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Microfinance Credit Rationing and Loan Repayment Performance: A Case of Omo Microfinance Konso Sub Branch

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By

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Statement of Certification

This is to certify that Tenishu Meshesha Lemita has carried out his research work on the topic entitled “Micro Finance Credit Rationing and Loan Repayment Performance: A Case of Omo Micro Finance Konso Sub Branch”. The work is original in nature and it is suitable for submission for the reward of the M.sc Degree in Accounting and Finance.

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Abbreviations

ACORD	Agency for Cooperation Research and Development
AEMFI	Association of Ethiopian Micro Finance Institutions
BNM	Bank Nagara Malaysia
CBO	Community Based Organizations
CDF	Cumulative Distribution Function
DBE	Development Bank of Ethiopia
GDP	Gross Domestic Product
IDA	International Development Association
MEDC	Ministry of Economic Development and Cooperation
MFDR	Microfinance Development Report
MFI	Microfinance Institution
MSE	Micro and Small Enterprises
MTDP	Market Towns Development Project
NBE	National Bank of Ethiopia
NGO	Non Governmental Organizations
OMF	Omo Microfinance
POCSSBO	Project Office for the Creation of Small Scale Business Opportunities
SEPDA	South Ethiopia Peoples Development Association
SNNP	South Nation and Nationalities People

Abstract

This study was conducted with the aim of analyzing the factors that affect microfinance loan repayment performance, evaluating the loan rationing mechanism and also assessing the impact of the program on the livelihood of borrowers, using primary data collected through structured questionnaire from 203 respondents.

The estimation results of the descriptive statistics and the probit model show that education, income, loan supervision, suitability of repayment period, availability of other credit sources and livestock are important and significant factors that enhance the loan repayment performance, while loan diversion and loan size are found to significantly increase loan default. In addition female borrowers were found better in terms of loan repayment. According to these findings the institution is recommended to see into these factors with care and design a better lending strategy.

Regarding the loan rationing, borrowers who are literate, loan diverters, support more dependents and earn more income, were disfavored; while those who are older, male, apply for larger loan amounts, own livestock of higher value, perceive supervision as adequate and the repayment period as suitable were favored.

The credit scheme was also found to have positive impact in improving the income, education, health and nutritional status of the borrowers as evidenced by the Wilcoxon test that compares the situations before and after participation in the credit scheme.

***Key Words**: microfinance, loan repayment performance, loan diversion, loan rationing, impact, creditworthy*

CHAPTER ONE

INTRODUCTION

This thesis investigates factors affecting loan repayment performance, mechanisms used in credit rationing, and the impact of microfinance credit program on the beneficiaries' in context of microfinance in Ethiopia, particularly Omo Microfinance Konso Sub Branch.

The purpose of this chapter is to provide background information on the thesis. The remaining parts of the chapter are organized as follows. The first section presents background of the thesis. While the second section sets out statement of the problem with research question. The major and specific objectives of the research are presented in the third section. This is followed by scope and significance of research. In the seventh and eighth limitation and organization of research are presented.

1.1. Background of the study

Ethiopia is one of the lowest income countries in the world. Its economy, which is mainly dependent on agriculture, has been hit by several internal and external shocks. Devastating wars, frequent draughts, high population growth, distorted investment environment, volatile primary product prices, etc have been some of the shocks the economy has been experiencing. These and a lot other factors resulted in the decline of the economy as a whole, while the living conditions of the population have been continuously deteriorating. Specifically during the Dergue period (1974 -1991) the Ethiopian economy was performing very poorly under a socialist oriented command economy (Jemal Abafuta, 1993)

Before 1973 the economy was fairly stable. But after 1974, the economy began to face major political, social and economic instabilities, which reduced the relative performance of the various sectors. Private investment was severely undermined due to policies followed by the Dergue.

After the fall of the Dergue, the government of Ethiopia has taken several measures to reverse the economic decline and worsening poverty situation in the country. According to the report by MEDaC (1999) the Ethiopian economy has registered a recovery in economic performance since the introduction of economic reform program after a period of stagnation and decline for nearly two decades.

As stated above poverty and other economical, political and social problems are the main challenge and fundamental issues of economic development in Ethiopia. The solutions to poverty are multifaceted as are its causes. Many argue that an inadequate supply of credit can affect production negatively. Alleviation of poverty and promotion of economic development can therefore be facilitated through providing credit to the poor.

Wide scale micro financing begun in 1990, following the credit agreement signed between the Ethiopian government and the IDA. The credit program was an urban micro financing scheme that aimed at financing the Market Towns Development Project (MTDP), whose actual operation begun in 1994 (Mengistu, 1997). Since micro-credit delivery and saving mobilization in Ethiopia are being carried out by NGOs, government departments, co-operatives and others in a fragmented and inconsistent way, the government took the initiative to establish a regulatory framework in order to facilitate sound development of the microfinance industry. Accordingly proclamation No. 40/1996 was enacted to provide for the licensing and supervision of the business of micro financing by empowering the NBE to license and supervise them.

Know currently there are about 32 microfinance institutions formally established and operating in the country. Their outreach performance measured in terms of number of borrowers and gross loan portfolio reached more than 2.4 million and Birr 6 billion respectively. Actually they cover only 20% of the demand of the economically active poor (Yitay Elema, 2012).

The primary objective of microfinance institutions is to provide financial services (credit and saving) to the poor in order to release financial constraints and help alleviate poverty. Each MFI tries to maximize its repayment performance, whether or not it is profit oriented. High repayment rates are indeed largely associated with benefits both for the MFI and the borrower. They enable the MFI to cut the interest rate it charges to the borrowers, thus reducing the financial cost of credit and allowing more borrowers to have access to it. Improving repayment rates might also help reduce the dependence on subsidies of the MFI which would improve sustainability. It is also argued that high repayment rates reflect the adequacy of MFIs services to clients needs. Last but not least, repayment performance is a key variable for donors and international funding agencies on which many MFIs still depend for their access to funds. But, there are factors which affects the repayment performance of MFIs.

The main factors influencing repayment are either related to information asymmetries, to adverse shocks affecting the borrower, or to the low performance of institutions such as justice or education. Information asymmetries arise when gain information on the characteristics or on the behavior of the borrower is costly for the MFI. Information asymmetries generate problems of adverse selection -allocation of loans to borrowers with undesirable characteristics such as a high level of risk or inability to take advantage of the loan as well as moral hazard.

The literature on factors influencing loan repayment performance among financial institutions targeting the poor is very sparse and limited mainly to microfinance experience in low-income countries (Derban et al., 2005; Silwal, 2003). The results of the studies show mixed result. Based on past literature, the factors affecting repayment performance of MFIs can be divided into four factors namely individual/borrowers factors, firm factors, loan factors and institutional/lender factors. Several studies (Hoque, 2000; Colye, 2000; Ozdemir & Boran, 2004) show that when a loan is not repaid, it may be a result of the borrowers' unwillingness and/or inability to repay. Stiglitz and Weiss (1981) recommend that the banks should screen the borrowers and select the "good" borrowers from the "bad" borrowers and monitor the borrowers to make sure that they use the loans for the intended purpose. This is important to make sure the borrowers can pay back

their loans. Greenbaum and Thakor (1995), suggest to look at a borrower's past record and economic prospects to determine whether the borrower is likely to repay or not.

Based on the above stated repayment performance problems, the current study was conducted to investigate and examine the factors affecting loan repayment performance arises from two angles, from borrowers and from institutions or lenders. The study also assesses the credit screening mechanisms that are used by the institution to select the good borrowers from the bad borrowers in order to minimize the information asymmetry problems. Lastly it also assesses the impact of credit program on the socio-economic life of the credit beneficiaries

1.2. Statement of the problem

The primary objective of microfinance institutions (MFIs) is to provide finance services (credit and saving) to the poor in order to release financial constraints and to help alleviate poverty. MFIs are usually non-governmental organizations (NGOs) who are not profit-oriented. NGOs assume poverty is created through social processes that deprive the poor of their rightful access to social resources including credit. Theses NOGs help the poor to find credits to support their small enterprises or income-generating activities. These institutions acted as a financial intermediation like formal bank. The difference between formal banks and microfinance institutions is the former focus on rich clients, while the later to clients who are poor people. According to Remenyi (2000), subsidized credit and subsidized banking with poor are inimical to "best practice in microfinance". Moreover, MFIs also offered skills, training and marketing to their clients. The most successful MFI is the Grameen Bank in Bangladesh founded by prof Mohamed Yunus who won the Nobel prize in 2006. MFIs required meeting their member's socio-economic objectives at the same time maintaining its financial viability. Its success or failure in members financing as well as financial position. Therefore, it relies on its loan recovery performance (Gerald Absanto et al, 2013).

The calculation of performance indicators is important for donors, practitioners, and consultants to determine the efficiency, viability, and outreach of MFIs. Performance indicators collect and restate financial data to provide useful information about the financial performance of the MFIs. The sustainability and viability of MFIs is important to make sure that MFIs can continually provide financing to poor without depending on donors and government. Therefore, a financial sustainability is a prerequisite for making microfinance services permanent as well as widely available (Norhaziah, Nawai, 2010). Llanto et al. (1996) argue that to continue providing financial services to the poor on a sustaining basis, the MFIs them self's must be viable and sustainable and the study shows that many of the MFIs far from attaining these goals. Based on institutionist approach (Murdoch, 2000; Woller et al., 1999) MFIs should be cover its operating and financing costs with program revenue and not depend on subsidies and gifts from governments and donors.

Lending to the poor or lower income group raises many debates among practitioners and academicians. The poor are usually excluded from credit facilities because of many reasons. These include insufficient collateral to support their loans, high transaction costs, unstable income, lower literacy and high monitoring costs. Usually they survive through involvement in micro business activities or informal activities that comprises food processing and sales, small scale agriculture, services, crafts and petty trading. However, these activities actually contribute a number of total employment and gross domestic product (GDP) to the country. Micro and small enterprises (MSEs) have been recognized as a major source of employment and income in many countries of the Third World (Mead & Liedholm, 1998).

Microfinance institutions (MFIs) were established to fill the gap in the financial services sector by providing funds to the poor and lower income group and thus alleviating poverty and enhance their business activities. The MFIs provide funds for start-up business or for working capital. In addition, some MFIs also provide funds for non-business activities such as for education and emergencies purpose. In the credit market, agency problem, moral hazard and adverse selection exist because of information asymmetries. Information asymmetries are the main obstacle for

MFIs to provide loans to clients. In addition to information asymmetries there have been other determinants that are considered as an obstacle for MFIs to provide loans to clients. Those determinants affecting MFIs loan repayment performance can be grouped in to four factors namely individual or borrowers factors, firm factors, loan factors, and institutional or leaders factors.

Based on the above stated repayment performance problems, the current study was conducted to investigate and examine the factors affecting loan repayment performance arises from two angles, from borrowers and from institutions or lenders. The study also assesses the credit screening mechanisms that are used by the institution to select the good borrowers from the bad borrowers in order to minimize the information asymmetry problems. Lastly it also assesses the impact of credit program on the socio-economic life of the credit beneficiaries. To achieve the broad objective of the study, the researcher tried to answer the following research questions.

1. What are the factors affecting the loan repayment performance of microfinance institutions specifically Omo microfinance institution?
2. Does the Omo microfinance use the credit rationing mechanisms to select borrowers to minimize information asymmetry problems?
3. What are the major factors used as a means of credit screening in Omo microfinance institution?
4. Do the factors used for credit rationing in Omo microfinance influences loan repayment performance?
5. What is the impact of Omo microfinance credit program on the socio-economic life of the beneficiaries?

1.3. The major purpose of the study

The major aim of this quntitative approach study is to investigate and examine factors affecting loan repayment performance, credit rationing methods and assessing the impact of microfinance credit program of Omo Microfinance (OMF) on the beneficiaries with the special reference to borrowers in Konso sub branch in South nations and nationalities people.

1.4. The specific objectives

The study also proposed to achieve the following specific objectives.

1. To identify the factors those affect the loan repayment performance of Omo Microfinance credit scheme.
2. To assess the impact of the credit program on the beneficiaries in terms of reducing poverty in the study area.
3. To drive policy implications that will help the organization to understand some of the factors behind the loan repayment performance.

1.5. The scope of the study

The study was proposed to investigate and examine factors affect loan repayment performance, credit rationing methods and assessing the impact of microfinance credit program of Omo Microfinance (OMF) on the beneficiaries with the special reference to borrowers in Konso sub branch in South nations and nationalities people. Sustainability of MFIs was depending up on financial, economic, institutional and borrower viability. This study focuses on borrower viability in terms of repaying the borrowed loan amounts. Accordingly the study was focused on factors affecting loan repayment performance, credit rationing methods, and impact of credit program on the beneficiaries in case of poverty reduction based on the data collected from the single woreda. With regard to coverage, the study was limited to Omo Microfinance and it was not considered other credit schemes because in SNNP there is only one microfinance institution operating at the regional level which is OMF, in other case in the study area there is no other institution that provide credit to the people. Only five round loan data was incorporated in the study i.e. 2007/2008, 2008/2009, 2009/2010, 2010/2011, and 2011/2012.

1.6. Significance of the study

As explained earlier, targeting credit to the poor is one of the several instruments of alleviating poverty. MFIs are engaged in providing credit to the poor so that they can generate income and employment for themselves. For these institutions to be able to render such a service on a permanent basis, they should be viable and sustainable. They should not depend on donations or subsidies in the long run. This requires an efficient loan repayment performance as well as an impact to be observed on the target beneficiaries. Therefore, this study will provide some implications on how loan repayment is affected by some factors arise from the borrowers and lender institution itself and how good credit rationing methods improve the loan repayment performance to studied institution in order to able to render a service on permanent basis and should be viable and sustainable.

Although some studies have been conducted on the credit schemes that targeted the poor in Ethiopia, as per the researcher knowledge, no empirical study has been done on credit rationing and loan repayment performance of Omo microfinance (OMF) so far. So this study tries to provide a detailed empirical analysis on the loan repayment performance of OMF. It also tries to investigate the screening mechanisms used by the institution and assess the impact of the program on its borrowers.

In general, the significance of this study is to help the studied institution to use the output of this study in order to address proper loan repayment performance and to achieve their intended future objective. It also provides understandable policy recommendations in order to alter the existing credit policy of institution. Furthermore, it may give some highlights that would serve as a basis for further research and credit policy design in addressing issue.

1.7. Limitation of the study

The quality of the output of this study is dependent on the valid responses from the respondents. Therefore, the respondents are mostly uneducated and the all responses may not be appropriate.

The study also limited to a single institution and sub-branch and it may not provide appropriate generalization to other similar institutions.

1.8. Organization of the paper

The paper is organized in five chapters. Chapter one presents the introduction part. The second chapter shows the critical review of the related literatures relevant to understand the topic of the study deeply. The third chapter deals with the research methodology, which includes the research approach used, methods adopted, population & samples, questionnaire design, research stages and data analysis techniques used. Chapter four contains results and analysis and the fifth chapter summarizes the main results of the study and gives some recommendations. The paper ends with annexed list of reference, and data collection instruments. The following chapter provides the relevant theories related with research topics and empirical review in both Ethiopian context and other countries.

CHAPTER TWO

LITRATURE REVIEW AND RELEVANT THORIES

2.1. Introduction

The main purpose of this literature review is to establish the framework for the study and highlights the apparent strengths and weaknesses of the previous studies, which, in turn, help in clearly identifying the gap in the literature and formulating the research question for the study. This review has three parts; the first part deals with the conceptual and theoretical issues related with research topic, the second part reviews the relevant empirical studies on Microfinance credit rationing and factors affecting loan repayment performance, and the last part deals with conclusions on the literature review and the knowledge gaps.

2.2. Relevant theories

The definition and goals of microfinance institutions, the raise and characteristics of microfinance, the development of microfinance in Ethiopia, credit management policies, credit policy in Ethiopia, loan repayment performance, the need for credit rationing, and impact assessment and sustainability microfinance institutions are incorporated under relevant theories.

2.2.1. Definition and goals of microfinance institutions

The definition of Microfinance institutions proposed by some authors and organizations are seemingly different from one another. However the essence of the definition is usually the same, in which microfinance refer to the provision of financial services primarily savings and credit to

the poor and low income households that don‘t have access to commercial banks (Arsyad 2005). According to Ledgerwood (1999), microfinance is a provision of a broad range of financial services such as savings, credit, insurance and payment services to the poor or low-income group who are excluded from the normal banking sectors.

