reason, still there is little attention given to saving and that is why saving behavior of farm households is very low (Tony *et al*., 2014). Microfinance institutions faced challenges to provide voluntary savings on a commercially sustainable basis. These challenges are; in terms of governance, product design, performance-based incentives, outreach as well as frontline capacity and confidence in voluntary savings promotion (CIMMYT, 2015).

Rural poors face difficulty not only to access credit but also many factors influence their demand for credit and also participation in the services. Tilahun (2015) showed lower participation of farm households as due to, lack of diversification of income sources, volatility of crop income, lower return of agricultural land, and high interest rate. Informal credit sources dominate rural credit services in Ethiopia as majority of rural households borrowed from informal credit sources and more of loan was spent on consumption purposes, perhaps due to the relatively small size of informal loans (Mamo and Deginet, 2015). Participation of farmers in microfinance service was low and which was majorly determined by households' different socio economic and institutional related factors. To participate in credit service of OMFIs, willingness of client to have prior savings, willingness to form groups, being resource poor and productive are requirements. However, some of these criteria are unsuitable for some of smallholder farmers to participate in saving and credit services (Dilayehu, 2014).

Since the establishment of MFIs, a several research activities have been done on the issues related with the services provided by OMFI by different researchers in different areas where the institution operates (Tadele, 2014; Dilayehu, 2014; Amanuel and Degye, 2018; Cherkos, 2014; Biruk, 2015; Tenishu, 2014; Geremew and Toli, 2016). Despite the presence of these studies on the literatures, most of them focused on loan repayment performances and credit access, showing

little about participation of smallholder farmers in the services of Omo Microfinance institution and no study has been conducted in south western Ethiopia; particularly in Gimbo district where this study was conducted. Hence, it was crucial to assess smallholder farmers' participation in microfinance service of Omo microfinance institution and sort out constraints and opportunities in service provision.

1.3. Objectives of the Study

1.3.1. General Objective

The general objective of this study was to assess smallholder farmers' participation in Microfinance services of OMFI in Gimbo District of Kaffa zone.

1.3.2. Specific Objectives

- To examine rural households' participation in saving and credit services
- To identify factors affecting rural households' credit participation and level of loan amount received
- To assess major challenges and opportunities of microfinance services provision in the district

1.4. Research Questions

This study was conducted to answer the following key questions

1. What is the saving and borrowing behavior of rural households in Omo Micro-Finance Institution?
2. What are the factors that influence smallholder farmers' credit participation and loan amount received from Omo Micro-Finance Institution?
3. What are major challenges and opportunities of microfinance service provision in the district?

1.5. Significance of the Study

The study was conducted in Gimbo district of Kaffa zone in SNNPRS; assessing smallholder farmers' participation in microfinance services of Omo Microfinance institution and identified determinants of credit participation and showed challenges and opportunities in service provision in the district. The result of the study is necessary for OMFI to take immediate actions on the bottlenecks and improving the prevailing weaknesses in service provision and removing barriers

in front of smallholder farmers' participation in credit and saving services to sustain effective service provision and attaining the institutions' objective.

The study would also benefit the other rural financial institutions, development partners and other organizations that are involved in the provision of microfinance services to smallholder farmers for the improvement of agricultural finance as it is major source of household's income growth. In general, the beneficiaries of this study would be farmers, financial service providers, governmental and non-governmental organizations (NGOs) that have get involved and also thinking to do and other researchers who want to conduct further investigation in the future on the topic.

1.6. Scope and Limitations of the Study

The study focused on the demographic, socio-economic and institutional factors that influence the smallholder farmers' participation in microfinance service in the study area. The study does not cover all the financial institutions that were operating in the study area; but, it was specifically limited to OMFI service and within OMFIs focused majorly on services of saving and credit; since these are major services the institution has been providing in the district. Smallholder farmers participation in saving and credit was assessed; and in addition, determinants of credit participation and loan amount used was analyzed. Due to time and resource constraints, the study couldn't carry out complete survey in all the kebeles of the district; however, the study was based on assumption that, the sample farmers selected were representative of the rest of farmers in all kebele because of their homogeneous characteristics in cultural and socio-economic condition. Due to the fact that most households do not keep records, the accuracy of most of the data collected depend on conditions of households' ability to recall. Despite these limitations, data was collected in systematic basis and it is believed that the data obtained was useful basis of information for making inferences and forwarding recommendations to improve participation of smallholder farmers.

1.7. Organization of the Thesis

The thesis is organized in five main chapters. The second chapter starts with definition and concepts and presents theoretical perspectives, analytical reviews and empirical evidences related to the main themes of the thesis. Chapter three discusses the methodological approach of the study that mainly include; description of the study area, sampling technique and sample size determination, data type and method of data collection, method of data analysis, and working hypotheses of the study. Results of the study and main findings are put and discussed in chapter four. Finally, conclusion and recommendations of the study is presented in the last; fifth chapter.

2. LITERATURE REVIEW

2.1. Definition and Concepts

Despite definition of microfinance proposed by different authors and organizations are seemingly different from one another, the core of the definition is usually the same. Microfinance, according to Otero and Rhyne (1994) is "the provision of financial services to low-income poor and very poor self-employed people". These financial services generally include savings and credit but can also include other financial services such as insurance and payment services.

The World Bank defines microfinance as "…. Small-scale financial services, primarily credit and savings provided to people who farm or fish and who operate small enterprises or microenterprises where goods are produced, recycled, repaired, or sold; who provide services; who work for wages or commissions; who gain income from renting out small amounts of land, vehicles, draft animals, or machinery and tools; and to other individuals and groups at the local levels of developing countries, both rural and urban" (Robinson, 2001).

Moreover, Conroy (cited by Tenishu, 2014) defined that "microfinance is the provision of a broad range of financial services such as deposits, loans, payment services, money transfers, and insurance to poor and low-income households". Therefore, in general, microfinance involves the provision of financial services such as savings, loans and insurance to poor people living in both urban and rural settings who are unable to obtain such services from the formal financial sectors.

Credit participation is that; a household has chosen to borrow and has already borrowed. For credit participation, simply it can be treated households as borrowers if they had at least one loan during the 24 months prior to the survey, and otherwise they were classified as non- borrowers (Doan *et al*., 2010, Mamo and Degnet, 2015). Credit participation should be determined by borrowers' demand for credit and their creditworthiness, which is used as criteria to sort out clients by the lenders. Therefore, factors determining credit participation should represent either borrower's demand for credit or borrowers' creditworthiness (Doan *et al*., 2010).

According to Diagne (1999), the major difference between the credit participation and access lies in the fact that participation in a credit program is something that households choose to do freely, while access to a credit program entails constraints placed on households (availability and

eligibility criteria of credit programs, for example). In other words, participation is more of a demand-side issue related to the potential borrower's choice of the optimal loan size, while access is more of a supply-side issue related to the potential lender's choice of the maximum credit limit.

Households' saving is defined as the part of current income, after the payment of direct taxes, which is not consumed or transferred for future consumptions (Nga, 2007). It is a portion of disposable income not spent on the consumption of consumer goods, but accumulated or invested directly in capital equipment. Households' saving is generally defined as the difference between household's disposable income and household's consumption expenditures **(**Shikha *et al*., 2009).

2.2. Rural Microfinance in Developing Countries

Agriculture and agricultural finance have been the subjects of constant and high value loaded critical political debate, as governments have always intervened in the agricultural markets including finance. In the post-colonial 1960s and 1970s, governments tried to safeguard access to agricultural financing through administratively set interest rates and compulsory lending quotas on banks (Reuben *et al*.,2012). In addition, and nearly universally, governments created development banks specifically mandated to finance agriculture. Since agriculture is risky and seasonal, there was need for comprehensive financial services to be provided including a whole range of credit, savings, insurance, payments and money transfers than simple microcredit service (Calvin, 2011).

Toward the 1980s, the strains imposed by the state-led model of agricultural development and finance became increasingly visible; however, directed lending Programme showed poor results as they were inefficiently managed, generally ineffective (failing to reach poor farmers), and unsustainable because of loan losses (IFAD, 2011). In some countries, governments imposed agricultural debt forgiveness and which further confused farmers to separate loans from grants. These provisions of subsidized loans through government channels along with poor loan repayment and recurrent debt canceling, gave commercial banks enough reason not to serve agriculture; in effect making farmers dependent on one or a few government-backed (subsidized) finance providers (CIMMYT, 2015).

Starting from the early 1980s, in response to the failure of state-directed lending programs, debt forgiveness, and public intervention in agricultural finance, most developing countries set out to liberalize financial markets. This opportunity created space for a large variety of member owned and managed savings and credit associations, such as village and rural banks and MFIs, which usually focus on rural populations (Reuben *et al*., 2012). Since then, financial sector is considered as having enabling role for agriculture as credit is used for investments that increase the productivity of agricultural production and savings products ensure a safe and productive storage of money and ensure excess capital that can be channeled to its most productive use (Wolday and David, 2010).

Rural areas of developing countries depend on traditional farming system that is characterized by extreme dependence on rainfall, low use of modern agricultural inputs, insufficient production, and low working capital leading to low productivity and inadequate savings from agricultural investments (Wolday *et al*., 2013). However, banks are unwilling to lend to farmers, because of the inherent risk associated with the agricultural sector and inability of farmers to provide necessary collateral. In addition to this, some of farmers on their own are unwilling to procure credit from banks because of lengthy and cumbersome loan procurement procedure, high cost of bank loan, untimely disbursement of loan by banks and long distance from source of loan (Wolday and Tekie, 2014). Commercial banks, and to some extent MFIs, neglected agriculture resulting smallholder farmers lack access to savings facilities, payments and credit services. The main reasons why banks and even MFIs neglect agriculture in developing countries are, high delivery cost, proximity, lack of banking technology, collateral, exogenous risks, government intervention and weak collaboration among farmers (Ebisa *et al*., 2013).

Modernization of agriculture demands increased use of modern inputs; like fertilizers, herbicides, machineries, improved seeds and storage facilities which consequently increase the demand for credit (Wolday and Tekie, 2014). Microfinance can help to reduce vulnerability while at the same time contributing to agricultural growth in a number of ways as it can release existing funds for production purposes, or itself contribute directly to agricultural production, or mitigate the impact of shocks and stresses (Adebosin *et al*., 2013). The Grameen Bank, established in Bangladesh in 1976 by Professor Muhammad Yunus, developed highly effective techniques for lending to the poor, based on techniques such as taking services to the village

level, promoting and motivating groups of the poor, use of group guarantees, compulsory savings mobilization, transparency of credit transactions, intensive supervision of borrowers, and decentralized and cost-effective operations (Tenishu, 2014). Since then, some of lessons from different areas brought improvement in the microfinance service provision to rural areas of developing countries.

Nowadays, provision of rural micro finance is often seen as a key element to increase productivity through more intensive use of inputs and to facilitate consumption smoothing. It is an important instrument in helping smallholder farmers to increase their income through diversifying their economic activities (Daniel and Deininger, 2012). However, limited availability of credit services might prevent farmers to adopt improved farming practices because of their inability to purchase the necessary inputs required in the production; showing expansion of credit service provision will have beneficial effects on agricultural production and productivity and incomes of smallholder farmers (Mukasa *et al*., 2017).

According to Kiros (2012) credit access can significantly increase the ability of households to meet their financial needs such as the purchase and use of improved agricultural inputs which are not available on the farm. In low-income countries, particularly in rural areas, smallholder farmers have limited access to factors of production, especially, land and capital including credit. In these countries, lack of credit is a barrier to investment and income growth of poor households. Ethiopia, as a developing country, needs huge financial resources for rapid and sustainable development and to reduce the income gap between poor and rich. As Wolday *et al.* (2013) revealed, access to financial services such as loans, savings, micro-insurance, and other financial products is a key instrument in increasing agricultural production and productivity.

Rural microfinance can impact the quality of life of poor households. Access to a well-functioning financial system can make individuals economically powerful. It allows farmers to integrate more successfully into the economy of their country, actively contribute to the country's development, and protect themselves against economic shocks (Tilahun, 2015). Efficient rural financial sector may improve the incentives for households to work, save and thereby improve their standards of living (Akpandjar *et al.*, 2013). Furthermore, increasing financial service to farm households especially the poor can contribute in enhancing agricultural

production and productivity, supporting off-farm enterprises, improving incomes, reducing poverty and improving development outcomes (Addo *et al*., 2013).

Therefore, effective financial service for farmers in developing countries can enhance the adoption of new technologies and enable to expand agricultural or non-agricultural production. It also enables the poor to increase and diversify their incomes, improve their social and economic conditions, and improve their lives.

2.3. Development of Microfinance Institutions in Ethiopia

Ethiopia is a country which employed more than 83.8 % of the total population in the agricultural sector where small scale farmers contributing over 95 % of the annual production which cannot meet the food requirements of the country's population (Mukasa *et al*., 2017). The sector was struggling to serve the needs of farmers due to variety of reasons and rural households continued to exist in a vicious cycle of poverty for long periods as their lack of access to financial services is one of the major reasons (Cherkos, 2014).

Before the early 1990s, informal sources of finance like moneylenders, traders, employers, friends, relatives, *etc.* were the only source of finance for rural and urban poor and micro and small enterprise operators in Ethiopia (Dereje *et al*., 2013). Since 1970s, different NGOs; World Vision, Save the Children, Christians Children's Fund, etc. were directly providing credit service to their beneficiaries by varying loan size and charging different rate of interest ranging from no to very little. Loans were not always collected on time and this large amount of unpaid loan, polluted credit environment (CIMMYT, 2015).

During this time, there had not been any competition within the financial sector due to the fact that all of the formal financial institutions were state owned and private financial institutions were not allowed to operate. Due to this problem, series of consultation have been made during 1992 to 1995 between concerning organizations and NGOs to establish specialized institutions which could handle the financial interventions of NGOs (Wolday *et al*., 2013). After the implementation of the reform process, starting from 1992 opportunities created to invest in financial institutions with policies encouraging private investors to invest in the banking, MFIs and insurance companies (Asfaw and Jema, 2013).

Following this reform, the first groups of few MFIs were established in early 1997, following the issuance of Proclamation Nº. 40/1996 in July 1996. The objective of the MFIs is basically poverty alleviation through the provision of sustainable financial services to the poor who actually do not have access to the financial support services of other formal financial institutions (Asfaw and Jema, 2013, CIMMYT, 2015).New microfinance proclamation which replaced 1996 proclamation was issued in 2009 which was characterized by articles and sub articles that explained in broadly detail about licensing, operational and financial requirements in MFIs industry which was reason for expansion of range of financial products (CIMMYT, 2015).

Although the Government of Ethiopia has allowed private ownership of financial institutions, the financial sector is still dominated by large public financial institutions. Also, within the microfinance sector, some of them are owned by regional governments/endowment companies (Ebisa *et al*., 2013). According to the Proclamation Nº. 40/1996 of the business of micro financing institutions, micro-financing institution should be owned fully by Ethiopian nationals and/or organizations and registered under the laws, and having its head office in, Ethiopia. This legislation excluded international NGOs and other overseas agencies not to own and run MFIs in Ethiopia. In recent years, the state and regional governments have made a major push to increase financial services for agriculture, micro and small enterprises and low-income households (IFAD, 2011).

