Determinants of formal Credit use among Smallholder farmers: The case of Dedo WoredaJimma Zone,South west ofEthiopia

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Determinants of formal Credit use among Smallholder farmers:

The case of Dedo Woreda Jimma Zone, South west of Ethiopia

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MSc Thesis

By

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I

Dedication

I dedicate this thesis to my brother Dr Geleta Dugassa and my wife Aberu Fikadu for nursing me with affection and love and their dedicated supports for the success of my thesis.

Statement of author

I declare this thesis is my workand all sources of materials used for this thesis have been properly acknowledged. This thesis has been submitted in partial fulfilment of the requirements for MSc Degree atJimma University and is deposited at the University Library to be made available to borrowers under rules and regulations of the Library. I declare that this thesis is not submitted to any other universities or institutions for award of any academic degree, diploma or certificate.

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Biographical sketch

The author was born to his father **AtoDugassaBarka**and his mother **W/roDegituInkosa**November 16, 1986 in rural village called kunacho, JardegaJarte district, HoroGuduruWollega administrative Zone, Oromia regional state. He attended his elementary School education at Sute primary school (1-6 grades), 7 and grades 8 at Alibojunior secondary school and He joined his High school and preparatory education atShambu secondary and preparatoryschool (9-12). He completed his preparatory education in 2006/2007.

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Acronyms and Abbreviations

ACSI   Amhara Credit and Saving Institute

AEMFI   Association of Ethiopian Microfinance Institutions

AIDBAgricultural and Industrial Development Bank

CBE Commercial Bank of Ethiopia

DA   Development Agent

DADODedo Agricultural Development Office

EPRDF   Ethiopian People's Revolutionary Democratic Front

FAOFood and Agricultural Organization

FCA   Federal Cooperatives Agency

GDP Gross Domestic Product

GOE   Government of Ethiopia

HHHs   House Hold Heads

IFADInternational Fund for Agricultural Development

KA   Kebele Administration

LDCsLess Developed Countries

MFIsMicro Finance Institutions

NBENational Bank of Ethiopia

NGONon-Governmental Organizations

OCSSCOOromia Credit and Saving Share Company

ROSCAs Rotating Savings and Credit Associations

RFNs   Relatives, Friends and Neighbours

SACCO Saving and Credit Cooperatives

USAID United States of America International Development

VIF   Variance Inflation Factor

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Abstract

This study was sought to analyse the determinants of access to formal credit by small holder farmers in Dedo Woreda. Preferences of small holder farmers towards financial credits was scored and ranked, sources of financial credit for smallholder farmers were assessed and factors affecting formal credit access of small holder farmers were analysed and identified in the study areas. A Multi stage sampling procedures were employed to select three rural kebele administrations and 167 farm household heads were selected using probability proportional to size. Semi-structured interviews were employed for collecting quantitative data from the sampled farm households in the study area. Focus group discussion, key informants' interview and field observations were held to generate qualitative data. Ranking techniques of credit sources were applied to know the preferences of all respondents and focus group participants for credit sources. Descriptive statistics and binary logit model were employed for analysing the quantitative data. SPSS version 20 and STATA version 13 were used for data analysis. The results of the study were indicated that, out of 167respondent house hold heads, 74 of the sampled farm households were formal credit users, whereas the remaining 93 of the respondents were non-users. Relatives, friends and neighbours were preferred as the best credit source for borrowers in the study area than other sources due to its interest free, low transaction costand adjustments of repayment time. In the study areas, access to formal credit services of smallholder farmers was limited due to: some-times inconvenience of group lending in which group members' took responsibility of paying the defaulters risk, high interest rate charged on borrowers and some respondents having external financial supports. But the logit model reveal that sex of household heads, attitudes of household heads towards credit risks, preference of household heads for group lending, age of the household heads and experience of the household heads in credit using were significantly affecting access to formal credit by smallholder farmers.

Key words: *-Access to credit,binary logit model,formal credit-users andnon- users*

1. Introduction

1.1. Background of the study

Financial problems are prevalent in most continents of the world including many African countries and have been affecting all sectors of the economy at all levels of the credit delivery sectors. In countries like Ethiopia, where agriculture is the main stay of the majority of the population, financial resource is a very important factor for economic development. However, among other things, lack of finance is one of the fundamental problems hindering production, productivity and income of the rural and urban households (Gebrehiwot,2011).

Ethiopia's 12.7 million smallholder farmers account for approximately 95% of agricultural GDP. With a total area of about 1.13 million km^2 and about 51.3 million hectares of arable land, the country has tremendous potential for agricultural development (IFAD, 2011). But, the productivity of vastly smallholder dominated Ethiopian agriculture is very low. Low yield per unit area across major crops is considered as a regular feature of Ethiopian farmers. Lack of irrigation facilities; small and fragmented land holding; lack of timely availability of quality seeds, fertilizers and insecticides in many parts of the country are considered reasons for the existing low productivity of agriculture (IFAD, 2011). A study by Tilahun (2015) documented that to increase productivity, profitability and sustainability of smallholder farmers; they need greater access to affordable yield-enhancing inputs, including well-adapted seeds and new methods for integrated soil fertility management as well as to output markets where they can convert surplus production into cash.

Bendig M & Steiner S. (2009) has been argued that agricultural productivity is one of the key determinants of high and sustained agricultural growth as reported by World Bank. Faster agricultural growth has put countries on the path of a much broader transformation process: - rising farm incomes and demand for industrial goods, lowering food prices, curbing inflation and inducing non-farm growth and creating an additional demand for workers. Rising on-farm productivity also encourages broad entrepreneurial activities through diversification into new products, growth of rural service sectors, birth of agro-processing industries and exploration of new export markets.

In Ethiopia, rural financial markets are still largely under-developed, despite the fact that the economy experienced significant growth in financial service provision. Ethiopia has one of the lowest financial inclusion ratios compared with its peer countries in Africa.During 2005/06 season, only 26 % of farmers accessed credit from formal financial institutions (Peck, 2010; Amha, 2011).

Boucher *et al.* (2008) stated that adequate access to credit to farmers is a key principle of successful rural development strategies. Policy-makers have long understood that rural producers who cannot meet their need for capital must settle for sub-optimal production strategies. When producers are unable to make the necessary upfront investments or cannot bear additional risks, they have to forge opportunities to boost their productivity, enhance their income and improve their well-being. Furthermore, without adequate access to loans or insurance, producers who face negative shocks such as droughts, illness or a significant drop in the prices they receive, can loss some of the few assets they have (Diana and Lisa,2011).

Providing credit to the poor through financial institutions has been a major tool used by many governments and NGOs to attain food self-sufficiency and alleviate poverty among developing nations (FAO, 2011). However, the target beneficiaries did not get credit as required. Some rural banks who participated in government subsidized credit programs collapsed and the government was left with huge unpaid loans which is a serious problem since households who do have access to credit tend to have a higher probability to change their life than those who do not have access (Lamberte and Manlagnit,2010). Hence, provision of credit has increasingly been regarded as an important tool for raising the income of rural populations, mainly by mobilizing resources for more productive uses. But, social capitalis some of the problems in informal credit markets and are highly segmented with participants limited to only those with personal relationships and the cost of accessing informal credit varies depending on the lenders being friends and family or private moneylenders(Wolday, 2011). Similarly, formal financial institutions fail to provide credits to smallholders due to their collateral requirement, business plan, and profitability of the intended investments or lending terms and conditions and the rules and regulations financial institutions (Yu,2008).

Ethiopia ranked 127th out of 183 countries for ease of Getting Credit, behind Rwanda, 61st, and Kenya, 4th (USAID, 2012). Inadequate access to financial services is one of the major bottlenecks impeding economic growth and household incomes in rural areas where there is still a huge demand-supply gap (IFAD, 2011). The rural financial market in Ethiopia is characterized by the coexistence of formal, semi-formal, and informal lenders. These finance providers or lenders vary in the cost of screening, monitoring and contract enforcement. The formal financial providers in Ethiopia include banks, MFIs and cooperatives. Ikub or Rotating Savings and Credit Associations, idir, Mahiber, etc. are semi-formal financiers. The informal finance providers are the moneylenders, relatives, traders and suppliers, friends, church, etc. Although illegal, as per the regulatory framework in Ethiopia, NGOs, government and donor projects are providing loans to beneficiaries (Amha, 2011).

Befekadu (2007) recently stated that, government of Ethiopia gave greater emphasis for the development of financial institutions in the country to address the problem of credit access in the rural areas. As a result, several microfinance institutions (MFIs) have been established and operating towards resolving the credit access problem of the rural poor but the outreach of financial services is still so low in Oromia region or elsewhere in Ethiopia. Generally, the accessibility of a good credit service is considered as one of the engines of economic development. The establishment and expansion of financial service is also one of the instruments to break the vicious circle of poverty. Government of less developed countries have frequently practiced the policy of providing credit with low interest rate to the agricultural sector through financial intermediaries, expecting that credit would lower dependency on the rural moneylenders (Martina *et al.,* 2008). This indicates financing of agricultural inputs and labour wages require liquid cash that often is not readily available to the smallholder farmers (Henri-Ukoha *et al.,* 2011). Therefore, it is essential to expand the status of rural credit provision at large at the study area to improve agricultural production and productivity. This will act as leverage point to the problem of credit acquisition to the farmers andloan provision through financial institutions to farmers which wouldin turn addresses the credit needs of small holder farmers in general and forthe study area in particular.

1.2. Statement of the problem

Finance is the main lubricant and a pioneering engine of economic growth and development in the world. Aswinter and Temu (2014) stated that, small-scale farmers in developing countries may become trapped in poverty by lack of the liquidity needed to make profitable investments. They further asserted that expanded access to credit has been actively supported in the development community for its potential to generate sustainable economic growth.Agriculture continues to be a fundamental instrument for sustainable development and poverty reduction; yet, financial constraints in the sector remain pervasive, agriculture remains costly and finances inequitably distributed, severely limiting smallholder farmers ability to compete by developing their production and productivity (Jones 2010; Miller*et al.,* 2010; World Bank, 2013).

The role of credit in agricultural economy cannot be overemphasized as it has been put forward as a tool for agricultural development. Credit for smallholder farmers is gaining relevance in many parts of the world in response to the needs of less privileged entrepreneurs with limited capital base in the sector (Obisesan, 2013).Salami *et al.* (2011) stated that, the share of commercial bank loans to agriculture has been very low compared to loans issued to manufacturing, trade and other service sectors hampering expansion and technology adoption. Access to formal credit is mainly confined to large urban centres, where collateral requirements arehigh and less attention has been paid to agribusiness due to the fact that a huge number of activities in the sectors are conducted in rural areas by smallholder famers.In an effort to boost agricultural production and productivity, smallholder farmers have to use improved agricultural technologies. However, the adoption of these technologies is relatively expensive and yet small holder farmers cannot afford to self-finance(Obisesan, 2013). Similarly,credit plays a crucial role in supporting agriculture by helping households in handling risk and purchase inputs/technology to improve their agricultural productivity. But they also demonstrated that access to credit in sub- Saharan Africa is among the lowest in the world. A study in Ethiopia by Ali and Deininger (2012) documented that in settings where high exposure to risk and inadequate surpluses from subsistence agriculture limit opportunities for self-insurance and savings, provision of credit is often seen as a key element to increase productivity through more intensive use of fertilizer and seed to facilitate consumption smoothing. Moreover, access to credit is found to be one of the main determinants of competitiveness in agriculture among economies (Saldias and Cramon Taubadel,2012).

However, in the study areas,credit access to formal financial sources were limited due to high interest rate charged by MFIs on borrowers,lack of sufficient formalcredit sources,Religion, few farmers having external financial supportand low knowledge for adoption of modern agricultural technologies (improved seeds, fertilizers, herbicides and farm machineries).Toresearcher's knowledge analysing determinants' of access to formal credit by small holder farmers in study areas, Dedo Woreda was not studied by other researchers. Therefore, these determinants were studied to address the credit access problem of smallholder farmers in realizing growth in agricultural production and productivity of the study area in particular and in the country in general.

1.3. Research questions

1. Which credit sources a small holder farmers mostly preferred in the study area?

2. What are sources of credit for smallholder farmers in the study area?

3. What are the factors that affect formal credit access of smallholder farmers in the study area?

1.4. Objectives of the study

1.4.1. General objectives

- To investigate the determinants of access to formal credit by small holder farmers in Dedo woreda.

1.4.2. Specific objectives

- To identify preferences and attitudes of small holder farmers towards financial credit in the study areas.
- To assess sources of financial credit for smallholder farmers in the study area.
- To identify factors affecting credit access of small holder farmers in the study areas.

1.5. Scope and limitation of the study

The study focused on identifying determinants of formal credit by smallholder farmers. This study was limited to threeKebele administrations ofDedo Woredawhich is found in Jimma administrative Zone. Therefore, the findings and recommendations of this research were limited to this woreda because of the budget, Lack of appropriate data, and time constraints for in depth investigations.

1.6. Significance of the study

Credit rationing can improve smallholder farmers' capacity of agricultural production and productivity by satisfying their credit needs in adopting new agricultural technologies like using improved seeds, fertilizers, pesticides and other farm machineries. Addressing these challenges which limit smallholder farmers' access to credit can help them to improve their livelihood specifically and contribute for economic development of the country as a whole. Therefore, demographic, psychological, socio-economic, communication and institutional factors affecting credit access of small holder farmers'has been identifiedfor policy makers, practitioners, financial supporters, administrative organizations and NGOs to take supportive actions and interventions on the forwarded recommendations.

1.7 Organization of the thesis

This thesis was organized in to five chapters. Chapter one constituted the introduction under which background of the study, statements of the problem, research questions, objectives of the study, scope and limitations of the study and significances of the study were included. In chaptertwo, reviews of theoretical and empirical literatures to the concerns of the thesis were presented. Chapter three describes methodology which includes study area descriptions; method of data collection and systems of data analysis. Chapter four reports the results and discussion of the study and chapter five reports summary of major findings, general conclusion and recommendations forwarded.