Microfinance is a development approach that provides financial as well as social intermediation. The financial intermediation includes the provision of savings, credit and insurance services, while social intermediation involves organizing citizens' groups to voice their aspirations and raise concerns for consideration by policy makers and develop their self-confidence (Robinson, 2002). Moreover, Conroy (2002) stated that microfinance is the provision of a broad range of financial services such as deposits, loans, payment services, money transfers, and insurance to poor and low-income households and their MEs. The term evolved from the concepts of "microcredit" and "microenterprise" financing, to include the importance of savings as well as borrowing. Although the terms are used interchangeably, microfinance represents the field as a whole, while the other two terms are more technical and refer only to credit provision (Maria, 2004).

The World Bank defines microfinance as "…. Small-scale financial services – primarily credit and savings – provided to people who farm or fish and who operate small enterprises or microenterprises where goods are produced, recycled, repaired, or sold; who provide services; who work for wages or commissions; who gain income from renting out small amounts of land, vehicles, draft animals, or machinery and tools; and to other individuals and groups at the local levels of developing countries, both rural and urban" (Robinson, 2001). However, Bank Negara Malaysia (BNM) defined microfinance as the provision of small loans/financing up to RM50, 000 to microenterprises or self-employed individuals, for their business activities.

Proclamation No. 626/2009 defines microfinancing business as "the provision of financial services like accepting savings, extend credit, drawing and accepting drafts payable, providing money transfer services and others specified in the Article 3(2) of the proclamation.

Microfinance institutions (MFIs) were established to fill the gap in the financial services sector by providing funds to the poor and lower income group and thus alleviating poverty and enhance their business activities. The MFIs provide funds for start-up business or for working capital. In addition, some MFIs also provide funds for non-business activities such as for education and emergencies purpose. In the credit market, agency problem, moral hazard and adverse selection exist because of information asymmetries. Information asymmetries are the main obstacle for MFIs to provide loans to clients. Financial institutions usually requires business proposal, borrower past credit information and collateral before approving the loan. MFIs offer credit through group-based lending method to mitigate agency problems, moral hazard and adverse selection and to replace the collateral requirement. In group-based lending, borrowers must form a group before applying loans and they also responsible to other loan members. If one member default, the others will be responsible to pay the loan or they will be denied access for the next loans.

The goals of microfinance institution as development organizations is to service the financial needs of un-served or underserved markets as a means of meeting development objectives such as to create employment, reduce poverty, help existing business grow or diversify their activities, empower women or other disadvantaged population groups (poor people or low income people) and encourage the development of new business. In short, microfinance institutions have been expected to reduce poverty, which is considered as the most important development objective (Arsyad 2005).

2.2.2. The raise and characteristics of microfinance

Beginning in the late 1970s, there was recognition that among the obstacles preventing the working poor from improving their lives was the lack of access to financial services. From this developed a new emphasis on establishing financial systems able to reach poor clients on a more sustainable basis than had been possible under previous discredited schemes of directed credit.

The Grameen Bank, established in Bangladesh in 1976 by Professor Muhammad Yunus, developed highly effective techniques for lending to the poor. These were based on techniques such as taking services to the village level, promoting and motivating groups of the poor, use of group guarantees, compulsory savings mobilization, transparency of credit transactions, intensive supervision of borrowers, and decentralized and cost effective operations.

In the 1990s, however, microfinance has captured the imagination of governments, donor agencies, and other opinion leaders in both industrial and developing countries. Microfinance has moved from the margins of the development debate to center stage. It is seen as much more than simply the provision of financial services to poor households, but as a key strategy for poverty reduction in its own right (McGuire and Conroy 2000).

McGuire and Conroy (2000*)* identified three basic characteristics that make MFIs similar in their operation: First, MFIs know their market. The poor are willing to pay for access and convenience. Interest rates are market-oriented, but lending outlets are located near the client, application procedures are simple, and loans are disbursed quickly. Second, they use special techniques to slash administrative costs. Simple procedures are used and approvals are decentralized. Borrower groups often handle much of the loan-processing burden. Third, they use special techniques to motivate repayments. MFIs have developed a range of techniques to ensure high repayment rates, including the use of self-selected groups in which members guarantee each other‘s loans, intensive motivation and supervision of borrowers, incentives for borrowers, progressive lending, and compulsory savings requirements.

2.2.3. The development of microfinance institutions in Ethiopia

Development of microfinance in Ethiopia should be viewed as (a) an identification of considerable levels of unrealized demand and potential market growth for financial services and (b) a shift by the NGO sector and government from relief assistance to sustainable development

which intersects at the point of institutionalization of microfinance provision (Fiona 1999 as cited by AEMFI 2000).

The establishment of sustainable microfinance institutions that reach a large number of rural and urban poor who are not served by the conventional financial institutions, such as the Commercial Banks, has been a prime component of the new development strategy of Ethiopia(AEMFI 2000).

According to Degefa D.(2009:3) in Ethiopia microfinance services were introduced after the demise of the derg regime following the policy of economic liberalization. It is taken as a shift from government and NGO subsidized credit programs to financial services run by specialized financial institutions. With this shift some NGO and government micro credit programs were transformed to microfinance institutions.

Such shift was mainly promoted by a regulatory framework that was put in place to license and supervise the institutions under the country's central bank. The regulatory framework was developed as a part of government's effort to liberalize the financial sector and lay down an alternative institutional framework to provide financial services mainly to the rural poor to boost agricultural production, enable food self sufficiency, and reduce rural poverty.

According to Seifu (2002), the microfinance business in Ethiopia Formally started in 1994-95. Seifu further discusses that, the licensing and supervision of Institution proclamation of the government encouraged the Spread of Institutions (MFIs) in both rural and Urban areas as it authorized them among other things, to legally accept deposits from the general public (hence diversify sources of funds), to draw and accept drafts, and to manage funds for the Micro financing business.

Know there are about 30 microfinance institutions formally established and operating in the country. Their outreach performance measured in terms number of active borrowers and gross

loan portfolio reached more than 2.4 million and birr 6 billion. Actually they cover only 20% of the demand of the economically active poor.

2.2.4. Credit management polices

In the past decades there have been major advances in theoretical understanding of the workings of credit markets. These advances have evolved from a paradigm that emphasis the problems of imperfect information and imperfect enforcement (Hoff and Stiglitz, 1990). They pointed out that borrowers and lenders may have differential access to information concerning a projects risk, they may form different appraisal of the risk. What is clearly observed in credit market is asymmetric information where the borrower knows the expected return and risk of his project, where as the lender knows only the expected return and risk of the average project in the economy.

Lending institutions are faced with four major problems in the course of undertaking credit activity: a) to ascertain what kind of risk the potential borrower is (adverse selection), b) to make sure the borrower will utilize the loan properly once made, so that he will be able to repay it (moral hazard). C) to learn how the project really did in case the borrower declares his inability to repay and d) to find methods to force the borrower to repay the loan if the borrower is reluctant to do so (enforcement) (Ghatak and Guinnane, 1999).

These problems of imperfect information and enforcement leads to inefficiency of credit market which in turn to default. Thorough credit assessment that takes into account the borrowers` character, collateral, capacity, capital and condition (what is normally referred to in the banking circles as the 5C`s) should be conducted if they are to minimize credit risk. Charles Mensah (1999) stressed the importance of credit management as follows:

> Credit management process deserves special emphasis because proper credit management greatly influences the success or failure of financial institutions. An understanding of a bank's credit risk management process provides a leading indicator of the quality of a bank's loan portfolio. The key elements of effective credit management therefore are well developed credit policies and procedures; strong portfolio management; effective credit controls and the most crucial of all a well trained staff that is qualified to implement the system. Financial institutions must maintain basic credit standards if they are to function well and make credit available to investors. These standards include a thorough knowledge of the borrowers' business by the officer in charge; reasonable debt equity ratio; marketability and viability of the investment project and other technical capabilities. Credit analysis is in general vital for the officer to judge about the credit worthiness of the borrower as well as the project to which the loan is injected.

This effective credit management policy is particularly important in the case of small-scale entrepreneurs in LDCs like Ethiopia where most of the borrowers don't have sufficient entrepreneurship capacity to conduct scientific study before deciding on investing in a particular project. It would save the borrowers from undertaking risky project as well as the bank from default risk.

Credit risk evaluation is a complex process, which implies a careful analysis of information regarding the borrower in order to estimate the probability that the loan will be regularly repaid (Vigano, 1993). The probability of regular repayment depends on objective factors related to the borrower's operating environment, the borrower's personal attitude towards loan obligation, and the bank's ability to evaluate these two aspects through the information it has and to control credit risk specific contractual conditions. Vigano summarized factors affecting credit risk as follows: the customer's ability and willingness to pay, presence of favorable external conditions, quality of information and bank's ability to ensure the customers willingness to pay.

2.2.5. Credit policy in Ethiopia

The formal and informal financial sectors are the principal sources of finance for any investment or business that can be undertaken at micro, small-scale and large-scale levels in an economy. The major financial institutions in the formal financial sector in Ethiopia are the Commercial Bank of Ethiopia (CBE) and the Development Bank of Ethiopia (DBE). As Dejene (1993) noted, because of the elaborate paper work, bureaucratic lending procedures and stringent collateral requirements, the institutions do not deliver credit as and when needed. Moreover they operate at high transaction costs. During the imperial regime, the banking sector was partly owned by foreigners and the lending policy was mainly oriented to financing foreign enterprises and wealthy clients while domestic small borrowers were rationed out and forced to seek credit from informal finance (Mauri, 1997).

Moreover branch concentration was in few urban centers, with Addis Ababa alone, for instance, accounting for 64 percent of branches in the country. Collateral requirements were up to 200%. The agricultural sector was almost neglected because financial institutions considered agricultural activity as risky investment (Itana, 1994).

During the Dergue regime (1974-1991) all financial institutions were nationalized and credit was mainly channeled to public enterprises, state farms and cooperatives. The provision of credit was not based on economic rationality but entirely on government preference. The private sector was marginalized. The discrimination against the private sector was not only in credit access but also in interest rate, which was for instance 9% for private sectors as opposed to 6% for public industrial enterprises since July 1986 (Itana, 1994).

Abreham (2002) noted that with the downfall of the Dergue, the private sector got equal access to credit with other sectors, banks were also given autonomy to decide by themselves based on purely commercial criteria and establishment of private banks and insurance companies was

permitted. As a result loan disbursed to the private sector, which was 49% in 1992/93 rose considerably and reached 87.7% in 2000/01. In fact there is still unsatisfied demand for credit from this sector of the economy due to inability to meet banks' lending requirements.

As Solomon (1996) noted the banks serve big businessmen and disregard poor households as bankable. Many small, creditworthy businessmen, with their viable investment ventures, are denied access to institutional credit because they couldn't afford the required collateral. He also indicated that,"Overall; the prevailing operation of the formal financial institution in many low income countries such as Ethiopia is inefficient in providing sustainable credit facilities to the poor."

Regarding delivery of financial services access to institutional credit was very limited in Ethiopia. Because of this limited access, the majority of the poor get financial services through informal sources like moneylenders, Iqub, Iddr, merchants, friends and relatives, etc. The formal financial sources have not been interested in delivering credit to the poor. Even if the banks in the country, which are part of the formal financial sources decide to give credit to the poor (as in the case some banks have been forced to do so during the Derge regime) their outreach was also very limited for long. Thus, delivering financial services to the poor requires an innovative targeting deign and a mechanism of credit delivery that helps identify and target only the poor who can take the initiative and sustain productive use of loans. In recent years the informal and semi-formal lending institutions (such as Iqub, Iddir, money lenders etc.) are becoming the dominant and important sources of finance for poor households in Ethiopia. According to Dejene (1993) these two institutions account for 81% of the agricultural credit.

Currently, the establishments of sustainable and profitable microfinance institutions that serve large number of poor households have been a prime component of the new development strategy of Ethiopia (Wolday, 2000). NGOs have also been directly funding micro credit activities as part and parcel of poverty alleviation program since the 1970s.

2.2.6. Loan repayment performance

Arene (1992) outlines the main factors that determine loan repayment performance as loan size, enterprise size, income, age, number of years of business experience, distance between home and source of loan, education, household size, adoption of innovations, and credit needs.

Von Pischke (1980) identified two problems as major causes of poor loan recovery performance: credit project design problems and credit project implementation problems. Credit project design problems include debt versus equity, realism versus aspiration (how realistic the projection of the project designer is), expected value versus dispersion (detailed consideration of the variety of results which occur in the field), book keeping convenience versus borrower cash flow patterns, collection mechanism, institutional scope or range of services offered and interest rates. Credit project implementation problems include low service levels, coordination, access (i.e. information problem and lack of decision making experience in lending to specific target groups) and financial recording (ibid)

The findings above revealed that the probability of loan repayment depends on the borrowers' specific characteristics (i.e. age, education, experience, gender, household size, loan utilization), loan contract terms (i.e. repayment installment, collateral, frequency of maturity, grace period, loan volume, interest rate, number of disbursement) and other factors such as political influence, technical advice, level of social cohesion (for micro enterprises).

2.2.6.1. Theoretical perspectives on loan default problems

There are several factors that have been attributed to the high default rates in saving and credit institutions. At one hand, there are those who argue that characteristics of small-scale enterprises make the cost of administering credit very high compared to the return on the loans.

Small scale enterprises possess shallow management, often with little experience and training; they are usually undiversified, one product firms, they are sometimes new businesses with little

track record, and poor financial recording; they may have a new unproven product; they have little to offer by way of security to a lender; they may be reluctant to raise outside equity capital for reasons of expense, loss of control and increased disclosure requirements.

These characteristics of small-scale enterprises provide little incentive for any aggressive loan recovery mechanisms (Beker and Dia, 1987). On the other hand, there are those who argue that the failure of lending agencies in playing their roles in loan disbursement and recovery process is a major contribution to loan default (Vigano, 1993). Different authors recommend tackling the problems raised on the side of borrowers, lending institutions and government as solution to the default problem attributed to small-scale enterprises in developing countries (Stiglitz and Weiss, 1981).

2.2.6.2. Repayment performance in group lending

Since the 1970s, group-lending programs have been promoted in many developing countries. A common characteristic of group lending is that the group obtains the loan under joint liability, so each member is made responsible for repayment of loans of his or her peers. Joint liability, but possibly more so, the threat of losing access to future credit, incites members to perform various functions, including screening of loan applicants, monitoring the individual borrower's efforts, fortunes and shocks, and enforcing repayment of their peers' loan. (Zeller,1996).

The existing theoretical models of peer monitoring deduce that repayment performance in group lending programs is positively related to the homogeneity of members with respect to the riskiness of their projects (Stiglitz, 1993; Besley and Coate, 1995). In group-lending programs, the functions of screening, monitoring and the enforcement of repayment are to a large extent, transferred from bank to group members. The financial intermediary reduces recurrent lending transaction costs by replacing a multiple of small loans to individuals with a larger group loan (Adams, 1988 as cited in Zellar, 1996). This reduction in transaction costs enables financial

intermediaries to bank with poor, who demand small loans and who would not receive any credit under an individual loan contract because of excessive unit transaction costs of tiny loans.

Zeller (1996) argues that probably the most important rationale for group lending is the information and monitoring advantages that group-based financial institutions at the community level have, compared to individual contracts between a bank and borrower. Group members get important information like reputation, indebtedness and asset ownership of the loan applicants at a lower cost. They can also easily monitor individual efforts made towards ensuring repayment.

In addition, groups may also have a comparative advantage in enforcement of loan repayment. Group members can potentially employ social sanctions or even seize physical collateral from the defaulter (Besley and Coate, 1995). Moreover, group members appear to be in a better position to assess the reason for default and to offer insurance services to members who are experiencing shock that are beyond their control (Zeller, 1996).

Despite all the above-mentioned benefits, group lending is not without its problems. There are several factors that may undermine the repayment performance in group lending. Zeller (1996) discusses that since the risk of loan default by an individual is shared by his or her peers, a member may choose a riskier project compared to that in the case of individual contract, and may count on other members to repay his or her loan (i.e. adverse selection of risky projects). He further notes that repayment incentives for a good borrower will vanish under joint liability, when he or she expects that significant number of peers will default. Individuals select those whom they thrust to form a group with that is they want those who can make regular repayments, have a good concern about the possible loss they face in case of non repayment, ultimately leading to the exclusion of the poorest of the poor.

Reinke (1996) assessed the factors that lead to the failure of group based lending system in urban areas and went on to the extent that he recommended an individual credit system for a better loan repayment. According to him presence of high geographical mobility, low attachment to specific

neighborhoods and peer groups consisting of competitors are the factors that frustrate the solidarity of groups in urban areas, and hence group lending is more applicable to the rural environment than to urban society.