Despite the role agriculture plays in Ethiopia's economy and recent explosion of financial services providers in the country like commercial banks, microfinance institutions, cooperative societies, and informal lenders, the sector receives less than 10 percent of the banks' loan and the bulk of which is towards the more developed exports sub-sector (Mukasa *et al*., 2017). The low levels of agricultural credit and financial inclusion in general is largely due to the dominance of the rural economy, with very low distribution of financial services. Financial access and inclusion being improved over the past two decades in Ethiopia; however, it is still lower than other developing countries. For example, though the percent of Ethiopian adults holding an account at a financial institution in rural area reached 19%, it was still lower than the average of SSA countries of 29%, or the 45% of adults in South Asia, 51% of Latin American, and 69% of East Asia having an account in 2014 (World Bank, 2014).

In the country, the number of micro-finance institutions remained at 35 while their total capital and total asset increased significantly by 23.5 and 20.0 percent and reached Birr8.9 billion and Birr 36.7 billion, respectively. Their mobilized deposits grew by 24.3 percent to Birr 18.4 billion and their outstanding credit rose by 15.5 percent to Birr 25.2 billion. The five largest MFIs, namely Amhara, Dedebit, Oromiya, Omo and Addis Credit and Savings institutions, accounted for 83.6 percent of the total capital, 92.9 percent of the savings, 88.3 percent of the credit and 89.2 percent of the total assets of MFIs at the end of 2015 (CIMMYT, 2015). Microfinance loan products in Ethiopia include agricultural loans, micro & small business loans, housing loans and consumption loan/ loan for equipment. Savings products include compulsory and voluntary saving (from members and non-members). Other financial products include insurance, money transfers and pension administration (Ebisa *et al*., 2013).

The agricultural sector is still less financed due to its characteristics like; small transaction (loan) sizes, uneven cash flows, illiquid and perishable collateral, high covariance across borrowers, diverse sub-businesses with distinct dynamics; and current microfinance programs in Ethiopia are mainly designed and implemented by men with little or no participation of women (Doreen and Philip, 2014). Commercial bank of Ethiopia accounts for almost 2/3rd of the total deposits mobilized, while MFIs and SACCOs account for the remaining one third (Wolday and Tekie, 2014). MFIs as pro-poor financial intermediaries have the greatest opportunity to mobilize a potentially huge volume of voluntary savings from grass roots households and communities. However, distances between service providers and potential clients such as geography, psychology, religion, language, sex, ethnicity, culture, and social class became most important determinants of transaction costs that limit service utilization among farm households (Dereje *et al*., 2013).

2.4. Theoretical Perspectives on Saving and Credit Participation

According to Doan *et al*. (2010), there are two approaches to investigate household credit participation and credit constraints or households who have or have no demand for credit: the demand for consumption smoothing (indirect approach) and the analysis of determining factors (the direct approach).

The first one is, consumption smoothing approaches. This approach assumes that, under perfect capital market, households' demand for credit arises for consumption smoothing. It is done by using information on household consumption and income to identify a significant dependence of consumption on transitory income and evidence of this dependence is taken as an indication of credit constraint (Mukasa *et al*., 2017).

Consumers can smooth their consumption by using the saving from past income or investment but impossible to use future income in the present since it is not realized. Hence, the consumer can smooth consumption and/or increase utility by accessing an account that can act as inter-temporal intermediary between the future lender and the present borrower. This account is consumer credit or borrowing. Credit helps individuals to make inter-temporal choice and becomes additional spending power in the present in exchange for repayment (loan and interest) in the future (Doreen and Philip, 2014).

According to this perspective, households maximize their utility over their life cycle by borrowing during low transitory income and saving during high transitory income. Accordingly, current consumption should be independent of current income. However, according to Doan *et al*. (2010), this approach has some limitations; firstly, households can smooth their income by use of savings, remittances or accumulated assets showing demand for credit would not be derived directly from demand for consumption smoothing and the other is most developing countries do not have insurance and therefore demand credit for health care. This makes the assumption of borrowing or credit demand is for consumption purpose only has limitations, specially, in developing countries.

The second one is, analysis of determining factors approach. This direct elicitation approach exploits a series of information on credit market participation status of households that includes their borrowing needs, experience and overall perceptions. This approach in investigating credit demand/ participation and credit constraints uses household information, such as physical and human capital endowments, in a reduced-form regression equation, to identify the determinants of credit participation and constraints (Mukasa *et al*., 2017, Doan *et al*., 2010).

Under this approach, households can be categorized as either credit constrained or unconstrained and information regarding socio-economic characteristics affecting credit demand/ participation can be captured. There is one limitation with this approach; as it fails to measure the extent to

which how much households are constrained and the impact of credit on their welfare (Doreen and Philip, 2014).

The relation between aggregate consumption or aggregate savings and aggregate income, generally termed the consumption function, has occupied a major role in economic thinking ever since Keynes made it a keystone of his theoretical structure in the general theory. Keynes took it for granted that current consumption expenditure is a highly dependable and stable function of current income (Parker, 2010). Economists have developed three major theories of consumption and saving behavior: (1) The life-cycle hypothesis (2) the permanent income hypothesis and (3) the relative income hypothesis. All three theories have their conceptual roots in the microeconomic theory of consumer choice.

The permanent-income hypothesis was proposed by Milton Friedman in 1957, winner of Nobel Prize in 1976, is a theory of consumer spending which states that people will spend money at a level consistent with their expected long-term average income. The central idea of the permanent-income hypothesis is, people base consumption on what they consider their "normal" income that they earn over a considerable period of time. In doing this, they try to maintain a consistent standard of living even though their incomes may vary considerably from season to season. As a result, increases and decreases in income that people see as temporary have little effect on their consumption spending and also saving (Friedman, 1957)

The idea behind the permanent-income hypothesis is that consumption depends on what people think to earn over an extensive period of time. The hypothesis implies that changes in consumption behavior are not predictable, because they are based on individual prospects and it suggests that people will try to decide whether or not a change of income is temporary. If they decide that it is, it have a small effect on their current spending. Only when they become persuaded that it is permanent will consumption change by a large amount. As with all economic theory, this theory does not describe any particular household, but only what happens on the average (Schmidt *et al.*, 1996).

Relative income hypothesis on the other hand says that, people care more about how much they earn and consume in relation to how other people around them do than their absolute wellbeing. This means people on lower incomes may consume more of their earnings than their better-off counterparts due to the reason that they would like to reduce the gap in their standards of living

or consumption levels (Parker, 2010). More clearly, under this hypothesis, basis for the reason are, households' attitude to consumption and saving is dictated more by their situation in relation to others than by own living standards; poorer people spend more of their income than wealthier individuals because they want to close the consumption gap, and households don't like to consume less than they used to.

Life cycle hypothesis developed by Modigliani who won the Nobel Prize in Economics in 1985 for his work on the life-cycle hypothesis. Life-cycle hypothesis postulated as a typical individual has a flow of relatively low income at the early stage and end of life, but high during the middle of life. The theory claimed the individual does maintain a slightly increasing level of consumption throughout his life, and the present value of total consumption would not exceed the present value of total income during the lifetime. As in the life-cycle hypothesis, individuals smooth out fluctuations in income so that they save during periods of unusually better income and dissave during periods of unusually lower income. Someone who looks ahead to a much higher future income consumes more accordingly (Modigliani *et al*., 1963). The life-cycle hypothesis suggests that in the early life or younger age, a person is a net borrower; in the middle years, the person will save much more to repay the debt and to put aside part of the income for retirement; in the later years or adult age, a person will not save and consume more than income they earn.

By the above theories it is clear that when the income grows the population is encouraged to save and the no saving occurs with the old generation as due to no or less income. Factors that are directly or indirectly affecting household's income and consumption pattern are most probably to influence households' credit and saving conditions. In the case of OMFIs prior saving before loan request is requirement for credit participation and the study is based on the above theories. Due to this association, it was assumed that different socio-economic factors that thought of to affect credit participation also influence saving habit of households to some extent, since every household had pass through some amount of saving to use credit in OMFI. In conclusion of the above discussion this study was mainly based on concepts from the above theories; analysis of determining factors (the direct approach) for identifying determinants of credit participation via following life-cycle hypothesis and permanent-income hypothesis.

2.5. Analytical Review

The preponderance of zeros for a number of the observations in a data set can lead to a number of econometric problems when using Ordinary Least Squares to estimate the unknown parameters of a regression model (Green, 2003). This situation seek model that is capable of treating the participation decision as a two-tier process. There are a number of econometric approaches dealing with the problem of limited dependent variables estimation methods (wooldridge, 2002).

One of approach commonly used is the Tobit Model developed by James Tobin (Tobin, 1958). Even though it's wide application, the Tobit model has a number of draw backs. In the Tobit model censoring is assumed to represent a standard corner solution. This in itself is a restrictive assumption. For example, in the case of credit participation a household may have the means available to them to participate in credit service but do not do so because of other demographic and institutional factors such as age, religion, sex, location, etc. A further limitation of the Tobit model is that it assumes the same variables affect the probability of participation decision as well as the level of a positive observation (the intensity decision) and moreover with the same sign is expected (Eakins 2016).

As a result of these shortcomings, a number of generalizations to the Tobit model have been developed. One generalization which is popular in the literature is the double hurdle model, originally formulated by Cragg (1971). The double-hurdle model, assumes that two separate hurdles must be passed before a positive level of participation can be observed. The first hurdle corresponds to factors affecting participation and the second to the level of participation. A different latent variable is used to model each decision process, with a probit determining the participation process and a truncated determining the participation level (Wooldridge, 2002).

The other one is Heckman's sample selection model which works on the basis of the assumption of first hurdle dominance. This relates to whether one considers the possibility of zero observations in the intensity decision or not. If one assumes that a zero observation is due to non-participation solely, then the intensity decision includes only non-zero observations. This is known as first hurdle dominance. Under this assumption the Heckman model should be used. In contrast if one assumes that a zero observation could be due to either non-participation or

participation but non-use (i.e. no first hurdle dominance) then Cragg's double hurdle model is the most appropriate to use.

According to Jones (1992) double hurdle model can be thought of as a flexible version of both the Tobit and Heckman model. The Tobit model assumes that the participation and intensity decision can be modelled as one equation whereas the double hurdle model relaxes this assumption and models both decisions separately. In the Heckman model, zero observations arise due to nonparticipation solely whereas the double hurdle model relaxes this assumption and allows zero observations to arise in both the participation hurdle and intensity hurdle. The Cragg/double hurdle model therefore features both the selection mechanism of the Heckman model (which is not a feature of the Tobit model) and the censoring mechanism of the Tobit model (which is not a feature of the Heckman model).

According to Gao *et al.* (1995), households which did not participate in credit during the survey period might have participated prior to the survey period, or might have desired to participate but may have experienced impediments to participate, or might not have had any desire to participate at all. Since credit use is not the activity in which every household must always have positive amount, the infrequency model/ Heckman may not be an ideal model to evaluate this data. Different researches for instance; Amanuel and Degye (2018); Djoumessi *et al*. (2018); Biruk (2015) used double hurdle model to analyze determinants of credit utilization and loan amount received by the households.

In the case of OMFI having prior saving, group formation for loan applications, loan application, approval of loan amount and loan provision may take long procedural time. Based on this assumption, farmers pass two hurdles to reach on positive amount of loan; the first hurdle involves the decision of whether or not to participate in credit. The second hurdle concerns the level of loan amount to decide The main feature of the double-hurdle model is that participation and intensity decisions are assumed to stem from two separate choices and the determinants of the two decisions are allowed to differ (Wodjao, 2007).Therefore, this study employed the independent double-hurdle model with the assumption that the credit participation and amount of loan use are two distinct decisions with different sets of factors are believed to influence the decisions at each level.

2.5. Empirical Review

2.5.1. Determinants of Households' Credit Participation

In recent decades, initiatives that aim to make efficient and affordable financial services accessible to everyone have emerged as important global policy agenda. Interconnectedness of financial inclusion with food security and improved livelihood resilience, better health and education, and gender empowerment and economic equality got attention as global development priorities by the new Sustainable Development Goals of the United Nations (Frezer, 2016). For an improved coordination and regulation of these efforts, many developing countries adopted set of common policy principles to guide the expanding inclusive finance for development reached by the Maya Declaration in 2011 (ibid).

However, microfinance service specially saving and credit participation decisions among farm households are influenced different factors. Some of these are; lack of diversification of income sources in non-farm income activities, volatility of crop income, and household labour constraints. According to Tilahun (2015) study in Amhara region, among households participated in the survey, only 25.32 percent of them applied for credit from all sources and from those only 16.8 percent households applied in Microfinance institutions, RUSACCO or other credit association. According to the researcher major reasons for lower participation of household in credit services were, lower return of agricultural land, collateral requirement of credit, having own enough fund to finance agricultural production, high interest rate of the lenders.

In some areas of Ethiopia, informal credit sources dominate rural credit services in the rural population. Mamo and Degnet (2015) conducted survey among 1027 rural households and showed, 718 (70%) didn't borrow (non-participants) from any sources of credit while only 309 (30%) of them participated in loan from available credit sources. From participants, only 63 (20.39%) were received loan from the semi-formal credit markets including MFIs, while 246 (79.61%) borrowed from informal sources. The researchers said rural households' decision to participate in semi-formal credit sources was affected by household head's marital status, primary economic activity, livestock ownership, access to extension support services and access to market.

Dereje *et al*. (2013) showed that, determinants of participation in microfinance services were; family size, land holding and monthly saving. The researchers said as family size increase probability of credit participation decrease, households' land size positively and significantly increased the probability of participation and the amount of monthly saving in MFIs also affected positively. Adebosin *et al*. (2013) on the other hand showed that the larger the cultivated land size, the farmers utilize more farm inputs such as the labor (higher additional labor), fertilizer and others that demand additional capital that might be obtained through borrowing which increases farmer's participation in credit service.

Different scholars showed several results on relation between family size and credit participation. According to Chen and Chivakul (2008), the larger family size would represent a bigger demand for agricultural production and consumption and thus leads to require extra resources to survive through higher credit participation. On the other hand, according to Abunyuwah and Blay (2013), family size was found to have negative relation to credit participation. The larger the number of family labour, the more the labour force available for production purpose. The more the labor force available, lower is the demand for hired labor, this means no or low cost for hired labour. If the demand for hired labor decreases due to availability of family labor, then the need for credit decreases leading to low credit participation.

Mamo and Deginet (2015) showed that households having high number of livestock are not suffering from budget constraint and hence less demand and participation for credit. Similarly, Doreen and Philip (2014) also showed that more livestock owning have negative and significant impact on access to and demand for credit as livestock could serve as substitute to credit because it can be converted immediately into cash when the needs arise. In contrary to this, Asfaw and Jema (2013) revealed that, livestock owned has a positive relationship with the credit participation as farmers owning more livestock can share risk of crop failure by selling out their animals and animal products and have more possibility of credit participation.