2. Literature Review

2.1. Theoretical reviews

2.1.1. Concept and definitions of credit

Credit- is defined as a legal contract between the lender and the borrower, where the borrower receives resources or wealth with a promise to repay in the future. It is a means to enable investment by solving a liquidity problem, that liquidity problem arises from the fact that outlays triggered by the investment precede (expected) future returns. Investment in turn is guided by certain higher- level goals such as profit or income generation (Petrick,2012). In Agriculture, access to credit is primarily seen as a tool to increase agricultural output and productivity, adoption of new technologies, stabilizing household's income, and improving farm's inputs such as fertilizer, increasing rural employment and reducing poverty (Foltz,2013).

2.1.2. Financial markets in rural areas of developing nations

Rural finance refers to the financial transactions related to agricultural and non-agricultural activities that take place among households and financial institutions in rural areas and more effective and comprehensive view of rural finance encompasses the full range of financial services that farmers and rural households require, to achieve their cash needs (IFAD, 2011).

Access to credit remains a major challenge for smallholder farmers in most developing countriesand often seen in terms of limited access to production, buy and use farm inputs as well as pay for non-family farm labour and other farm maintenance costs. Becausesmallholder farmers cannot afford yield-enhancing inputs, farm productivity often remains low on smallholder farms despite the availability of technology for achieving higher yields (Onumah and Meijerink, 2011).

2.1.2.1. Features of rural credit markets in developing countries

Rural credit institutions can be broadly characterized into formal institution and informal institutions. Formal institutions are licensed and regulated by central banks. This sector comprises commercial banks, microfinance institutions, credit cooperatives, development banks and insurance companies. Informal credit markets refer to those markets which are not licensed and regulated by central authority. They include transactions between moneylenders, landlords, traders, friends and relatives. There are

five forms of informal providers of credits. They are credit from friends, relatives and community members, rotating savings and credit associations (ROSCAs), moneylenders and informal banks, tied credit and pawning. In between these two ends of the range are financial non-government organizations, self-help groups, small financial cooperatives, and credit unions. The informal sector is not regulated by any formal institution and the lending conditions are often flexible(Karlan and Morduch, 2010). Other types of rural credit include semi-formal institutions, consisting of non- governmental and international organizations. The formal sector depends on deposits while, the informal sector relies more on its own funds. Karlan and Mordush (2010) gave the co-existence of both formal and informal financial intermediaries, in studying rural credit markets, the interaction between informal and formal credit markets needs a due attention. Because observing a formal market failure need not lead to inefficiency if the informal market is complete. Examining the mechanics of the informal market is crucial for two reasons. First, the strength of the informal market is important for measuring and predicting how effective specific formal sector interventions will be. Second, lessons learned in the informal markets can help shape policy in the formal markets. For instance, they argued that group lending is based largely on lessons learned from observing risk-sharing and credit and savings associations in informal markets.

2.2. The need for access to credit

Martina *et al.* (2008) reported the requirement of credit facilities to smallholders of less developed countries (LDCs) for production and consumption smoothing. Governments of LDCs and aid agencies have spent a large amount of money to this sector. The motivation has been the belief that loans are an essential part of various input packages that were prescribed as part of agricultural investment projects designed to introduce modern technologies and thus stimulate change and growth in agriculture.

Access to credit makes traditional agriculture more productive through the purchase of farm equipment and other agricultural inputs, the introduction of modern irrigation system and other technological developments. It can also be used as an instrument for market stability. Rural farmers can build their bargaining power by establishing storage facilities and providing transport system acquired through credit (Yu, 2008). It can further be used as an income transfer mechanism to remove the inequalities in income distribution among the small, middle, and big farmers. It also creates employment opportunities for rural farmers (IFAD, 2009).

Facilitating credit may assist smallholder farmers to tap financial resource beyond there on means and take advantage of potentially profitable small business opportunities(Manganhele, 2010). It could also aid landless farmers to establish or expand family enterprise. Short- term savings or borrowing can also help them to maintain consumption of basic necessities, when smallholder farmers experience temporary income shortages between agricultural seasons or after a bad harvest, credit helps in rising of the income of the poor.

Credit contributes to the productivity and incomes of rural households, thereby contributing to poverty alleviation(Mohamed, 2010). It also helps on diversified farms that practice intensive production system and where labour constraint is experienced greater access to credit may facilitate hiring of additional labour. Conversely, it helps to create employment for less fortunate labourers and may improve the food security status of the house hold members. At the same time, rural households in Ethiopia need credit for investment in a range of on-farm, non-farm and off- farm activities. There is potentially a huge demand for credit from 10-12 million rural families, which is hardly met at present (IFAD, 2007). Most productive activities are seasonal and there is equally strong credit demand for consumption smoothing.

2.3. Ethiopian agriculture and microfinance

Agriculture is the core driver for Ethiopia's growth and long-term food security. The stakes are high: 15 to 17 per cent of the Government of Ethiopia's (GOE) expenditures are committed to the sector (Dercon *et al.,* 2009). Agriculture directly supports 85 per cent of the population's livelihoods, 46.4 per centof gross domestic product (GDP) and over 90 per cent of export value .Thirteen million smallholder farmers account for 96 per cent of total production and five to seven million households are chronically food insecure. Ethiopia's agricultural sector has observed consistent growth since 2003: maize production has expanded at 6 per cent per year and the aggregate export value across all commodities has grown at 9 per cent, underpinning 8 per cent annual growth rate in GDP.

Public investment has expanded access to productive inputs, like hybrid maize seed and fertilizer. Concerted government spending in extension has also established nearly 10,000 Farmers Training Centres (FTCs) and trained over 63,000 Development Agents (DAs) from 2002 to 2007 (Deressa, 2007). The GOE has made marked progress in

agriculture over the past decade. However, the sector continues to face a set of constraints: markets are underdeveloped, federal and regional governments lack capacities to implement, safety nets account for a large proportion of agricultural spending, irrigation is below its potential, shortages of improved inputs hinder growth and key areas of the enabling environment require improvements. From financial sector's point of view, agriculture is considered a less attractive field of business than other sectors of the economy such as construction, tourism and other activities. One cited reason for this is the sector's risk-return profile.In order to improve credit accessibility, in 1994/95, Ethiopia opened doors for microfinance institutions to operate as government's poverty alleviation strategy to achieve the Millennium Development Goals (MDGs) (Zaid, 2008; Gobezie and Gumuz, 2009).

Following policy prescriptions by the government of Ethiopia and various NGO initiatives more than a decade ago, microfinance institutions have come into the picture, filling the gap in access to credit. These institutions are also slowly moving towards solving issues of access to sustainable and affordable saving and access to insurance and remittance services at the bottom end of the market. Importantly, microfinance institutions, with the support of NGOs and other stakeholders, are working at various levels to provide financial education and create financial awareness amongst poor households. These institutions are spread all over the country and are legally licensed by government to take deposits from the general public (one tactic of mobilizing funds), draw drafts and provide credit to income generating activities(Tesfay,2009).

Though operations of microfinance institutions (MFIs) havestarted recently, their outreach and coverage of clients in Ethiopia is reasonably noticeable. There are over 30 licensed MFIs reaching over 2.2 million active borrowers with an outstanding loan portfolio of approximately 4.6 billion birr (Malepati and Gowri, 2011; Amha and Narayana, 2000; Tesfay, 2009).

Since 1996, Ethiopian microfinance is regulated under Proclamation No. 40/1996 (Licensing and Supervision of Microfinance Institutions). The National Bank of Ethiopia (NBE) is authorized to license, regulate and supervise MFIs, which are required to be incorporated as 'for-profit' companies, wholly owned by Ethiopian nationals or organizations owned by Ethiopian nationals (Micro Ned, 2007).The Ethiopian microfinance sector is characterized by its rapid growth, an aggressive drive

to achieve scale, a broad geographic coverage, a dominance of government-backed microfinance institutions (MFIs), an emphasis on rural households, the promotion of both credit and savings products, a strong focus on sustainability and by the fact that the sector is Ethiopian owned and driven. The regional state governments and many local NGOs are shareholders in many of the MFIs. The three largest microfinance institutions; Amhara credit and savings institute(ACSI), Dedebit credit and savings institute(DECSI) and Oromia credit and saving share company (OCSSCO) accounts for 65 % of the market share in terms of borrowing clients, and 74 % by loan provision(Deribie, 2013). By having emphasis on the rural households, poor farmers are being targeted since the main activity in the rural Ethiopia is agriculture.

2.4. Brief history of rural finance interventions in Ethiopia

2.4.1. The imperial period

Deliberate government effort at accelerating socio-economic development in Ethiopia may date back to the immediate post-Italian occupation period: the establishment of the ministry of agriculture in 1943 to entrusted with the responsibility to take measure to promote the development of agriculture and the agricultural bank of Ethiopia in 1945 to assist small landholders whose farms had been devastated during the Italian occupation through loan for purchase of "seeds, livestock and implements and to repair or reconstruct their homes and farm buildings" (Assefa *et al.,*2013). In that period, emphasis was more on market oriented farmers and commercial agriculture and mechanized farms not for small peasants.

Degu (2007)regarding rural/agricultural finance said that the share reflected the importance attached to it in the plan. Subsistence and large scale and mechanized agriculture together were to receive about half of the bank credit. Subsistence agriculture was to be transformed through (a) the introduction of improved tools and implements, modern techniques and improved seeds; (b) credit, price and tax policies; and (c) land reform and agricultural services. Accordingly, farmers were to be assisted to produce more marketable surpluses, and thereby develop the subsistence agriculture sector into a monetized one. Credit for farm tools and implements was to be extended (by the Development Bank of Ethiopia) not directly but through the Grain Corporation or Farmers' Cooperatives.

Assefa *et al.*(2013) stated that the comprehensive and minimum package programs, which were intended to support small farmers among other things, organizing them in a way that makes it easier and less costly for the AIDB to provide credit, did not achieve much in terms of reaching small farmers partly due to the stringent requirements involved, such as high down payment (25 to 75 per cent), two reputable guarantors (one of whom should be the landlord in case of tenant borrowers), and signed lease agreement and partly due to incentive problems associated with the share cropping arrangement that prevailed and marketing problems. Overall, the extent of exclusion was well recognized by the AIDB board so much so that in 1974, it decided to introduce a small farmers credit program on pilot basis but was not implemented as it was overtaken by events of the revolution.

2.4.2. The Dergue period

The Dergue regime recognized the financial sector (dominated by state owned financial institutions following the 1975 nationalization) in a manner that reflects its declared ideology of Ethiopian Socialism and its economic thinking as stated in the Declaration on Economic Policy of Socialist Ethiopia. The financial sector was reduced to a mechanism for "Channelling resources in accordance with the national plan and as subservient to the total sector." credit policy was driven by ideology and gave absolute priority to the socialized sector (public enterprises, state farms and cooperatives). The result was marginalization of the private sector, forcing it to depend on self-financing and non-institutional credit. The share in domestic credit outstanding during 1986-90 of the private sector and cooperative averaged 4.7 and 1.1 %, respectively (World Bank, 1991). Assefa *et al.*(2013) stated that there were many NGOs involved in the provision of micro-finance services, in rural areas in particular. However, NGO credit schemes were fraught with lots of problems resulting in a bad credit culture so much so that several studies recommended the need to standardized rural financial service providing schemes, make microfinance services business-like.

As an option of empowering farm households through the promotion of rural savings and credit cooperatives was the forgotten dimension of rural financing in the country. Therefore, the outcome with regard to reaching small rural and urban borrowers with financial services was disappointing both during the Imperial and Dergue regimes.

2.4.3. The post- (1992) reform

Assefa (2012) said that financial liberalization in Ethiopia began at the end of 1992, after EPRDF come to power. The financial reform undertaken in Ethiopia includes elimination of priority access to credit, interest rate liberalization, restructuring and introduction of profitability indicators, reduced direct government control on financial intermediaries and limits bank loans to the government, enhancement of supervisory, regulatory and legal infrastructure of the NBE, allowing private financial intermediaries through new entry of domestic private intermediaries (rather than privatization of the existing ones) and introduction of capital bills through sale markets.

FCA (2010) also reported that there are 4178 savings and credit cooperatives with 357,079 members and Birr 1037.62 million mobilized savings in the country. So, in this regime attention is given to reach smallholder farmers and the policy also open the door for the private sector engagement in the microfinance business even though the market is so far dominated by the regional giant such as Amhara Credit and Saving Share Company, Oromia Credit and Saving Share Company, Dedebit Credit and Saving Institution and, OMO credit and saving institutes etc. Following this, at present there are about 29 licensed MFIs in the country covering about 1.73 million active borrowers and 2.7 million borrowers. Their operational and financial sustainability are also reported to be well progressing in recent years. But it is observed that these MFIs have been able to meet less than 20 % of the demand for micro- finance services of the active poor in the country.

2.5. Delivery of financial services to the poor in Ethiopia

In rural areas and low-income urban neighbourhoods of developing countries, formal and informal financial institutions are the main source of credit (Ernest, 2008).The poor in Ethiopia have low income that leads to low investment, which in turn leads to low productivity and more low income. According to Wolday (2011), access to credit that contributes to increase in investment is very limited in Ethiopia. The majority of the poor have accesses to financial services through non-formal channels like moneylenders, traders, neighbours, friends, relatives, idir, iqub and Mahiber. The same author indicated that, the other sources of financial services for the poor are formal financial sources like banks, MFIs, cooperatives, NGOs, government projects involved in the delivery of financial services. More importantly, delivering financial services to the poor requires an innovative targeting design and a credit delivery mechanism that

helps to identify and attract the poor who can initiate and sustain productive use of loans (IFAD, 2007). Thus, the following section presents some of these financial sources.

2.5.1. *Formal financial institutions in Ethiopia*

Formal financial sectors in most developing economies serve only a minor, often no more than 20-30 % of the population. Most households do not have access to even basic financial services. A majority of those who do not have access are concentrated in low-income categories. Even those low-income households who have access to finance are underserved in terms of quantity and quality of products and services (Diagne and Zeller, 2013). Contrary to this, Befekadu (2007) believed that the outreach of micro finance institutions in Ethiopia are well progressed in terms of area coverage and loan amount given to rural household. However, Lehnert (2014) thought that, the financial sector in Africa including Ethiopia still under developed with bank operating only in urban areas. For this reason, the provision of financial services by formal institutions in rural areas is limited.