2.2.7. The need for credit rationing

Lending institutions are faced with four major problems in the course of undertaking credit activity: a) to ascertain what kind of risk the potential borrower is (adverse selection), b) to make sure the borrower will utilize the loan properly once made, so that he will be able to repay it (moral hazard), c) to learn how the project really did in case the borrower declares his inability to repay and d) to find methods to force the borrower to repay the loan if the borrower is reluctant to do so (enforcement) (Ghatak and Guinnane, 1999).

The key elements of effective credit management therefore are well developed credit policies and procedures; strong portfolio management; effective credit controls and the most crucial of all, a well trained staff that are qualified to implement the system (Vigano, 1993).

2.2.7.1. Credit market and rationing

The market for credit differs from standard markets for goods and services in two important ways. As we know from the classical competitive theory, the first difference lies in the fact that in standard markets a number of agents take part in buying and selling a homogenous commodity. The second difference lies in the fact that the handover of the good or service and the payment for it occur simultaneously in such markets.

In contrast, credit received today by an individual is exchanged for a promise of repayment in the future. Since promises differ from person to person, and are frequently broken, there may be no objective way of determining that a promise will be kept. That is, moral hazard and adverse selection may affect the likelihood of the promise being kept and hence of that of loan repayment (Jaffe and Stiglitz, 1990).

Considering such basic differences between standard and credit markets, trying to apply the standard supply-demand model is not totally appropriate for analysing the market for promises. If credit markets were like standard markets, then interest rates would be the prices that equate the demand and supply for credit. However an excess demand for credit is common applications for credit are frequently not satisfied, resulting in an excess demand for credit over its supply at the market interest rate (Ibid). This situation is usually termed as credit rationing in the literature. The question to be raised here will be why is credit rationed? The whole story seems to hinge on the fact that prices don't clear the market for credit. In fact credit rationing exists, and this seems to imply an excess demand for loanable funds.

As Stiglitz and Weiss (1981) noted, one way of explaining this condition associates it with short or long term disequilibria. In the short term it is viewed as temporary disequilibrium phenomenon; i.e., the economy has incurred an exogenous shock, and for reasons not fully explained, there is some stickiness in the prices of capital (interest rates) so that there is a transitional period during which rationing of credit occurs. On the other hand long term credit rationing is explained by governmental constraints such as usury laws or minimum wage legislation.

Jaffe and Stiglitz (1990) discuss certain features of loan contracts and loan markets that make standard demand and supply model inapplicable, giving rise to credit rationing. These features include uncertainly the nature of loan contracts, and borrowers risk behavior. For instance, uncertainty concerning the borrower's ability, or willingness of repaying loans when they are due, results in divergences between promised and actual repayments, creating risk of default. Since the response of lenders to uncertainty is determined in part by the extent of their risk aversion, they may use credit rationing to reduce default risk.

Loan contracts specify the amount borrowed, the interest and non-price terms like collaterals, which constrain the borrower in order to reduce default. As the terms of contract change the

behavior of the borrower is likely to change. For instance, raising the interest rate decreases the return on projects that succeed. This could be due to the fact that higher interest rates induce borrowers to undertake projects with lower probability of success but higher returns when successful.

Stiglitz and Weiss (1981) argue that the interest rate banks charge may affect the riskiness of the pool of loans by either sorting potential borrowers (the adverse selection effect); or affecting the actions of borrowers (the moral hazard or incentive effect); both deriving directly from the residual imperfect information that is present in loan markets after evaluating loan applications.

Since lenders are not able to control all the actions of their borrowers directly, they formulate the terms of loan contract in such a way that induces the borrower to act in the interest of the lender. For this reason the expected return by the lender may rise less rapidly than the interest rate; and, beyond a point may actually decline. Clearly at such an interest rate beyond which the expected return to the lender starts to decrease, the demand for credit exceeds the supply of loans. The lender wouldn't give a loan to an individual who offers higher interest rate since its expected return is lower. Hence there are no competitive forces resulting supply to equal demand and credit is rationed. The same is true with increasing the collateral requirements beyond some point. (Ibid)

Consequently, it may not be profitable to raise the interest rate or collateral requirements when a lender has excess demand for credit; instead lenders deny loans to borrowers. Hodgman (1960) considered risk of default as a reason for banks not to raise loan rates even though they face an excess demand.

Credit rationing is broadly defined as a situation where the demand for loans exceeds the supply of loans at the going interest rate. Different types of credit rationing have been examined in the literature. Pehlivan (1996) as cited in Abreham (2002) saw it from the angle of loan size where borrowers receive a lesser amount of loan than they requested at a given loan rate.

Stiglitz and Weiss (1981) defined loan rationing as a situation where among loan applicants who appear to be identical some receive loans and others don't, even if these rejected ones offered to pay a higher interest rate or equivalently, some identifiable groups of individuals who, with a given supply of credit, are unable to obtain loans at any interest rate, even though with a larger supply of credit, they would. Jaffe and Stiglitz (1990) further broadened the classification and identified four types credit rationing. These are: - 1) A situation where a borrower may receive a loan of smaller amount than desired; 2) A situation where some individuals cannot borrow at the interest rate they consider appropriate based on what they perceive to be their probability of default; 3) A situation where a borrower may be denied credit, when a lender thinks of not being able to obtain its required return at any interest rate.

2.2.8. Impact assessment and sustainability of microfinance institutions

Microfinance institutions have become an increasingly important component of strategies to alleviate poverty. Hence, knowledge about the achievements of such programs is important. Impact assessment studies are essential to evaluate the success of the program or to see whether the program brings the desired benefits to the target groups. Hulme (2000) noted that impact assessment studies have become increasingly popular with donor agencies, and in consequence, have become an increasingly significant activity for recipient agencies.

There are two major schools of thought that are popular in microfinance impact assessment. Hulme (2000) terms them as 'intermediary' and 'intended beneficiary' schools, based on their focus of impact. The intermediary school focuses purely on changes in the MFI and its operations. Two key variables are focused on in this approach: institutional outreach and institutional sustainability (Yaron, et al, 1997). If both outreach and sustainability have been enhanced then the intervention is judged to have a beneficial impact as it has widened the financial market in a sustainable fashion.

This is based on the assumption that such institutional impacts extend the choices of people looking for credit and savings services, and that this extension of choice ultimately leads to improved micro enterprise performance and household economic security. Though this holds in theory, it has failed to be valid in a number of experiences (Hulme, 2000). The intended beneficiary approach focuses on the intended target group or clients rather than the institution delivering the financial services. The units of assessment in this case are the ones developed by USAID's AIMS project that seeks to assess impact at household, enterprise, individual and community levels. This approach is believed to produce a fuller picture of overall impacts (Chen and Dunn, 1996 as cited in Hulme, 2000).

Conventionally, economic indicators have been widely utilized in assessing the impact of microfinance where assessors are particularly interested in measuring changes in income, expenditure, consumption and assets. Sebsatd et al. (1995) distinguish between 'domain of change' (e.g. household income) and 'markers of change' (e.g. amount of income, number of income sources and seasonality of income) within each domain. Fidler and Webster (1996) discussed that although it is often difficult to control for other variables, comparing the income of participants to that of non-participants is possible in measuring impact. This is usually called 'the control group approach' in the literature. Concerning about the control group approach, Hulme (2000) explains that it requires a before and after comparison of a population that are in a microfinance program and an identical population that didn't participate in the program. He argues that despite being elegant, this approach has such problems as sample selection bias, miss-specification of underlying causal relationships and respondent motivation.

In practice it is not only difficult but also extremely costly to find and establish control groups exactly similar to that of the group of program participants. Some assessors use a cross-sectional impact methodology that uses new borrowers as a control group to solve such difficulties. This approach compares repeat borrowers to new ones and then calls any difference between these two groups the 'impact' of the program. Karlan (2001) discusses the perils of using new clients as control group and suggests solutions to some of the notable problems with such a methodology.

Other researchers have tried to use the production function approach, which considers credit as one input. But as is criticized by Adams (1988) credit is a means of acquisition of inputs and not an end in itself.

Another approach put forward by researchers as a solution is comparing the borrowers' livelihood before and after taking loan. Such an approach has been suggested by Fidler and Webster (1996). Again as with the above methodologies this approach has its limitations like respondents not giving accurate information of loan use if they actually diverted their loan, difficulty in knowing whether an increase in income is due to the credit or not, etc.

Coming to issues of sustainability Yaron (1994) discussed that the two most important objectives for a rural financial institutions to be successful are financial self-sustainability and more outreach to the target rural population. Financial self-sustainability is said to be achieved when the return on equity, net of any subsidy received, equals or exceeds the opportunity cost of funds. On the other hand, outreach is assessed on the basis of the type of clientele served and the variety of financial services offered; including the value and number of loans extended, the value and number of saving accounts, the number of branches and sub-branches, percentage of total rural population served, the real annual growth of the rural financial institutions' assets over recent years and the participation of women clients (ibid). Sustainability relates to the ability of a program to continuously maintain its activities and services in order to meet its objectives. For micro financing operation to be effective and successful there should be sustainability. Snodgrass (1997) argues that a successful micro enterprise support program is defined in terms of outreach, financial sustainability or socioeconomic impact.

According to Khandker et al. (1995) the concept of sustainability of microfinance can be divided into four interrelated ideas; namely, financial viability, economic viability, institutional viability and borrower viability. Financial viability relates to the fact that a lending institution should at least equate the cost per each unit of currency lent to the price it charges its borrowers (i.e. the interest rate). Economic viability relates to meeting the economic cost of funds (opportunity cost)

used for credit and other operations with the income it generates from its lending activities. Institutional viability is related more too efficient management and decision-making process. Borrower viability however, refers to whether the borrowers of the institution have achieved higher flows of income over time and is able to repay back their loans. It is this concept of sustainability (in addition to financial sustainability) that is given more emphasis in this study.

2.3. Empirical review

Von Pischke (1980) identified two problems as major causes of poor loan recovery performance: credit project design problems and credit project implementation problems. Credit project design problems include debt vs equity, realism vs aspiration (how realistic the projection of the project designer is), expected value vs dispersion (detailed consideration of the variety of results which occur in the field), book keeping convenience vs borrower cash flow patterns, collection mechanism, institutional scope or range of services offered, interest rates. Credit project implementation problems include low service levels, coordination, access (i.e. information problem and lack of decision making experience in lending to specific target groups) and financial recording.

A descriptive analysis made by Adeyemo (1984) on loan delinquency in multipurpose cooperative union in Kwara state, Nigeria, based on 1020 borrowers (80% of the population) revealed that natural calamities, crop failure due to pest, poor storage facilities, lack of adequate transport facilities, sales income, farm income, farm size, education, tenure status of the borrowers are factors associated with loan delinquency.

The study conducted in Nigeria based on 45 sample small holder farmers by Okorie (1986) provided empirical evidence and quantification of the extent to which some factors influence loan repayment among smallholder farmers in developing countries with particular reference to Ondo state. Based on his correlation analysis, these factors and their correlation coefficients with their signs are identified as follows: number of disbursement (+0.372), time of disbursement (+0.658),

number of supervisory visits by credit officers after disbursement (+0.411) and the profitability of enterprise on which loan funds were invested (+0.309).

According to Hossain (1988) Grameen Bank has made a positive contribution to the alleviation of poverty in the areas of its operation. It has successfully reached its target group with credit, and has ensured both productive utilization of loans and their recovery in due time, thus helping to improve the living standard of more than 90% of the participants.

In Nigeria, Njoku and Odii (1991) studied determinants of loan repayment under the Social Emergency Loan Scheme. Their study showed that late release of loans, complicated loan processing procedures, loan diversion to non- agricultural enterprise low enterprise returns resulting from low adoption rate of improved agricultural technologies and emphasis on political considerations in loan approvals contributed to poor loan repayment performance of small holders. Loan volume, years of formal education, household size and interest paid on loan were found to positively and significantly affect loan repayment; while years of farming experience, loan period, farm size, farming as major occupation, farm output and value of assets were found to negatively and significantly affect loan repayment.

A study made on loan repayment determinants under the Social Emergency Loan Scheme (SEALS) in Nigeria by Njoku and Odii (1991) employing multiple regression model based on 300 sample beneficiaries (9.3% of the total population) indicated that poor loan repayment performance was due to late release of loan funds, cumbersome loan application and disbursement procedures and emphasis on political considerations in loan approvals.

An empirical study made by Ajayi (1992) employed correlation and multiple regression analysis based on 128 samples (62.7% of population) about factors affecting default in residential mortgages of the Federal Mortgage bank of Nigeria. His results revealed that cost of construction, monthly repayment, loan to valve ratio, market value of property, age of borrower and annual

income of borrower enhance loan defaults, while expected rental income from property reduces loan default.

Vigano (1993) employed credit scoring model for development bank based on 118 sample borrowers in the development bank of Burkina Faso. He found out that being women, married, aged, more business experience, value of assets, timeliness of loan release, small periodical repayments, project diversification and being a pre-existing depositor are positively related to loan repayment performance. On the other hand, loan in kind, smaller loan than required, long waiting period from application to loan release and availability of other source of credit were found to have negative relation with loan repayment performance.

Kashuliza (1993) used a linear regression model to analyze determinants of loan repayment in smallholder agriculture in the southern highlands of Tanzania. His study showed that level of education, attitude towards repayment; farm income and off-farm income positively affect loan repayment with farm income being significant, while age, household expenditure and household size have negative influence on loan repayment performance with household expenditure being significant.

Quite several studies have been conducted in different developing countries regarding micro credit performance in terms of loan repayment and impact. Hunte (1996) examined the credit rationing technology of lenders and the repayment behavior of borrowers at a rural financial institution based on 504 sample observations. Loan rationing equation and loan repayment equations estimated employing tobit model using survey data at Guyana Cooperative Agricultural and Industrial Development Bank revealed that only 33% of the criteria utilized identified credit worthy borrowers implying that the screening technology was not efficient and needed to be repaired. The results also indicated that tightening the loan contract terms by reducing the grace period on loans and rejecting applications which had long processing times enhanced the pool of credit worthy borrowers. Female borrowers were also not rationed differently than male borrowers, nor were they worse re-payers than male borrowers (i.e. the variable gender was

insignificant in both equations), but wealthy borrowers were bad credit risks as their repayment performance were poor. In general, the study showed that only four out of twelve explanatory variables (fishing, males in food crops and livestock, credit experience and sugar cane) enhance creditworthiness, while other variables especially grace period, delays, and joint borrowers contribute significantly to the default problem.

Zellar (1996) analyzed the determinants of loan repayment of credit groups in Madagascar with the purpose of quantifying the effect of intra-group pooling of risky assets or projects by controlling for community level and program design factors that influence the repayment rate of groups' loan. He employed a tobit model using a data set on groups from six different lending programs. The results showed that socially cohesive groups pool risks by diversifying the members' asset portfolio so that their repayment performance is improved even in communities with high risk exposure Groups with higher level of social cohesion as measured by the number of common bonds, have a better repayment rate. Moreover the results also indicated that it is not the level of physical and human assets of group members but the degree of variance of such assets among members that leads to better repayment, by pooling risks among group members.

An increase in net enterprise income of 93% was observed for borrowers of Indonesia's Bank of Rakyat in a similar study conducted to see the impact of the banks micro financing scheme (Fildler and Webster, 1996). In general, most impact assessment studies show improvements in quality of life and the positive impact of microfinance's in poverty alleviation. However, even the famous Bank (the Grameen Bank) is currently facing an increase in the number of dropouts that affect its contribution to poverty reduction and the viability of the program and its borrowers in the future (Karim and Osada, 1998).

Chirwa (1997) used probit analysis and estimated the probability of agricultural credit repayment utilizing data from five Agricultural Development Divisions in Malawi. The result based on 1237 sample farmer club members showed that the availability of resources from crop sales and income transfers, the size of the club, the degree of diversification and the quality of information determined the probability of repayment while, other factors such as amount of loan, gender of

household's head, size of household and club experience was not statistically significant. Crop sales, income transfers, degree of diversification and quality of information are positively while size of club is negatively related with the probability of repayment.

Hulme (2000) stated that, Impact analysis for any credit program is essential to evaluate the success of the program or to see whether the program brings the desired benefits to the target groups. In recent years impact assessment has become an increasingly important aspect of development activity as agencies, and particularly aid donors, have sought to ensure that funds are well spent.