According to Kiros (2012) some institution related factors affect farmers' credit demand and participation. Some of those factors include high interest rate and lack of fixed asset, group lending in which group as a whole can be sanctioned in the case of default by any of the members, too late loan disbursement period to use the loan in productive way and the compulsory saving.

Fikru *et al*. (2018) study on factors affecting credit use of small holder farmers of Toke-Kutaye district of Ethiopia by using logistic regression revealed that education of the household head, frequency of extension contact and farmers' perception of group lending were positively and significantly affected households' participation credit service while family size and distance from MFIs were negatively and significantly affect households credit participation. The study didn't consider the influence of these variables on the amount of loan received by households as it was merely done based on participation decision.

Biruk (2015) conducted determinants of farmers′ credit participation and level of loan utilized for honey production by employing double hurdle model identified different factors to affect both decisions. In the of first stage smallholder farmers′ decision to participate in credit market was significantly affected by distance to lending institutions, education level, access to extension services in relation to credit use and total livestock unit the household owned. In the second stage of double hurdle model he showed that total crop income, former credit use experience, age of the household head, interest to expand agricultural production and non-farm income were significantly affected the level of loan utilized for honey production and marketing.

Amanuel and Degye (2018) study in Hadya zone of SNNPRS revealed that 41.5 percent of the respondent farmers have utilized microfinance loan from Omo microfinance institution. The researchers used double hurdle model to identify determinants of utilization of loan as result of two separate decisions. The result showed that literacy status, household size, size of landholding, perception about loan repayment period and distance from institution were the determinants of microfinance loan utilization while, sex of the borrower, literacy status, income level, saving level, purpose of loan taking and perception about loan repayment period were the factors influenced the loan amount borrowed by smallholder farmers from OMFI.

Djoumessi *et al*. (2018) conducted a study on determinants of smallholder vegetable farmers' credit access and demand in southwest region Cameroon. By using independent double hurdle model, the result revealed that education, membership to a farmer′s association, extension services and distance to credit source are positively and significantly affected the probability of farmers′ participation in credit. In addition, the authors showed distance, membership of a farmer′s associations, extension services and farm size positively related to the amount of loan received by farmers.

John and Charles (2015) study revealed that, age negatively influence the amount of agricultural credit acquired by farmers as older farmers are relatively more risk averse and tend to acquire fewer loans to avoid loan default. The researchers also showed that, the amount of agricultural credit acquired and family size had direct association; since, the size of a household increases, the household needs will also increase and to satisfy the increased household needs, relatively larger amount of loans will be acquired.

Educated farmers have better tendency for loan management and adoption of new productivity enhancing technologies. This positive attribute increases loan repayment potential, which is attractive to lenders. The greater the land size, the greater the amount of agricultural credit acquired; as increase in land size will lead to increased farm inputs and subsequently increased profit and more quests for loan (ibid). Loan sizes for households who borrowed in group-based schemes was higher for married households with a lower dependency ratio, being involved in the community, having more land and a higher value of building (Duy *et al*., 2012)

2.5.2. Challenges and Opportunities of Microfinance Service Provision

MFIs in sub-Saharan Africa, including Ethiopia, have high operating expenses of 19 percent compared to average global level of 14 percent. The reasons are the high staff costs common in markets where skilled labour is scarce, high transaction costs of reaching rural areas and high costs of managing savings (Richard, 2015).

Muluken and Mesfin (2014) assessed the performance of Microfinance institutions and classified challenges in three categories. Firstly, Clientele factors like diverting the loan to non-business activities, weak loan repayment, and absence of voluntary saving experience; secondly, institutional factors such as absence of training, weak monitoring and support system, interest rate of micro finance institutions, loan size, high transaction cost, human resource problem, and loan capital problem. Thirdly, the political environments of the country, such as the legal framework for MFI and economic level of the country also have effects on the MFIs' performance. The Ethiopian MFIs were facing problems related with the regulatory framework in the microfinance industry; like, limited support to micro and small enterprise development, the activities of NGOs on providing credit as a grant, absence of compacted linkages between MFIs and Commercial Banks, lack of finance for loan provision and an institution to establish

microfinance fund and access to soft loans from NGOs, very limited research and innovation for demand driven service provision in the microfinance industry (Wolday *et al*., 2013).

Ebisa *et al*. (2013) described MFIs challenges in clear ways. Lack of skilled personnel is the common problem in Ethiopian Microfinance Institutions. Moreover, MFIs' weak linkage with other formal financial institutions and face challenges of obtaining loans from banks. The scholars explained presence of an illegal way of doing the micro financing business from the side of the government, NGOs and other agencies which continue to provide uncollectible loans by violating the proclamations approved by the House of People's Representatives.

According to Adugna (2016) there is clear empirical evidence that the microfinance institutions are efficient but unprofitable due to low lending interest rates. The MFIs have mobilized significant amount of saving and addressed the difficult task of reaching the rural poor. However, the problems of addressing the marginalized poor, limited support to micro and small enterprise development, limited awareness of the role of micro finance in poverty alleviation, luck of loan fund, weak legal system, the delivery of supply-driven financial products, low lending interest rates, limited capacity of MFIs and poor infrastructure are still challenges identified.

Dereje and Rijalu (2014) study on outreach and financial performance of Microfinance Institution in Jimma Zone showed challenges of microfinance institution in Seka district. The study found constraints such as; low saving habits, lack of choosing profitable enterprise, reluctant service rendering, lack of punctuality, increasing interest rate from time to time, lack of trust between the member of the groups in the repayment of the loan, and shortage of logistics in rural areas such as; road, telephone, data record system, and lack of adequate information about the client's financial management.

MFIs meet only less than 20 percent of the demand for financial service of the poor in the country (Ayelech, cited by Dilayehu (2014)). In rural area, there is unmet demand for credit by smallholder farmers. The poor requires credit basically for four reasons, petty trading or other income generating activities, innovations in farming like improved seed and fertilizers, to bridge the gap of food shortage or for consumption smoothing and to meet their social obligation like weeding, holidays (Dilayehu, 2014). This unmet demand presence for credit and saving provides better opportunities for MFIs to increase their outreach and sustainability.

Adugna (2016) showed some opportunities of MFI to sustain the service provided. These are larger number of low-income people, unemployed young people, number of organized micro enterprises, the amount of disbursed and loan recovery was showing change and improvement from time to time. The researcher also said the culture of saving and borrowing of the client was changing positively which would help in increasing the outreach and sustainability of MFIs.

2.6. Conceptual Framework of the Study

Microfinance institution is known by supplying small loans and other basic financial services including, savings, insurance and money transfer to the poor in recognition of the fact that the poor people need these services for improving their socioeconomic conditions and moving out of poverty (Mujeri, 2015). However, participation and utilization of these financial services by households was low due to different reasons. Factors affecting participation in financial service can be categorized into two: the household/individual characteristics and the attributes of the financial institution. Among the individual/household characteristics; age, sex, marital status, family size, land size, livestock owned, farm income, non-farm income, education level; whereas, the attributes of the financial institution rules and regulations and distance from the service provision (Kiros, 2012).These attributes of the financial institution which can affect participation of farm households in microfinance services revolve around the decision of the MFIs to locate in a particular village reflected in the transactions costs such as frequency and lengthy of meetings, paper works, initial deposits, interests rate and search for group peers during group lending time (Mapesa, 2012).

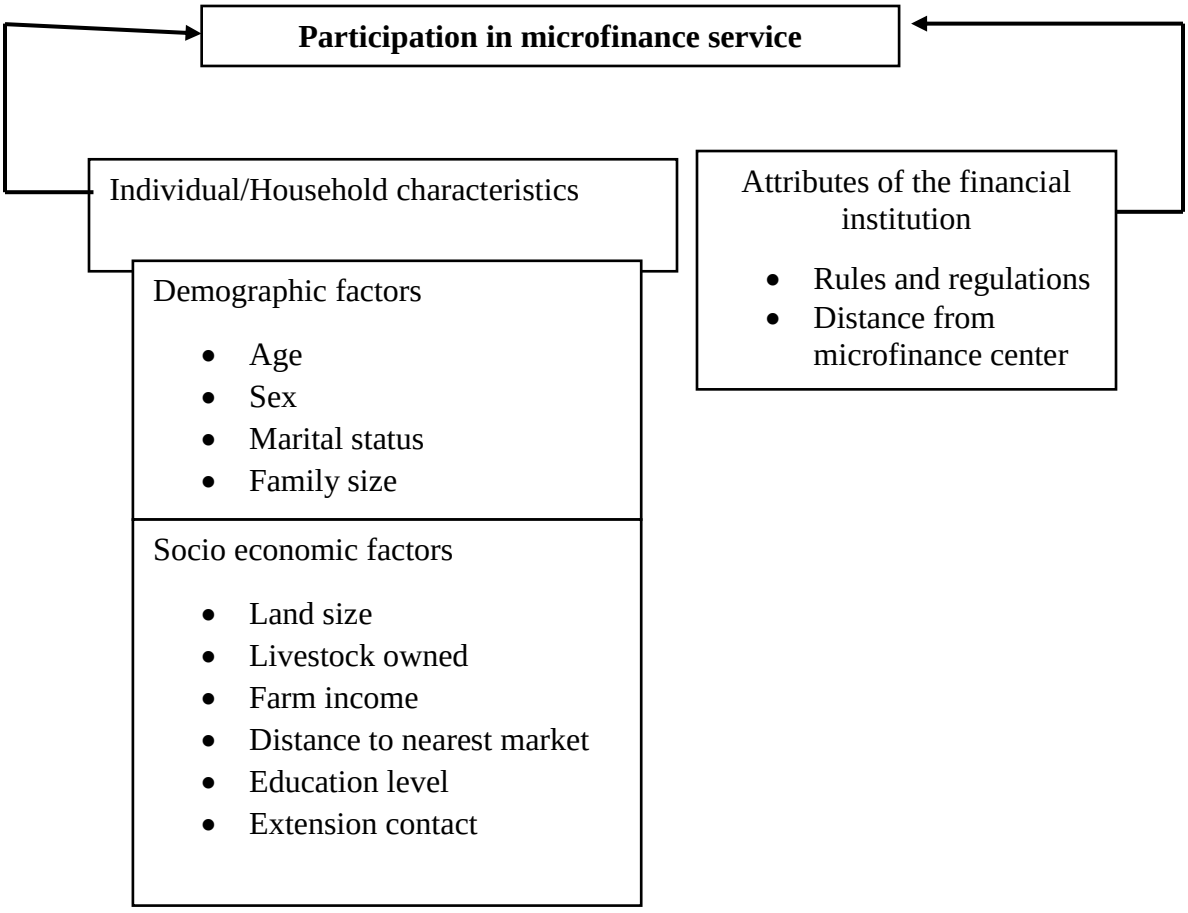

Figure 1: Conceptual framework of the study

Source: Adapted from Kiros (2012)

3. RESEARCH METHODOLOGY

In this chapter, description of the study area, sampling technique and sample size determination, source of data and method of data collection for the study, method of data analysis and variable definition and working hypotheses are presented.

3.1. Description of the Study Area

The study was conducted in Gimbo district of Kaffa Zone, Southern Ethiopia; which is located 18 km far from Bonga, 722km from regional town, Hawassa, and 442km from Addis Ababa, in the way from Jimma to Bonga. Gimbo district is bordered on the south west by Shebe town, in Jimma zone, on the North by Decha district, on the North West by the Addiyo district and on the south east by Gawata district. According to information from Gimbo district agriculture and rural development office, the district agroecology is 10.3% high land, 74.4% midland and 15.3% lowland and the district has a minimum temperature of 15^{o}c and maximum temperature of 35^{o}c, has average rainfall of 900-1150mm. The total population for this district is 117,588 and from which 58,559 were men and 50,059 were women. Most of these populations were rural dwellers and only 13,438 were urban inhabitants. The total number of households of the district is 12,311; and from these 10,942 are men and 1369 are women headed households. The total number of households engaged in agriculture is 10,310 (GDOARD, 2018).

The district is composed of 31 rural kebeles with total area coverage of 88,129 hectares. From this, 1064 hectare is arable land, 28,240 hectares is forest cover, 30,531 hectares is covered by permanent crops, and 10,177 hectares is covered by annual crops, grazing land covers 855hectares, wetlands cover 7257 hectares, and plantation forest (private) covers 1,259 hectares. Agriculture is the main source of income for majority of rural households. Maize, pepper, coffee, finger millet, sorghum, rice, tea, and common bean are major crops cultivated in the district (GDOARD, 2018).

Out of 31 rural kebeles of the district, only twelve of them have all weather road access. There were 11 multipurpose coffee cooperatives and five coffee processing machines which are owned both privately and in cooperative members from rural households (GDOARD, 2018). The commercial bank of Ethiopia has one branch in the district and it is the only formal financial institution providing financial service in the district. In addition to this, Omo microfinance

institution was providing the financial service in the district with main objective of saving and credit services provision for poor households living in urban and rural areas.

Omo Microfinance Institution was established in October, 1997 following the proclamation Nº.40/1996 and legally registered by the National Bank of Ethiopia in the SNNPRS aiming mainly to bridge the gap of formal institutions to meet the need of small-scale borrowers in income generation schemes. About 80% share is owned by regional state government, 19.5% is owned by associations and NGOs and 0.5% is owned by individuals (Wolday, 2000). OMFI has three-tier organization structure such as head, branch and sub-branch offices. Head office at Hawassa with responsibility for the implementations of credit and savings, human resource and other policies, monitoring and evaluation of the credit and savings operations. It runs the day-to-day management of the institution and handles issues of a strategic nature. Branch offices are generally found between the head office and the sub-branch offices with specific responsibility of coordinating sub-branch offices and also act as liaison office between head office and sub-branches. Branches do not make operational decisions like loan disbursement and collections. The Sub-branch is the lowest operational unit in the structure which is responsible for approval, disbursement and collection of loans and saving deposits (Ebisa *et al*., 2013).

The Loan Services/Products that provided by OMFI are: agricultural loan, petty trade loan, handicraft loan and service loan. Annual lending rate is 15% for all loan types and no other additional charges. The type of collateral needed to get loan from OMFI is group collateral *i.e.* clients form groups of 3-5 members who are collectively responsible for the loans. Time needed to process and get the loan is 30 days (ibid).

OMFI is delivering two types of saving service. These are compulsory and voluntary saving. The compulsory saving is mainly related to the credit service that has been delivered by the institution and each credit client is expected to save in this scheme. However, voluntary saving has been made based of the free choice and willingness of the individual or organization. This type of saving also comprises individual non-client and organizational voluntary saving (GDOOMFI, 2018). The major difference of voluntary from the compulsory one is the account owner can withdraw the required amount money at any time (Addisu, 2011).