Women are the most frequently discriminated groups against in a formal credit markets in developing countries(Zinman, 2009). Kongolo (2007) also added discrimination against women in formal credit markets, often based upon the limited number of women borrowers in the market, is perceived as an outcome of lenders' rejection of women's applications for loan contracts. Latifee (2013) strength the idea, gender-based credit constraints, such as limited education, inferior legal status and unpaid reproductive responsibilities exacerbated the problems women face when operating small businesses.

As stated by Wolday (2011), not only women and the rural poor are excluded from the formal financial system, but also small and medium enterprises lack access to financial services, due to the fact that formal institutions are either unwilling or unable to serve small and medium enterprises. These institutions face high risk and transaction costs, difficulties in enforcing contracts, and penalization by the central bank (NBE) for lending to enterprises that lack traditional collateral. They also lack reliable information on borrowers, appropriate information systems and instruments for managing risk.

OCSSCO and Eshet microfinance are the only formal financial institutions working in the rural areas of the study district. Their primary mission is to improve the economic situation of the low income, productive poor in the Oromia region primarily through increased access to lending and saving services. It seeks to maintain cost effectiveness

in service delivery and integrates its activities with government and NGOs working towards achieving food security and poverty alleviation.Mekonnen (2008) stated that in line with government policies, OCSSCO target focus is the low income, rural based, productive poor, with a special emphasis on women. Women are mostly marginalized and cannot easily access financial services.

2.5.2. Informal financial institutions in Ethiopia

Kongolo (2007) said that informal credit source serves as a catalyst in the overall development process in African countries. They are an empowering agent and an enabling element in the development of socio-economic conditions of the poor who have been kept outside the formal credit system.

Boucher and Guirkinger (2008) suggest the reason why most rural households prefer the informal credit is, because of the lower transaction costs and collateral risk. the reality in nowadays is, formal credit has not enough power to crowd out the informal sector in one hand, the inability of the formal financial sector to provide adequate financial services to small holder farmers in the other hand(Kongolo, 2007). Harold and Nicola (2010) on the contrary, the informal sector has been dampening the demand of formal credit and thus crowding out the formal sector. According to Yu (2008), informal credit has the advantages of simple lending procedure, flexible borrowing terms, and little restriction on how the loans be used. This is one of the unique aspect informal credit sources.

Dejene (2014) indicated that the non-formal sources in Ethiopia include relatives, friends, moneylenders, and neighbours, Iddir, equb and Mahiber. On the socio-economic base line survey in the Amhara region review that the most widely used financial institutions in rural areas were informal, which have been provided very small loan size, for short period; especially for daily consumption. The survey result indicated that from the total respondents, about 65 % of the households were accessing credits from informal institutions. It is identified that the percentage share of the number of borrowers by institution indicated that ACSI caters to 22%, co-operatives 9 %, NGOs 3%, Arata Abedari 20% relatives 44%and others 2%. Gebrehiwot (2011) support the idea in that access to credit from formal financial institution is very limited; the majority of the poor obtain financial services through informal channels. The high transaction costs associated with serving a largely dispersed population and the high risk associated

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with agriculture, formal financial intermediaries have avoided rural areas(Lehnert, 2004). Wolday (2011) also added that formal systems are the least well adapted to poor populations because of their geographical, cultural, economic and/organizational remoteness. Kongolo (2007) viewed that informal sources are more appropriated and appreciated source of credit in rural area. Contrary to this, Getaneh (2012) argued that informal sources do not generate enough and affordable finance for business to stimulate economic development. In particular, the private moneylender is extremely expensive, and is only resorted to in the absence of any alternatives. In this case borrowers are required to provide guarantors and the interest rate is excessively high. Until recently the annual interest rates that the money lenders charged was estimated to range from 60% to 120 %.

2.6. Access to credit by poor rural households

Trumbull (2010) defined access as the right to obtain or make use of or takes advantage of something (as services or membership). Diagne *et al.*(2009) stated that a household is said to have access to a type of credit if at least one of its members has a strictly positive credit limit for that type of credit. Similarly, a household is classified as credit constrained for a type of credit if at least one of its members is constrained for that type of credit. Manganhele (2010) also backs up this view by arguing that it is a situation borrower is able to obtain some amount of capital (in cash or in kind) regardless of his /her willingness to pay a higher price for credit from the particular source of capital, though he/she may choose not to borrow.

Access to credit services by smallholders is normally seen as one of the constraints limiting their benefits from credit facilities. Giving of great consideration to credit access for rural poor in accordance with input provision packages, research and extension service is one of the most successful ways to reduce poverty in developing countries (Wiedmaier *et al.* 2008). Also emphasizing rural initiatives that would promote productivity, marketing and international trading possibilities would prioritize the agricultural sector and small holder farmers effectively(Manganhele, 2010). Ernest (2008) argument is grounded on the fact that small holder farmers in poor economies are classified by higher productivity and intensity of labour rather than large scale farmers. Furthermore, small holder farmers still show the lowest average consumption of food among the rural poor.

However, a number of scholars have commonly indicated (Lamberte and Manlagnit, 2010;Lianto, 2010 and Mohamed, 2010) that access to credit plays an important role in comprehensive development. Fengxia *et al.*(2010) elaborate this view in that, broader access to credit makes it possible for low-income households to not only make use of economic opportunities but also improve their health, education, and other social indicators thus significantly improving their socio-economic well-being. However, in most developing countries, a majority of the population, low-income people in particular, do not have access to financial services from formal and informal sources.

Therefore, in many developing countries, millions of rural poor are still do not have access to appropriate financial service that would allow them to increase their productivity and alleviate their poverty conditions. Lack of access to a broader set of financial options represents a potential constraint on entrepreneurship and on the ability to undertake socially and privately profitable investments.

2.7. Challenges of rural financial services

According to Schlaufer (2008), infrastructure for transport, communication and information technology is less developed in rural areas, as well as to the remoteness of these areas. Clients frequently have to travel long distances to deposit savings, to take credit and to repay a loan. As they usually travel on foot, this can cost them an entire working day. Rural financial institutions face additional costs for ensuring security and managing liquidity. These costs are usually passed onto the clients, with the result that users in rural areas frequently pay higher interest rates than people in urban areas.

Credit risk is higher in rural areas both for borrowers and for rural financial institutions(Wiedmaier *et al.*, 2008). The revenues of rural households, whose incomes mostly depend on seasonal agriculture and livestock production, are volatile due to fluctuating weather conditions, pests or diseases and price fluctuations. Generally, rural households depend on one or two sources of income only, increasing the risk of credit default and lack collateral. Financial institutions thus have no means of securing their credits against defaulting. Defaulting clients run high risks as well: financial institutions will typically impose disciplinary interest rates for delayed payments and might even confiscate assets of defaulting clients.

Ernest (2008) argues that poorly educated people face an additional challenge in accessing financial services. It is difficult for them to analyses credit risks and the

profitability of a loan or savings scheme to provide all documents and information (such as a business plan) required to apply for a loan, and to understand conditions and contracts. Some institutions fail to communicate interest rates and commissions in a transparent manner, and small prints in contracts can contain additional costs for borrowers. Schlaufer (2008) also added that besides the challenges financial institutions face, not considering the needs of rural households and small entrepreneurs related to loan size, loan distribution time and the repayment period are the other weakness of both formal and informal financial institutions, which is, simply not tailored to the needs of rural clients.

2.7.1. Preferences and attitudes of small holder farmers towards financial credits

Kalan Shah *et al.*(2008) stated that, despite the effectiveness of the credit, almost all the borrowers complained about the interest rate charged on these loans. Being subsistence farmers, they have the view that the interest rate is too high for them. Moreover, majority of them were not happy with procedure for obtaining agricultural credit. One reason could be that majority of the farmers had low level of education and they were unable to understand to fill in theloan application forms for themselves. For this purpose, they had to get help either of the bank stop or some other educated person.

2.7.2. Low agricultural finance

Despite the success stories of microfinance in Ethiopia, the agricultural sector is still less financed due to its characteristics, which include;

Small transaction sizes: - Transaction sizes in the agricultural sector are usually small, at least with regard to smallholder farmers. The average size of agricultural loans of an Ethiopian MFI in 2007 was ETB 1,250 (equivalent to less than USD 100) (Kassaye and Dejene, 2008). This increases the share of the mostly fixed costs of loan origination, monitoring and collection of financial institutions relative to other sectors with higher average transaction sizes.

"Lumpy" cash flows: **-** Typical cash flows in the sector consist of one large cash outflow/loan (say for fertilizer), followed by one large cash inflow/repayment several months later (harvest) (Bier Len and Featherstone 1998).Amha (2010) stated that,because theease of monitoring individual customers increases for financial institutions with the frequency of repayments (since each individual repayment provides a monitoring opportunity), agricultural customers are more difficult to monitor

compared with businesses with multiple cash inflows and outflows. Apart from complicating monitoring, "lumpy" cash flow patterns also complicate financial intermediation for financial institutions where agriculture is the primary economic activity. In this case, the savings and investment patterns of customers match and savers are likely to withdraw their savings at the time of greatest demand from borrowers (like when inputs need to be purchased).

Illiquid and perishable collateral: -Miller (1975)said that, typical collateral in the agricultural sector is agricultural output, farming equipment, land or buildings. Agricultural output is typically perishable, which limits its use as collateral. The limited amount of standardization of agricultural output in Ethiopia and the availability of few "neutral" storage facilities further complicate the use of agricultural output as collateral. While a legal framework for moveable collateral such as farming equipment exists, practical considerations limit this type of collateral to large and standardized machinery that is mostly in use by a relatively limited number of commercial farmers. Since farmers generally cannot own land titles, land is also not acceptable collateral in this business. This also complicates the use of buildings as collateral. A lack of risk management skills among most financial institutions and the strong focus on highly collateralized lending (further details in the next section) further exacerbate the collateral issue in Ethiopia.

High covariance across borrowers: - The variance of cash flows compared with alternative businesses is high, making lending relatively riskier. Also, all borrowers are similarly affected by the same macro-risks, especially climate, which increases the individual and portfolio risk of lenders. The fact that about 95 % of agricultural production in Ethiopia is rain fed.

Diverse sub-businesses with distinct dynamics: - Agriculture consists of many different sub-industries with significantly varying investment and risk patterns. This causes high specialization costs in monitoring within a cash flow based lending model, providing incentives to financial institutions to lend based on collateral or limit activities to easilyunderstand, homogenous parts of the business such as input credit.

Besides the characteristics of the agricultural sector limiting its financing attempts, there are some challenges faced by both the MFIs and the natives in Ethiopia. In Ethiopia, women are disproportionately under-represented in the formal economy and are

therefore the most poor, particularly female-headed households. Research has shown that current microfinance programs in Ethiopia are mainly designed and implemented by men with little or no participation of women (Bekele and Worku,2013). Women's high involvement in domestic labour (cooking food and general caring of the families) also gives them limited access to credit. Therefore,gender is an important factor that influences demand and supply of credit.

Religion and cultural taboos also influence access and participation in micro-credit in Ethiopia. For example, Muslims who are over 30 %of the population do not participate in loan and saving activities. They believe that earning money through loans is 'haram'.Other reason why microfinance institutions have not achieved good penetration in Ethiopia is that the products they offer to the very poor are not well suited to their needs. Ethiopian microfinance institutions enter the marketplace offering credit, even though those living at subsistence levels often just want a safe place to save and manage their risk.

Other challenges facing microfinance in Ethiopia include the fact that the microfinance institutions themselves are under-funded(Kereta, 2007). The loans they offer are inflexible and are given without adequate support services such as training in such basic skills as marketing, management and financial literacy training to the borrowers. The MFIs also have limited success in accessing the poorest of the poor, particularly women and their underdeveloped infrastructure makes the provision of services to rural areas difficult. In addition to poor infrastructure are the long distances between the clients and the respective microfinance branches. This gives rise to high transactions (transportation and communication) costs. Gobezie (2005) noted that only 57 % of the farmers are within two hours walk to any road.

Ethiopia has a very low rural banking density and consequently one of the lowest financial inclusion ratios in Sub-Saharan Africa, with only 14 %of adults having access to credit(Bashir *et al*., 2010). Most of the bank branches are situated in urban areas, leaving the rural areas under serviced. The ratio of the rural population to a bank or microfinance branch is 125,158 people per bank/branch.

Like many developing countries, Ethiopia's infrastructure is not well developed especially in the rural areas where the poor farmers are concentrated. This limits the outreach of the formal sector and leaves the poor with limited access to financial

services. Generally, limited access to credit has been implicated as a hindrance to the growth and productivity of the agricultural sector.

2.8. Empirical studies for factors determining access to financial credit

Financial institution and its policy often stated that, credit access have beennegatively influenced by loan duration, terms of payment and required security for loan taking Syeda *et al.* (2008).

Hoque and Itohara (2009) indicated that the provisions of supplementary services and interest rate do not fit the needs of the target groups, potential borrowers will not apply for credit even where it exists and when they do, they will be denied access. Remedan Kasim (2008) emphasized that access to financial services by smallholders is normally seen as one of the constraints limiting their benefits from credit facilities, due to their lending policies like minimum loan amounts, complicated application procedures and restrictions of credit for specific purposes. Bigsten *et al.* (2003) stated that in developing countries asymmetric information, high risks, lack of collateral, lender-borrower distance, small and frequent credit transactions of rural households make real costs of borrowing vary among different sources of credit. Getaneh (2012) also showed that lending procedure/transaction cost of lending and strategy of lending influence credit access negatively.

Scholars have commonly indicated education to have been positively related to access to credit.in their discussion, was underscored as a tool that helps farmers make important and right decisions during access to credit (Mohamed, 2010; Hussein, 2007; Nguyen, 2007; Lensink*et al.* 2009; Tang *et al.* 2010; Henri-Ukoha *et al.* 2011). Contrary to this, Syeda *et al.* (2008) have found out a negative relationship between education and access to and participation in credit.