2.3.1. Review of studies on microfinance and other related credit schemes in Ethiopian case

Coming to studies on impact analysis, Kassa (1998) in his study of the impact of micro financing under the micro enterprise project scheme in southern Ethiopia has reported growth in income, employment, consumption and medical expenditure of the beneficiaries after the loan. Using Wilcoxon Matched Pairs Non-Parametric test, he also indicated that the average income after the loan is greater than that before the loan, in all the three loan cycles. Berhanu (1999) also used Wilcoxon test and found that health, education and consumption expenditures have increased after loan compared to that before loan. Employment and household income have also increased after the loan. But he found unsatisfactory results for saving mobilization, as POCSSBO did not attach the saving facility with its credit program or facility.

In Ethiopia an econometric estimation was conducted by Mengistu (1997), based on survey data, on the determinants of loan repayment performance and efficacy of screening mechanism in urban Ethiopia, taking the case of Awassa and Bahir Dar towns. The estimation result using binomial probit model revealed that for Awassa, the number of persons employed and weekly installment repayment period are significantly and positively related with repaying loan in full while loan diversion is significantly and negatively related. In terms of the probability of falling

in either of the groups, it is found that there is 53% probability of repaying loan in full. In the case of Bahir Dar, loan expectation and number of workers employed have a positive relation with full loan repayment while loan diversion and availability of other sources of credit have a negative impact. The predicted probability of full loan repayment in this case is 78%. He employed 352 sample beneficiaries for the case of Awassa and 409 for Bahir Dar.

Concerning the Loan Rationing Mechanism, for the case of Awassa, seven out of nine variables are statistically significant. Loan size, supervision visits, weekly repayment period and loan diversion are positively related with loan rationing ratio. In the case of Bahir Dar, loan size, expectation for another loan and availability of other credit sources are positively related with loan rationing ratio while number of workers employed, supervision visits and loan diversion have negative impact. The results from the two equations imply that for the case of Awassa, literate and aged borrowers were incorrectly rationed despite being good payers while loan diverters and large loan applicants were not rationed but they were actually non-creditworthy borrowers. In the case of Bahir Dar micro enterprises which created employment and those which required more supervision visits were incorrectly rationed despite the fact that they were good payers while borrowers that applied for relatively larger loan amounts and those that had other sources of credit were not rationed properly but they accounted for repayment problems.

Berhanu (1999) and Teferri (2000) made an attempt employing a binomial probit model on determinants of loan repayment performance of micro enterprises with particular reference to project office for the creation of small scale business opportunities in Addis Ababa and Dedebit credit and saving institution in Tigray respectively. Birhanu found that loan diversion, loan size and monthly income were undermining factors while beneficiaries' age, perceived cost of default and suitability of repayment period were enhancing factors of loan repayment. Based on 2348 sample beneficiaries Teferri also came up with the result that education and size of loan are significant determinants in all the three cases (i.e. urban, rural and all sample beneficiaries) their sign being positive and negative respectively. Other variables such as gender, timeliness of loan disbursement and monthly income are positively and significantly related with loan repayment in

rural and whole sample beneficiaries while loan diversion is negatively and significantly related with full loan repayment in urban and whole sample beneficiaries.

Fantahun (2000) also estimated a binomial probit model on Agency for Cooperation in Research and Development (ACORD) based on 200 clients fewer than 18 Community Based Organizations (CBOs) in Dire Dawa town. The estimation result shows that the coefficients for other income sources, loan supervision visits, perceived cost of default, income from loan financed business and interest rate are all significant and positively related to full loan repayment.

In another relevant study by Abreham (2002) an investigation of determinants of repayment status of borrowers and criteria of credit rationing were conducted with reference to private borrowers around Zeway area who are financed by the DBE. The estimation result employing tobit model revealed that having other source of income education, work experience in related economic activity before the loan and engaging on economic activities other than agriculture are enhancing while loan diversion, being male borrower and giving extended loan repayment period are undermining factors of loan recovery performance. With regards to loan rationing mechanism, it was found that borrowers who secured high value of collateral and those with relatively longer period were favored while those with higher equity share and extensive experience in related activity were disfavored. This leads to the conclusion that the bank's rationing mechanism didn't much with the repayment behavior of the borrowers.

Bekele et.al. (2003) employed a logistic regression model to analyze the factors influencing loan repayment performance of smallholders in Ethiopia. The authors used data on 309 borrowers of input loans in the Oromia and Amhara National Regional states and found out that individuals who took larger loans had better repayment performances than those who took smaller loans. Further the results of the study revealed that late disbursement of inputs purchased by the loan funds was an important bottleneck in loan repayment while livestock were found to be important in improving the farmers' repayment performance.

Setargie Samuel (2011), attempted to highlight several incidences of default risks in microfinance industry. In order to address the issue, the researcher used primary data collected through structured questionnaire and revered secondary source of data. The outcomes of the study revealed that the MFIs default rate increased over the review period and averaged 27.1% as well. The core factor of default was found to be poor business performance in terms of low profitability or business losses. Besides, credit diversion to unprofitable uses, domestic problems, numerous dependents, and tenancy problems were other factors that caused credit default. Further, the inference results of the descriptive statistics and the probit model show that education, income, loan supervision, suitability of repayment period, and availability of other credit sources are important and significant factors that enhance the credit repayment performance, while credit diversion and loan size were found to significantly increase credit default.

Yitay (2012) employed conventional financial performance and sustainability indicators and non-parametric DAE malmquist total factor productivity index model to evaluate the institutional performance and sustainability of six microfinance institutions. The result of the study was conventional financial performance and sustainability indicators revealed that all MFIs'outreach performance has increased during the study period. In the study the researcher identified that, technological change has higher value relevance than technical efficiency gain. By decomposing technical efficiency the researcher also observed pure technical efficiency gain has a substantially higher explanatory power than scale efficiency gain.

2.4. Conclusion and research gap

In general, all the above studies (except two, namely: Mengistu, 1997 and Abreham, 2002) focus on assessing impact of the credit schemes on borrowers and loan repayment performance of the borrowers. The two studies pointed out above (Mengistu, 1997 and Abreham, 2002) focused on

investigating the determinants of loan repayment performance and loan rationing mechanisms of micro enterprises and small-scale businesses, respectively. Hence analyzing determinants of loan repayment, loan rationing and impact all in one may give a wider perspective of the sustainability of MFIs, which none of the above studies did.

Therefore, the current study similarly focus on microfinance institution sustainability regarding its loan repayment performance and how the credit rationing mechanism also affect repayment performance and it also assess the impact of credit scheme on loan beneficiaries with special reference to Omo microfinance Konso sub branch in SNNP. As per the researcher knowledge, there is no similar research conducted on Omo microfinance institution especially in Konso sub branch office.

In general the above chapter states the relevant theories related with the research topic and also reviews some empirical in case of both Ethiopia and other countries. The next chapter provides the research methods employed and model used in the study.

CHAPTER THREE

RESEARCH METHODOLOGY

The purpose of this part is to present the underlying principles of research methodology and the choice of appropriate research method for the study. This part is arranged as follows: the research designs i.e. the research approaches will be used in general are summarized in section 3.1. The second section of this part focus on research methods will be used to collect reliable data in order to achieve the major objective of this thesis. This section is start with survey design 3.2 which is followed by sample design 3.2.1 and this sub-section also followed by sample size 3.2.1.1, and sample selection methods 3.2.1.2, proposed data collection instruments 3.2.2, and data analysis methods 3.2.3.

3.1. Research Design

The inquiry paradigm in the research is generally predisposed by a researchers existing knowledge and believes. These believes represent haw the researcher views and seeks to understand the world. The two extremely contradicting paradigms are positivism and constructivism. Thus, positivist researchers normally adopt quantitative methods and constructivist researchers adopt qualitative methods. The other paradigm is combination of positivism and constructivism (that is mixed method). Thus, this section includes the philosophy of quantitative in section 3.1.1, qualitative in section 3.1.2, and mixed methods approaches in section 3.1.3 respectively.

3.1.1 Quantitative research approach

A quantitative approach is one in which the investigatory primarily uses post positive claims for developing knowledge, employs strategies of inquiry such as experiments and surveys, and collect data on predetermined instruments that yield statistical data (creswell, 2003). Leedy and

ormrod (2005) explains that a study is classified as quantitative, if the researcher wants to quantify the variation in a phenomenon, situation, problem or issue, if information is gathered using predominantly quantitative variables (interval and ratio scales), and if the analysis is geared to ascertain the magnitude of the variation.

Quantitative research is the systematic and scientific investigation of quantitative properties and phenomena and their relationship. The positivism approach views that the world as objective realism and therefore suggested that knowledge created by deductive reasoning where by a precise and systematic process is adopted (McKerchar, 2010). Besides quantitative research is to develop and employ mathematical models, theories, and hypotheses pertaining to natural phenomena. The process of measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of an attribute. i.e., in this approach, the research problem translated to specific variables and hypotheses. As the literature on research methodology indicates, quantitative research approach it usually starts with a theory or a general statement proposing a general relationship between variables. With this approach, it is likely that the researchers will take an objective position, and their approach will be to treat phenomena as hard and real. As a result proposing of such studies claim that quantitative research would undertaken in a value free framework. In line with this quantitative research tests the theoretically established relationship between variables using sample data with the intention of statistically generalizing for the population under investigation.

Quantitative research favor methods such as experiments and surveys, and will attempt to test hypotheses or statements with a view to infer from the particular to the general. This approach typically concentrates on measuring or counting and involves collecting and analyzing numerical data and applying statistical tests. Well-formulated quantitative research has a significant contribution of generalizing of the broader population. This leads to consistent procedures in sample selection, instrument design, implementation, and analysis. This consistency in turn increases the replicability of procedures, and the reliability of findings helpful to mitigate interviewee biases.

Apart the above significant contribution, quantitative research design has its own insignificancy. Like quantitative research based on the assumption that research procedures (instrument design, sample selection, measurement decision, and implementation) can standardized, and would lead to reliable outcomes. In practice, this may not be easy for a number of conditions. First of all the research problem may require creating of new ideas, which is impossible through structured procedures. Secondly, due to absence and access of information about the population and for the achievement, the sample selected may not be representative of the population under study. This would bring as insignificance, which may compromise the reliability of findings. Also in the case of preparation of questions and document analysis bias may be inducing. For instance, in the case of designing survey questions, the researcher may use wordings, which would lead to predetermined outcomes. The other insignificance of this approach is that it does not assess human behavior in general this leads to reduce human behavior to predetermined variables. Because these approaches believe that, there are human characteristics and processes that constitute a form of reality in that they occur under a wide variety of conditions and thus can be generalize to some degree. Therefore, this approach can be criticized for its attempt to study human. In addition, quantitative research appears that there is a flexibility problem in design, which may be vital when additional information revealed through data collection needs further exploration for knowledge. Therefore quantitative research approach alone may not bring effective result in interpretive and exploration of research problems.

3.1.2 Qualitative research approach

A qualitative approach is one in which the inquirer often makes knowledge claims based on constructivist prospective i.e. the multiple meanings of individual experiences meanings socially and historically constructed with an intent of developing a theory or pattern. Leedy and ormrod (2005) explains that a study categorized as qualitative, if its purpose is primarily to describe a situation, phenomenon, problem, or event. i.e., the information is gathered using variables measured on nominal or ordinal scales (that is, qualitative measurement scales); and an analysis is done to establish the variation in the situation, phenomenon or problem without quantifying it.

This approach also called as interpretative, constructivist or post positivist approach (Leedy and Ormrod, 2005). In addition qualitative approach views as the world based on researchers interpretation, which may influenced by the researcher own views, beliefs, experiences, and existing knowledge (McKerchar, 2010). In this respect, it assumes that knowledge is created by inductive reasoning and typically adopts qualitative methods in their research, such as interviews. A quantities research approach involves studies that do not attempt to quantify their results through statistical summary or analysis rather to seek describe various aspects about behavior and other factors studied in the social science and humanities. Thus, data are often in the form of descriptions not numbers. Qualitative research it is exploratory in its nature because of this in qualitative research approach there are no hypotheses, which would guide the study and mostly qualitative research approach more appropriate when the researcher have little knowledge or idea about the area of investigation or exploration.

McKerchar (2010) stated that, the qualitative approach views the world based on researchers interpretation, which may influenced by the researcher own views, beliefs, experiences, and existing knowledge. This shows qualitative research tries to assess experiences and events contextually and within their natural setting as well as attempts to analyze them holistically. In addition to examines events without much disruption in their natural environment and it focuses on understanding a phenomenon in its entirety instead of detaching a constituent and assessing it separately from its whole part this leads to a comprehensive understanding of the investigation area.

A qualitative research approach characterized by adherence to diverse array of orientations and strategies for maximizing the validity of trustworthiness of study procedures and results, it is thus a type of empirical enquiry that entails purposive sampling for gathering data. It typically involves in-depth interview, group discussion, projective techniques, and observation without formal measurement are a data collection methods of a qualitative research approach. That is, in qualitative research the main emphasis is on phenomenological and interpretative research or in description and inductive discovery of evolving theory that may arise after data is collected.

Specifically the qualitative research design has its own Merit and demerit as quantitative research approach too. Specifically the qualitative research design has its own Merit and demerit as quantitative research approach too. The merit of a qualitative research design is that it is flexible and emergent without being constrained by standardized procedures (Liamputtong and Ezzy 2005, p. 204 cited in Wollela 2009 P, 74). This feature of qualitative research enables the investigator to explore and understand phenomena entirely in their natural environment and discover emerging theories. Notwithstanding the above advantage, qualitative research design has its own demerit. First, the lack of standardized rules in the research design and the emphasis on giving meanings and interpretations to events and things reduces the objectivity and replicability of the research process. This in turn compromises the reliability of findings. Sarantakos (2005, p. 46 cited in Wollela 2009 P,74) as argued, qualitative studies do not produce data that allow comparison; the methodological approach does not ensure objectivity, and hence the quality of the findings is questionable and the research structure and procedure do not ensure the validity and reliability of methods. Further, there is no way of assuring that the researcher fully and correctly captures the true meanings and interpretations of the respondents.

The concern about reliability in qualitative research design also related to issues of bias. In qualitative research bias may introduced by the researcher or interviewer. For example, the way the interviewer asks questions, the appearance of the interviewee and facial expressions, among other actions, may introduce bias in the design. Further, the personal view and stand of the researcher may introduce bias in the interpretation of the data. Secondly, the findings of qualitative research cannot be statistically generalized for a broader population of interest it based on a small and unrepresentative number of investigated cases.

3.1.3 Mixed methods approach

A mixed method approach is one in which the researcher tends to base knowledge clams on pragmatic grounds. It employs strategies of inquiry that involve collecting data simultaneously or

sequentially to best understand research problem. The data collection method also involves gathering both numeric information e.g. on instrument as well as text information e.g. on interviews so that the final data base represents both quantitative and qualitative information (Croswell, 2003 p.21). McKerchar (2010 p,20) argues that "each strategy has its strength and weaknesses and the drive for mixed method research is to use one strategy to either inform, validate, or compensate for the weaknesses of another." In other words, the combination of both quantitative and qualitative methods is a more pragmatic approach to gain a better understanding of the phenomenon under study.

While acknowledging an important contribution of a mixed method approach in taxation studies, McKerchar (2010) also highlights several reasons behind the use of such an approach. The first is the need to address different objectives of the study, which cannot achieve by a single method. The second reason is to enable one approach to inform another approach, either in design or in interpretation. The third reason is to triangulate the findings of different approaches (either performed concurrently or sequentially) in an effort to provide greater confidence to the study. Based on the above researcher recommendations, it appears that the main reason for the researcher to adopt a mixed method approach is to enable one approach to inform another approach in the interpretation of the overall results. To be consistent with this strategy, a similar sampling frame used to draw the potential respondents for both approaches.

In the current study, as stated in the previous chapter the major objective of the study is to investigate and examine factors affect loan repayment performance, credit rationing methodes and assessing the impact of microfinance credit program of Omo Microfinance (OMF) on the beneficiaries with the special reference to borrowers and lenders in Konso sub branch in South nations and nationalities people (SNNP). In order to address this research problem and to answer the research objective comprehensively several research questions and specific objectives were developed at the introduction chapter. In light of the research questions and specific objectives, the study was employed quantitative research approach, i.e., self administrated questionnaires and document review.

3.2. Research methods: quantitative aspect

The quantitative aspect of the research method intends to obtain data needed to investigate factors affecting loan repayment performance arises from the heart of borrowers and lenders and to assess the impact of microfinance credit program of OMF on the beneficiaries. Specifically, the current study will employed a survey design administered through direct self-administered questionnaires to collect a quantitative data from credit beneficiaries.