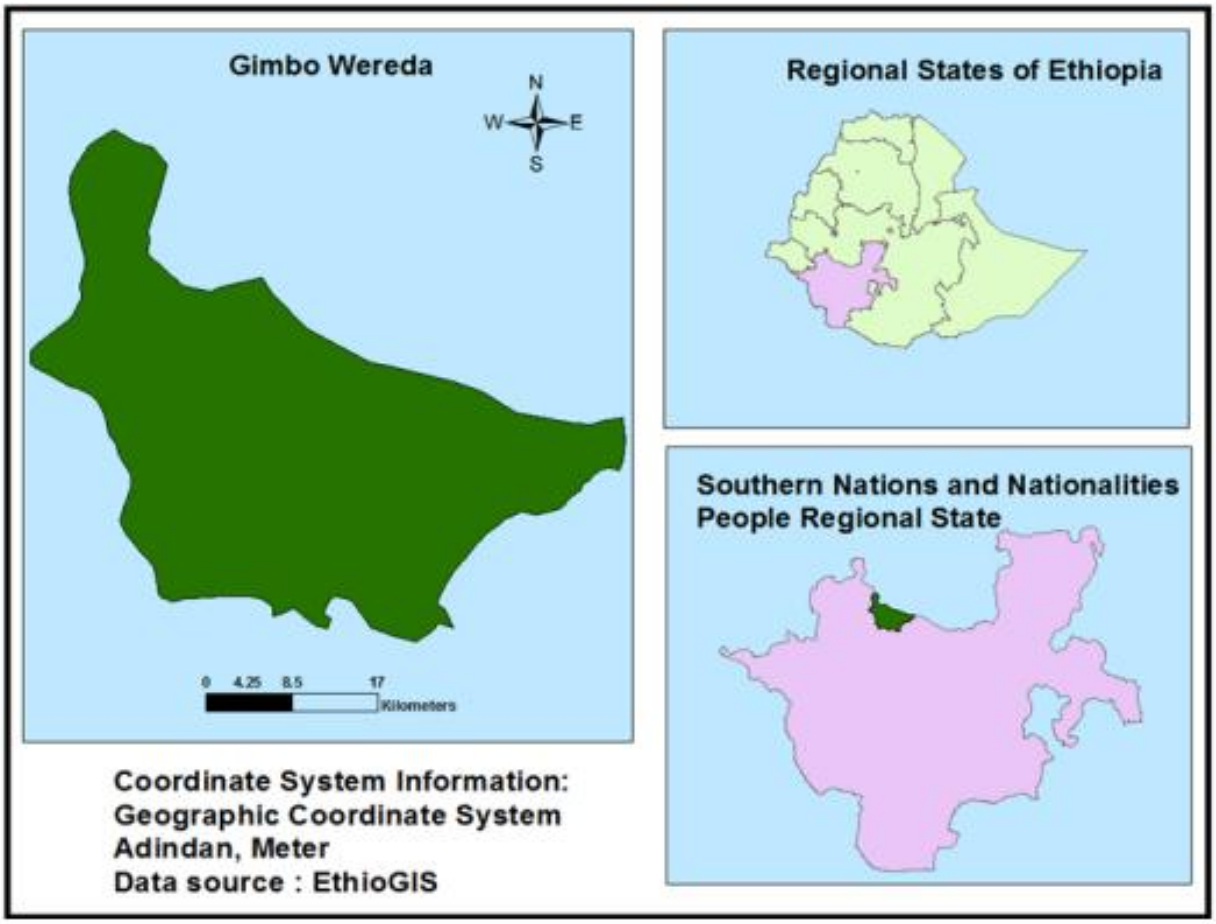

Figure 2: Map of the study area

Source: Yakob et al. (2015)

3.2. Sampling Technique and Sample Size Determination

To select sample respondents, two-stage sampling technique was employed. In the first stage four Kebeles were randomly selected from 31 rural kebeles in the district. In the second stage, by taking the list of household heads from each selected Kebeles as a sampling frame, representative household heads were randomly selected in probability proportion to size of each Kebele's population. Representative sample size was determined by using the formula developed by Yamane (1967) as follows:

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

Where, n is sample size; N is target population, and e is level of precision. Based on this formula, by assuming level of precision 7%, and given number of total farm households in the district 10310, sample size was estimated to be about 200.

Since the size of households in sample kebeles is different, the sample size of i^{th} kebele was determined on the following probability proportion to sample formula:

$$n_i = \frac{nN_i}{N} \quad \text{..... (2)}$$

Where, n_i= sample size of i^{th} kebele

N_i= total number of households in ith kebele, N= total number of households in sample kebeles and n= sample size determined for the study by the formula in equation (1)

Based on this information sample respondents in each of selected sample kebeles were determined (Table 1).

Table 1: Distribution of sample households by representative Kebeles

Kebele	Total households of sample kebeles	Sample size *
Kicho	389	41
Beyemo	512	55
Shomba Kichib	743	80
Tepe Buti	230	24
Total	1874	200

*Sample proportion = 0.1067

3.3. Data Sources and Methods of Data Collection

In this study, both primary and secondary data sources were used to gather necessary data regarding smallholder farmers' participation in microfinance service of OMFI. The primary data was collected from the selected sample of 200 smallholder farmers from four kebeles of the

district. Structured questionnaire including both open and close ended questions was used to generate the primary data from the selected households. After conducting questionnaire pre-test, eight well trained enumerators were used for data collection from sample households.

In addition, key informants' interview was conducted with selected experts who have experience and knowledge on OMFI service provision. Based on their involvement in the service provision of OMFI, 12 experts were selected purposively (four experts from kebele OMFI experts, four experts from Gimbo district sub branch office of OMFI and four key informants from sample kebele administrative chairman). Furthermore, four focus group discussions were conducted and used as source of qualitative data (in each sample kebele one focus group discussion held). Different checklists were used to collect data from key informants and focus group discussions. Furthermore, secondary data were also obtained from published and unpublished documents of individuals, different organizations including Gimbo district office of agriculture and rural development and district sub-branch offices of OMFI.

3.4. Methods of Data Analysis

The sample respondents' demographic and socio-economic conditions as well as borrowing and saving practices was analyzed using descriptive statistics like mean, standard deviations, frequency and percentage. Non-participant farm households were asked to state reasons for not participating in services in microfinance institutions and data analyzed in descriptive methods. Data on challenges and opportunities of microfinance service provision was analyzed in qualitative approach. Furthermore, the potential variables that are hypothesized to influence the farmers' credit participation in OMFI were tested for statistical difference using t-statistics and Chi-square (χ^2) tests. The t-test was used to test the significance of the mean value difference of continuous variables between MFI services participants and non-participants. Similarly, potential discrete (dummy) variables were tested using the Chi-square (χ^2) distribution for significance difference between credit participants and non-participants. Finally, determinants of credit participation and level of loan amount received was analyzed by using double hurdle model.

Econometric model Specification

Econometric model was used to assess the influence of household characteristics, resource endowments, access to services and institution related factors that were hypothesized to determine the smallholder farmers' decision to participate in credit service of OMFI.

The Double-hurdle model, originally formulated by Cragg (1971), assumes that households make two decisions separately regarding their decision to participate and intensity of participation, each of which might be determined by a different set of explanatory variables. This model believes that a person faced with two hurdles in any decision-making processes.

Accordingly, the decision to participate in an activity is made first and then the decision regarding the level of participation in the activity follows. In this study, thus, double-hurdle model was chosen because it allows for the distinction between the determinants of households' credit participation and the level of participation measured by the amount of loan received from OMFI through two separate stages. It involves, in the first stage, running a probit regression to identify factors affecting the decision to participate in the service using all sample households and in the second stage, a truncated regression model on the participating households to analyze the extent of loan amount borrowed (Wooldridge, 2002).

The probit model

The probit model specified as following Wooldridge (2002).

$$Y_i^* = \beta X_i + \varepsilon_i,\ \varepsilon_i \sim N(0,1) \quad \text{(3)}$$

$$Y_i = \begin{cases} 1\ if\ Y_i^* > 0 \\ 0\ if\ Y_i^* \leq 0 \end{cases} \quad (4)$$

Where,

Y_i* is a latent (unobservable) variable representing households' discrete decision whether or not to participate in the credit service of OMFI, X_i is a vector of independent variables hypothesized to affect household's decision to participate in the credit service of OMFI, β is a vector of parameters to be estimated; ε_i is the random error term assumed to be independently and identically distributed as N (0,1), and Y_i is a discrete response variable for status of households' participation in the credit service of OMFI which takes value of 1 if the household participates and 0 otherwise.

Truncated regression model

The level of participation deals with the loan amount received for those households who have already borrowed from OMFI.

Truncated regression excludes part of sampled observation based on the value of the dependent variable. That is, it uses observations only from households who report amount of loan borrowed from OMFI (Wooldridge, 2002).

The level of credit participation/ loan amount used was modeled as a regression truncated at zero:

$$Z_i^* = \gamma_0 + \gamma_i X_i + \mu_i, \mu_i \sim N(0, \delta^2) \quad \text{(5)}$$

$$Z_i = \begin{cases} Z_i^*, \ if\ Z_i^* > 0\ and\ Y_i = 1 \\ 0\ \text{otherwise} \end{cases} \quad \text{(6)}$$

Where,

Z_i*, is latent (unobserved) variable for Y_i; Z_i is the observed amount of loan which depends on latent variable Z_i* being greater than zero (is the loan amount borrowed by household) and conditional to the decision to participate Y_i; Xi is a vector of independent variables that influences the extent/level of households' loan amount, γ_i is unknown parameter to be estimated, μ_i is a normally distributed error term as N (0, σ^2).

Truncation reduces variance compared to the variance in the untruncated distribution. As the result, the truncated regression model with the lower left truncation equal to 0 was used to determine factors influencing loan amount used. Following Aristei *et al*. (2007), a double-hurdle model with independent error terms was estimated as following log-likelihood function.

$$LL_{dh} = \sum_0 ln\left[1 - \Phi(\beta X_{1i})\phi\left(\frac{\gamma X_{2i}}{\sigma}\right)\right] + \sum_+ ln\left[\Phi(\beta X_{1i})\frac{1}{\sigma}\phi\left(\frac{Z_i - \gamma X_{2i}}{\sigma}\right)\right] \quad \text{(7)}$$

Where, Φ and ϕ denote standard normal cumulative distribution functions (CDF) and standard normal density functions respectively, and σ is standard deviation.

The first term in the above equation corresponds to the contribution of all the observations with an observed zero. Under the assumption of independence between the two error terms, the log-likelihood function of the double-hurdle model is equivalent to the sum of the log likelihoods of

a truncated regression model and a univariate Probit model. Consequently, the log-likelihood function of the double-hurdle model can be maximized, without loss of information, by maximizing the two components separately: the probit model (over all observations) followed by a truncated regression on the non-zero observations (Burke, 2009).

Statistical and Specification Tests

In this study to check whether double hurdle model best identifies or not the determinants of credit participation, a series of model specification tests were carried out. A log-likelihood ratio (LR) and Vuong tests were used to choose the appropriate model from the three alternative specifications. According to Humphreys (2013), firstly, double hurdle model was tested against the Tobit model using a standard likelihood ratio test, as the Tobit model is nested in the double hurdle model, and then the double-hurdle model is tested against the Heckman model. The likelihood ratio test is

$$LR = -2(LL^*_{Double\ hurdle} - LL^*_{Tobit}) \quad \text{(8)}$$

Where, the test statistic has a $\chi 2$ distribution with degrees of freedom equal to the number of parameter restrictions made to get the Tobit model. The LR test of the double-hurdle model against the Tobit model as shown in the Appendix table (3) strongly rejects the Tobit specification with indication for the existence of two separate decision-making stages in households' credit participation. Vuong (1989) developed a modified likelihood ratio test for non-nested maximum likelihood estimators, based on a transformed value of the log likelihood function that can be applied to the non-nested sample selection and double hurdle models as Heckman model is not nested in the double hurdle model.

$$LR1 = LL^*_{Double\ hurdle} - LL^*_{Heckmant} \quad \text{(9)}$$

Where, LR1 is the likelihood statistic formed from the difference between the value of the log likelihood function for the double hurdle and the Heckman model. The Vuong test is based on a transformation of the log likelihood values. The transformation used in the Vuong test is:

$$w_n = \left(\frac{1}{n}\right)(LR1)^2 - \left[\left(\frac{1}{n}\right)LR1\right]^2 \quad \text{(10)}$$

Where, n is the number of observations, the test statistic for the Vuong test, which has a standard normal distribution, is

$$\sqrt{n}\frac{LR1}{w_n} \quad \text{(11)}$$

Based on this procedure, the value of the test statistic is greater in absolute value than a critical value from the standard normal distribution (Humphreys, 2013); showing double hurdle model fits the data better than the Heckman model as the Vuong test rejects the Heckman selection model. The results for these two model specification tests are presented in Appendix table (3). Therefore, the double-hurdle model was used as the best specification to identify factors that determine households' credit participation in two separate stages.

In addition to these, all the hypothesized explanatory variables have been checked for the existence of statistical problems like Multicollinearity. Multicollinearity problem arises due to a linear relationship among explanatory variables; and becomes difficult to identify the separate effect of independent variables on the dependent variable because there exists strong relationship among them (Gujarati, 2003). It may cause the estimated regression coefficients to have wrong signs, smaller t-ratios, high R^2 value, large variance and standard error with a wide confidence interval. Variance - inflating factor (VIF) and contingency coefficient (CC) techniques were employed to detect Multicollinearity problem among continuous and discrete explanatory variables respectively. Variance inflating factor was defined as the follows:

$$\text{VIF } (X_i) = \frac{1}{1-R_j^2} \quad \ldots\ldots (12)$$

Where, R_j is the multiple correlation coefficients between X_j and other explanatory variables. If the value of VIF is above 10, the variables are said to be collinear.

On the other hand, contingency coefficient (CC) for the discrete/dummy variables are said to be collinear if the value of contingency coefficient (CC) is greater than 0.75 and expressed as follows:

$$CC = \frac{\sqrt{\chi^2}}{\sqrt{n+\chi^2}} \quad \ldots\ldots (13)$$

Where CC- is contingency coefficient, n- is sample size, χ^2 is chi-square value

For statistical significance of coefficients (each explanatory variables), Z statistics and for overall significance of variables or null hypothesis, likelihood ratio (LR) following chi-square x^2 distribution was used. Based on these tests there was no serious multicollinearity problem among explanatory variables as mean VIF was 1.12 and contingency coefficients were below 0.75 as shown in Appendix table (4) and (5) respectively.

3.5. Variable Definitions and Hypotheses

Review of related literatures, past research findings and researcher knowledge were used to identify the potential determinants of the farmers' participation in credit. Twelve explanatory variables which were identified to influence dependent variable are defined and summarized below (Table 2).

The Dependent variables

This study has two dependent variables. The first dependent variable is farmers' participation in credit service. It is a dummy variable in the model that takes a value of '1'if a household is participated in credit service of OMFI and '0', otherwise.