Age of the household head is another factor that influences adoption behaviour. Pertaining to this, many have already witnessed a positive relationship of the household head's age with access to credit (Tefera and Li 2004 *et al.*, 2004; Henri U *et al.*, 2011).Similarly, Gunnar (2010) stated that with the increase in age, accumulated experience, practical and professional wisdom of the household increases income generating capability and the demand for more credit to explore capabilities or to spend on consumption. The conclusion of these studies coincides with the presumption that

getting progress in ages of farm households their demand for credit increases, as farmers know costs and benefits of credit through their life experience.

It has commonly indicated that gender to have been negatively related to access to credit, despite the presence of some targeted credit schemes in favour of women, they still face credit access difficulties compared to men. Mahlet (2005), Hussien (2007), Syeda *et al.*(2008) and Minot *et al.*(2006) reported that existing gender differences; male headed households have mobility, participate in different meetings and have more exposure to credit information.

Atieno (2011) indicated that past credit participation was a significant variable to explain the participation in both formal and informal credit markets positively. In line with this study, Tefera (2004), Sisay (2008) and Tang *et al.* (2010) reported that a farmer having more experience in credit uses will have more tendencies towards using that source.

Hussien (2007) reported family labour is the main determinant of access to credit by farmers and he found significant negative relationship between family labour and access to credit. There are also some studies that reveal the influence of socio-economic variables on access to credit. Land holding size mostly showed to have a significant influence on access to credit particularly the size of operational holding. Hussein (2007), Sissay (2008), Lensink *et al.* (2009) and Tang*et al.* (2010) found that a positive significant influence between farm size and access to credit. Amare (2005) and Remedan (2008) also observed participation of farmers in non-farm income generating activities influence access to credit negatively. Sisay (2008) on his part showed farmers with large number of livestock did not use credit than farmers with lesser number of livestock. Similarly, Petrick (2012) found a significant negative relationship between livestock holding and credit access of farmers.

Bigsten *et al.* (2003), Degu (2007), Nguyen (2007) and Lensink *et al.* (2009) indicated distance to the lending institutions influences the availability of access to credit negatively. Lensink *et al.* (2009) explained that,the further distance from household residence to the financial institutions, the less loan amount that household receives. Hussein (2007) and Diagne (2006) have reported that credit information and extension contact are more likely to increase the information base and decision making abilities of the farm households including the ability to compare choosing appropriate credit source

and production technology. Participation of households in extension package program is another factor which influences credit access of farmers. Sisay (2008) also found that, farmers who participate in agricultural extension package programs had higher probability of credit access.

Many studies found that age of the household's head has a nonlinear impact on the probability of being credit constrained. For instance, a study by Zeller (2013) in Madagascar showed that households headed by younger aged individuals are significantly vulnerable to be credit constrained in the informal credit market. On the other hand, older aged individual headed households are significantly less vulnerable for informal credit constraints. Under the same study, the effect of household age is found to be insignificant to determine vulnerability for credit constraints in the formal credit market. Another study in China by Dong, (2012) reported similar findings concluding nonlinear effect of household head's age on probability of being credit constrained were younger age is associated with more vulnerable to credit rationing and vice versa.

Education status of the head of the household is found to be one of the main determinants of the probability of being credit constraint in the literature. A study in Madagascar by Zeller (2013) documented that years of schooling of the household head was associated with significant and positive coefficient, i.e. the more educated the household head is the more vulnerable would be the household for credit rationing.

He reasoned out as this might be explained by that relatively educated individuals demanded more loans to make productive investments in which the financial institutions are improbable to approve fully or partially. And lenders didn't value their education and rate them with a high probability of default leading them to rejection. Similarly, a study in Ethiopia by Ali and Deininger (2012) stressed that household heads with formal education are significantly more vulnerable to credit rationing in the semi-formal sector.

Contrary to the above study, in Rwanda by Ali, Deininger and Duponchel (2014) and in Peru by Zegarra, Escobal and Aldana (2008) concluded that number of years of schooling of the household head is significantly and negatively associated with probability of being credit constrained. These studies strongly defended that education of farmers must be one of the tools of reducing the extent of credit rationing. From this we can conclude that the impact of education of credit constraints is ambiguous in the

literature. In South Africa and China stated that sex of the household head matters in determining the probability of being credit constraint (Baiyegunhi, 2008). They found that male headed households are less vulnerable than female headed households for credit rationing.

Saving status of households also levelled as the determining factors for households' probability of credit constrained. Dong, LU and Featherstone (2012) concluded that household savings are significantly and negatively associated with the probability of being credit constrained. They argued that more savings can finance full part of the financial demands of households which left the typical net saver household less vulnerable to credit rationing. Surprisingly, under this study the impact of collateral is significantly and positively affected the probability of credit constrained. Because households having relatively better grant of collateral may have higher propensity to ask for larger loans which may end them credit constrained as financial institutions working in rural areas disperse smaller size of loan per head.

The Rwandan study by Ali, Deininger and Duponchel (2014) reported that better access to information via news and relatives holding political office have a significant negative impact on credit rationing. They asserted that better access to information and political office affiliation minimizes the probability of ending credit constrained. This study further documented that households having greater value of assets and livestock ownerships are significantly less vulnerable for credit constraints.

Concerning attitudes and preferences of small holder farmers towards credit service, in developing societies like Ethiopia, men and women engage in different economic activities, which have different implications on the demand for credit. Social roles and norms dictate the segregation of activities by gender where women mostly concentrate on farm activities and household chores while men undertake income earning activities because those are largely that society prescribes for them (Bendig *et al.* 2009). This is exacerbated by the differential power relations between men and women where women have virtually no control of assets such as land, animals and buildings that could be used as collateral. Omboi (2011) found that major reason for not seeking credit was lack of required security and being pessimistic on their ability to repay the credit. Moreover, women who step outside traditional gender roles by taking a more independent and entrepreneurial approach in their economic lives will be blamed with the traditional

construction of gender and activity regulating social norms. If these norms are strong enough, such women may express no demand for credit even when they have profitable investment opportunities. If they do, the society will object them thinking that women who actively engage in market-oriented activities are not able to take adequate care of their home responsibilities (Fletschner and Carter, 2008). As a consequence, the probability of demanding credit is negatively correlated with being female-headed household (Bendig*et al.* 2009; Nwaru, 2011). Single-headed (for instance widowed) households are often considered 'less lucky' or disadvantaged and thus have difficulties in social networks. Old headed households have less ability to smooth consumption by themselves if they face adverse shocks, as they do not have enough working household members to increase income by increasing labour working hours. Thus, they are forced to borrow from informal institutions (Kochar, 1997).
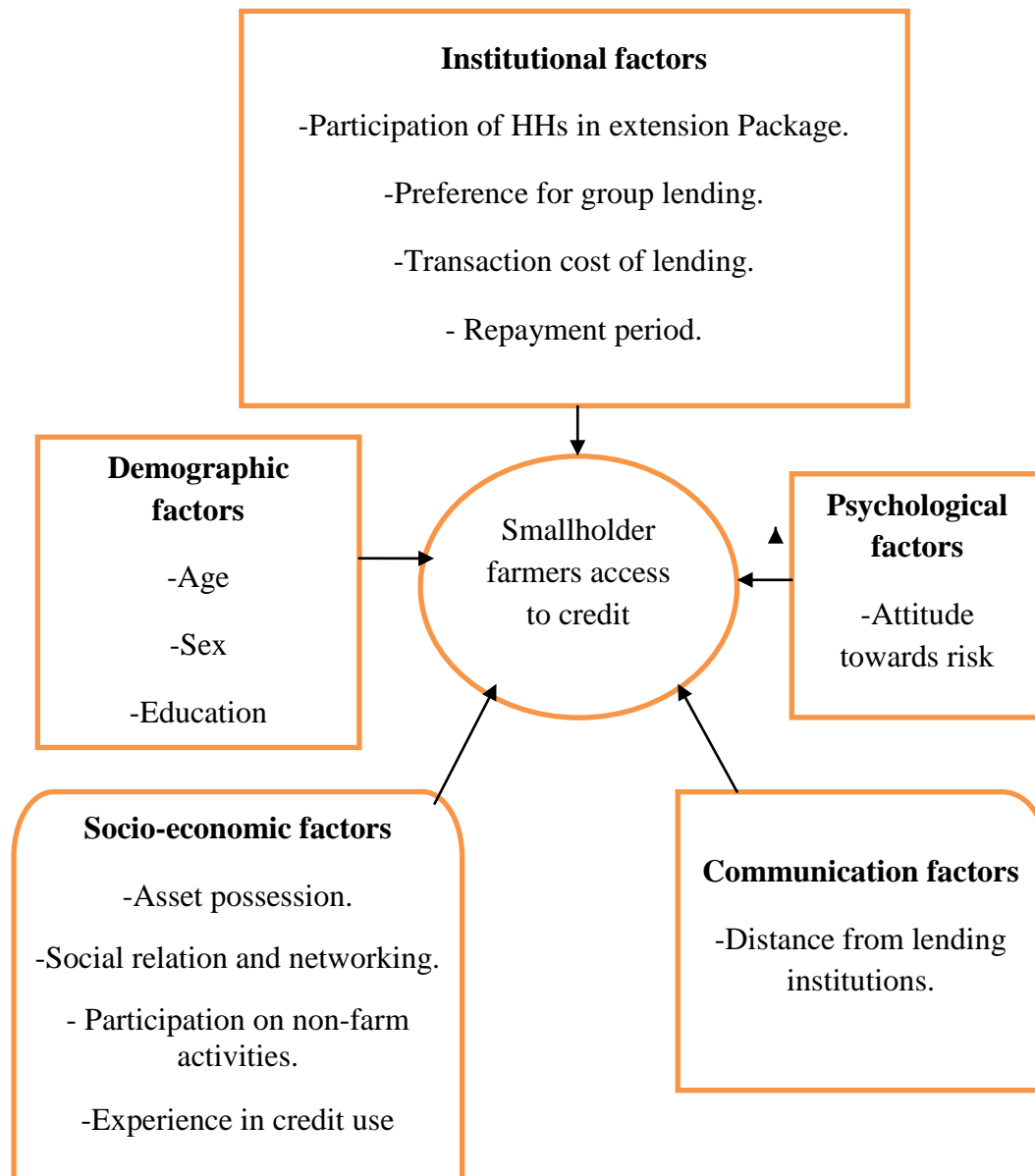
Sources: Yirga (2012) and Tilahun (2015)

Figure1. Analytical framework of factors determining smallholder farmers' access to formal credit sources

3. Research Methodology

3.1. Description of the study area

Dedo Woreda is one of the 20 Woredas in Jimma Zone known for predominantly growing potatoes. It is located 387 km south west of Addis Ababa and about 20 km south of Jimma town. There are 34 rural and 3 urban kebele administrations, totally have 37 kebele administrations. The number of agricultural household heads in the Woreda is 31,308 (30,484 male headed (97.4 %) and 824 female headed (2.6 %)) while the total population of the Woreda is 239,673 from which 119,593 are males and 120,080are females (DADO, 2015/16). Dedo Woreda is densely populated with a size of 102,024ha of land (DADO, 2016/17).

The average annual rainfall of the district is 1950 mm with low variability. Its distribution is bimodal in which the small rains are from January to March and the main rainy season from June to October. Hence, crop and livestock production is not constrained by the lack of amount and distribution of rainfall. Its altitude ranges from 800 to 3000 meters above sea level (masl) (DADO, 2016/17).

Cultivated land constituted 41 % of the total area in the district. On the other hand, about 11.3 % of the district is covered with forest and bush. Moreover, substantial part of the land in the district (11 %) comes under non-agricultural, 12.6 % bare lands and 10 % land covered by permanent crops.
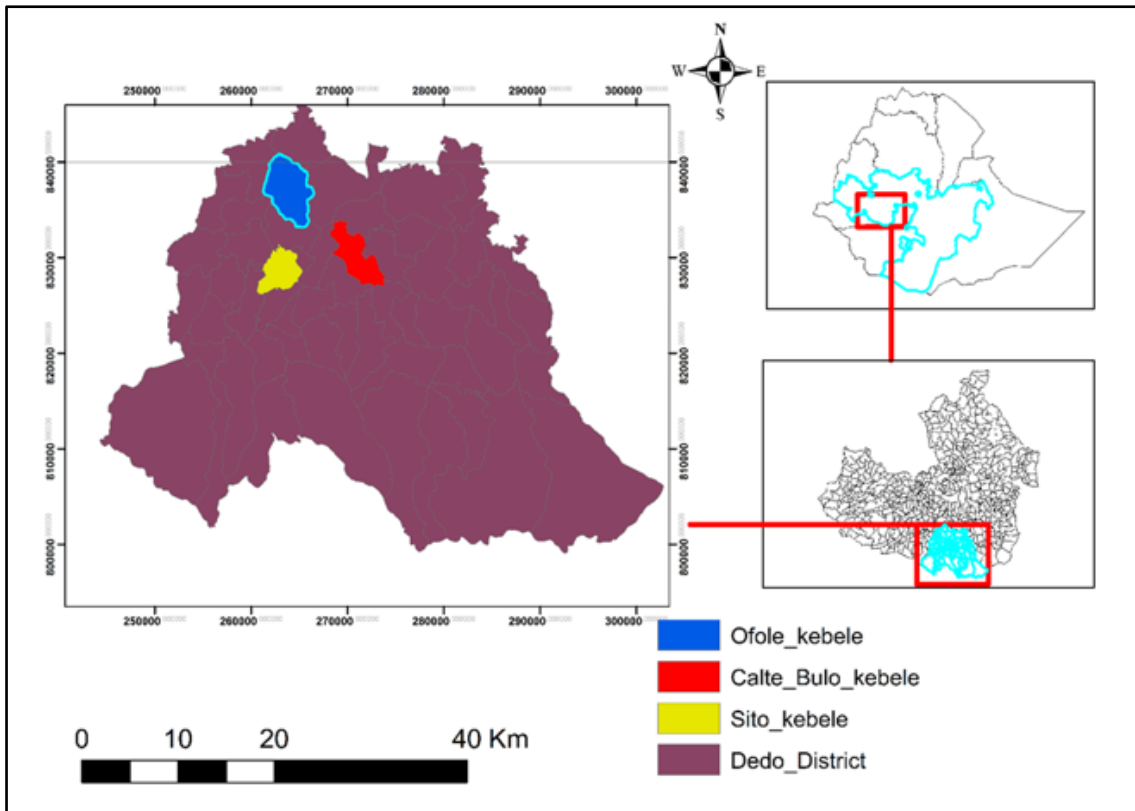
Figure 2. Map of study area

3.1.1. Economic activities, social services and infrastructures

Agriculture is the main sources of the economy of the district. The population in the study area depends on rain fed mixed crop-livestock subsistence agriculture. Cash crops production like khat and coffee is one of the most important sub-sectors of the district, which is mainly dependent on rain feed agriculture. The main market centre for the study district is Sheki town. Smaller markets are available in most areas of the KAs in the district.