3.3. Sample selection

Survey sampling is the process of choosing from a much large population, a group about which the researchers wish to make statements so that the selected part will represent the total group (Leedy, 1989). The population considered in this study was the total number of borrowers for which the branch provide loan program and the simple random sampling method was used to get rich evidence. As the information obtained from branch, it provide credit program for 2150 rural borrowers and 350 urban borrowers. Therefore, out of total number of 2500 borrowers 203 borrowers were selected as a sample. From the total sample 30 were from the urban area while the remaining 173 were from rural area. According to Cohen et al., (2005), covering the entire population in the study makes the study difficult. Therefore, the researcher decided to draw 8.25 percent of the whole population for investigation. For a homogenous population this much sample size is believed to be representative (See for example Cohen et al., 2005). The sampling design for this population is simple random sampling. In random sampling each individual in the population has an equal probability of being selected which is important for the external validity of the study (Creswell, 2009). Since the aim of the study is to make theoretical inferences from the results of the study that are suitable for further empirical investigation in any other context, this random sampling is the most appropriate method.

3.4. Data source and collection instruments

Data source and collection instruments are the important points to address the main objective of the study. The data source and collection instruments employed in this study are as follow:

3.4.1. Data source

Both primary and secondary data was used in this study. A primary source of data is questionnaire, whereas secondary sources data was generated through a review of loan record documents.

3.4.2. Quantitative aspect: Questionnaire

To gather relevant data to investigate factors affecting loan repayment performance and to assessing the impact of credit program on beneficiaries in poverty reduction, the researcher was used a survey method with self-administered questionnaires, which were administered through face-to-face distribution and collection of data from loan beneficiaries or breweries. In this regard, Fowler (1984) noted that the strengths of survey methods that result in their wider use included the value of statistical sampling, consistent measurement, and the ability to obtain information not systematically available elsewhere or in the form needed for analysis. The study used a cross-sectional survey in which Data are collected at one point in time from a sample selected to represent a larger population (Creswell, 2003).

Survey method has the following advantages as summarized from Kothari (2004); Smith (2003); and Rajasekar, Philominathan and Chinnathambi (2006): i) survey can be used to collect many different kinds of information, ii) survey is quick and low cost as compared to observation and experimental method. On the other hand, survey design has the following limitations, according to Saris and Gallhofer (2007) and Walden (2002): i) respondents reluctance to answer questions asked by unknown interviewers about things they consider private, ii) busy people may not want to take the time.

The researcher was used self prepared both closed and open ended questionnaires to collect the data required from the sample borrowers. Questionnaires have advantages like questionnaires follow a set format and most responses can be entered easily into a computer for ease of analysis, greater numbers can be distributed (Hesse-Biber, 2010). Even though the questionnaire has its own advantages it is not without demerits like design problems, questions have to be relatively simple, low response rate, time delay whilst waiting for responses to be returned, require a return deadline, several reminders may be required, not possible to give assistance if required, problems with incomplete questionnaires, etc (Hesse-Biber, 2010; Saris and Gallhofer, 2007).

3.4.3. Document review

Secondary data for the study was collected from various sources which included audited financial reports which were Profit and loss account and balance sheet, branch office loan portfolio report, loan performance reports, internal monthly financial statements and OMF Credit policy. The secondary data were solicited from the audited financial statements for the past five years that were 2007/2008, 2008/2009, 2009/2010, 2010/2011 and 2011/2012. The above mentioned documents contained pertinent information regarding loans issuing criteria, loan repayment performance status, and loan repayment period for each borrower, borrower's name, loan purpose and collateral requirements. The documents also revealed the total loan applied by members and the total loan issued to members.

3.5. Data analysis method

Data analysis method is the important point in the research methodology; the data collected through structured questioner was analyzed by using t-test to compare the credit worthy with non-credit worthy. Wilocoxon matched pairs non-parametric test is also used to test the impact. STATA software was used to see the effect of factors on loan repayment performance and loan rationing mechanisms.

3.6. Theoretical framework

Theoretical framework explores, describes, explains, analyzes and presents fact, principle and provisions of phenomena for better and background understanding of such phenomena (Frank, 1979). To achieve the stated objectives of this study, the probit model is chosen for its simplicity of getting the marginal effects of the coefficients. In this study loan repayment and credit rationing was considered as dependent variables. The appropriateness of model and explanation of independent variables are stated as below.

3.6.1. Loan repayment performance

The loan repayment equation is specified based on the assumption that the decision of the i^{th} borrower whether to repay loan in full or not depends on an unobservable utility index, u_i explained by a set of independent variables. This utility index, which indicates that the probability of repaying loan in full will be greater if its value is larger, can be defined by a regression relationship as:

$$U_i = '\beta X_i + \mu_i \qquad \text{……………………………………………………}(1)$$

Where ui = utility index, β=Vector of parameters, Xi= Vector of explanatory variables (Maddala, 1983).

The reason why we use a utility index for the analysis of repayment performance is that, under normal circumstances, a borrower repays if he/she derives benefits from repaying. For example, if a borrower expects to get another round of loan, he/she will repay the current loan (Mengistu, 1997).

In order to relate this unobservable utility index (precisely a utility derived from repaying) to the decision of repaying loan in full, we assume that $\mathbf{LR_i=1}$**, if** $\mathbf{U_i>o}$ (borrower repaid loan in full); or $\mathbf{LR_i=O}$**, if** $\mathbf{U_i \leq O}$ (borrower did not repay loan in full)

Where $\mathbf{LR_i}$ is loan repayment for the i^{th} borrower.

Assuming Ui are normally distributed with a zero mean and variance δ^2, the probability that U_i; >0 can be computed as:

$$P_i = Prob\ (U_i > 0) = F\ (U_i) = F\ (\beta X_i) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Where F is the cumulative distribution function (CDF).

Hence the likelihood function (the joint probability) is given by: (Maddala, 1983).

$$L = \pi LRi=1\ Pi\ \pi LRi=0\ (1-Pi) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

Since we do not have actual repayment rates, i.e., what we know is only whether a borrower has repaid his loan or not, we need to categorize borrowers into two to address the issue of determinants total loan repayment. So we have to look for an appropriate model that enables us to analyze the determinants of repayment and probability of falling in either of the two groups. Application of OLS which in this case is the Linear Probability Model (LPM)-since our dependent variable is dichotomous- will be incorrect because of the following major problems: 1) non-normality of error terms; 2) heteroscedasticity of error terms; and 3) possibility of estimated probabilities lying outside the [0,1] range.

In practice the probability of repaying loan in full is expected to be non-linearly related to a set of explanatory variables, the estimated probabilities lying in the [0, 1] range. Such a specification would provide us with a Cumulative Distribution Function (CDF) from which the two commonly chosen distributions; namely, the logistic and the normal CDFs emerge. These CDFs give rise to the logit and the probit models respectively (Gujirati, 1995, Pindyck and Rubinfeld, 1981).

The logistic and the normal CDFs are very similar in their shape except that the former is slightly fatter around the tails than the latter (Maddala, 1983). Although the choice between either of these models is difficult based on theory, the probit model is chosen for the purpose of this study because of the simplicity of getting the marginal effects of the coefficients.

On the other hand, loan diversion rate, which is included as one explanatory variable in the repayment equation, is itself dependent on some of the other explanatory variables in the same equation. This necessitates the use of its fitted values to avoid interdependence between the

variable and the error terms. The values of loan diversion rate (ratio of amount of loan diverted to total loan received) are limited between zero and one. Although the use of OLS is possible here, the two-limit tobit is a commonly applied model, in cases when the outcome is a probability or a percentage (Long, 1997). This model is specified as:

LDRi*= βXi + £i…….(4)

Where LDRi* is a latent variable and **Xi** and £**i** are set of explanatory variables and error terms respectively.

If LDRi is the observed variable, the Tobit model will be:

LDRi = 0, if LDRi ≤ 0

=LDR*, if 0 < LDR* < 1

= 1, if LDR* ≤1

Where, 0 and 1 are the lower and upper limits respectively. Thus, the models for loan repayment and loan diversion can be given as follows

LR = f(AG, SX, ED, LSZ, TM, LDR, INCOM, INCA, LSTK, SRP, SPV, AREA, NDP, μ)…(5)

LDR=f (NDP, SPV, ED, BK, INCA, LSZ, NTB, SRP, μ)……...(6)

But since the variable education is qualitative in nature, it is necessary to consider the mutually exclusive levels of education separately. Accordingly we can classify borrowers into illiterate, primary, and high school and above high school. We need three dummies to be introduced so as to take care of these four levels of education. As we shall see in the next chapter since the majority of the respondents are illiterate and only very few are in the second and third category with no one being in the fourth, it is better to classify them as those who are illiterate and those who are literate (grades 1-12). Accordingly we need one dummy to take care of these two categories. Hence equations (7) and (8) become:

LR = f (D, AG, SX, LSZ, TM, LDR, INCOM, INCA, LSTK, SRP, SPV, AREA, NDP, μ)... (7)

LDR=f (D, NDP, SPV, BK, INCA, LSZ, NTB, SRP, μ)…….(8)

Below are given the list of the variables together with their definitions.

D = 1 if a borrower has gone to school (i.e., grades 1-12) and zero otherwise

LR= loan repayment (LR=1 if fully repaid, zero otherwise)

AG= age of borrower

SX= Gender of borrower 0= female and 1= male

ED= educational level of borrower 1= illiterate,

2= Grade 1-8, 3= Grade 9-12, and 4= above Grade 12

LSZ= loan size in Birr

TM= timeliness of loan release 1= if timely released, and 0= otherwise

LDR= Loan Diversion Rate (ratio of loan diverted to total loan received)

INCOM = income from activities financed by loan (annual)

INCA= annual income from other activities (not financed by the loan).

LSTK = value of livestock in Birr

SRP= suitability of repayment period 1= if suitable, and 0= otherwise

BK= use of financial records 1= if borrower keeps financial records 0= otherwise

SPV= adequacy of supervision visits made to a borrower 1= if adequate, and 0= otherwise

AREA= location of residence of borrower (1= rural 0= urban)

NDP= number of dependents

NTB= number of times borrowed

μ = Error terms

Description of the explanatory variables together with their expected signs is given below:

1. **Age**: Vigano (1993) noted that with increase in age, it is usually expected that borrowers get more stability and experience. So we expect this variable to have a positive impact on repayment performance. However, since as people get older, their ability to effectively use finance and generate income declines, the variable could also have a negative impact. It may also have a non-linear relationship with loan repayment, where up to a certain level of age loan there is a positive relationship, but beyond that age the relationship changes to either negative or becomes more or less constant.
2. **Gender of borrower**: There is a belief among many Microfinance specialists that female are better payers than male borrowers, taking into consideration their being more entrepreneurial that results from assuming more responsibilities in the internal affairs of a household .(Vigano, 1993). Also Khanker et al. (1995) explains that loan recovery rates

have been higher for women than for men in the case of Grameen Bank. But some researchers have found the opposite result. So nothing can be said about the sign of this

3. **Educational level of borrowers**: This variable is expected to have a positive impact on repayment performance in general. Considering normal circumstances, a more educated borrower is expected to use the loan effectively as compared to a less educated one. In this case we expect a positive sign for the variable.
4. **Loan size**: Von Pischke (1991) noted that efficient loan sizes fit borrowers' repayment capacity and stimulate enterprise. If amount of loan released is enough for the purposes intended, it will have a positive impact on the borrower's capacity to repay. If on the other hand the amount of loan exceeds what the borrower needs and can handle, it will be more of a burden than help, thereby undermining repayment performance. Also positive or negative sign may be expected if the loan is too small. If the loan is too small it may be easy to repay such loans thus enhancing performance (i.e. positive sign). However, too small loan may not bring commitment on borrowers to use the loan productively (Von Pischke, 1991). It may also encourage borrowers to divert the loan to other purposes, increasing credit risk and undermining performance, in which case a negative sign for the variable is expected (Vigano, 1993).
5. **Timeliness of loan release**: If loan is disbursed in time, it is unlikely that it will be diverted to non-intended purposes. Johnson and Rogaly (1997) noted that timeliness of loan disbursement is important when loans are used for seasonal activities such as agriculture. They argued that complicated appraisal and approval procedures, which might delay disbursement, influence a program of seasonal loans for farmers who use to buy inputs. Further they noted that this could in turn worsen the prospects of repayment by diverting loan to non-intended purpose. In such cases a positive sign is expected.
6. **Loan diversion:** The impact of this Variable depends on what use the diverted loan is put to. If the used for productive purposes than the intended ones then repayment will be enhanced. If on the other hand the loan is diverted to non-productive uses, it will have a negative impact. Therefore the sing of this variable can't be predetermined.

7. **Income from activities financed by loan:** Through increased capacity of the borrower to repay loan, an increase in the borrowers income from the business financed by the loan would be expected to have a positive influence on his/her repayment performance. This is based on the assumption that it is the ability to pay rather than willingness to pay that affects repayment. Kashuliza (1993) has concluded that farmers who obtained higher income from farming were more likely to repay their loans. But sometimes borrowers may be tempted not to repay if they see that the success of their business is such that they no mare need credit from the lending institution, as Adeyemo (1984) has shown in his study about loan delinquency in a Nigerian multipurpose cooperative union. Hence this variable may have positive or negative sign**.**
8. **Income from other activities or sources:** Some borrowers may have other sources of income like income from employment in government or private organizations of the borrower or other members of the family, pension, etc. Such sources of income are expected to have positive contribution towards loan repayment performance. But if availability of such sources creates carelessness on the part of borrowers in fulfilling their obligation of repayment possibly considering the next loan unnecessary, it may well undermine repayment performance. Hence this variable may assume positive or negative sing.
9. **Value of livestock:** The more livestock a borrower has, the higher capacity he/she has to settle loan obligation in face of income fluctuation. Bekele et al. (2003) found out that farmers who owned more livestock were able to repay their loans even when their crops failed due to natural disaster. Some researchers have arrived at a positive relationship (e.g. Vigano, 1993) while others found a negative relationship (e.g. Yaqub, 1995) between assets (which can be peroxide by livestock in rural areas) and repayment performance. So the sign of this variable cannot be predetermined.
10. **Suitability of repayment period:** It is expected that borrowers who find the repayment period suitable, perform better. Hence we expect a positive sign for this variable in this case.

11. **Loan supervision:** If there is a continuous follow up and supervision visit to evaluate the loan utilization and repayment, this makes borrowers to observe their obligation and improve the proper utilization of the loan thereby improving repayment performance. Therefore we expect a positive relationship.
12. **Availability of other source of credit:** If borrowers have other sources of credit, they may use these sources to be able to settle their loan obligation in case they want to continue borrowing from the same source. Therefore we expect a positive sign. On the other hand borrowers may feel careless in repaying their loan if they decide they no more want to borrow from the same source because they can get loan from the alternative sources. In such cases it may take a negative sign.
13. **Area:** This variable is a dummy capturing the fact that the borrower lives in rural or urban areas. Borrowers in rural areas are predominantly farmers. Loans extended for agricultural purposes are expected to face problem of default because of risk and uncertainty attached to agriculture. Hence we expect a negative sign for this variable.

Variables, which are hypothesized to affect loan diversion, are described together with their expected signs as below:

i. **Number of Dependents**: Defined as the total number of dependents in the family and elsewhere that depend on the borrower for their livelihood expressed in percentage. As the number of dependents increases, the borrower will need more money to fulfill their requirements in addition to the obligation of loan repayment. As a result he/she may divert the loan to meet the needs of the dependents. Hence we expect this variable to have a positive impact on loan diversion.

ii. **Loan Supervision**: The probability of using loan funds for non-intended purposes decreases if adequate loan supervision is made regarding loan utilization. In such cases we expect a negative sign for this variable.

iii. **Suitability of loan repayment period**: If borrowers find the repayment period suitable, they can utilize the loan proceeds effectively for the intended purpose than those who regard the period of repayment unsuitable. So we expect a negative sign for this variable.

iv. **Other sources of income after loan**: With increased income as a result of the availability of other sources of income created after program participation, borrowers may not be tempted to divert the loan to other purposes, since they have enough income. On the other hand if they feel that they are self-sufficient after diversifying their income sources they may divert the loan proceeds. So this variable can either be positive or negative depending on the either of the situations explained above.

v. **Loan size**: A loan amount in excess of investment cost is more likely to tempt the borrower change his intended investment, i.e., divert the loan funds. So a positive sign is expected for this variable.

vi. **Use of financial recording methods**: If borrowers keep records, it will be easier for them to follow up their loan utilization situation. Otherwise, they are likely to confuse the loan proceeds with other incomes, thus finding themselves in a situation where they unintentionally divert loan to other purposes. Hence we expect a negative sign.

vii. **Number of times borrowed**: If a borrower is a repeat borrower he may have acquired more experience on the institution's rules and regulations, and hence could efficiently utilize the loan for the intended purpose. On the other hand since such borrowers may have the feeling that after borrowing and effectively using the loans for a relatively more years they no more need the loan from OCSSCO and may be reluctant in using the loan as per the loan agreement. Hence the sign of this variable cannot be predetermined.

viii. **Education**: Borrowers who are literate are likely to use the loan proceeds for the intended purpose, thus undermining loan diversion. But sometimes such borrowers may divert loans in search of more profitable areas of investment. So its sign can't be determined a priori.