The second dependent variable is continuous variable which is the amount of loan received by the households from Omo microfinance institution.

Independent variables

Age of household head (AGE): It is a continuous variable defined as the farm household heads age at the time of interview measured in years. According to Kiros (2012), credit users were older than those who do not. On the other hand, credit participation decreases with increase in individuals' age as lenders prefer to grant loans to middle aged individuals (economically active groups) rather than to the young (Doan *et al*., 2010). However, in this study, it is expected that age related positively to credit service participation and loan amount received.

Sex of household head (SEX): This is a dummy variable that assumes a value of "1" if the head of the household is male and "0" otherwise. The study of Ololade and Olagunju (2013); Amanuel and Degye (2018) revealed that being a female reduces the probability of microfinance service participation and the amount of loan received. This implies that male headed households have higher probability of service participation. Therefore, it is hypothesized to have a positive relationship with credit participation and loan amount received.

Education level of household head (Education): This is a continuous variable showing formal class education of household head. Addo *et al*. (2013); Djoumessi *et al*. (2018); Amanuel and Degye (2018) showed that farmers with higher education are more likely to participate in microfinance programs. Farm households who are educated are expected to be more capable of

exploring relevant information and they are more likely to participate in credit service. Therefore, it is hypothesized to have a positive relationship with credit participation and loan amount received.

Family size (FAMSIZE): It is a continuous variable and refers to the total number of the family members measured in head count. According to John and Charles (2015); Chen and Chivakul (2008); and Amanuel and Degye (2018) the larger family size leads to require extra resources to survive through higher credit participation. However, Abunyuwah and Blay (2013); Fikiru *et al*. (2018) showed negative relation between variables. In this study, it is hypothesized as family size to be related positively with households' credit participation and loan amount received.

Farm income (FINCOME): It is a continuous variable that refers to the amount of cash income measured in birr that earned by the household from farm activities annually. Amanuel and Degye (2018) revealed that as the level of household income increased, the loan amount received by smallholder farmers is reduced. If a farm household has a higher income per annum he/she might not go to borrow from external credit sources. In this study, the relationship between income levels and participation to credit is expected to be negative as microfinance institutions are basically targeted to poor and with low-income. Therefore, the variable is hypothesized to have negative relation with credit participation and loan amount received.

Livestock owned (TLU): It is continuous variable measured in tropical livestock unit (TLU). Kiros (2012), Mamo and Deginet (2015) found that, households having high number of livestock have less demand and participation in credit; however, Asfaw and Jema (2013) said livestock owned have a positive relationship with the credit participation as farmers owning more livestock can share risk of crop failure by selling out their animals and animal products and have more probability of credit participation. In this study, this variable is expected to influence farmers' credit participation and loan amount received in negative relation.

Land size (LANDSIZE): It is a continuous variable that refers to the total size of cultivated and economically usable land owned by the households. Kiros (2012), Amanuel and Degye (2018), Duy *et al*. (2012) showed that credit use can be significantly increased when households have large size of land. This is mainly because; a household with larger land size needs more cost to operate that might be covered from funds from external sources like credit. It is hypothesized

that increase in land size would lead to increase in farmers' credit participation and loan amount received.

Perception on interest rate (PERINTERST): It is a dummy variable measuring perception of household about interest rate charged for credit and paid for saving that takes a value of "1" if a household perceives the interest rate to be fair and "0", otherwise. It was expected that household that perceive the interest rate charged by MFIs to be high would have less participation in credit. Therefore, it is hypothesized that positive relation with credit participation.

Perception on group lending (PERCNGROUP): Group lending is collateral required in OMFI through a grouping of borrowers and borrowers in a group are jointly and severally liable for all loans taken out. It is a dummy variable that takes a value of "1" if a respondent perceives the group lending collateral is convenient and "0", otherwise. Fikiru *et al*. (2018); Dilayuhu (2014) and Kiros (2012) showed group lending in which group as a whole can be sanctioned in the case of default by any of the members influenced credit participation negatively. Thus, it is expected that the variable would increase the farmers' credit participation and loan amount received.

Distance (DISTANCE): It is a continuous variable, showing distance from individual residence to OMFIs services provision center and measured in km. Akpan *et al*, (2013), Biruk (2015) and Endalew *et al*. (2013) showed that as increase in distance to the nearest financial services provider decreases the probability of participating in the services. It is hypothesized as the variable would have negative relation with credit participation.

Frequency of extension contact (EXTENSN): This refers to visits of farmers by extension agents/experts to discuss on crops and animal production and marketing and MFIs services to provide the necessary supports to farmers. It is a continuous variable measured in frequency of contact per a year. Extension is sources of information, knowledge and advice to smallholder farmers and expected to increases the probability of credit market participation. Fikiru *et al*. (2018); Djoumessi *et al*. (2018) and Biruk (2015) showed positive relation between the extension contacts with credit participation. Therefore, it was hypothesized as the variable has positive relation with credit participation and loan amount received.

Perception on loan disbursement time (LONTME): It is a dummy variable that takes a value of "1" if a respondent perceives the loan disbursement time is appropriate and "0", otherwise.

Appropriate and timely loan disbursement procedure is expected to have direct influence on the farmer's credit participation. Hence, the variable is expected to have positive influence on credit participation.

Table 2: Summary of definitions of variables and working hypotheses

Variables	Descriptions of variable	Types	Expected Relation	
			Participation	Loan amount
Dependents				
CREDITPART	Credit participation (yes=1, No=0)	Dummy		
LOANAMNT	Loan amount received in birr	Continuous		
Independents				
AGE	Age of the household head	Continuous	+	+
EDUCATION	Education level of household head	Continuous	+	+
SEX	Sex of household head (male=1 and female=0)	Dummy	+	+
FAMSIZE	Family size	Continuous	+	+
FAINCME	Farm income of household in birr	Continuous	-	-
LIVESTOCK	Livestock ownership in TLU	Continuous	-	-
LANDSIZE	Land size of household in ha	Continuous	+	+
DISTANCE	Distance to OMFI service provision (Km)	Continuous	-	
PERINTERST	Perception on interest rate (fair= 1 and not fair=0)	Dummy	+	
PERCNGRUP	Perception on group lending (convenient=1 and not=0)	Dummy	+	+
PERLONTME	perception on loan disbursement (timely =1 and delayed =0)	Dummy	+	
EXTENSN	Extension contact Frequency of household head /year	Continuous	+	+

4. RESULTS AND DISCUSSION

This part deals with the analysis of the survey data and interpretation of the results. The first section deals with demographic and socioeconomic characteristics of sample respondents which are discussed using statistical tools such as mean, percentage, standard deviation and frequency distributions. Following this, saving and credit participation of sample households is discussed. Additionally, factors affecting households' credit participation and amount of loan received are also another section covered under this chapter. Finally, challenges and opportunities in microfinance service provision in the district are presented and discussed at the end of the chapter.

4.1. Sample Households' Characteristics

4.1.1. Socio-demographic characteristics

The sample was composed of both male and female-headed households. From the total sample households, 86.5 percent were male headed households and 13.5 percent were female headed households. From male headed households, 32.9 percent were credit participant and 67.1 percent were non-participants. From female headed households, 18.5 percent were credit participant and 81.5 percent were non-participants. The difference in terms of sex of household head between the two groups was significant at 10% level of significance (Table 3).

The credit participant group have mean age of 44.63 years (SD=10.16). By comparison, non-participant group was associated with numerically higher age of 46.09 years (SD=10.11). To test hypothesis that credit participants were associated with statistically significant different mean age, an independent sample t-test was performed and showed it was associated with statistically insignificant effect (Table 3). This may be due to the reason that, age was not the only necessary condition to participate in the service; because, even if the age of household head lay outside the working age group, if the household members are considered to be capable of managing and repaying the loan, the household may participate in the service. This is decided by stream committee at the kebele level which approves eligibility for loan application and acquisition of clients.

The Mean family size of the total sample was 4.06 with 1.73 of standard deviation. Mean family size of credit participant group was 6.45 (SD=1.54). By comparison, non-participant group was

associated with numerically lower family size of 5.41 (SD=1.72). The result of independent sample t-test showed that, there was statistically significant difference between mean of two groups at 1% level of significance. Thus, participants have statistically higher mean family size (Table 3).

Table 3: Demographic characteristics of sample households

Variables	Category	Non- borrowers (%)		Borrowers (%)		Total sample (%)		Pearson χ 2
Sex	Male	67.10		32.90		86.50		2.273*
	Female	81.50		18.50		13.50		
		Mean	SD	Mean	SD	Mean	SD	t-value
Age (years)		46.09	10.110	44.63	10.160	45.63	10.122	-0.942
Family size		5.41	1.725	6.45	1.544	5.73	1.735	4.065***

*and *** represent significance level at 10% and 1 % respectively

Source: Household survey data (2018)

4.1.2. Socioeconomic characteristics

The mean education level of total sample households was 1.84, showing lower education level of households. There is significant mean difference in mean education level between credit participants and non-participants at 1% significance level. The credit participant group (n=62) have mean education level of 2.69 (SD=2.42). By comparison, non-participant group was associated with numerically lower education level of 1.46 (SD=2.28). Thus, credit users were associated with statistically higher mean education level (Table 4).

There was statistically significant difference in mean land size between credit participant and non-participant households at 1% level of significance. The mean land size of credit participants was 2.55 hectares (SD=1.04). By comparison, non-participant group was associated with numerically lower mean land size of 2 hectares (Table 4). Thus, borrowers were associated with statistically higher mean land size ownership. Mean land size of the sample households was 2.17 hectares.

There was a significant mean difference in mean livestock ownership of households between credit participants and non-participants at 10% significance level (Table 4). The credit participant group had mean livestock ownership in TLU of 3.83 (SD=1.44). By comparison, non-borrower group was associated with numerically lower livestock ownership of 3.48 TLU (SD=1.2). Thus, participants were associated with statistically higher mean livestock ownership. Since livestock is physical asset that secures loan repayment at the time of loan default, the more livestock owned increases confidence for both the borrower and the lender institution to participate in credit service (Asfaw and Jema, 2013).

Table 4: Education level, resource ownership and income of sample households

Variables	Non-borrowers (N=138)		Borrowers (N=62)		Total sample (N=200)		t-value
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev	
Education (years)	1.46	2.283	2.69	2.427	1.84	2.392	3.45***
Land size (ha)	2.009	0.851	2.554	1.047	2.179	0.95	3.89***
Livestock own (TLU)	3.488	1.202	3.836	1.440	3.596	1.29	1.774*
Farm income (Birr)	16060.23	7939.80	16467	8117.78	16186.4	7977.17	-0.33

*** and ** represent significance at 1%, 5%, respectively.
Source: Household survey data (2018)

Households travel 12.62 km on average to reach service provision center of OMFI. Service participants on average travel shorter distance of 11.78 km than non-participants of 13 km travel. The significant difference at 5 % level of significance showed that, distance matters on the service participation of households as there was significant difference in mean distance from microfinance service provision center and borrowers' and non-borrowers' residence (Table 5).

Regarding extension contact, there was significant mean difference in frequency of contact between credit participant and non-participant groups at 1 % level of significance. The participants have on average higher frequency of contact of 13 times per year than non-participants of 10 times contact. On the other hand, there was no significant mean difference between credit participant and non-participant groups regarding distance to the nearest market center (Table 5).

Table 5: Sample households' extension contact and distance to services provision centers

Variables	Non-borrowers (N=138)		Borrowers (N=62)		Total sample (N=200)		t-value
	Mean	St. Dev	Mean	St. Dev	Mean	St. Dev	
Distance to OMFI	13.00	4.005	11.78	4.004	12.622	4.047	-1.982**
Extension contact	10.40	6.00	13.19	6.95	11.27	6.427	2.89***
Distance to market	13.57	3.89	12.33	9.13	13.195	6.024	-1.35

*** and ** represent significance at 1%, 5%, respectively.
Source: Household survey data (2018)

4.2. Households' Participation in Saving and Credit

4.2.1. Households' participation in credit

From the 200 sample respondents, 62 (31%) households participated in credit and the remaining 138 (69%) were not participated (Table 6). Among those participants, mean loan amount received by household was 6016.13 birr, with minimum of 2,500 and maximum of 10,000 birrs. The report from district sub branch office of OMFI showed that the clients demand and participation in credit was increasing in the past five years (as shown in Appendix table 1). However, still the participation of smallholder farmers in the service is low. Some reports showed that Ethiopia has achieved rapid financial sector growth in the last two decades, but, many households are still excluded from access to financial services in the jurisdiction. This can be confirmed by that, as the access and usage of financial services by individuals found to be only 33.86 percent of adults have account with formal financial institutions; showing that the country lags behind Sub Saharan countries also (Baza and Rao, 2017). The result showed that, in the district, financial inclusion is lower than the average country's level.

Table 6: Households' credit participation (2015/16-2016/17)

Parameter	Frequency (N=200)			Percent
Participate in credit (yes)	62			31.00
	Loan amount			
	Mean	Minimum	Maximum	St. Deviation
Loan amount (Birr)	6,016.13	2,500	10,000	2,261.524

Source: Household survey data (2018)

Credit user households were asked about loan utilization via the reason why they took credit from OMFI. Most of the credit users (53.2%) from OMFI were borrowed for the purpose of buying livestock, specially oxen for ploughing. Buying capital assets like house construction and purchase of farm inputs like fertilizer and seed were the second major purposes of loan utilization areas, mentioned by 16.1% of respondents. On the other hand, 8.1 % of respondents borrowed to start new businesses like petty trading; poultry production, sheep fattening and rural kiosk operations. The remaining 6.5 % household borrowed for purpose of consumption on durables (Table 7). The practice of loan use based on profitability of business that would help to have better loan repayment performance is weak in the district.

The major issue mentioned here during interview time and also in focus group discussion was loan diversion to unwanted purpose due to time lag on loan provision. For instance, if a household who needed loan for purchase of farm input like fertilizer, seed, oxen and others for a seasonal production couldn't get loan on time, loan diverting to unintended purpose may happen. This loan diversion in turn affects the performance of loan repayment of the credit user. This problem was being seen in the district and mentioned as challenge in microfinance service provision and service participation from institution's and households' perspective respectively.

Table 7: Purpose of households' loan acquisition

Purpose of borrowing	Frequency (N=62)	Percent
To purchase livestock	33	53.2
To buy capital asset	10	16.1
To purchase fertilizer and farm inputs	10	16.1
To start of new business	5	8.1
For household consumption on durables	4	6.5
Total	62	100.0

Source: Household survey data (2018)

Training service was provided for clients in relation to credit service. Credit user households were asked about training and support given from OMFI. More than 90 percent of borrowers got training before loan provision on working procedure of the institution and loan management; while 8.1 percent didn't get the training. It was good thing that most of the respondents got training before loan acquisition. However, the follow up and monitoring by OMFI on loan use of

clients was weak. From those households who borrowed from the institution, only 35.5 percent got follow up and support service (Table 8). According to the report of CIMMYT (2015), financial training and support for farmers on farm-budgeting, savings, managing credit, and using MFI services have profound effect for effective and sustainable service provision; however, there is gap on this issue that the OMF institution should fill to attract more clients.