3.1.2. Financial institutions

In the study area, there are one branch of Commercial Bank of Ethiopia and two microfinance institutions like, Oromia Credit and Saving Share Company (OCSSCO) and Eshet microfinance institution. These microfinance institutions are giving financial credits for small holder farmers in the studyareas according to their rule and regulations and very few informal lenders in the study areas.

3.2. Sample size and sampling technique

A multi- stagerandom sampling procedure was used for the selection of the sample households. From 37Kebele administrations in the district, 3 kebeles are urban. So, selection was done from 34 rural KAs. In the first stage, Dedo Woreda from Jimma zone was selected by purposive sampling, at second stage; three Kebeles (Sito, Ofole and C/Bulo) were sampled randomly out ofthirty-four rural Kebele administrations available at Dedo agricultural development office.Ninety-three (93) non-credit userrespondents were sampledby sample size determination formula and seventy-four (74) formal credit users were sampled from total population, respectively (Table 1). Totally 167 farm household heads (HHHs) weresampled.

Table 1 Total household heads in selected Kebele Administrations

Name of KAs	Total HHHs in the sample KAs			Formal credit users			Non-users		
	M	F	T	M	F	T	M	F	T
Sito	607	50	657	91	25	116	482	59	541
Ofole	582	48	630	79	29	108	454	68	522
C/Bulo	509	45	554	57	7	64	418	72	490
Total	1698	143	1841	227	61	288	1354	199	1553

Sources: own survey data from KA (2016/17)

M = Male household heads, F = Female household heads, T = Total household heads

Yamane (1967) provides a simplified formula to calculate sample sizes. This formula was used to calculate the sample sizes at 90% and 95 % confidence level and for precision (e) of 10 % and 5 %, respectively. The formula was expressed as:

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

$$N = \text{population size}$$

$$e = \text{error term}$$

When this formula is applied, at 90 % confidence level and precision (e) of 10 %, the sample data was calculated from non-credit usersand population proportion to size on (**Table-2**)

$$n = \frac{N}{1+N(e)^2} = \frac{1553}{1+1553\,(0.1)^2} = \frac{1553}{16.53} = 93 \text{ Non-credit user sample HHHs.}$$

Table 2 Sample household heads from none-users and their proportion from each KAs

Kebeles	None credit user HHHs	Proportion	Sample HHHs
Sito	501	0.32	29.8
Ofole	542	0.35	32.5
C/Bulo	510	0.33	30.7
Total	1553	1	93

Populationproportion result (2016/17

Table 3 Sample household heads from credit users and their proportion from each KA

Kebeles	Formal credit user HHHs	Proportion	Sample HHHs
Sito	116	0.4	30
Ofole	108	0.38	28
C/Bulo	64	0.22	16
Total	288	1	74

Population proportion result (2016/17)

3.3. Sources and methods of data collection

Both qualitative and quantitative datawere collected from primary and secondary data sources. Qualitative data were collected through: - focus group discussions and key informants'interviews and semi-structured questionnaires were used. Structured interview schedule was prepared to collect quantitative data for the study. Primary data sources were collected from both male and female sample household heads and other key informants like development agents and model farmers. Secondary data were collected from office of agriculture, Oromia Credit and Saving Share Company (OCSSCO), Eshet microfinance institution and cooperative office in the district.

3.4. Techniques of data analysis

Based on the objectives of the study, descriptive statistics and econometric model were used to analyse the data.

3.4.1. Econometric analysis

Different studies were employed to identify factors that determine access to credit. This study is intended to analyse how much the hypothesized explanatory variables can determine small holder farmers' access to credit. The dependent variable is a dummy, which takes a value of one or zero depending on whether or not smallholder farmers, access to credit sources.

According to Amemiya (1981), the statistical similarities between logit and probit models make the choice between them difficult. But this study has justification for using logit (binary logit model) due to its simplicity of calculation and that its probability lies between 0 and 1. Moreover, its probability approaches zero (0) at a slower rate as the value of explanatory variable gets smaller and smaller, and the probability approaches to one (1) as the value of the explanatory variable gets larger and larger (Gujarati, 1995). Hence, the logistic model was selected for this study. By using odd ratio formula, the significance of each explanatory variable on access to credit by small holders was analysed. Therefore,the probability of using credit for small holder farmerswere a function of significantly affectingexplanatory variables and can be stated as:

$$\text{Pi} = Z(y = \frac{1}{xi}) = \alpha + \beta ixi \tag{1}$$

Representation of using credit is given by:

$$\text{Pi} = F(Z) = \alpha + \sum_{i=1}^{n} \beta ixi \tag{2}$$

Where: Pi is the probability that an individual will use credit or does not use given Xi

e - Represents the base of natural logarithms (2.718).

Xi - Represents the explanatory variables

n- Represents the number of explanatory variables, i = 1, 2, 3 …, n. and

α and βi- are parameters to be estimated.

For ease of exposition, it can be written as:

$$\text{But } 1\text{-pi} = \frac{1}{1+e^{-zi}} = \frac{e^z}{1+e^z} \text{where } Zi = \alpha + \beta ixi \tag{3}$$

This is logistic distribution function

If pi-is the probability of using credit, then: (1-Pi) is the probability of not using Credit.

Thus, 1-Pi $=\frac{1}{1+e^{zi}}$ by rewriting this formulae,

$$\frac{Pi}{1-Pi}=\frac{1+e^{zi}}{1+e^{zi}}=e^{zi} (4)$$

The ratio of Pi to 1-pi- is termed as the odds ratio in the favour of access to credit.

The ratio of the probability that HHHs access to credit to the probability that will not.

Taking natural logarithm of this equation

Li-Is the log of odd ratio and linear in x called logit.

$\frac{Pi}{1-Pi}=\frac{1+e^{zi}}{1+e^{zi}}=e^{\alpha+\sum_{i=1}^{n}\beta ixi}$ (5)Therefore, to get linearity, take the natural logarithms of odds ratio equation (5), which results in the logit model as indicated below.

$Z=\ln\frac{Pi}{1-Pi}=\alpha+\beta 1x1+\beta 2x2+\beta nxn$ (6)As P goes from 0 to 1, the logit goes from $-\infty$ to ∞. That is, although the probabilities lie between 0 and 1, the logit are not so bounded (Gujarati, 1995). If the disturbance term ui is taken into account, the logit model becomes,

$Z=\alpha+\sum_{i=1}^{n}\beta ixi + ui$ (7)This log-odds ratio is a linear function of the explanatory variables which is used to test whether an explanatory variables are significantly affecting access to credit use of small holder farmers or not and the parameters is called logit model.

Multicollinearity problems among the hypothesized explanatory variables were tested by using VIF. If the result of VIF is greater or equal to ten, there will be multicollinearity problems and no if less than ten (10).

$VIF=\frac{1}{1-r^2}(8)$

Where $r^2$is the adjusted multiple correlation coefficient.

3.5. Definition of variables and hypotheses

Dependent variable: The dependent variable has dichotomous nature representing access to credit by small holder farmers. This is to distinguish between those users or non-users of credit in different sources in the study area. It takes a value of 1 for users and 0 for non-users.

Explanatory variables: Different theoretical and empirical studies on factors influencing access to credit by smallholder farmers, past research findings and the author's knowledge of the credit schemes of the study are used to establish working hypotheses of many studies. Among a number of factors demographic, socio-economic, communication, institutional and psychological factors are hypothesized to determine the dependent variable.

1. Age of the household heads: - It is a continuous variable representing the age of the household head in years. Age is hypothesized to have positive association with farmers' access to credit. As the age progress, farmers acquire experience and knowledge in credit use (Henri *et al.*, 2011). Those farmers who had a higher age, due to life experience might know different source of credit than young farmers and had better access to different sources of credit (Li *et al.*, 2004). Contrary to this, Mohamed (2010) found out a negative relation between age and access to credit,stated that as age progresses the production performances of farmers decreaseas they become elder and weak. Therefore, it has been expected that age of the household head influence access to credit both positively and negatively.

2. Sex of the house hold heads: - This is a dummy variable that assumes a value of 1 if the head of the household is male and 0 otherwise. Female-headed households may face some cultural barriers in dealing with the cash economy and lack of control over economic resources.Minot *et al.*(2006) stated that, male headed households have mobility, participate in different meetings and have more exposure to information. The distribution of credit user female headed households is lower as compared to the credit users of male headed households(Mahlet, 2005).Hence, it is hypothesized that male headed households have more access to different sources of credit.

3. Educational level of household heads: - It is a continuous variable defined as the level of grades or years of schooling completed by the respondent. A farmer who is educated is expected to have more exposure to the external environment and accumulate

knowledge and they have the ability to analyse costs and benefits(Tang*et al.*, 2010). Education is a social capital, which could impact positively on household ability to take good and well-informed production and decisions on access to credit (Lehnert, 2004). Therefore, it is expected that those farmers who are educated have better access to credit.

4. Family labour of households: - This refers to the total number of family members of the household measured in man equivalent. The larger the number of family labour, the more the labour force available for production purpose. The more the labour force available, the lower is the demand for hired labour, this means no or low cost for hired labour (Hussien, 2007). Contrary to this, many studies indicate that labour surplus households are most often rent in land or enter into share cropping arrangements and they are more likely demand credit to finance input purchase (Lawal *et al.*, 2009). Therefore, it has been expected that family labour in man equivalent influence access to credit both positively and negatively.

5. Participation of households in extension package program: - This is a continuous variable which takes a frequency of participants in extension package program per week or month or year. If a household participation in extension package program increases, his/her credit demand would increase for the purchase of farm inputs or technologies (Sisay, 2008).Therefore, participation of households in extension package program expected to influence access to credit positively.

6. Land holding of household heads: - It is the total cultivated land holding by the households in hectares. It is a continuous variable. The larger the cultivated land size the more the labour and additional capital requiredthat might be obtained through credit (Sissay, 2008) and (Lensink *et al.*,2009). Therefore, it is hypothesized that larger size of land would affect access to credit positively.

7. Total livestock ownership of households: - This refers to the total number of animals possessed by the household measured in tropical livestock unit (TLU). As the total number of livestock holding of household's increase, the household will less likely to go for credit (Amare, 2005). This can be attributed to increase wealth and income base of farm households which makes more money available in the households that minimizes demand for credit (Petrick, 2012). Therefore,livestock ownership has been hypothesized to influence access to credit negatively.

8. Participation of house hold heads in non-farm activities: - This is a continuous variable which takes a value in monetary terms generated by non-farm activities. Researchers found out the negative relationship of non-farm activities and access to credit.Those households, who participate in non-farm activities, would earn additional income which leads to less demand for credit (Remedan, 2008; Trumbull, 2010). Therefore, this variable influences access to credit negatively.

9. Attitude of house hold heads towards credit risk: -This is a dummy variable which takes 1 if the respondents are risk averse to take loans and 0 otherwise.Many farmers were very risk- averse even when credit is available. They do not like to venture into activities due to risk of repaying loan that come from loss of crops and livestock due to seasonal changes, pest and insect damage (Bigsten *et al.*, 2003). It would be measured based on the farmer's positive or negative perceptions towards risk. Therefore, it was expected that farmers who are risk averse would not demand credit and it affects access to credit negatively.

10. Experience of the household heads in credit use: - It is a continuous variable. It is the total number of years of experience that the household head has obtained and use of credit from different sources. Farmers who have experience in use of credit and who lived to the best expectations of the lenders would develop reputation (standing) and they might have demonstrated their credit worthiness and become trustworthy (Atieno, 2011). Similarly, farmers who had experience in credit use have developed confidence and standing in loan acquisition and repayment (Belay,1998). Therefore, it was hypothesized that experience wouldaffect access to credit positively.

11. Preference of HHHs for group lending: - It is a dummy variable which takes a value 1 for those who prefers group lending 0 otherwise.Different lending institutions have their own lending arrangements some follow individual and others use group method that can serve as collateral. Some farmers perceived that group lending is difficult to access credit since every individual in a group responsible to repay the loan, if loan default occurs in one of the individuals (Getaneh, 2012).Contrary to this, group lending is the best solution for those who have no other alternative to get credit from any sources individually (Mekonnen, 2008). Therefore, it has been expected that group lending influence access to credit both positively and negatively.

12. Distance of farmers' residence from lending institutions: - It is a continuous variable and distance is measured in terms of kilo meters. It refers to the distance in kilo meters from the farm household head residence to lending institutions. Farmers near the lending institutions have a location advantage in saving farm resources (time, labor and money) which otherwise would have been spent to access credit and can contact the lender easily and have more access to information than those who live at more distant locations (Tefera, 2004; Degu, 2007).Therefore,distance of farmers' residence from lending institutions has been expected to affect farmer'saccess to credit negatively.

13. Adequacy of loan repayment period: - This is a dummy variable which takes a value 1 for those who perceive it as adequate and 0 otherwise. It refers to the time period at which the borrower should repay the loan. Different financial institutions have their own rules and regulations that limit the time at which the borrower should repay the loan. If farmers fail torepay on time, they may be liable to some measures based on previous obligation made with the lender (Syeda *et al.*, 2008).Due to these reason, farmers fear taking loans from lending institutions. Adequacy of loan repayment period, therefore, has been hypothesized to influence access to credit negatively.