3.6.2. Loan screening (rationing) mechanisms

The method of analysis employed by Hunte (1996) stands appropriate for this section of the study Unlike the loan repayment equation, the dependent variable for the loan rationing equation is continuous and limited between 0 and 1, i.e., we have some who are rationed loan and others who

are not (with varying degrees). The appropriate model is tobit (Maddala, 1983). But for the purpose of this study, since we are going to use a dummy variable by defining loan rationing to be equal to 1 if a borrower is not rationed and zero otherwise. The model we are going to use will be the logit model, which will be given as:

$$LRATi^{*} = \alpha Xi + \mu i \quad \text{……………………………………………………………}(9)$$

LRATi* = is loan rationing (LRAT=1 if a borrower is not rationed and zero otherwise).

Xi= set of explanatory variables

μi = Error terms

Note that LRATi* are latent variables like the LRi*'s. All the explanatory variables of loan repayment equation are to be employed by the LRATi equation as well. Comparison of the sign and level of significance of the estimates in the two equations, i.e., loan repayment and loan rationing equations, will accomplish the task of evaluating the accuracy of the screening mechanism as done in Hunte (1996).

Accordingly, if a variable is significant in the rationing equation but not in the repayment equation, it implies that variable is useless as a means of screening. This is because, there is no information observed on default probabilities, since the variable is insignificant in the loan repayment equation. Alternatively, if a variable is significant in the repayment equation but not in the rationing equation, it reveals that the lending institution is ignoring useful information that will help to identify creditworthy applicants clearly.

A significant positive sign in both equations indicates the accuracy of the screening mechanism in identifying good borrowers while a significant negative sign in both equations reveals that the screening mechanism is efficient in identifying default prone borrowers. If a variable is significantly positive in the rationing equation but is significantly negative in the repayment equation, it shows that there is weakness in the screening mechanism since it is attracting default prone borrowers. On the other hand if a variable is significantly negative in the rationing equation

but is positive in the repayment equation, it indicates that the screening mechanism is incorrectly rationing credit too strictly to credit worthy borrowers.

Since the researcher is interested in comparing the coefficients of the estimated model with that from the loan repayment equation in an effort to evaluate the efficiency of the screening of borrowers using the methods suggested above, we are not going into the details of the expected results of the variables.

3.6.3. Impact analysis

To carry out impact analysis, control group method is one alternative. This requires a control group which is a sample of people similar in every respect but who have not received a loan, compared with samples that have (Johnson and Rogaly, 1997). In practice it is not only difficult, but also time consuming, to find control groups that fulfill such a criteria.

So to avoid the above-mentioned difficulties the methodology suggested by Fiddler and Webster (1996) was employed for the purpose of this study. This methodology uses Wilcoxon Matched Pairs Non-Parametric test to assess the impact of a credit scheme on beneficiaries based on the situations of borrowers before and after the loan. Specifically the analysis was employ descriptive statistics to assess impact of the credit scheme on income, access to education and medical facilities, savings, employment generation, food security, etc, before and after loan.

CHAPTER FOUR
DESCRIPTIVE STATISTICS

As reported earlier in chapter three OMF Konso sub branch is extending loans for about 2,500 borrowers in the rural and urban areas of the district starting from 2004/5 up to 2012/13. A sample of 203 borrowers was selected randomly for this study. Out of the total respondents 190 (93.6%) have settled their loans in full while 13(6.4%) failed to repay their loans in full. Borrowers in the urban area of the district have all managed to repay their loans while 13(6.4%) of those in the rural areas didn't.

4.1 Description of the institution (Omo microfinance)

Omo microfinance institution (OMFI) is established on August 14/1997 and registered on October 01/1997 as a share company as per the requirement of proclamation number 40/1996 which states the provision of licensing and supervision of the business of microfinance institutions (MFIs). It has been founded with five shareholders, namely SNNPRS regional government, South Ethiopia Peoples Development Association (SEPDA), Wondo Trading Company and two natural persons. OMFI is operating only in SNNPRS. Currently it is operating in 11 branches and 69 sub-branches which constitute exactly more than half of the region's geographical outreach. It has extended loan services for 123,751 active clients.

The main services or financial products provided to clients are credit, savings, pension fund administration, and micro-lease. The loan products provided by the institution are agricultural and micro and small business loan products geared to its diverse clientele. A micro business loan further constitutes petty trade, hand craft, and services. In terms of loan volume, agricultural loan takes the lion share and followed by petty trade, hand craft, and services. The institution pursues group lending for both agricultural and micro business loans and individual lending for small business loans. Under the group lending, the clients are required to organize themselves in groups of five to seven persons and a federation of seven to ten groups. The federation makes a center holding 35 to 70 members. After the formation of these groups and center, the clients are trained

and then process of loan disbursement follows. Here the loan is given not to the group but to guaranteed individuals within the group.

The loan size extended to clientele ranges from 1,000 Birr to 5,000 birr for agricultural and micro business loans. For individual lending in the case of small business loan, the size of loan set on the basis of the nature of business and the business plan. However, the regular loan size ceiling is common to 5,000 Birr while in package loans (loans for individual organized in 'Mahiber'), the loan approval may reach as high as birr 286,000. To the question of who should microfinance institutions serve, the position of Omo microfinance institution is that of mainly economically active poor. That is, the OMFI's target groups are drawn from the economically active but resource poor segment of the community particularly the rural and urban poor. It claims that its aim is to support urban lives and delivering agricultural loan to rural farm household families to ensure food security. With regard to saving products, OMFI provides both compulsory and voluntary savings to individuals and organizations/institutions. Compulsory savings are mobilized from the institution's clientele in accordance to contractual agreements between the two.

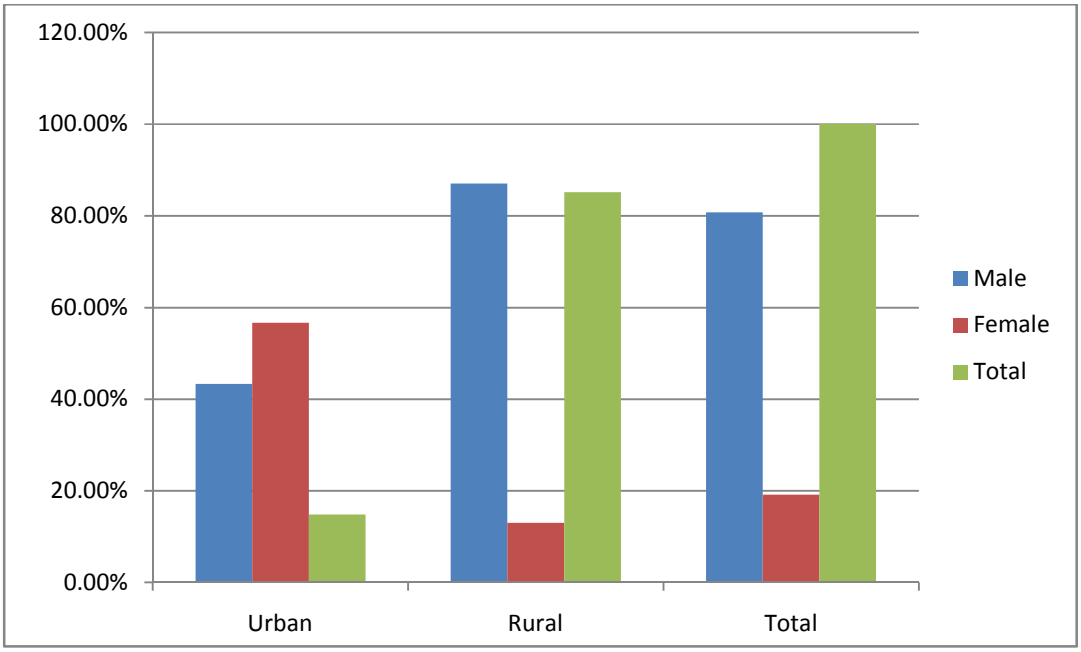
When researcher sees institutional operations, according to the institution's brochure of March 31/ 2008, institutionally, the OMFI has served cumulative active clients of 327,888. The total loan disbursement has reached USD 31.2 Million. The loan repayments amounted 21.84 Million making the outstanding loan to be USD 9.3 Million. In the savings side of the operations, the cumulative savings has reached to USD 20.1 Million while the net saving being USD 16.5 Million. Of the total cumulative savings, the compulsory and voluntary savings accounts 29% and 71% respectively.

In the area this study is conducted, Konso sub branch, the institution is carrying on its operation being supported by 10 employees with educational level of 10+3 and below. Currently, it has 22,650 clients at woreda level, i.e., both urban and rural clients, of which 21% are female and 79% are male. The loan extended reaches 2,296,700 Birr.

4.2 Characteristics of the sample respondents

From the total number of borrowers in the sample 30(14.8%) are from the urban area while 173(85.2%) are from the rural areas of the district. Of the total respondents only 39(19.2%) of the total sample are female, the rest 164(80.8%) are male. Looking at the urban borrowers in the Sample 17(56.7%) are female while 13(43.3%) are male, and from the rural respondents 22 (13%) are female while 151 (87%) are male. From Figure 1 below, it is easy to observe that the proportion of female borrowers is larger in the urban sample than the rural. The fact that a small proportion of the female borrowers are being served in the rural areas shows that very little is done in terms of empowerment of women.

Figure 1: Respondents by Gender and area of residence



Source: Survey Data

As explained in the introduction part above urban borrowers have performed better than those in rural areas in terms of repayment. The main reason for low repayment performance by the rural borrowers is loss of assets acquired by the loan and crop failure due to shortage of rain.

According to the results of the sample survey, 13(6.4%) of those who failed to repay their loans in full reported crop failure as the main reason for non-repayment.

The mean age for the whole sample is 44 years with the minimum and maximum being 20 and 70 respectively. The survey results show that rural borrowers are on the average older than their urban counterparts. The mean age for the rural sample is 45 ranging between 20 to 70, while that for the urban sample is 40 ranging between 20 to 60, 53% of the urban and 55.5% of the rural borrowers are in the age group 30-49 while 55.2% of the total borrowers lie in the same age group for the whole sample.

Table 1 Respondents by age group and area

Age Group	Urban	Rural	Total
20-29	7(23%)	16(9.2%)	23(11.3%)
30-39	6(20%)	40(23.1%)	46(22.7%)
40-49	10(33%)	56(32.4%)	66(32.5%)
50-59	5(17 %)	48(27.7%)	53(26.1%)
Above 60	2(7%)	13(7.5%)	15(7.4%)
Total	30(100%)	173(100%)	203(100%)

Source: Survey Data

In terms of educational background, most of the borrowers in the sample, i.e., 129(63.5%) can't read and write. Those who have attended either elementary or junior secondary school are 64(31.5%) and those who attended up to grade 12 are only 10(5%). Most of those who are illiterate i.e., 89(67.9%) are in the age group 40-59 while half of those who attended grades 9-12 are in the younger age group 20-29. (See table 2 below).

Table 2 Respondents by age group and level of education and area

Area	Age Group	Level of education			Total
		illiterate	Grade 1-8	Grade 9-12	
Urban	20-29	1	2	3	6
	30-39	1	2	2	5
	40-49	2	7	0	9
	50-59	1	4	0	5
	Above 60	1	0	0	1
	Total	8	15	7	30
Rural	20-29	8	8	1	17
	30-39	20	20	1	41
	40-49	41	15	1	57
	50-59	45	3	0	48
	Above	11	3	0	14
	Total	121	49	3	173
Grand Total		129	64	10	203

Source: Survey Data

As can be seen from the table 3 below 121(70%) of the rural borrowers can't read and write, of which 116(95.8%) don't keep financial records, while only 8(26.7%) of the urban borrowers are illiterate, 5(62.5%) being non-users of financial recording. So the large proportion of illiterate beneficiaries in the sample explains the poor status of financial recording habits [only 31 (15%) of the total borrowers in the sample keep records]. Most of those who don't use financial records, i.e., 155 out of 175, which is 88.5% reported lack of knowledge as the main reason for not recording their financial transactions, while the remaining 20(11.4%) reported their financial position as being too little to keep records.

Table 3 Respondents by area, financial recording habits and level of education.

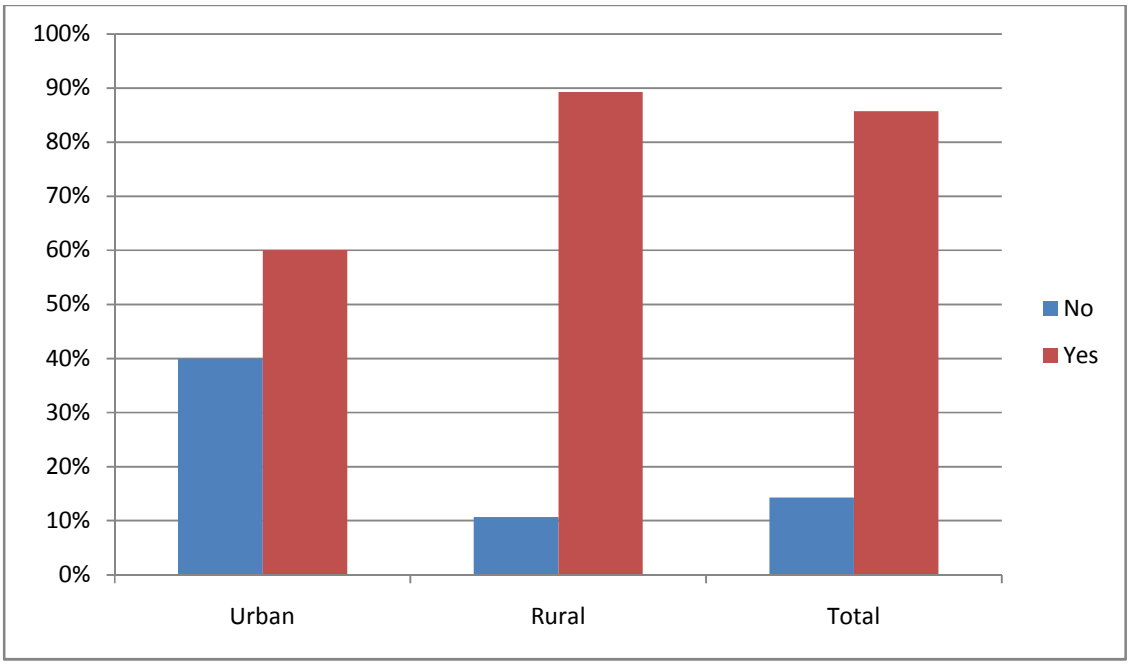
Area	Using financial recording?	Level of Education			Total
		illiterate	Grade 1-8	Grade 9-12	
Urban	No	5	10	2	17
	Yes	3	5	5	13
	Total	8	15	7	30
Rural	No	116	33	2	156
	Yes	5	12	1	18
	Total	121	49	3	173

Source: Survey Data

In line with the existence of more educated borrowers in the urban area [22(73%) being able to attend grades 1 through 12 as compared to only 52(29.4%) of the rural borrowers being able to attend the same level of education], the number of urban borrowers that keep records are 13(43%) while that for the rural borrowers is only 17(9.8%).

Figure 2 below shows that 174(85.7%) i.e., 18(60%) of the urban borrowers and 156(89.3%) of the rural borrowers in the sample reported the loans they received to be sufficient for the purpose they planned. On the other hand 29 (14.3%) i.e., 17 (9.8%) of the rural borrowers and 12 (40%) of the urban borrowers declared that the loan amount they took was not sufficient. This has some implication for loan diversion.

Figure 2 Respondents by area and opinion on sufficiency of loan size



Source: Survey Data

With respect to the purpose for which loan was taken, the researcher observed that the majority of the borrowers, i.e., 71 (35.0%) took the loan for purchasing farm oxen, all of them being rural borrowers. The next activity for which most of the borrowers took loan is petty trade, 50 (24.6%). This includes all the 30 urban borrowers and 20 rural borrowers.

Table 4 Respondents by area and the purpose for which they took the loans.