Supervision and monitoring on loan utilization would help reduction of loan diversion to unintended purpose and has role in improving loan repayment performance of borrowers. However, clients and participants in focus group discussion also mentioned that OMFI was given less focus for it. This can also be seen by that few clients were happy with the training and support service of the institution as they said it was good. From the clients, 40.32 percent said training and follow up service was satisfactory and 48.38 said it was bad as it needs improvements (Table 8). Since effective demand for rural financial services is often constrained by poor business skills and services, training in business and financial skills, and business development services that support both agricultural marketing and non-farm enterprises would have important role.

Table 8: Training and follow up service on credit use for clients

Service type	Response	Frequency (N=62)	Percent
Did you get training service before loan acquisition	Yes	57	91.9
	No	5	8.1
Did you get follow up and support on loan utilization after loan acquiring?	Yes	22	35.5
	No	40	64.5
How was training and follow up service of OMFI?	Very good	2	3.22
	Good	5	8.06
	Satisfactory	25	40.32
	Bad	30	48.38

Source: Own survey result (2018)

4.2.2. *Households' participation in saving*

From the total of 200 sample respondents, 65 (32.5%) participated in saving service of Omo microfinance institution. Despite the fact that saving would contribute to the depositors and

OMFI, weak saving behavior of households was seen in the district. As saving is requirement for loan use from OMFI, most of savers were credit user households. There are two types of saving accounts that households used in OMFI. The first one is voluntary saving for credit users and non-users (OMFI call it non-client voluntary saving). In this account a client starts saving before credit application and continues during the time that the client stays with the institution. Since it includes both credit users and non-users, the number of savers and also amount of money deposited in this account was larger than the other one. All respondents who were savers (32.5 %) owned this account and the average amount of money a household saved on it was 2,460 birrs with minimum of 200 and maximum of 17500 birrs (Table 9).

The second one is, credit user voluntary and compulsory saving. Despite it includes voluntary saving, clients consider it as solely compulsory saving. This type of saving is only for credit users. Fixed amount of money in compulsory saving, 15 birrs, with restriction on withdrawal until the full loan is repaid and voluntary saving which starts from the fixed initial amount, 5 Birr, up to any larger amount the saver can do being saved by monthly together. The average amount saved in this account was 177.69 birr and 26 % of respondents owned this account. In line with the prior findings, there was low saving mobilization in the district, showing the remaining actions to the institution to attract more saver households in effective and sustainable manner. As shown in the Table (9) below, mean saving of client households in OMFI was 2602 birrs with minimum of 250 and maximum of 17700 birrs. Despite mobilizing informal savings into formal institutions would expand the loanable capital base for OMFI and improve resource allocation in the economy at large, there was low saving habit in microfinance institutions (Muluken and Mesfin, 2014).

Table 9: Households' saving in OMFI (2016/17)

Saving account	Mean	Minimum	Maximum	St. deviation
Voluntary saving (N=65)	2,460.08	200.00	17,500.00	3,062.04
Credit user compulsory saving (n=52)	177.69	60.00	240.00	49.73
Total saving (Birr)	2,602.23	250.00	17,700.00	3,062.193

Source: Household survey data (2018)

Most of savers in Omo microfinance institution were credit users. Since prior save of 20 % of loan requested is necessary condition for credit application, households who need credit should have saving. Related with this precondition, from sample respondents, 72.3 % of saving account owners saved in purpose of using credit. About 23.1 % of savers did it in motive of both credit use and money accumulation for future investment. These savers have deposit higher than 20% of loan they need or already borrowed, as they have motive of money accumulation in addition to credit use. Fewer households (4.63 %), used to save in purpose of money accumulation without credit use intention. In comparison to the others, these savers have higher amount of deposit (Table 10).

Table 10: Client households' motives of saving in OMFIs

Why do you save in OMFI?	Frequency	Percent
For using credit service purpose	47	72.30
For both credit and money accumulation purpose	15	23.07
For money accumulation purpose	3	4.63
Total	65	100.00

Source: Household survey data (2018)

One of major objectives of microfinance institution is, helping farmers to save their cash reserves efficiently to better protect themselves from shocks before they occur, and increase liquid assets to smooth consumption against income shocks (Aminu and Samuel, 2015). However, low interest rate for saving; inconvenient withdrawal system and complicated working procedure lacking modernized instruments were some of problems that respondents mentioned as institution related reason for low saving habit in the district. From non-saver households, 61.5 percent didn't save in OMFI due to low interest rate of the institution. About 23 percent didn't own saving account due to the reason they didn't like working procedure of the institution, while 4.4 percent even didn't trust OMMFI to save there. Nearly 11 percent didn't save because they had no surplus money to save (Table 11). Participants in focus group discussion also mainly mentioned the problem of low interest rate and working procedures of the institution for low saving of households in OMFI.

Table 11: Reasons for non-saver households in OMFI

Why did not save in OMFI?	Frequency	Percent
Low interest rate of OMFI	83	61.5
Do not like working procedure of OMFI	31	23.0
No surplus money to save	15	11.1
Do not trust the institution	6	4.4
Total	135	100.0

Source: own survey result (2018)

4.2.3. Households' perception about OMFI service provision

The difference in terms of households' perception about group lending between credit users and non-user groups was significant at 1% level of significance. As some farmers, who needed credit, but who did not take credit from formal institutions told, they left it, because they were afraid of risk associated with grouping system inconvenience. From respondents 88.5 % were unhappy with group lending and said it was inconvenient, whereas the remaining 11.5 % said it was convenient (Table 12).

The difference in terms of households' perception about appropriateness of loan provision time between the two groups was also significant at 1% level of significance. Most of farm households perceived that the loan disbursement of OMFI was inappropriate because it took longer procedural applications and, loan provision time was lagged. From the total sample respondents 90.50 % were said it was inappropriate, while the remaining 9.50 % said it was appropriate (Table 12). Even though some of households who perceived loan provision time was lagged and inappropriate, they were participated in credit service. This was due to the absence of other formal source of credit in the district. However, related with this problem, most of non-participants who stay far away from the service were due to being desperate about the time lag in loan provision.

Most of respondents (76 %) said the interest rate of the institution was not fair; however, there was no significant difference among credit user and non-user groups based on perception about interest rate of OMFI. In addition, there was insignificant difference based on perception about the amount of loan that the institution provided, between credit participants and non-participants.

From the total respondents 82.5 % perceived loan size the institution provided is enough while the remaining 17.5 % perceived small loan size (Table 12).

Table 12: Households' perception about OMFI service provision

Variables	Category	Non-borrower (%)	Borrowers (%)	Total sample (%)	Pearson $\chi 2$
Group lending	Convenient	5.10	25.80	11.50	18.07***
	Inconvenient	94.90	74.20	88.50	
Loan provision time	Timely	4.30	21.00	9.50	13.74***
	Delayed	95.70	79.00	90.50	
Interest rate	Fair	22.50	27.40	24.00	0.576
	Not fair	77.50	72.60	76.00	
Loan size	Enough	82.60	82.30	82.50	0.004
	Small amount	17.40	17.70	17.50	

*** represent significance at 1%
Source: Household survey data (2018)

4.3. Factors Affecting Households' Credit Participation

4.3.1. Determinants of credit participation

From 12 explanatory variables expected to affect households' credit participation, those variables which found to be significant were discussed under this section as follows (Table 13).

Sex of household head showed positive and significant relation with credit participation at 5% level of significance. The model output showed that, if a dummy change from being female to male headed households, the probability of credit participation increases by 18.6 % ceteris paribus. This might be due to the reason that, men usually own larger farm lands and capabilities to manage the loan compared to women. In addition, male headed households are in a relatively better position than females to gather, understand and realize information on credit availability and the working procedures of OMFI. The finding is consistent with Ololade and Olagunju (2013) who showed male headed households being more participant on credit service.

Education level of household head was significant at 5% level of significance in positive relation to credit participation. The result from the marginal effect revealed that, a one-year increase in

education level increases the probability of household's credit participation by 3.32 %, keeping the other things constant. This is because, being literate may put households in a relatively better position to gather, understand and realize information on credit availability and the working procedures of OMFI. Furthermore, educated farmers have tendency toward the use of modern agricultural production technologies, and in the condition when they face financial shortage the need for credit from external financial source like OMFI increases. This finding is consistent with Fikiru *et al*. (2018); Djoumessi *et al*. (2018) and Amanuel and Degye (2018) who found positive relation between credit participation and education level.

Family size, as hypothesized prior, showed positive relation with credit participation and it was significant at 5% level of significance. The result from the marginal effect showed that a one unit increase in family size increases the probability of household's credit participation by 6.2 %, keeping the other things remain constant. This is because, the larger family size would represent a bigger demand for agricultural production and consumption and thus leads to require extra resources to survive through higher credit participation. Households with a large family are more likely to borrow than those with a smaller as the large family is more likely to have a higher dependency ratio. This finding is in line with Chen and Chivakul (2008) and Amanuel and Degye (2018) found positive relation between credit participation and family size.

Land size showed positive relation and significant at 5% level of significance. The marginal effect from the model confirmed that a one hectare increase in land size increases the probability of household's credit participation by about 8.3 %. This is because; the households with larger land size require more finance for agricultural production expansion and thus require extra resources to finance farming through higher credit participation. Since the only formal financial credit provider for rural households in the district was OMFI, those farmers who need more credit for agricultural farm expansion participate in credit; given OMF institution loan provision procedure. This finding agrees with Adebosin *et al*. (2013); Amanuel and Degye (2018).

Distance from households' residence to microfinance service provision center is significant at 5 % level of significance in negative relation with credit participation. The result showed that a one unit increase in distance from the institution decreases the probability of household's participation in the credit service by about 1.8 %, assuming the other things remain constant. This is because farm households' residence far away from the institution coupled with the

institutions lengthened loan disbursement procedure discourages some farmers to borrow from OMFI. This result is consistent with Biruk (2015); Endalew *et al*. (2013) and Akpan *et al*, (2013) showed distance from service provision affected credit participation in negative relation.

Extension contact showed positive and significant relation with credit participation at 5% significance level. The model output revealed that, a unit increase in contact with agricultural extension increases the probability of credit participation by 1.3 %, ceteris paribus. This is due to that, extension is sources of information, knowledge and advice to farmers. In addition, farmers who frequently contact with the extension agents were exposed to use of improved agricultural technologies, specially fertilizer and improved seed which sometimes need external financial sources like OMFI. This result is consistent with Fikiru *et al*. (2018); Djoumessi *et al*. (2018) and Biruk (2015) who showed a positive relation between extension contact and credit participation.

Perception on group lending had positive and significant relation with credit participation at 5% level of significance. The econometric model result showed that if the household perceives that group lending is convenient, the probability of a household's credit participation increases by about 28.51%, ceteris paribus. Group collateral required in OMFI through a grouping of borrowers; and members in a group are jointly and separately liable for all loans taken out. Most of farm households perceive the group lending collateral is inconvenient as described in the descriptive part above. This was high value issue mentioned during focus group discussion also as one of main reasons for some households to stay far away from OMFI services in the district. This result is consistent with Fikiru *et al*. (2018) and Dilayehu (2014) who showed the group lending related with loan default problem which affected credit participation negatively.

Perception about loan disbursement time is significant at 1% level of significance. The econometric model result showed that if the household perceives that loan provision is timely and appropriate the probability of household's credit participation increases by 49.9%, assuming the other things remain constant. Since appropriate and timely loan disbursement procedure has influence on credit participation, households who perceived that the loan disbursement of OMFI was not timely and it was also inappropriate have lower probability of participation. As participants in focus group discussion also mentioned the process in OMFI took longer procedural applications and inconvenient actions, which made some farmers to stay away from the credit service.

Table 13: Determinants of households' credit participation (probit model result)

Variable	Coefficient	Standard Error	z	Marginal effect
Sex	0.681	0.396	1.72*	0.186
Age	-0.012	0.012	-1.06	-0.004
Education	0.101	0.045	2.22**	0.033
Family size	0.187	0.068	2.75**	0.062
Land size	0.251	0.128	1.96**	0.083
Livestock (TLU)	0.109	0.089	1.22	0.036
Distance from OMFI	-0.054	0.027	-1.97**	-0.018
Extension contact	0.038	0.018	2.09**	0.013
Perception on group lending	0.769	0.350	2.19**	0.285
Interest rate perception	0.385	0.268	1.44	0.134
Perception loan provision time	1.348	0.411	3.28***	0.499
Farm income	-0.00024	0.000149	-1.64	-0.0001
Constant	-2.553	0.843	-3.03	
Nº of observations= 200		Log likelihood = -89.886		
LR $chi^2(12)$ = 67.87		Pseudo R^2 = 0.3741		
Prob. > chi^2 = 0.0000				

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

Source: Own computation (2018)

4.3.2. *Determinants of the loan amount received*

Sex of household head was positively related with loan amount received and significant at 5% level of significance. Male-headed households received higher amounts of loans than female headed households. The model output showed that, if a dummy change from being female to male headed households, the amount of loan received increases by 1,862.87 birrs, ceteris paribus (Table 14). The might be because men usually own larger farm lands and capabilities to manage the loan compared to women and are therefore expected to borrow larger loan amounts as they

have social and political power than female. These conditions gave advantage for male headed households over their counterparts; as loan management ability was one of criterion by OMFI to provide higher loan amount in order to have better loan repayment performance. The finding is consistent with Amanuel and Degye (2018) who showed male headed households took more loan than female headed households.

Family size and the amount of loan used by households had direct relationship as expected. The variable was significant at 5% level of significance (Table 14). For a one person increase in family members, the amount of loan received by a household increases by 301.30 birr. Increase in family size increases the amount of loan borrowed by the household as it would represent a consumption smoothing and bigger demand for expansion of agricultural production through credit participation. Consequently, in an attempt to maximize output to meet family needs, such households are likely to borrow more loans to meet their production and consumption targets. This finding agrees with Amanuel and Degye (2018) and John and Charles (2015) which showed having more family size leads to more of loan amount to be received by farm households.

Education level of household heads was significant at 1% level of significance. For a one-year increase in education, the amount of loan received by a household increases by 279.09 birrs, ceteris paribus (Table 14). This is because; educated farmer borrowers have better ability for loan management and application of new productivity enhancing technologies. This positive quality increases loan repayment potential, which is attractive to OMFI as a lender and the institution easily, provides the amount of loan they requested given the institutions working procedures. The result is consistent with Addo *et al*. (2013) and Amanuel and Degye (2018) which showed literate households received more loan than illiterate households as they could plan and engage on different farm enterprises that need more money to run their enterprises.