14. Transaction costs of lending: - It is a dummy variable which takes a value1 for those who perceive transaction cost of lending as a constraint and 0 otherwise.It is cost related to search for information bargaining and communication etc. Because lending structure of different lending institutions is time-taking, burdensome and sometimes difficult to understand and incurextra costs. Getaneh (2009) stated that, due to complicated application procedures, tedious bureaucracy and restrictions, borrowers mostly do not get credit at the required time or they did not get at all. Therefore, transaction cost of lending has been hypothesized to influence access to credit negatively.

Table 4 List of explanatory variables type, value and their effects on dependent variable

No	Independent variables	Type	Value	Access to formal credit
1	Age of household heads	Continuous	Years	+/-
2	Sex of household heads	Dummy	1, if M and 0 if F	-
3	Level of Education	Continuous	Years	+
4	Family labour	Continuous	Number	+/-
5	Participation in extension package programme	Continuous	Numberof contact/month/yr	+
6	Land holding size of household heads	Continuous	Hectares	+
7	Total livestock owner ship of house holds	Continuous	Number	-
8	Participation of households on nan farm activities	Continuous	Monetary / month / year	-
9	Attitude towards credit risk	Dummy	1,if Risk averse, 0 if N	-
10	Experiences of house hold heads in credit use	Continuous	Years	+
11	Preference for group lending	Dummy	1 if prefer, 0 if N	-/+
12	Distances of households from lending institutions	Continuous	Kilometres	-
13	Adequacy of loan repayment periods	Dummy	1, if adequate, 0, if inadequate	-
14	Transaction cost of lending	Dummy	1,if yes and 0 if N	-

4. Resultsand Discussion

This chapter presents and discusses the results of the analysis that has been conducted to address specific objectives of the research. It is divided into three major sections. The first section presents preferences and attitudes of small holder farmers towards financial credits, the second section explains the sources of financial credit for smallholder farmers andthird one dealswith factors affecting formal credit access of small holder farmers.

4.1. Preferences and attitudes of small holder farmers towards financial credits

4.1.1. Preferences and attitudes of credit users and non -users for financial credits

The objective of respondent's credit source preference ranking was to assess the reasons why one credit source could be scored highest over the other. Many reasons were identified for the assignment of a higher rank for one credit source over the other.

In the study area, there were two formal financial institutions which have been providingcredit services for the local community.These are Oromia Credit and Saving Share Company (OCSSCO) and ESHET Microfinance institution (EMFI). The credit source preferences of respondents for different sources of credit were achieved through questioners, focus group discussion and key informant's interviews. All respondents replied their preferences by ranking as: - first, second, third and fourth. Then identified the existing credit sources available in the study area as: Commercial Bank of Ethiopia (CBE), Oromia Credit and Saving Share Company (OCSSCO) and ESHET Micro-finance institution (EMFI) and informal credit source RFNs.

As shown by table 5 below, formal credit users and non-users were preferred RFNs,OCSSCO,ESHET microfinance and CBE as first, second, thirdand fourth credit sources respectively. This order and rank of preferences was done depending up onrate of interest they have been charging on borrowers, adjustments of loan repayment time, transaction costs of lendingand loan size provision.Non-credit users also have the same credit source preferences and ranked the available credit sourcesRFNs, OCSSCO, ESHET and CBE as first, second, third and fourth credit sources,respectively even though, there were no sufficient informal financial credit service providers in the study areas. Both groups ranked and preferred RFNs (Relatives, Friends and Neighbours) as

best credit sources due to being its interest free,adjustments of loan size and repayment time and low transaction costs of lending.The second and third ranks and preferences were done depending up on: - none collateral pre-requisite, fixed loan sizes and repayment times and better loan size than informal credit sources. Both groups did not prefer Commercial Bank of Ethiopia due to its pre-requisites of tangible and strong collaterals for service provision.

Table 5 Respondent'spreference rank for credit sources

Credit sources	Formal credit users (74)			Non- users (93)		
	Preference scores	Rank	%	Preference scores	Rank	%
OCSSCO	19	2	25.7	20	2	21.5
ESHET	16	3	21.6	18	3	19.4
CBE	-	4	-	-	4	-
RFNs	39	1	52.7	55	1	59.1

OCSSCO = Oromia credit and saving share company,**ESHET** =Eshet microfinance, **CBE** = Commercial bank of Ethiopia, **RFNs** = Relative, Friends and Neighbours.

Focus groupdiscussion on preferences and ranks of credit sources was done at each Kebele administrations. Hence, the three Kebeles focus group participants compared credit sources with each other(Eshet MFI with OCSSCO, RFNs with OCSSCO and Eshet MFI with CBE).Depending upon this, Their credit source preference and ranks was the same with that of formal credit users and non-user respondents having the same reason for order of preferences and listed as RFNs, OCSSCO, ESHET microfinance and CBE as first, second, thirdandfourth credit sources, respectively (Table 6).Eshet MFI was ranked as third sources of credit due to its high interest rates i.e. 24 % per annual or 2 % per month. When compared with OCSSCO which charges17 % per annual on borrowers.

The respondents said that*'taking the loan from Eshet MFI for purchase of agricultural inputs by interest rate of 24 % exposes usfor risk of default rather thanbenefiting us by developing our agricultural production and productivities.*

CBE ranked as last credit sources due to its pre- requisites of strong and tangible collaterals which smallholder farmers cannot provide to get the credit services.

Table 6 Preferences and ranks of FGDparticipantsfor sources of credit at three KAs.

Credit source preference in 3KAs	Score	Rank
OCSSCO	5	2
CBE	0	4
ESHET	2	3
RFNs	7	1

OCSSCO = Oromia Credit and Saving Share Company, **ESHET** =Eshet Micro finance, **CBE** = Commercial Bank of Ethiopia, **RFNs** = Relative, Friends and Neighbours, **FGD** =Focus group discussion, **KAs** = kebele administrations

Contrary to the above discussion, few of the respondents in the study areas were not interested to get loan at all because they have external financial supports from their relatives, son and daughters living in Saud Arabia, Sudan, United Arab Emirates, Qatar and etc. They said that *'our son, daughters and Relatives were supporting us at two agricultural peak seasons like: -for the purchases of agricultural inputs and for the costs of harvesting and purchases of chemicals for post- harvest storages of grain crops.'*

4.1.2. Smallholder farmers view of group borrowing from MFIs

Small holder farmers understood that, in the cases of group borrowing, group members were jointly accountable for the loan repayments and therefore the whole group provides monitoring and enforcement mechanism on members to repay their loans on time. In the event of a group member being incapable of repaying the loan, the group members have responsibility to pay the loan. They replied that, if the money borrowed from any credit sources is properly invested on productive works, it is good and profitable, there would be no default.

Smallholder farmers acknowledged MFIs for their servicesof group lending that solves their cash needs without limiting themby strong collateral pre-request like CBE. However, in the study areas majority of the very poor and female headed respondent farmers replied that group borrowing was a constraint to access credit from MFI which required group formation as a pre-condition to access credit service. They face problems

to form a group because the better-off farmers do not want them in their group. This is due to some farmers thought that the very poorhave no enough assets which serve as guarantee in case of default.Even though theoretically, the poor can form a group among themselves; in practical cases those farmers reported that they were sometimes limited from forming a group as they want. Female headed households in the study areas were characterized with low level of livestock and landholding size. From female headed household's perspective these assets were indirectly seen as a guarantee to access credit from the formal credit institutions by the KA credit and saving committee.Due to this, female headed households and the very poor farmers sometimes unable to form group with better- off farmers.

When there is a natural disaster, the very poor farmers were unable to repay their loans on time due to very low liquidity assets and in that event memberspay the loan on behalf of defaulting members.

From the respondents' ideas, it can be concluded that using guarantor as collateral so far is helpful for farmers if individual credit provision is permitted than group lending by MFIs by establishing a strong enforcement mechanism like monitoring and performance evaluation of borrowers. Guarantor is the most widely used system for borrowing money, especially from the informal credit sources like FRNs for the borrowers who were native for that society but there were no sufficient informal credit sources available in the study area.

4.1.3 Types of saving in the study areas

Two types of savings by smallholder farmers are observed in the area.Traditional saving(forming livestock for wealth accumulation and security against emergencies) and saving in MFI and CBE.

There are also two kinds of saving in MFIs:voluntary and compulsory (obligatory) savings. In both ways of saving clients receive a record book where their deposits and withdrawals entered. In the case of voluntary, clients have no obligation to save money and can save the amount of money they wanted and they can also withdraw their money at any time at their request. In compulsory savings, which is prior saving required from borrowers, clients have obligatory savings in which all members contribute regularly throughout their membership with the institution.

4.1.4. Repayment period

The maximum repayment period or the loan duration from both OCSSCO and Eshet micro finance institutions has been limited to one year for both agricultural and non-agricultural credits as stated by the district OCSSCO and Eshet micro finance branch office. Moreover,the principal repayment time for agricultural loans (small holder farmers) was immediately after one year of credit provision. There were no repayment time adjustmentsat all and conducted strictly as signed agreement. No time giving for crop harvesting and crop market fluctuationbut for non- agricultural, especially the employees were paying the principal monthly beginning from fifteen per cent of the borrowed principal up to the end of repayments within one year.

4.1.5. Interest rate

OCSSCO and Eshet micro finance institutions charges an interest rate 17 and 24 per cent (%) per annual on borrowers, respectively and both institutions were paying only 5 per cent per annual interests for depositors. These imbalance interest rates enforce the society not to take the loan from these MFIs and as well not to save their own cash voluntarily.

However, the interest rate is not constant it had been changing from time to time. According to the agreement made between borrowers and MFIs, both the initial deposit as well as the monthly savings were saved for depositors and repaid after paying's of the principal and interests were completed at the end of the year.

4.1.6. Loan size

According to Mekonnen (2004), the very poor would have no business experience. The best practice to introduce the very poor to the business world is to start with small, but surely progressive loan size between loan cycles. He also reported that the maximum first time loan a poor client is entitled to be Br. 750, but revisions were being made to accommodate new loan provision. In the study area, both OCSSCO and Eshet MFIs were providing financial credit minimum of 2000.00Birr and maximum 10,000.00Birr for new clients and for customers,respectively.

4.2. Sources of financial credit for smallholder farmers

All of the credit user smallholder farmers in the study areas were using the credit from formal financial institutions like OCSSCO and Eshet MFI. Farmers provision of loan size is based on their previous year experience or being a customer of that formal

institution in using credits. The loan provided by MFIs was relatively enough to fulfil the financial need of respondents when compared with informal credit sources like RFNs, which could not meet the cash demand of the borrowers. 79.73 % of credit user respondents take the loan from OCSSCO and 20.27 % of respondents were borrowed from Eshet MF institution (Table 7). None of the respondent smallholder farmers in the study area has been borrowing the money from Commercial Bank of Ethiopia due to its pre-requisites of strong and tangible collaterals.In the case of both OCSSCO and Eshet MFIs, some new borrower respondents replied that, it is difficult to perform profitable activity with such amount in the existing condition, especially for new borrowers due to their provision of not more than 2,000 Birr. The Minimum and Maximum amounts of financialcredit services that OCSSCOand Eshet MFIs has been providingwas 2,000 and 10,000 Birr and 2,000 and 7,500Birr,respectively in the study areas. In existing situation, there was very few private money lenders in the study areas and little probabilities to get credit from RFNs because the lenders were not voluntary to give credit due to interest free credit services and most of the borrowers were defaulters.

Table 7 Respondents' credit sources and amount of loan provided

Credit sources	Formal Credit users(74)	%	Mean	SD	Mini (Birr)	Maxi (Birr)
OCSSCO	59	79.73	3927.96	1812.53	2000	10,000
ESHET	15	20.27	3716.66	1555.14	2000	7,500

OCSSCO = Oromia Credit and Saving Share Company,**ESHET** = name of micro finance

4.3. Factors affecting formal credit access of small holder farmers

Rural households' access to credit services is influenced by demographic, psychological, communication, institutional and socio-economic characteristics of households. This section analyses the effect of hypothesised independent variables on formalcredit access of small holder farmers by both descriptive and econometric analysis.

a) Educational level of household heads: -The average educational level of formal credit user sample households was5.34 grade and 2.42 for non-credit user households,respectively (Table 8).There were significant differences in educational levels between formal credit users and non-users at ($p < 0.01$).A study in Madagascar

by Zeller (2013) documented that years of schooling of the household head was associated with significant and positive coefficient, i.e. the more educated the household head is the more vulnerable would be the household for credit rationing.

b)Age of household heads: -The average age of theformal credit user and non-user household heads was 41.43 and 32.97 years for formal credit users and non-users, respectively (Table 8).The t-test revealed that, there is a statistically significant difference between the age formal credit users and non- users at (P<0.01). Age of household head is believed to be a great source of experience in day-to-day activity of human beings. So, aged heads of households are expected to have more experience in access to credit from different source. It was consistent with Henri *et al.*(2011) who stated that, as age progress, farmers acquire experience and knowledge in credit use

c) Total livestock holdings of household heads: -The mean livestock holdings of credit users and non-user households were 8.89 and 10.45(Table 8), respectively.The t-test result revealed that, there is significant difference in livestock holdings between two groups at (p < 0.01). This study was supported by the findings of Petrick (2005) who pointed out that, non-credit users possessed relatively more livestock unit than credit user households which showed that having better livestock numbersaffect credit access negatively.

d) Distance of smallholder farmers from lending institutions: -The mean distances of credit users and non-user households from lending institutions were 8.04and 10.22, respectively (Table 8).The t-test result revealed that, is significant differences in distance from lending institution between formal credit users and non-users at (P< 0.01)This result was consistent with Degu (2007) who stated that, distance of farmers' residence from lending institutionsaffects access to formal credit of respondents negatively.

e) Participation of households in extension package program: - The average participation in extension package programme of formal credit user and non-user households were53.65 and 33.55 per one year for formal credit users and non-users, respectively (Table 8).The t-test result revealed that, there were significant differences in frequency of extension service contact per year between formal credit users and non-users households at (P< 0.01).This result wasconsistent withSisay (2008) who stated that, household participation in extension package program increases their credit demandfor the purchase of farm inputs or technologies.