Purpose of loan	Urban	Rural	Total
Purchase of farm oxen	0	71	71
Farm oxen and agricultural inputs	0	13	13
Farm oxen and fattening	0	20	20
Farm oxen and petty trade	0	7	7
Purchase of agricultural inputs	0	20	20
Agricultural inputs and petty trade	0	5	5
Fattening	0	11	11
Fattening and petty trade	0	1	1
Petty trade	30	20	50
Others (More than two purposes from among the above)	0	13	13
Total	30	173	203

Source: Survey Data

To see if at all purpose of borrowing has some association with loan repayment performance, table 5 is constructed from the survey data. Accordingly only 97.8% of those who borrowed for the purpose of petty trade were non-defaulters. The same trend is observed in the rest of the cases, i.e., more than 88% of the borrowers have repaid their loans except those who used the loan for purchasing agricultural inputs. This indicates that purpose of borrowing may not have a notable implication on the loan repayment performance of borrowers. In fact this could be an issue for future research.

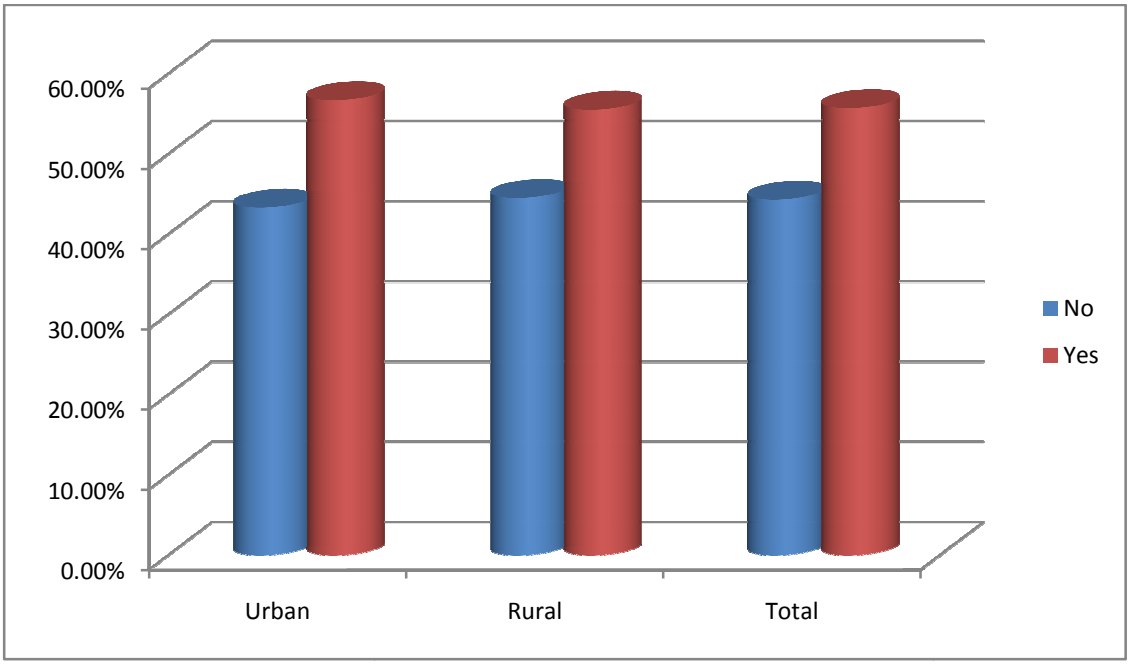
Table 5 Respondents by repayment status and purpose of borrowing

Purpose of Borrowing	Defaulters	None Defaulters	Total
Purchase of farm oxen	5(7.0%)	66(93.0%)	71
Purchase of agricultural inputs	7(35%)	13(65%)	20
Fattening		11(100%)	11
Petty Trade	5(2.2%)	45(97.8%)	50
Others	2(15.4%)	11(84.6%)	13
Total	19(11.5%)	146(88.5%)	165

Source: Survey Data

Sufficiency of supervision on loan utilization is an important factor contributing to a better loan repayment performance. During the survey it was known that people from OMF appear on the monthly meetings of centers and collect savings. It is during such meetings that supervision is done with main focus on loan repayment. Only 90 (44.3 %) of the respondents in the sample declared that supervision on loan utilization is not sufficient.

Figure 3 Respondents' perception on adequacy of loan supervision.



Source: Survey Data

From the figure above, 96 (55.5%) of the rural borrowers and 17 (56.7%) of the urban borrowers in the sample reported that supervision is adequate, while 77 (44.5%) of the rural respondents and 13 (43.3%) of the urban respondents said that supervision on loan utilization is not sufficient.

Regarding suitability of repayment only 25(12.3%) of the sample respondents have the opinion that the repayment period, which is one year, is not suitable. Of these borrowers 16(64%) recommended a repayment period that is longer than a year while the rest recommended a repayment period that is less than a year, with 7(27.7%) of them showing preference of paying at least twice a year.

Another finding is that 55(27.1%) of the sample borrowers have violated the loan agreement, all of them diverting the loan proceeds to other purposes than they planned. Of these 18(8.9%) reported that the loan agreement didn't match with their true intention they had in their mind, while 8(4%) reported market problem, 6(3%) too small loan amount and 16(7.9%) reported other reasons for not keeping their agreement. Almost all the loan diverters are from the rural areas.

Looking at how loan is rationed, we observe that 31(15.2%) of the total respondents were rationed of which 17 (9.8%) are rural borrowers. In relation to loan diversion, the institution favored non-diverters by rationing only 10(34.5%) as compared to 19(65.5%) who were diverters being rationed. See tables 5 and 6 below. More will be said about loan rationing in section 4.3 below.

Table 6 Rationing by area of borrowers

	Urban	Rural	Total
Rationed	14(46.7%)	17(9.8%)	31(15.2%)
None Rationed	16(53.3%)	156(90.2%)	172(8.8%)
Total	30(100%)	173(100%)	203(100%)

Table 7 Rationing by loan diversion

	Diverted	Not-diverted	Total
rationed	19(65.5%)	10(34.5%)	31(100%)
Not-rationed	129(74.1%)	45(25.9%)	172(100%)
Total	148(72.9%)	55(27.1%)	203(100%)

Source: Survey Data

According to the results of the sample survey, all the borrowers in the sample believe that loan should be repaid. Similarly all borrowers interviewed have reported that the loan was issued timely. Many studies have considered attitude of borrowers towards loan repayment and timeliness of loan issuance as important variables affecting loan repayment performance. These two variables, however, are not going to be used in this study for regression, since they perfectly predict the probability of repaying loan in time; and hence are excluded from the loan repayment equation.

Since the credit delivery mechanism of OMF is a group based one that relies on peer pressure and social sanctions that exist among borrowers, questions regarding these issues were included in the survey questionnaires. Almost all of the borrowers responded “yes” to questions regarding peer group that they know each other very well, feel responsible for each other and monitor each others’ action.

Another variable of concern in this study is borrowers’ attitude to cost of default. Of the total respondents almost all, i.e., 202(99.5%) reported that cost of default is high. Such an attitude has a clear implication in terms of improving loan repayment performance. Regarding the perceived costs of default 113(55.7%), i.e. the majority of the borrowers responded social sanction as the most important factor forcing them to repay their loans in time. So we observe that group pressure and social sanctions are important factors affecting loan repayment performance of borrowers by serving as social collateral for the lending institution.

Table 8 Perceived cost of default

Perceived Cost of default	Frequency	Percent
Claims against personal wealth	24	11.8
Claims against the wealth of guarantors	23	11.3
Social sanctions	113	55.7
Fear of losing another round of loan	35	17.2
Other	8	3.9
Total	203	100

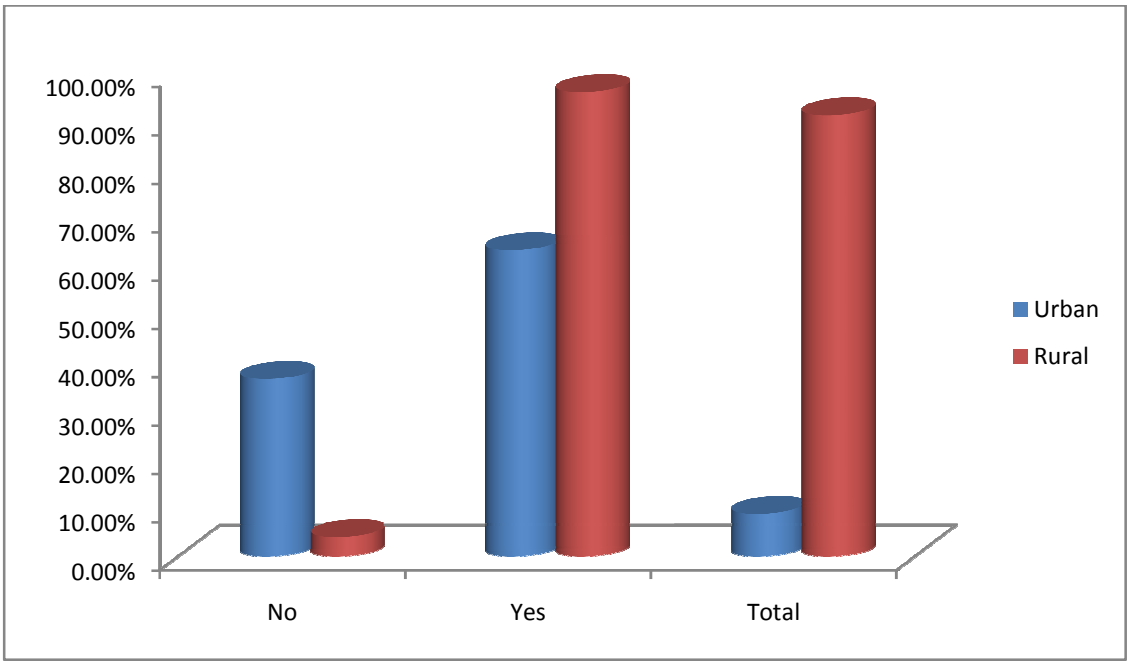
Source: Survey Data

On the other hand, during the survey it was observed from informal discussions with borrowers that many borrowers, who took loans for purchasing farm oxen, used the oxen for farming and finally sold them in order to be able to repay their loans. Also some borrowers shift between the lending institution and moneylenders, i.e., they borrow from moneylenders for a very short period in order to repay the loan they took from OMF and then they immediately repay the money lenders after OMF releases the next cycle of loan.

Although this calls for a further investigation, it was known that only 6(3%) of the sample respondents were found to have other sources of credit in addition to that of OMF. Four of these reported moneylenders as their additional source of credit while the rest two indicated that they also borrow from friends or relatives since their participation in the credit scheme by OMF. This finding doesn't seem to support the behavior of the borrowers explained above (i.e. based on the informal discussions made with borrowers themselves), since only 2% of the borrowers reported to have borrowed from moneylenders, after all.

Livestock is another variable of interest in this study. Accordingly 185 (91.2%) of the total sample have reported that they own livestock. Specifically 166 (96%) of the rural borrowers have livestock. Since livestock can be considered as a proxy for wealth particularly in rural areas, it is likely that this variable positively affects loan repayment performance.

Figure 4 Respondents by area and ownership of livestock



Source: Survey Data

Household size is another important variable considered in this study. The mean number of dependents within the households is 6.72 varying between a minimum of 1 and a maximum of 16. The mean number of dependents supported outside of the households of borrowers that constitute 10.4% of the sample respondents is 1.62 ranging between 1 and 4. Overall the mean number of dependents stands at 6.89 varying between 1 and 16. See table 9 below.

Table 9 Descriptive statistics on number of dependents

	N	Minimum	Maximum	Mean	St. Dev.
Number of Dependents With in the Household	203	1	16	6.72	2.49
Number of Dependents Outside the Household	21	1	4	1.62	0.94
Total number of dependents	203	1	16	6.89	2.54

Source: Survey Data

As shown in table 10 about 88 (56.7%) of the borrowers in the sample reported their having income source before the loan program. Of these 58(51.04%) reported income from sale of farm produce, 8(7.4%) reported income from private labor, i.e. from being hired for others and the rest 22(19.36%0 reported income from various sources.

Table 10 Respondents by availability of source of income before and after program

Availability of income source before program	Before loan		After loan	
	Frequency	Percent	Frequency	Percent
Yes	88	43.3	42	20.7
No	115	56.7	161	79.3
Total	203	100	203	100

Source: Survey Data

According to the survey results 42(20.7%) of the sample borrowers have managed to create additional sources of income after participation in the credit scheme (See table 10 above). On the other hand as shown in table 11 below the majority of the borrowers, i.e., 154(75.8%) earn an annual income ranging between Birr 1000 to Birr 3000 before loan, where as only 19(38.57%) were earning the same level of income before participating in the loan scheme. Only 15(7.4%) get an annual income above Birr 3000 after the loan. The corresponding figure for the situation before loan is 0.

Table 11 Respondents by household annual income before and after loan

Income range	Before Program		After program	
	Frequency	Percent	Frequency	Percent
<1000	69	78.41	34	16.7
1001-2000	16	18.18	91	44.8
2001-3000	3	3.41	63	31
3001-4000	0	0	10	4.9
4001-5000	0	0	3	1.5
>5000	0	0	2	1
Total	88	100	203	100

Source: Survey Data

Credit facility coupled with savings services is of much help in smoothing the income and consumption pattern of the poor. Accordingly only one of the respondents responded about his having saving before participation in the program, while 189 (93.1%) of them reported of having savings after the program, mostly saving below 10 Birr per month (i.e., about 93.1%). Almost all of those who started saving after the loan are saving nothing more than the compulsory group/center savings, which shows that much have to be done in terms of mobilizing more savings. The trend in the savings mobilized by the branch office is shown in annex I.

Table 12 Response on availability of savings before and after program

Response given	Before program		After program	
	Frequency	Percent	Frequency	Percent
Yes	1	0.5	189	93.1
No	202	99.5	14	6.9
Total	203	100	203	

Source: Survey Data

Regarding access to medical facilities 142(70%) of the respondents were reported having access to medical facilities before loan. 47(23.2%) reported of not having any access while 14(6.9%) didn't respond to the question at all. The figures for the situation after loan are 156(76.8%), 33(16.3%) and 14(6.9%) respectively. Although there is no as such a very significant increase in terms of access to medical services, the number of borrowers who reported themselves as being bearers of medical expenditure increased from 116 to 144 while that for free service reduced from 5 to 1.This can be seen from table 13 below.

Table 13 Response on the bearer of medical expenditure

Bearer of medical expenditure	Before loan	After loan
Borrower him/herself	116	144
Other family members	9	6
Relatives	2	0
Free service	5	1
Borrower and other family members	10	5
Total	142	156

Source: survey Data

In terms of medical expenditure before loan and after loan, the mean annual expenditure is Birr 128.32 and Birr 200.90 ranging between Birr 5 to Birr 1000 for the former and between Birr 6 to Birr 1300 for the latter. Although we shall test whether the credit scheme has brought about any change in this respect in section 4.5, it is obvious that the average expenditure on health services has increased after the program.

Table 14 Summary statistics on expenditure items and number of enrollment of school age students

	N	Minimum	Maximum	Mean	Std.Dev
Medical expenditure before loan	137	5	1,000.00	128.3212	160.2117
Medical expenditure after loan	156	6	1,300.00	200.8974	213.1546
Number of school age students enrolled before loan	183	0	10	1.4	1.62
Number of school age students enrolled after loan	184	0	10	2.07	1.75
Educational expenditure before loan	112	20	1,700.00	313.6696	308.3539
Educational expenditure after loan	156	1	2,800.00	443.2115	405.6354
Consumption expenditure before loan	203	300	6,000.00	1,557.14	686.2019
Consumption expenditure after loan	203	500	25,000.00	2,182.11	1,182.11

Source: Survey Data

Similarly the mean number of school-age students enrolled has increased from 1.4 to 2.07, while the expenditure on education has shown an increment of Birr 129.54 on the average. The same is true of mean consumption expenditure, which has shown an increment of Birr 624.97 on the average as shown in table 14. These comparisons are made based on the data collected before and after participation in the credit scheme, which ranges from one to five years. The mean number of years borrowed by the respondents in the sample is 3.21. We shall test all the improvements described above later when we assess the impact of the credit scheme.

4.3 Creditworthy Versus Non-Creditworthy Borrowers

In this section we will try to compare creditworthy borrowers with defaulters, in an attempt to identify the factors that influence the loan repayment behavior of borrowers. Although, the number of defaulters in the sample is small compared to those who settled their loans, the comparison will somehow give an idea as to how our variables are influence the loan repayment performance. The comparison is done using t-test.