A greater a land size owned, the greater amount of loan acquired by households as the variable was significant at 1% level of significance. The model output explained that, for a unit increase in total land size, the amount of loan received by a household increases by 817.35 birrs, ceteris paribus (Table 14). This is because increase in farm size will lead to increased use farm inputs like fertilizer, improved seed and higher labor cost need. As explained in the descriptive part most of farmers borrow for mainly in purpose of buying oxen for land preparation and fattening. The more land size a farmer has, the need for having oxen for plough increases and also the

amount of loan that a household borrows also increases. Owning more land contributes for loan repayment performance and that gives confidence for lender institution to provide the amount of loan that the borrower is applied for. This result is in line with John and Charles (2015) and Duy *et al*. (2012) who showed increase in land size leads to more of loan use in rural households.

Livestock owned and the amount of loan acquired have direct relationship and significant at 1% level of significance, differently from what have been hypothesized. The model output explained that, for a unit increase in TLU, increases the amount of loan by 534.587 birrs, ceteris paribus (Table 14). This is because, for lender institution (OMFI), livestock owned suggests guaranties for securing against crop failure and other associated risks to safeguard loan repayment performance. In addition to this, livestock was seen as informal collateral farmers check to allow other members to join the group seeking higher loan amount as it is used for risk sharing at the time of loan default. Due to these reasons, those farmers who have higher livestock ownership were in a better position to receive the amount they had applied for than those with lower livestock owned. This finding is consistent with Asfaw and Jema (2013), but in contrary with Mamo and Deginet (2015) and Doreen and Philip, (2014).

Agricultural extension contact is significant at 10% level of significance and showed that, for a unit increase in frequency of extension contact, the amount of loan used by a household increases by 49.988 birr (Table 14). This is because, extension is as source and inspiration for use of modern agricultural technologies and disseminator of important information, knowledge and advice about OMFI service to smallholder farmers. Moreover, farmers who frequently contact with extension agents were exposed to use of improved agricultural technologies, specially fertilizer and improved seed. In order to access these technologies farmers sometimes need external financial sources like credit from OMFI. The result agrees with Djoumessi *et al.* (2018) and Biruk (2015) which showed similar finding that having more extension contact with farmers increased the loan amount received by households.

Table 14: Determinants of loan amount received by households (truncated regression result)

Variable	Coefficient	Standard Error	z
Sex	1862.87	688.8463	2.70***
Age	-6.82	19.007	-0.36
Family size	301.30	132.717	2.27**
Education	279.09	81.359	3.43***
Land size	817.35	220.131	3.71***
Livestock (TLU)	534.587	143.710	3.72***
Extension contact	49.988	28.698	1.74*
Group perception	555.90	428.458	1.30
Farm income	0.00147	0.024	0.06
Constant	-2991.633	1320.708	-2.27
/sigma	1366.132	124.727	10.95
Number of observations =	62	Wald chi2(9) = 104.39	
Log likelihood = -535.2524		Prob. > chi^2= 0.000	

*** And ** represent significance at 1%, and 5% respectively.

Source: Own computation (2018)

4.4. Challenges and Opportunities of Microfinance Service Provision

To identify challenges and opportunities of microfinance service provision in the district, necessary data have been gathered through focus group discussion and key informants' interview. During key informants' interview with experts from OMFI sub branch office of the district and local administrative level, major issues mentioned were analyzed in qualitative approach and they are discussed in order of importance as follows.

4.4.1. Major challenges

Low loan recovery performance: Despite loan repayment period for clients of OMFI was one year, due to different reasons, loan recovery time extends to longer time than the allowed period of time. The information from the district OMF sub branch showed that in some rural kebeles of the district, unpaid loan in arrears have been challenging the outreach and effectiveness of the

institution in the district. Since the loan provision is based on group-based collateral, the loan default problem of a person in a group restricts the other members' subsequent loan term, even they had paid their part. In some rural villages, there is default problem and that discouraged farmers for saving participation and credit use, as credit use of next round depends on repayment performance of the previous credit.

Low saving mobilization: Low saving habit of clients in OMFI influenced the performance of the institution; despite saving is one of major services offered. Even though the saving habit being improved for the last five years, as shown in Appendix table (2), still it is low enough to cover the increasing need for credit in the district. Due to this challenge, the institution faced fund shortage in service provision to meet the increasing credit demand in the district. Unbalance between fund from different sources; loan recovery and saving mobilization, with increasing credit demand created fund shortage constraint which sometimes result in lag of loan disbursement time for clients.

Lack of office facilities: It is clear that availability of office equipment like computer, internet service, stationaries, vehicles and other materials are necessary for effective and efficient provision of different financial services. However, the report from focus group discussion and key informant interviews with experts in the institution explained the lack of these facilities in OMFI of the district affected microfinance service provision in the district. This has been challenging service provision and limited the capacity of the institution in making the service provision via using modernized system.

Lack of awareness on services: The other challenge was low awareness of some households about the microfinance services in the district. This can be manifested through some mistaken understandings of households about the service of Omo microfinance institution. Comparing saving interest rate with interest rate of credit, comparing and evaluating OMFI service provision with bank services in the district and being unsatisfied and weak loan repayment of some clients by reasoning risks associated with crop failure, animal dying, market problem for agricultural products, etc. In addition, some clients were seeing the institution as solely owned by government and wrong expectation of loan forgiveness during default was some of manifestations of awareness problem.

Lack of coordination with other government sectors: weak loan repayment performance in some kebeles made the institution focus on loan recovery operations by restricting disbursing

further loan in those kebeles which were with lower repayment performance. This was because, to reduce disturbance of unpaid loan expansion on credit service environment among rural households. But, in some cases government officials' interference in the service provision of the OMFI for political purpose led to unplanned loan disbursement in some kebeles which were in loan arrears. This condition sometimes made the institution to provide services through troubling between loan disbursement and loan recovery mechanism.

Lack of trained human resource: Lack of trained persons in financial service provision, coupled with staff turnover in the district challenged the institution to increase its outreach and become effective in the service provision in the district. This challenged the Omo microfinance institution in attaining its effective financial inclusion objectives and higher clients' satisfaction.

4.4.2. Opportunities

The data gathered during focus group discussion and key informants' interview with experts from OMFI sub branch office of the district showed that, despite the above challenges, there were some prevailing opportunities for sustaining the microfinance service provision in the district. The first one is, increasing need for credit in the district. As shown in the Appendix table (1) the need for credit has been increasing for the last five years. According to the report from district sub branch office, the loan disbursement increased from 3,080,400 to 20,479,615 birr from year 2013/14 to 2016/17. Related with this credit increment, saving mobilization also increased from 2,265,182 to 13,338,820 Birr with in these years, despite the fact that it was much lower to cover credit need in the district.

The second one was, youths' job creation and food security strategy by government which is functioned through OMFI in collaboration with other sectors, provided additional fund for the institution and helping in expanding its outreach and being playing vital role in improving saving mobilization in the district. Due to this strategy, the institution was getting additional fund source and different youths were participating in saving and borrowing service in OMFI. Since the institution was facing fund shortage, this additional source of fund would help in expanding the services further in sustainable manner if it is managed well. Moreover, these youths' participation in saving and credit participation plays vital role in further promotion of the services of the institution and improving the saving mobilization of the institution.

The other opportunity was the district being potential for cash crops like coffee and fruits. Some of farm households earn better income from sale of farm products in a production season, despite price fluctuations. If the institution attracts those households with better incentives and satisfactory services, the saving habit of farm households would increase and this saving might provide loanable capital base for the institution and then to other credit needy farmers. Since the OMFI is the only microfinance institution working in the district, this is better opportunity to cover the growing credit need in the district and to sustain financial viability in a good manner.

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

To improve agricultural productivity and poverty reduction, a powerful tool is provision of microfinance services to the poor in a sustainable way. There are various microfinance institutions which are established to serve poor and low-income individuals via playing a vital role in terms of credit service and saving mobilization. OMFI was established in SNNPRS as channel through which low income rural people can pass to build their savings which improve credit schemes and financial accessibility. However, farmers' participation in the service is low and it is affected by different household characteristics and institution related factors.

Despite rural households' participation in the services of OMFI have been improved through time, still a lot of farm households stay far away from the major services of Omo Microfinance Institute, mainly, saving and credit. This is revealed through that, from sample respondents, only 32.5% owned saving account in the institution and 31% were participated in credit service. Related with this low service participation, different households' characteristics and institutional related factors were identified to affect the households' participation in the services.

Mobilizing informal savings into formal institutions would expand the loanable capital base for OMFI as saving is main source of fund for the institution and improve resource allocation in the economy at large. However, there was low saving mobilization in the district, mainly, due to low saving interest rate and inconveniences in withdrawal procedure which also resulted in shortage of loanable funds for the institution for further service outreach in the district.

Being male headed household, education level, larger family size, cultivating larger land size and having more extension contact increase probability of households' credit participation in OMFI. Among institution related factors, perception on group lending inconvenience and inappropriate loan provision time were found to be significant in influencing the probability of credit participation. In addition, distance from OMFI service provision to households' residence showed significantly negative relation with credit participation. Furthermore, sex of household head, education level of household head, family size, land size, livestock ownership and extension contact influence the amount of loan received by household in a positive relation.

Low loan recovery performance, low saving mobilization, lack of office facilities, lack of clients' awareness on services, and lack of coordination with other government sectors were major challenges in service provision; however, increasing need for credit and youths' job creation and food security strategy by government would help in promoting saving mobilizations and increase outreach and sustain microfinance service provision in the district. The findings showed need to take immediate actions on significant factors affecting credit participation and improving the saving mobilization to sustain effective service provision and attain poverty alleviation objective.

5.2. Recommendations

Despite agricultural production increases through either increases in farm size or application of modern agricultural inputs, impossibility of land expansion due to high population pressure made application of modern technologies the only solution. Since these modern technologies are commonly expensive for most poor farmers without effective financial services, removing barriers in front of farmers' participation in microfinance services is needed. Therefore, based on key findings of the research, the following recommendations were forwarded.

Being male headed household showed positive relation to credit participation. However, the prevailing objective of microfinance is to provide a broad range of micro-finance services to large numbers of poor households, giving the priority focus to women clients to achieve tangible changes in the livelihood of the rural poor. Therefore, Omo microfinance institution has to find promotion mechanism, training and support by which female headed households can better participate and benefit from the service.

Education level showed positive relation to credit participation; as it helped to have better information and easily understanding of working procedures for saving and credit services. In addition to this, bureaucratic and complicated working procedures from initial saving up to loan repayment time made it unclear process for those uneducated households who were incapable of record keeping. Therefore, OMFI with local government bodies has to find promotion mechanism and developing and using clear and easy instruments regarding saving account type and amount, loan application, acquisition and repayment process to increase its outreach and uneducated household heads can better participate and benefit from the service.

It is a fact that farmers need loan to be provided on time, since they need it for production of something which is dependent on season as they are engaged in agricultural sector. There is an urgent need of OMFI for flexibility in the lending procedure so as to reduce the time lag involved in loan procurement. The time lag involved in application for, processing and actual approval or provision of loan need to be greatly shortened to have more borrowers and effective use of loan.

Saving mobilization would expand the loanable capital base of Omo microfinance institution and improves resource allocation in the economy at large. Thus, the current low saving level calls for giving focus on policies to improve the existing saving mobilization. Therefore, the institution and concerned government bodies should play role regarding improving saving culture of households through financial literacy, modernization of working procedures in saving service provision, and reviewing the saving interest rate as some of the major issues.

Group collateral makes all members jointly responsible for the repayment of each other‘s loans. This default risk makes the clients to know each other well and should have confidence on each other regarding the person’s position to repay the loan; showing creditworthiness of the borrower being mainly determined by the members rather than by the institution. This kind of group formation may reject some poor households who have lower resources but have working ability, as the loan group is formed based on physical asset base of households. Therefore, OMFI should give attention to minimize those physical resource poor households’ exclusion in order to meet its objective of poverty alleviation through increasing financial inclusion.

Extension contact as supplier of modern agricultural technologies and source of information about OMFI service showed positive influence on households’ credit participation. Therefore, extension service for those households with lower contact frequencies should get attention in order to provide necessary information and awareness about microfinance service to increase households’ participation in OMFI service.

Distance from residence of households to OMFI service provision showed negative relation with credit participation. Therefore, establishing new service provision sub centers and strengthening the capacity of the existing structure of the institution coupled with shortened working procedures to reduce unnecessary shuttling of residents from distant kebeles should get attention to increase participation of the households.

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APPENDICES

Appendix 1: Appendix Tables

Appendix Table 1: Loan disbursement of Gimbo district sub branch of OMFI (2013-2017/18)

Year	Male		female		Total	
	Borrowers	Loan amount	Borrowers	Loan amount	Borrowers	Loan amount
2013/14	144	2,182,800.2	20	897,599.8	164	3,080,400
2014/15	234	1,211,904	70	1,053,578	304	2,265,482
2015/16	263	3,257,574	178	9,128,326	441	12,385,900
2016/17	879	15,151,352	353	5,328,263	1232	20,479,615
2017/18*	926	6,899,181	651	5,183,237	1577	12,082,418

*, shows the report covers data for 6 months of the year only
Source: GDOOMFI (2018)

Appendix Table 2: Saving mobilizations Gimbo district sub branch of OMFI (2013-2017/18)

Year	Male		female		Total	
	Depositors	Save amount	Depositors	Save amount	Depositors	Save amount
2013/14	121	1,211,904	73	1,053,278	194	2,265,182
2014/15	201	5,441,878.61	123	3,014,072.4	324	8,455,951.01
2015/16	499	5,464,335.73	280	2,148,794.91	779	7,613,130.64
2016/17	2113	9,071,221.03	1108	4,267,599.15	3221	13,338,820.18
2017/8*	926	4,415,201.57	651	3,017,920.68	1577	7,433,122.25

*, shows the report covers data for 6 months of the year only
Source: GDOOMFI (2018)

Appendix Table 3: Specification tests

Model types	Test statistic value	Decision
Standard Tobit Vs Double hurdle	99.621 (12) [0.05)	Accept double hurdle
Double hurdle Vs Heckman	3602..21***	Reject Heckman

Value in bracket () shows degrees of freedom of the Z Statistics and value in bracket [] shows the corresponding p-value.