f) Participation of households on non-farm activities: -The results of analysis revealed that,formal credit users and non-users weregenerating an income from non-farm activities of Birr4,420.43and12,101.66per year, respectively (Table 8).The t- test result revealed that, there are significant income differences from non-farm activities of the two groups at (P<0.01). This result was consistent with Trumbull (2010) who found out the negative relationship of non-farm activities and access to credit. **Table 8**Continuous explanatory variables and their t-test results

Continuous Variables	Formal credit users (74)		Non-users (93)		t-test
	Mean	SD	Mean	SD	
FSHHs	8.66	2.9343	6.28	1.8555	1.356
EDLHHs	5.34	2.082	2.42	2.7039	4.423***
AGHHs	41.43	10.999	32.97	19.4447	4.713***
LHHHs	1.17	0.8351	0.92	0.6839	0.034
TLUHHs	8.89	3.8980	10.45	4.9640	-3.303***
DLINHHs	8.04	1.7196	10.22	3.0606	-4.648***
PHHEPP	53.65	3.7505	33.55	6.0729	3.741***
PONAHHs	4,420.43	2,798.2645	12,101.66	2,329.666	-17.272***
EXCUHHs	2.12	0.859	-	-	

Significant at 1 % probability level

FSHHs = Family size of household heads, **EDLHHs** = Educational level of household heads, **AGHHs** = Age of household heads, **EXCUHHs** = Experience in credit use of house hold heads,**LHHHs** = Land holding size of household heads, **TLUHHs** =Total livestock holdings of household heads, **DLINHHs** =Distance from lending institutions of household heads,**PONAHHs** = participation of household heads on non-farm activities.

a) Attitude of household heads towards credit risk: - Result analysis showed that 25.7 % and 70 % of formal credit users and non-users were perceived credit as risky, respectively (Table 9). This result revealed that there was significant difference in attitude towards credit risk of formal credit users and non-users at (P< 0.05). It is consistent withBigsten *et al.* (2003)who stated that, many farmers were very risk- averse that even when credit is available, they do not like to venture into activities due to risk

of repaying loan that come from loss of crops and livestock due to seasonal changes, pest and insect damage.

b) Household headsTransaction costs of lending: -The result of this study showed that13.55 % and 67.74 %of formal credit users and non-users have been incurring cost to get formal credit services respectively (Table 9).The chi-square test result revealed that, there were significant transaction cost differences between formal credit users and non-users at (P< 0.01).This study was consistent withGetaneh (2012) who stated that, due to complicated application procedures, tedious bureaucracy and restrictions, borrowers mostly do not get credit at the required time or they did not get at all.

c) Preference of household heads for group lending: -The preferences and non-preferences for group lending ofcredit users and non-users for group lending were 62.2 % and 37.8 %, respectively (Table 9).This chi-square test result revealed that there were significant differences between formal credit users and non-users at (P< 0.01). This study was consistent withMekonnen (2008) who stated that,group lending is the best solution for those who have no other alternative to get formal credit from any source individually.

Table9 Categorical independent variablesand their chi-square test result

Categorical variables	Formal Credit users (74)		Non-users (93)		Total (167)		x^2value
	N	%	N	%	N	%	
SEXHHs -Male	54	73.0	74	79.6	128	76.6	1.002
-Female	20	27	19	20.4	39	23.4	
FLMEHHs - Adequate	45	60.8	43	46.2	88	52.7	2.609
-Inadequate	29	39.2	50	53.8	79	47.3	
AHHCRSK -Risky	19	25.7	65	70	84	50.3	3.782**
-Not risky	55	74.3	28	30	83	49.7	
ADLRHHs-Adequate	45	60.8	-	-	45	60.8	
-Inadequate	29	39.2	-	-	29	39.2	
TRCLHHs-Yes	10	13.55	63	67.74	73	43.72	44.944***
-No	64	86.45	30	32.26	94	56.28	
PGLHHs-prefer	60	81.08	17	18.28	77	46.11	110.978***
-Not-prefer	14	18.92	76	81.72	90	53.89	

*** and ** shows significant at 1 % and 5 % probability level. **SEXHHs** = Sex of household heads, **FLHHs** = Family labour of household heads, **AHHCRSK** = Attitude of house hold heads towards credit risk, **ADLRHHs** =Adequacy of loan repayments of house hold heads**, TRCLHHs** = Transaction cost of lending,**PGLHHs** =Preferences for group lending of household heads **PHHEPP** = participation of household heads in extension package programme.

4.3.1. Determinants of access to credit

Multicollinearity problems among the hypothesized explanatory variables were tested. The VIFof each variable were found to be less than ten. Therefore, there was no multicollinearity problem among all the hypothesized 14 variables. So, all explanatory variables were included in the model.

4.3.2. Binary logit model outputs

Fourteen variables were hypothesized to determine access to formal credit by smallholder farmers. Out of these five variables were found to be significantly affecting formal credit access of smallholder farmers. These were: -house hold heads attitude towards risk, preference of household heads for group lending, age of the household heads and experience of the household head in credit use.

a)Sex of the house hold head: - This is a dummy variable that assumes a value of 1 if the head of the household is male and 0 otherwise. The binary logit regression results reveal that, sex of household heads affects access to formal credit services negatively

(Table 9) and significant at (P< 0.05). The odds ratio indicated that, the odds in favor of credit decrease by a factor of 0.4800655as the head of household being female.This result is in line with (Minot *et al.,* 2006) who stated that, female-headed households may face some cultural barriers in dealing with the cash economy and lack of control over economic resources including the existing gender differences, male headed households have mobility, participate in different meetings and have more exposure to information. The distribution of credit user female headed households is lower as compared to the credit users' of male headed households' (Mahlet, 2005).

b) House hold heads attitude towards risk:-This is a dummy variable which takes 1 if the respondents are risk averse to take loans and 0 otherwise.The binary logit regression result reveal that, house hold heads attitude towards credit risk affects access to credit services negatively (Table 9) and significant at (P< 0.01).The odds in favor of credit decrease by a factor of 6.191437being manyfarmers are very risk- averse.This result was in line with (Bigsten *et al.,* 2003) who stated that, Due to risk of repaying loan that come from loss of crops due to seasonal changes, pest and insect damage,that even when credit is available, they do not like to venture into activities.

c) Preference of house hold heads for group lending: - Different lending institutions have their own lending arrangements some follow individual and others use group method that can serve as collateral. The binary logit regression result (Table 9) reveal that, preferences of household heads for group lending affects access to credit services positively and significant at (P< 0.01).The odds in favor of credit increase by a factor of 1.503537 as group lending available for smallholder farmers. This study was consistent with (Getaneh, 2005) who stated that, some farmers perceived group lending is difficult to access credit since every individual in a group responsible to repay the loan, if loan default occurs in one of the individuals Others perceive group lending is the best solution for those who have no other alternative to get credit from any source individually (Mekonnen, 2008).

d) Age of the household heads: - It is a continuous variable representing the age of the household head in years. Age is hypothesized to have positive association with farmers' access to credit. The binary logit regression result reveal (Table 9) that, age of household heads affects access to credit services positively and significant at (P< 0.01).The odds in favor of credit increase by a factor of 0.9443608 as the age of

smallholder farmers increase by one year. This result was in line with (Li *et al.,* 2004 and Henri U *et al.,* 2011) who stated that, as the age progress, farmers acquire experience and knowledge in credit use. Those farmers who had a higher age, due to life experience they might know different source of credit than young farmers and had better access to different sources of credit.

e)Experience of the household head in credit use: - It is a continuous variable and indicates the total number of years that the household heads have obtained and use of credit from different sources.The binary logit regression result reveal that, (Table 9) experiences of house hold heads in credit use of household heads affects access to credit services positively and significant at (P<0.01). The odds in favor of credit increase by a factor of 1.963827as the experiences of smallholder farmers increase by one year. This result was in line with (Atieno, 2001) who stated that,farmers who have experience in use of credit and who lived to the best expectations of the lenders would develop reputationand they might have demonstrated their credit worthiness and become trustworthy.

Table10. Binary logit regression resultsof continuous and categorical variables

ACTCDT	Odd ratio	SE	Z	P>|Z|	[95 %conf.	interval]
SEXHHs	.4800655**	.23158	-1.73	0.083	.2094509	1.100319
FLMEHHs	9453853	.0963596	-0.55	0.582	.7741927	1.154433
PONAHHs	.4638898	.2514346	-1.42	0.156	.1603437	1.342078
AHHCRSK	6.191437***	3.318151	3.40	0.001	2.165761	17.69996
ADLRHHs	1.240245	.6977225	0.38	0.702	.4117641	3.735652
TRCLHHs	2.282826	1.304616	1.44	0.149	0.7447633	6.99725
PHHEPP	-.1980842	1.287201	-0.15	0.878	-2.720952	2.324784
PGLHHs	1.503537***	.5102119	2.95	0.003	.5035398	2.503533
EDLHHs	1.047828	0.0832774	0.59	0.577	0.8966846	1.224448
LHHHs	2.263313	.4338699	0.68	0.496	0.6444298	2.476544
TLUHHs	1.035097	.0555265	0.64	0.520	.9317931	1.149854
AGHHs	.9443608***	.0195273	-2.77	0.006	.9068533	.9834197
DLINHHs	.9728738	.1067645	-0.25	0.802	.784593	1.206337
EXCUHHs	1.963827***	.4740618	2.80	0.005	1.223562	3.15196
CONS.	1.04788	1.425906	0.03	0.973	.072784	15.08644

***, ** Significant at1 and 5 % probabilitylevel, Log likelihood= -79.452479,Number of observations =

167PseudoR^2 = 0.2185, LR (14) chi^2 =44.42, Prob>chi^2=   0.0001

5. Summary, Conclusionand Recommendations

5.1.Summary

This study was undertaken to analyse the determinants of access to formal credit by small holder farmers. The study was conducted on DedoWoreda which is found in Jimma administrative Zone of Oromia regional state. Both primary and secondary data were used. Primary data were collected through household surveys, using structured interview schedule, focus group discussion and key informants interview. Secondary data were collected from Dedo WoredaAgriculture and Rural Development Office, Cooperative Development Office, Oromia Credit and Saving Share Company (OCSSCO), Eshet Micro-Finance Institution (ESHET MFI) and Study Kebele Administrative officesin addition to household survey data. Data analysis was carried out using descriptive statistics and Econometric model. A total of 167 respondents were selected from 3Kebele administrations by multi-stages,purposive and random samplingsusing probability proportional to size.From 167 respondent household heads, 74 (44.3 %) were formal credit users and 93 (55.7 %) were non-users.In the cases of borrowing in group, they responded it as both advantageous and disadvantageous but majority of them prefer it as good and productive and the rest of respondents perceived it as risky due to paying risk of defaulters among the groups.

Sources of credits were preferred and ranked by formal credit users, non- users and focus group participants. Formal credit users, non-users and focus group participants preferred and ranked sources in the same rank as RFNs,OCSSCO, ESHET and CBE as first, second, third and fourth ranks of preferences, respectively.

Respondents and Focus group participants preferred OCSSCO and ESHET MFIs as second and third ranks due to their high interestrate of 17 % and 24 %annually on the borrowers, respectively.CBE was ranked as last credit source due to itspre-requisites ofstrong and tangible collateral to provide financial credit. The small loan size provision,external financial supports for few respondents, sometimes inconveniences of group lending for very poor households and religion limitationswere some constraints of access to formal credit by smallholder farmers.

Descriptive analysis such as mean, standard deviation and percentages and from Econometric models, Binary logit model was used to analyse all relevant explanatory

variables. The results of descriptive statistics further showed that there were significant difference between formal credit users and non-users smallholder farmersby sex of household heads, educational level of household heads, age of the household heads, family labour in man equivalent, transaction cost of lending, attitude of household heads towards credit risk, preferences of household heads for group lending, participation of household heads on non-farm activities, participation of households on extension package programme and participation of households on non-farm activities.

T-test and chi-square tests were performed to compare the percentage and mean difference between formal credit users and non-users respectively.T-test analysis was used to analyse the mean differences between independent continuous variables and the results revealed thateducational level of household heads,age of household heads,total livestock holdings of household heads,distance of smallholder farmers from lending institutions,participation of house hold in extension package programandparticipation of households on non-farm activities,of formal credit users and non-users were significantly different at(P<0.01)

Chi-square test was employed to analyse the percentage differences between categorical independent variables and the result revealed that,attitude of household heads towards credit risk,household heads transaction costs of lending andpreference of household heads for group lending's of formal credit users and non-users were significantly different at(P< 0.01 and P< 0.05)

The logit model was employed to analyse both continuous and categorical variables together andrevealed that,sex of house hold heads, house hold heads attitude towards risk, preference of household heads for group lending, age of the household heads and experience of the household heads in credit use were significantly affecting formalcredit access ofrespondents in the study areas.

5.2. Conclusion

This study has been conducted to analyse the determinants of access to formal credit by smallholder farmers which wasaffectedby socio-economic, institutional, psychological, and demographic and communication factors.

There were fourteen explanatory variables hypothesised to affect formal credit access of smallholder farmers in the study areas and each fourteen explanatory variables were analysed in detail. The collected quantitative and qualitativedata wereanalysedusing descriptive statistics and econometric model, specifically binary logit model. The preferences and attitudes of respondent small holder farmers to wards financial credits, sources of financial credit and their order of preferences and ranksand factors affecting their formal credit accesses were assessed andanalysed by using both descriptive statistics and econometric model.

The credit sources of smallholder farmers in the study areas wereOromia credit and saving Share Company (OCSSCO) and Eshet microfinance institutionsbut their coverage and services were notyet satisfyingsmallholder farmers. Respondents were using credit services from either of institutions. However, majority of the credit users were borrowing from OCSSCO due to its small interest rate charged on borrowers as compared with Eshet MFI.

Credit users were borrowing from formal credit sources by fulfilling the criteria of group borrowing like: - group forming, taking the responsibility of paying the risk of defaulting members among themselves, paying the interest rates chargedby credit service providing institutions.

Smallholder farmer'saccess toformal credit in the study area has been affected negatively by Islamic Religion believing that earning money through loans from formal credit sources is 'haram' since charging an interest and external financial supports from abroad for few small holder farmers during the two peak agricultural seasons at sowing and harvesting time constantly. T-test, chi-square test and binary logit model were identified explanatory variables which have been affecting dependent variable significantly.

The results of t-test revealed that, educational level of household heads, age of household heads, total livestock holdings of household heads, distance from lending

institutions, participationof households in extension package programandparticipation of households on non-farm activitiesbetween formal credit users and non-users smallholder farmers were significantly different at (P< 0.01)

Chi-square test result revealed that, attitude of household heads towards credit risk, household heads transaction costs of lending and preference of household heads for group lending of formal credit users and non-users were significantly different at(P< 0.05).

The binary logit revealed that: -Sex of house hold heads, house hold heads attitude towards risk, preference of household heads for group lending, age of the household heads and experience of the household heads in credit use have been affecting access to formal credit services significantly.

5.3. Recommendations

Group lending becomes the most important method of providing rural credit to the poor who could not bring strong and tangible collateral. However, very poor female headed household head farmers found group lending inconvenient to access credit from MFI that members suspect them as defaulters. Therefore, there should be new policy implementations wherebypoor female household headshave credit access by means of using land use right certificates and guarantor as a collateral.

Most of smallholder farmers fear using credit by fear of default risk; therefore there should be new policy intervention to fill financial management's knowledge gap of smallholder farmers in the study areas in particular and for the country in general.

Group lending has been solving credit access problems of smallholder farmers in the study areas. However, the service was limited due to budget constraints to provide services for all applicants. So governmental and non-governmental organisations have to raise the fund for financial institutions for the study areas in particular and the country in general.

Females house hold headsand the very poorhouseholdsdid not use credit from formal financial sources due to low credit using experiences. Therefore, high emphasis should be given by MFIs and other responsible organizations to change theperceptions of small holder farmers to wards using credit by implementing capacity buildings like trainings and publishing bulletins concerning the importance of credit.

The interest rate that MFIs has been charging on borrowers was very high and small holder farmers not willing to take the loan.So, this issue has to be seen carefully by policy makers and practitionersto balance interest rate charged on borrowers with the amounts of loan provided for them.

Government have toestablish MFIs at rural Kebele administrations level and invite interested private investors to invest on rural saving and credit institutions in order to develop the saving and credit knowledge of small holder farmers and minimize transaction cost of lending.

Majority of formal credit users have more than 11 family size and their maximum agricultural land was 2.75ha. Due to that majority of borrowers in the study areas were taking the loan for consumption smoothing and education fee for their children, this

causesthem defaulters. So government have to revise the population policy of the study area in particular and the country in general.

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7 Appendices

Table 11 Conversion factor used to compute man-equivalent (labor force)

Age Group (years)	Male	Female
<10	0	0
10-13	0.2	0.2
14-16	0.5	0.4
17-50	1	0.8
>50	0.7	0.5

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

Table 12 Conversion factors to estimate Tropical Livestock Unit equivalents

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

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

Table 13 Variance inflation factors (VIF) of the explanatory variables

Variables	VIF	Variables	VIF
SEXHH	-0.364	CREDEMHH	-0.376
FLME	1.001	EDLHH	1.001
PONFA	1.034	LHHH	1.003
ATRSK	1.004	TLU	1.004
ADLRP	1.001	AGHHH	1.009
TCOSLE	1.368	DHHLIN	1.002
PERGLED	-0.793	EXCRUSE	1.3079

VIF results of explanatory variables (2016)

Part I Interview Schedule (questionnaires) for HHHs

Determinants of formal Credit use among Smallholder farmers: The case of Dedo Woreda Jimma Zone, South west of Ethiopia

General information of Interview schedule

Date of interview _____

Kebele Administration_____

Name of interviewer_____

Demographic, Economic and Social Characteristics of the Household

1. Household head basic information

1.1. Age (years) _____

1.2. Sex_____

1.3. Level of Education: -1) unschooled 2) grade _____3) College Dip 4) University Degree

1.4. Marital status: -1) Single 2) Married 3) Divorced 4) Widowed

1.5 Religion_____

1.6. Details of family members of the household including head of the household.

1.6.1.Family size. 1) Male_____2) Female _____Total_____

2. Total land holding size of the household head

2.1. Do you have your own land? 1) Yes 2) No

2.2. Land holding of the household in the last 12 months

Own land in use _____facasa/(_____hectare,)

Crop shared land _____facasa/ (_____hectare,)

Rented in _____ facasa/(_____hectare,)

Rented out _____ facasa/(_____hectare)

Total land holding_____ facasa/(_____hectare)

3. Total number of animals in TLU.

3.1. Livestock holding of the household during the last 12 months.

No	Type of life stock	Number of livestock owned	Number sold during this year	Income from sale	Purpose of sale
1	Oxen				
2	Cows				
3	Calf				
4	Heifers				
5	Bulls				
6	Mule				
7	Horses				
8	Donkey				
9	Chicken				
10	Sheep				
11	Goats				
12	Bee hives				
13	Others				

3.2. Ploughing are accomplished by: 1) Rented tractor 2) Rented oxen 3) Own oxen 4) Support from relatives 5) Rented and own oxen 6) Others specify_____.

3.3. If accomplished by rent what is the price per pair of oxen (tractor) in a day_____?

3.4. What was the total amount of money paid for oxen / tractor rent during the last 12 months_____?

3.5. If accomplished by own oxen what was the number of oxen owned for draught purpose during the year? 1) one 2) two 3) three 4) Four 5) five and more than five.

4. Experience of credit use from different sources (Access to credit)

4.1. Have you ever use credit for the last consecutive years: 1) I had used but I left now 2) I had not used 3) I have used still now.

4.2. Are you demanding for credit in the last 12 months? 1. Yes 2.No

4.3. Did you take any credit for production and consumption purposes during the last 12 months?

1. Yes 2.No. If yes, for what purpose_____

Amount_____ and from which sources you borrowed? _____

If No, why? 1) Due to high interest charged by MFIs 2)Due to religion 3)Due to having sufficient income

No	Source of credit	Loan amount in		Loan purposes	Interest rates	Loan period in month/year	Credit using experience in year	Max. loan permitted for one period
		Cash	Kind					
1	Commercial bank							
2	OCSSCO							
3.	Eshet MF institution							
4	Edir							
5	Ekub							
6	Mahibar							
7	Private money lenders							
8	Neighbours and							

	friends						
9	Relatives						
10	Others						

4.5. If all creditors can give credit in enough amounts, from which lending institution do you prefer to take the loan? 1) Bank 2) OCSSCO 3) Cooperatives 4) Idirs 5) Equb 6) Mahiber 7) Private money lenders   8) Relatives, Neighbours and friends

Why? 1) Due to interest free 2) adjustment of repayment period 3) Others specify_____

4.6. Are there profitable activities (works) that you couldn't undertake due to lack of credit? 1) Yes   2) no

4.7. If yes, which activities do you want to perform?

1) Crop production 2) livestock fattening 3) trade activities 4) opening shop.

4.8. If you are allowed to get more loans, what are three main activities of your choice?

1) _____2) _____3) _____

4.9. What type of the loan collection method does lending organizations use?

1)_____2)_____ 3)_____

4.10. Do the loan repayment period is adequate? 1) Yes 2) No

4.10.1. If the response is no, why_____

4.11. Do you currently have any personal cash savings? How much you save last year_____?

5. Labor availability

5.1. Did you face shortage of labor during the year? 1) Yes 2) No

5.2 If yes, how do you solve labour shortage?   1) Only family labour 2) communal labour 3) hiring   4) both communal and hiring   5) family and communal labour other (specify) _____

5.4. What type of labor can be hired: -1) daily labour 2) contractual 3) Result/crop shared 4) Others specify_____.

6. Participation on non-farm activities.

6.1. Did you participating on non-farm activities? 1. Yes 2. No

6.2. If you say yes, what non-farm activities did you perform to raise your income? 1) Petty trading (Poetry, Weaving, Tannery, Blacksmithing) 2) consumer shops 3) trading   (animal, crop) 4) casual labor 5) Wood work 6) others_____

6.3. Amount of income obtained from non-farm activities in Birr? 1) per month_____2) per year_____

7. Participation of households in extension package program

7.1. Participation of households in agricultural extension package program? 1) Per week_____ 2) per month_____3) per year_____

7.2. If yes, what was the type of the package you used? 1. Crop production 2. Dairy package 3) Animal fattening 4) small-scale irrigation 5) Poultry and bee keeping 6) others _____

7.3. How did you get finance? 1. My own capital 2. On credit

7.4. If on credit, who was the source? 1) OCSSCO 2) Cooperatives 3) NGOs 4) Bank 5) Private Moneylenders 6) Iddirs and Equb7) Neighbours 8) friends 9) relatives 10) others_____

8. Psychological factors.

8.1 Risk taking ability of farm households

8.2. In your view, is borrowing from financial sources risky? 1) Yes   2) No

8.3. Did you give-up to take loans from lending organizations due to fear of risk in the last 12 Months? 1. Yes 2. No

9. Institutional factors

9.1 Preference for group lending

9.2. Is the group lending preferable to you? 1) Yes   2) No

9.3. If you say yes why? _____

9.4. If you say no why? _____

9.5. Which institution uses it mostly?   1 _____ 2_____ 3_____

9.6. How do you get the loan? 1) In group 2)Individually

10. Transaction cost of lending

10.1. Is the lending procedures difficult to understand, preparing an application letter and filling different formats constraint to you? 1) Yes 2) No?

11. Adequacy of loan repayment period.

11.2. Was the loan disbursement time by lending institutions appropriate to perform your activity? 1) Yes 2) No

11.3. If no, indicate the appropriate duration? _____

11.4. Is loan repayment period of different lending institutions adequate? 1) Yes 2) No

11.5. If you say no, how much month/year enough for repaying of the loan_____?

11.6. If you say no, which organizations' has inadequate loan repayment duration? 1) _____ 2) _____ 3) _____ 4) _____respectively.

11.7 Even if it is not enough which organizations has better repayment period?

1) _____ 2)_____ 3) _____ 4) _____respectively.

11.8. Did you re-pay your loan on time? 1) Yes   2) No

11.9. If no, what is/are the reason/s for not re-paying on time? _____

12. Communication factors

12.1. Have you received extension service from any government and/ NGOs related to credit during the last 12 month? 1) Yes   2) No

12.2. If yes for how many times? _____Per year

12.3. Who provides the extension service? 1) Development agents (DAs) 2) kebele cooperative Organizers 3) OCSSCO workers 4) NGOs 5) others, specify

12.4. How far is your home from the nearest lending institution office? In hrs___ (___kms

12.5. What is your perception about different financial institutions?

No	Credit sources	Agree	Neutral	Disagree
1	OCSSCO is better source of credit to rural households			
2	Eshet MFI is better source of credit to rural households			
3	Commercial Bank of Ethiopia			
4	Cooperatives are better source of credit to rural households			
5	Equbs and Iddirs are better source of credit to rural households			
6	Private money lenders better source of credit to rural households			
7	Informal source of credit better available than formal and semi-formal source for women's			
8	The loan size from Equb and Iddirs source did not satisfy farmers needs			
9	The loan size from informal source did not satisfy farmers needs			
10	The loan size from OCSSCO did			

	not satisfy farmers needs			
11	The loan size from cooperatives did not satisfy farmers needs			
12	OCSSCO control loans not to be used for quite different ends			
13	Cooperatives control loans not to be used for quite different ends			
14	Equbs and Iddirs are restrict loans for specific purpose			
15	Private money lenders restrict loans for specific purpose			
16	Time and distance is a problem to save regularly in the organizations			
17	Sufficient interest rate is paid for depositors			

Part II Open ended questionnaire for focus group discussion interview

1. Farmers Perception of the loan size and loan duration financial institutions

1.1. Was the size of the loan you were provided in this crop season sufficient? 1) Yes 2) No

1.2. What was the maximum amount of money provided by each lending institutions? Specify by the purpose of the loan_____.

1.3. If you were not provided according to your demand, what was your alternative?

_____

1.4. How do you feel about the loan duration provided by different lending institutions?

_____

1.5 .Which institutions provide you better size of loan? _____

1.6. Do lending institutions collect their money on time? How do they collect?

_____

2. Farmers perception on transaction cost of lending in financial institutions in the area?

2.1. How do you evaluate the lending and repayment procedure of financial institutions?

_____.

2.2. What do you feel about timely availability of loan?

_____

2.3. Does the distance of financial institutions influence you in accessing credit? 1) Yes 2) No

If yes, which affect you most_____?

3. Perception on the interest rate levels

3.1. Do you feel that you are getting sufficient interest rate of return for your deposit? 1) Yes 2) No

3.2. What is your perception in the difference between the interest rate paid to depositors and borrowers? 1) Fair 2) Not

3.3. What was the range of the interest rate of each lending institutions?

_____.

3.4. How do you compare the interest rate you are asked by the different lending organizations? 1) Fair 2) Not

3.5. Do lending institutions collect their money on time? 1) Yes 2) No

How do they collect?

4. Farmers perception about outreach financial institutions in the study area.

4.1. How do you see the availability of credit by financial institutions in the study area? 1) Good 2) fair 3) poor

4.2. Do you feel that credit institutions satisfy the credit demands of the farmers? 1) Yes 2) No

4.3. Do lending institutions require collateral in the study area? 1) Yes 2) No

Which lending institutions require it? 1) OCSSCO 2) Eshet MFI 3) CBE

4.4. What are the existing sources of credit available in the area? 1) Formal 2) Informal

4.5. How do you prefer financial institutions one over the other?

_____.

Part III Open ended questionnaire for key informants' interview in the organization

1. What are your criteria's of lending? _____.

2. How much maximum amount of money does your organization give for individual farmers for one budget year? _____

And the amount of interest charged? _____

3. For how long does your organization give credit to farmers in the area? _____

Specify based on type of loan_____

What about the term of payment? _____

4. What strategy you implemented to distribute and repayment the loan?_____

How you see the loan duration of your organization_____

5. How do you monitor or follow up the loan you dispersed? _____

Do you out reach all the kebeles in the district in accessing credit?_____

6. Are there loan defaulters for the last 12 months? _____.

 If so what is the reason behind? _____.