Appendix Table 4: Collinearity statistics for continuous variables

Variable	Collinearity statistics	
	VIF	1/VIF
LAND SIZE	1.20	0.831284
TLU	1.18	0.848736
FARMINOCME	1.15	0.872742
AGE	1.11	0.899001
EDUCATION LEVEL	1.09	0.918318
EXTENSION	1.08	0.922262
DISTANCE	1.07	0.934333
FAMSIZE	1.06	0.939316
Mean VIF	1.12	

Appendix Table 5: Contingency coefficients for discrete variables

	SEX (1)	GUPPERC (2)	INTRSTPERC (3)	TIMELOANPER (4)
(1)	1.00			
(2)	0.0048	1.0000		
(3)	-0.1206	0.0910	1.0000	
(4)	-0.0716	0.2574	0.0176	1.0000

Appendix Table 6: Conversion factor for Tropical livestock unit (TLU) computation

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

Source: Stork *et al*., (1991)

Appendix Table 7: Probit regression result

probit Creditpart Sex Educatio Famsize Landsze TLU DistnceO Extenscotc Gruplend Interest Loandsbt Age Farminco

Iteration 0: log likelihood = -123.82013

Iteration 1: log likelihood = -90.294781

Iteration 2: log likelihood = -89.887358

Iteration 3: log likelihood = -89.886501

Iteration 4: log likelihood = -89.886501

Probit regression Number of obs =200

LR chi2 (12) = 67.87

Prob > chi2 = 0.0000

Log likelihood = -89.886501 Pseudo R2 = 0.3741

Creditpart	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Sex	.6815265	.3963269	1.72	0.086	-.0952599	1.458313
Educatio	.1007956	.0454314	2.22	0.027	.0117517	.1898394
Famlsize	.187191	.068018	2.75	0.006	.0538781	.3205038
Landsze	.2514982	.1282043	1.96	0.050	.0002224	.502774
TLU	.1092681	.0893156	1.22	0.221	-.0657874	.2843235
DistnceO	-.0537809	.0273142	-1.97	0.049	-.1073158	-.000246
Extenscotc	.0383415	.0183356	2.09	0.037	.0024043	.0742787
Gruplend	.7691408	.3506838	2.19	0.028	.0818131	1.456468
Interest	.385334	.268288	1.44	0.151	-.1405008	.9111688
Loandsbt	1.348099	.411055	3.28	0.001	.5424461	2.153752
Age	-.0125411	.0118227	-1.06	0.289	-.0357132	.010631
Farminco	-.000245	.000149	-1.64	0.102	-.000538	4.82e-06
_cons	-2.552767	.843859	-3.03	0.002	-4.2067	-.8988336

Source: Own computation (2018)

Appendix Table 8: Truncated regression result

truncreg Loanamnt Sex Age Famlsize Educatio Landsze TLU Extenscotc Gruplend farminco,ll(0)

(note: 138 obs. truncated)

Truncated regression

Limit: lower = 0 Number of obs = 62

upper = +inf Wald chi2(9) = 104.39

Log likelihood = -535.25248 Prob > chi2 = 0.0000

Loanamnt	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Sex	1862.867	688.8463	2.70	0.007	512.7529	3212.981
Age	-6.821349	19.00728	-0.36	0.720	-44.07493	30.43224
Famlsize	301.3057	132.7171	2.27	0.023	41.185	561.4265
Educatio	279.09	81.35947	3.43	0.001	119.6284	438.5516
Landsze	817.351	220.131	3.71	0.000	385.9023	1248.8
TLU	534.5875	143.7102	3.72	0.000	252.9207	816.2542
Extenscotc	49.98793	28.69857	1.74	0.082	-6.260226	106.2361
Gruplend	555.9054	428.4579	1.30	0.194	-283.8567	1395.667
Farminco	.0014688	.0242612	0.06	0.952	-.0460823	.04902
_cons	-2991.633	1320.708	-2.27	0.024	-5580.172	-403.0929
/sigma	1366.132	124.727	10.95	0.000	1121.671	1610.592

Source: Own computation (2018)

Appendix 2: Data collection tools

Household Questionnaire

Instructions for enumerators

My name is Ejigu Mulatu; MSc student in Jimma University College of Agriculture and Veterinary Medicine Department of Agricultural Economics and Agribusiness and Value Chain Management. It is usual that post graduate students are expected to conduct a research to fulfill their study. So, this questionnaire is prepared to collect relevant and reliable date which is going to be applicable to produce a research thesis report on smallholder farmers' participation in microfinance services: The Case of Omo Microfinance Institution. I strongly believe that my success highly depends on respondents' meaningful and relevant information. Therefore, tell the purpose of the study and introduce yourself politely by respecting the culture of the respondent before starting interview. Ask questions clearly making the respondents to freely explain their idea. By using pencil, for all closed questions put tick mark (√) where appropriate or fill in the blank spaces provided and finally, thank respondents for their time and information they gave you at the end of interview.

General Information

Name of the enumerator: _____Kebele Administration: _____

Date of interview: _____ Signature of enumerator_____

1. Household Characteristics

Name of the household head: _____

1.1. Sex of the household head:

1. Male _____ 2. Female_____

1.2. Age of the household head: _____ years

1.3. Religion of the household head:

1. Orthodox _____ 3. Muslim _____
2. Protestant _____ 4. Others (specify)_____

1.4. Marital status of household head:

1. Married ____ 2. Single ____
3. Divorced ____ 4. Widow_____

1.5. Formal class education level (number of years of schooling)? _____ years.

1.6. Family size: _____

1.7. Number of family members less or equal to 14 years of age_____

1.8. Number of family members greater or equal to 65 years of age_____

1.9. Farming experience of household head: _____ years

1.10. Are you members of farmers' cooperatives?

1. Yes 2. No

1.11. If yes to 1.10, specify? _____

1.12. How is your main house?

1. Iron sheath_____ 2. Grass roofed_____

2. Farm Characteristics and farm income

2.1. Please tell me your land size and land use pattern on the table below (in timad)

Total land size	Cultivated land	Plantation	fallow land/	Homestead	Pasture land	Rented out	Rented in

2.2. Crop production and income of last year (2009 E.C)

Major crops produced	Land cultivated (timad)	Annual production (q/l)	Annual income from sale (Birr)
Annual crops			
Maize			
Pepper			
Finger millet			
Sorghum			
Rice			
Common bean			
Vegetables			
Others(specify)			
Perennial crops			
Coffee			
Fruits			
Tea			
Enset			
Other trees			
Others (specify)			

2.3. Livestock ownership and annual income from sale of livestock and its products in last year (2009 E.C)

Nº	Type of livestock	Number owned	Annual income from sale of animal and its products (Birr)
1	Cow		
2	Oxen		
3	Bull		
4	Heifer		
5	Calves		
6	Donkey (adult)		
7	Donkey (young)		
8	Mule/horse		
9	Sheep (adult)		
10	Sheep (young)		
11	Goat (adult)		
12	Goat (young)		
13	poultry		
14	Chicken		
15	Beehive		
16	Others (specify)		

3. Off/nonfarm income

3.1 Did you participate in off/non-farm activities last year?

1. Yes _____ 2. No _____

3.2 If yes for question 3.1, tell me activities and annual income in the table below?

Nº	Activities	Annual income from the activity (Birr)
1	Petty trade	
2	Paid daily labour	
3	Hand craft	
4	Others	
	Total income	

3.3 Did you receive any remittance/gift in the last year from family member/ relatives living another place? 1. Yes_____ 2. No_____

3.4 If yes to the 3.3, how much did you receive last year? _____ Birr.

4. Annual Expenditure

4.1 Please tell me annual expenditure of the household in the year 2009 E.C

№	Items	Annual cost (in Birr)
1	Food item	
2	Health	
3	Clothing	
4	Farm inputs (fertilizer, seed, chemicals)	
5	Wage (planting, management and harvesting)	
6	Schooling	
7	Taxes	
8	Social cost and festivals	
9	Transport use	
10	Others	
	Total household expenditure	

5. Households participation in microfinance services of OMFI

5.1. Are you client of saving and/or credit service of OMFIs?

1. Yes_____ 2. No_____

5.2. If yes to 5.1, how long have you stayed as a client with OMFI? _____years.

5.3. Since you became member of OMFI, how many times have you borrowed from the institution? _____times, total amount of loan borrowed? _____ Birr.

5.4. Did you participate in credit service of OMFI in the last two years?

1. Yes_____ 2. No_____

5.5. If yes to 5.4, did you take credit?

1. Yes _____ 2. No _____

5.6. If yes to 5.4, the amount of loan you borrowed? _____ Birr.

5.7. Is the loan amount you mentioned above was the amount you applied for? Or did you get the amount you need? 1. Yes _____ 2. No_____

5.8. If no to 5.7, what was the reason for that? _____

5.9. Purpose of loan (why you borrow from OMFI)?

1. Capital asset (house construction, farm implements and other fixed assets) _____

2. Purchase of livestock _____

3. Consumption (Health, education, and other living expenses) _____

4. Purchase of fertilizer, seeds and chemicals _____

5. Payment of taxes, debt _____

6. To start petty trade_____

7. Others (specify)_____

5.10. Did you use the full loan for the purpose you borrowed?

1. Yes _____ 2. No _____

5.11. If No to 5.10, how much is used for non-intended purpose and what is the reason for that?

_____

5.12. How do you repay the loan?

1. Weekly _____ 2. Monthly _____

2. Semi-annually_____ 4. Yearly _____

5.13. What is the status of last loan from OMFI?

1. Fully repaid _____ 2. Started paying as agreement without problem _____

3. started paying but struggling to continue _____ 4. Not started _____

5.14. If in arrears, what is the unpaid balance remaining? And what is the reason? _____

5.15. Did you get training and support on credit use from OMFI before credit acquiring?

1. Yes _____ 2. No _____

5.16. Did you get follow up and monitoring on credit utilization from OMFI after credit provision?

1. Yes _____ 2. No _____

5.17. Generally, how was training and follow up service of OMFI?

1. Very good _____ 2. Good_____ 5. Bad_____

3. Ambivalent _____ 4. Satisfactory _____

5.18. If No for question 5.4 (not participate in credit), what is your reason?

1. No need, have enough resources _____ 2. Do not like to be in debt_____

3. Interest rate high _____ 4. Small amount of loan _____

5.Unable to meet the requirement to borrow (rules and regulations) _____

6. Others (specify)_____

5.19. Do you have saving account in OMFI? 1. Yes 2. No

5.20. If yes to 5.19, type of saving account do you have? (More than one choice is possible)

1. Credit user compulsory and Voluntary saving _____ 3. Others_____
2. Non-client voluntary saving _____ 4. No saving account _____

5.21. Pease tell me the amount you saved currently in each saving type?

1. credit user voluntary and compulsory saving_____ Birr.
2. Non-client Voluntary saving _____ Birr.

Total save amount = _____ birr

5.22. If No for question 5.19 (No saving account), what is your reason?

1. No surplus money to save ____ 2. Low interest rate for saving _____
3. I don't trust the institution _____ 4. Don't like working procedure of OMFI_____
5. Don't need credit from OMFI_____ 6. I have no information about the service_____
7. Others (specify)_____

6. Households' saving and credit participation other than OMFI

6.1. Did you use credit from other than OMFI last year?

1. Yes_____ 2. No_____

6.2. If yes to 6.1, please tell me your participation in the table below (2009 E.C).

Credit from others	Formal (Banks)	Semi-formal	Informal sources (Iqub, iddir, relatives etc.)	Others (specify)
Did you take credit? 1. Yes____2. No___				
Amount of loan if Yes				
Interest rate				
Purpose of loan? *				

*1= Capital asset 2= Consumption 3= Agricultural inputs 4= Others (specify)

6.3. Do you save from your earning in cash and/or kinds other than OMFI?

1. Yes _____ 2. No _____

6.4. If yes to 6.3, please tell me your cash and kinds saving of the last year in the table below (year of 2009 E.C)

Saving in others	Formal (Banks)	Semi-formal	Informal (Iqub, iddir, home etc.)	Non-financial saving
Did you save? 1.yes____ 2. No____				
Amount of save in Birr				
Why you prefer to save? *				

*1=Better interest rate 2=Flexibility in withdrawal 3= closeness in residence 4= others(specify)

7. Access to services

7.1. Distance to OMFI service provision center _____ Km.

7.2. Distance to nearest market center _____ Km.

7.3. Distance to all weather roads _____ Km.

7.4. Do you have adequate information about microfinance services of OMFI?

1. Yes _____2. No _____

7.5. If Yes for 7.4, from whom do you hear information?

1. Omo extension agent 2. Agricultural extension agent
2. Mass media 3. Neighbors
3. Others (specify)

7.6. Do you have contact with Omo extension agent in relation with services provided by the institution? 1. Yes _____ 2. No _____

7.7. If yes to 7.6, number of contacts per year_____

7.8. Do you have contact with agricultural extension agents in relation with crops and animal production and marketing? 1. Yes _____ 2. No_____

7.9. If yes, number of contacts per year_____

8. Households perception about rules and regulations of OMFI.

8.1. Do you believe that group lending procedure is convenient for credit use in OMFI?

1. Yes _____ 2. No _____ 3. Ambivalent _____

8.2. If No, why? _____

8.3. Do you believe that interest rate of OMFI for credit service is fair?

1. Yes _____ 2. No _____ 3. Ambivalent_____

8.4. If No, why? _____ _____

8.5. Do you believe that interest rate of OMFI for saving is fair?

1. Yes _____ 2. No _____ 3. Ambivalent_____

8.6. If No, why? _____ _____

8.7. Do you believe that loan disbursement time of OMFI is timely and appropriate?

1. Yes _____ 2. No _____ 3. Ambivalent _____

8.8. If No, why? _____

8.9. Do you believe that loan size that OMFI is providing is enough for supporting agricultural production and solving financial shortage?

1. Yes _____ 2. No _____ 3. Ambivalent _____

8.10. If No, what is reason? _____

8.11. Do you believe that, your living condition has been/will be improved in general because of your participation in the microfinance services of OMFI?

1. Yes ____ 2. No _____ 3. Ambivalent _____

8.12. If No, what is the reason? _____

8.13. What is your opinion on working procedure of OMFI (saving, getting loan and loan repayment, training and support etc.)?

1. Very good _____ 2. Good_____ 5. Bad_____

3. Ambivalent _____ 4. Satisfactory _____

8.14. What is your suggestion on the problems for OMFI to provide the services in the better way?

_____

Thank you very much for your time, patience and information!!!!!

Focus Group Discussion checklist

1. Agricultural production and need of farmers' financial service in the kebele/district
2. Types of service provided and financial outreach of OMFI in the district/kebele
3. Selection criterion for participation/inclusion in OMFI service or how farmers' creditworthiness is determined
4. How is perception of households on rules and regulation of OMFI
5. How is the level of client satisfaction towards services from the OMF institution
6. Perception of households about OMFI as the institution is serving the poor households on the way that the poor can improve living condition and alleviate poverty
7. Major strength and weakness of OMFI district/kebele
8. Other source of credit and farmers' participation (other than OMFI)
9. General suggestion to improve client's satisfaction by OMFI

Key informants' interview checklist

Date: _____

Name of respondent: _____

Position: _____

1. What are major services OMFI is providing in the District?
2. How is the service outreach and smallholder farmers' participation in service?
3. What criteria do OMFI use in the selection of clients for saving and credit?
4. How is credit limit that OMFI provides to its clients?
5. How is the loan provision ad repayment procedure works?
6. How is interest rate attached to the saving and credit service of OMFI?
7. Does OMFI organize training, support and follow up sessions for clients about loan management? How it works?
8. What are major challenges OMFI is facing in service provision in the district?
9. What are major opportunities for OMFI to further increase its outreach and provide effective and efficient service to the clients in sustainable way?

Thank you very much!!!