As shown in chapter Four we have seen that 190 (93.6%) of the sample borrowers have settled their loans in full and hence are creditworthy; while the rest 13 (6.4%) are defaulters. The mean age for creditworthy borrowers 44.6 is slightly greater than that of defaulters, which is 43.9. This implies defaulters are a bit younger than non-defaulters, showing that age is positively related to loan repayment performance.

Regarding gender, 80.7% of the creditworthy borrowers are male, which is lower than the corresponding figure (82.4%) for the defaulters. Moreover only 7.7% of the female are defaulters while the corresponding figure for the male is 8.5%. This implies that being male is negatively related to loan repayment performance as expected, although the difference is not statistically significant.

There is no significant difference between the two groups in terms of level of education, although creditworthy borrowers have attended on average grades 1-8 while defaulters are on average illiterate. This shows the existence of a positive relationship between education and loan repayment.

The mean loan size for credit worthy borrowers is Birr 1382.35which is less than that of the defaulters (Birr 1406.99) showing that there is a negative relationship between loan size and loan repayment performance. This could be due to the rationing mechanism although the difference is not significant according to the t-test.

Regarding loan diversion, 52.9% of the defaulters have diverted the loans they received to other purposes than specified in their loan agreement, while only 24.7% of the creditworthy borrowers diverted the loan they took to other purposes. This shows that loan diversion is negatively related to loan repayment performance. The t-test shows that there is a significant difference between the two groups of borrowers in terms of loan diversion.

With respect to perception of borrowers about supervision on loan utilization 57% of the creditworthy borrowers think that supervision on loan utilization is adequate, while only 41% of the defaulters are of the opinion that the supervision on loan utilization by OMF staff is sufficient. So the relationship between supervision and repayment performance seems to be positive as expected.

Regarding perception of suitability of repayment period 90.3% of the respondents who consider it as suitable are creditworthy, which is greater than the corresponding figure for the non creditworthy borrower (58.8%), which is a significant difference at the 1% level. This is an indication that the variable under consideration is positively related with repayment performance.

Concerning value of livestock owned by borrowers, the mean value of livestock for creditworthy borrowers is Birr 4330.65, while that for the defaulters is only Birr 925.00, with a significant difference between the two groups being observed in this regard, i.e., a higher value of livestock improves the loan repayment performance of borrowers. Similarly the mean annual income from the activities financed by the loan for the case of creditworthy borrowers is Birr 1000-2000 while that for defaulters is below Birr 1000, the difference between the two groups being significant.

As explained earlier from a total of 55 borrowers who diverted their loans 18(32.7%) have indicated the fact that the loan agreement is not their initial intention of investment, while 16(21.1%) of them gave other reasons for diverting the loan, of which 9 (56.3%) indicated unplanned health expenditure as a reason for their diverting the loan they received. In this regard the mean annual health expenditure of creditworthy borrowers is Birr 93.50 while that for defaulters is below Birr 154.00, though the difference between the two groups is not significant.

The mean number of dependents for the creditworthy borrowers is 6.8, which is less than that for the defaulters (7.5). Here we observe that defaulters support on average a bigger number of dependents than creditworthy borrowers, although there is no statistical difference between both.

This is equivalent to saying that the number of dependents that are supported by the borrowers is negatively related to loan repayment performance.

4.4 Rationed Versus Non-Rationed Borrowers

The term rationing in this study refers to a situation where a borrower receives an amount of loan that is less than he/she requested. (See chapter two). As described in the proportion of those who are rationed (i.e. given loan amounts that are less than requested) is 15.2%, while the rest 84.8 were not rationed. The mean age of those borrowers who are rationed is 42.9, which is lower than the mean age of the borrowers who are not rationed (44.1). That is younger borrowers are more rationed than their older counterparts as is expected.

In terms of gender, 13.4% of the male are rationed which is less than that for the female borrowers (18.0%). This shows that female borrowers are being more rationed (i.e., there is a positive relation between gender and loan rationing, though not significant). This seems incorrect since female have performed better in terms of repayment than the male borrowers.

Let us compare the difference between the two groups with respect to education by categorizing borrowers into those who have no education (illiterate) and those who have gone to school (literate). Accordingly 129(63.5%) of the respondents are illiterate while the rest 74(36.5%) are literate. 17(23.6%) of the literate borrowers were rationed while only 12(9%) of the illiterate borrowers were rationed, showing that the institution is rationing literate borrowers more, which seems not correct when the loan repayment performance of such borrowers is taken into consideration. As explained in the previous section literate borrowers have performed better in terms of repayment than the illiterate ones.

The mean loan amount released to the borrowers who are rationed (Birr 1467.24) is higher than that for the non-rationed borrowers (Birr 1394.54). This implies the institution is probably stricter on those borrowers who request loan amounts that are abnormally larger, so that they are rationed

to some extent; though the extent of rationing being not so severe that such borrowers still receive loan amounts that are on average larger than those who apply for a reasonable amount of loan according to the institution's preference. Here we observe that the more borrowers apply for larger loans the more they are rationed, just in the way explained above.

The proportion of borrowers who are rationed and non-rationed is almost similar when one considers borrowers who perceive supervision as adequate, i.e., 55.2 and 55.6 respectively. In fact there is a slight difference between the two groups with the proportion of those who are not rationed being slightly more than that for the former group, though the difference is very far from being significant. Similarly 79.3% of those who perceive repayment period as suitable are rationed, while the corresponding figure for those who are not rationed is 89.1%, indicating a negative relationship. The difference between the two groups though is not significant.

The same is true regarding the income level borrowers earn as a result of their participation in the program. With regard to value of livestock, the mean for the former group (i.e., the rationed borrowers) is Birr 3420.35, which is less than that for the latter one (Birr 4149.63). This shows that the more the value of livestock, the less the borrower faces loan rationing. In fact there is no significant difference between the two groups, in terms of value of livestock.

In relation to area, the difference between the two groups happens to be significant at the1% level. Only 65.5% of those who are rationed are rural borrowers while a larger proportion (i.e., 90.8%) of those who are given the same amount of loan as they requested were rural borrowers. On the other hand the proportion of urban borrowers in the former group (34.5%) by far exceeds that in the latter group (9.2%). This shows that the institution rations more urban borrowers than their rural counterparts, i.e., the variable 'area' is positively related to the loan rationing mechanism employed by the institution, contrary to what is expected. This is because most of the rural borrowers are farmers and this sector is associated with high risk, so that the institution is expected to ration more rural borrowers than their urban counterparts. Moreover urban borrowers are better in terms of repayment than their rural counterparts

The other variable of interest is number of dependents supported by the borrowers both within the household and outside. The difference between the two groups in this respect is again significant at the 10% level. Here we observe that the mean number of dependents foe the former group (the rationed group) is 7.6, which is greater than that for the latter group (6.8). So this variable is negatively related to the loan rationing as is expected.

4.5. Econometric Analysis

In this section the method of model estimation is presented and the estimation results also discussed in detail. An attempt was made to compare the results obtained from the descriptive analysis given in the previous section with those obtained from the econometric estimation.

4.5.1. Determinants of Loan repayment performance

As discussed in chapter three, one of the explanatory variables that are thought to influence the loan repayment equation is loan diversion rate. Since this variable was identified dependent on some variables that are included in the loan repayment equation, loan diversion equation was estimated first and its fitted values were used in the equation of loan repayment performance, in order to avoid endogeniety.

It is obvious that hetroscedasticity is a problem, which is highly associated with cross-sectional data such as the one used for this study. Hetroscedasticity is a situation where the disturbance terms don't have constant variance. Since the presence of hetroscedasticity would result in inconsistent estimators, it has to be corrected before any tests are carried out based on the estimation results obtained.

As discussed in chapter three, since loan diversion rate is continuous and can assume any value between zero and one, the appropriate model to be employed here is Tobit, more specifically the two-limit Tobit model. However, this model has its own drawback in terms of correcting for hetroscedasticity, i.e., it is difficult to obtain robust standard errors.

During the estimation process, the equation for loan diversion was detected to have problem of hetroscedasticity. Since the STATA software does not have the robust option for Tobit as explained above, the methodology that was suggested by James Hardin, Stata Corporation, found on http://www.stata.com/support/faqs/stat/tobit.html was made use of. This method employs the estimation of interval regression.

According to the procedure presented in the above website the interval regression is estimated using variables generated from the dependent variable and was shown how such a regression is used to obtain the same results as the Tobit regression. So to obtain the robust standard errors, it is only a matter of adding the robust option to the interval regression. Accordingly, an interval regression is estimated using the variables generated from the dependent variable in the same way as explained above and on the other hypothesized explanatory variables. Next the robust option is used on the same regression to correct for the problem of hetroscedasticity. The final estimates so obtained are given below.

Table 15 Maximum likelihood estimation for loan diversion

Interval regression — Number of obs = 203

Wald chi2(8) = 15.64

Log likelihood = -106.99844 — Prob > chi2 = 0.0478

	Coefficients	Robust Std. Err.	Z-Value	P>|z|
D	-0.2057434**	0.113017	-1.82	0.069
NTB	0.0754362**	0.0481348	1.57	0.117
NDP	0.0004972	0.0191063	0.03	0.979
BK	0.1500751	0.1702739	0.88	0.378
INCA	-0.0000298	0.0001758	-0.17	0.865
SPV	-0.0172498	0.0985662	-0.18	0.861
SRP	-0.3266075*	0.1147342	-2.85	0.004
LSZ	0.0000411	0.0001404	0.29	0.770
Cons	-0.2642259	0.2515055	1.05	0.293
/sigma	0.5177089	0.0467682		

* Significant at 1% ** significant at 10%

The estimated model is significant at the 5% level. As shown in the table 15, loan diversion is positively related to number of dependents supported by the borrower, use of bookkeeping, loan size and number of times borrowed from the same source. Education, income from other sources loan supervision and suitability of loan repayment period were found to be negatively related to loan diversion. Suitability of repayment period was found to be significant at 1%, while education and number of times borrowed were found to be significant at 10%.

The sign of the variable representing the use of financial recording systems has an unexpected sign (positive) but insignificant. The reason for this could be the fact that the vast majority of the borrowers in the sample are illiterate and even the few educated ones are unable to use modern and accurate methods of keeping financial records. The rest of the variables have exhibited the expected signs.

The results indicate that education, number of times borrowed and suitability of repayment period are significant determinants of loan diversion. The positive sign for education indicates that, literate borrowers have effectively used the loan for the intended purposes. But those who borrowed for more years on the average have contributed to the increase in the probability of diversion, may be due to the fact that they no more need further loans from the same source.

The finding about the sign for coefficients of education and loan supervision coincides with that in Teferi (2000) and Retta (2000), while that for number of dependents is similar to the findings of Mengistu (1997), Berhanu (1999) and Retta (2000).

Comparing the results obtained here with those in the descriptive statistics, there is some difference in the findings for loan size, supervision and use of financial records. Since possible explanation for the latter two variables is given in the descriptive analysis section, let's consider loan size here. This variable was found insignificant in both the analyses, implying that the discrepancy observed is not that worrying. The fact that the variable is positive in the regression seems more realistic and consistent with findings in many studies (Abreham, 2002; Berhanu, 1999; Teferi, 2000).

To see if there is any gain of using the tobit model in estimating loan diversion, OLS was run on the same variables. The result shows that only education and suitability of repayment period are significant (see annex II), implying that there is indeed a gain in using the tobit model instead of the OLS. Coming to the discussion of the estimates of the probit model for our loan repayment equation, the existence of problem of hetroscedasticity has been detected. This has necessitated the estimation of robust model. The estimation results are presented in table 16. The overall goodness of fit indicates that it is significant at 1%, implying that the explanatory variables used in the regression equation explain the variation in the dependent variable quite well.

Table 16 Maximum likelihood estimate of a probit model for loan repayment performance

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Probit estimates — Number of obs = 203

Wald chi2(12) = 53.07

Prob > chi2 = 0.0000

Log likelihood = -11.278366 — Pseudo R2 = 0.8070

LR	Coefficients.	Robust Std. Err.	Z-Value	P>|z|
D	1.218347***	0.6817127	1.79	0.074
AG	0.0077951	0.1234208	0.06	0.95
AGSQ	-0.00043	0.0013922	-0.31	0.757
SX	-0.1295234	0.6335709	-0.2	0.838
OSC	3.057801*	1.112444	2.75	0.006
LSZ	-0.0020723**	0.001014	-2.04	0.041
SRP	2.166316*	0.6107892	3.55	0.000
SPV	0.9705793***	0.5811818	1.67	0.095
INCOM	0.0346739*	0.0145101	2.39	0.017
LVSK	0.0013884*	0.0003601	3.86	0.000
NDP	-0.0415804	0.1120186	-0.37	0.710
FITLDR	-9.794303**	4.710661	- 2.08	0.038
_cons	-3.491235	2.933985	-1.19	0.234

* Significance at 1% ** Significance at 5% *** Significance at 10%

Among the variables that were thought to affect loan repayment performance, variables like timeliness of loan issuance and cost of default are excluded due to the reasons explained in the descriptive analysis section. Variables like, use of financial recording methods, income from other sources and area are dropped because they were inestimable using the software. For instance area = 1 predicts success perfectly and hence was dropped during the estimation. Eight of the eleven explanatory variables used in the estimation of loan repayment performance equation were found significant. According to the estimates, loan diversion is significant and

negatively related to loan repayment performance as expected. The negative sign probably implies the use of diverted funds for non-income generating purposes, and it is significant at 5%.

Gender, loan size and number of dependents are all negatively related to the probability of loan repayment, none being inconsistent with prior expectation. Only loan size is significant at 5% level. This shows that the higher the loan size, the lower the probability of repaying the loan. The negative sign for gender indicates that female borrowers are better payers of loan than their male counterparts, although it is not significant. This result is consistent with the findings in Teferi (2000) and Berhanu (1999).

On the other hand age was found to be positive, while age squared turned out to be negative. This shows that as age increases, the probability of loan repayment increases up to a certain level of age beyond which performance will decline (i.e. there is a non-linear relation). Both these variables are statistically insignificant.

Income from activities financed by the loan, suitability repayment period, loan supervision, literacy and value of livestock are positively and significantly related to loan repayment performance. We have seen that the same conclusion was made in the descriptive analysis part. The coefficient of the dummy for education above grade 0 (i.e. grades 1-12) is significant 10% level of significance, indicating that with more education borrowers can use the loan efficiently and invest on more productive and income generating activities enabling them to settle their loan obligation in time.

Availability of other sources of credit has been included in the estimation and it was found to be positively related to loan repayment performance, consistent with prior expectation. This could be a possible explanation for the fact that some borrowers shift between OMF and these other sources of credit such as moneylenders during repayment, probably despite their inability to repay the loan in full on their own. Owing to the fact that only very few of the respondents

indicated that they had additional sources of credit; this finding doesn't seem plausible and needs further study.

In summary, loan diversion and loan amount are significant factors that undermine repayment performance, while value of livestock, income, loan supervision, suitability of repayment period, and literacy level are important and significant factors that enhance the probability of repayment. The results obtained here are in complete agreement with those found using the descriptive statistics.

4.5.2. Evaluation of the Loan Rationing Mechanism

Like the previous two equations, problem of hetroscedasticity was also detected during the estimation of the probit model for loan rationing. As a result, a robust estimation was run, the results of which are given in table 17.

Six out of the eleven variables included in the model were found to be significant. According to the estimates presented in the table, loan diverters, borrowers supporting larger number of dependents, borrowers earning more income and literate borrowers are more rationed, i.e., the probability of such borrowers being rationed is high. On the other hand, borrowers who are older, male, apply for larger loan size, perceive supervision as adequate, perceive the repayment period as suitable, and whose value of livestock is high are less rationed. Literacy level, age, suitability of repayment period, value of livestock, number of dependents and loan diversion are found to be significant in the model.

Table 17 Maximum likelihood estimate of a logit model for loan rationing

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Probit estimates — Number of obs = 197

Wald chi2(11) = 22.95

Prob > chi2 = 0.0180

Log likelihood = -72.055849 — Pseudo R2 = 0.1246

LRAT	Coefficients .	Robust Std. Err.	Z-Value	P>|z|
D	-0.5928361**	0.2545076	-2.33	0.020
AG	0.1202621***	0.064093	1.88	0.061
AGSQ	-0.0013319***	0.0007051	-1.89	0.059
SX	0.1747426	0.2897258	0.6	0.546
LSZ	0.0002257	0.0004294	0.53	0.599
SRP	0.5073275***	0.3421386	1.78	0.108
SPV	0.0408717	0.2420632	0.17	0.866
INCOM	-0.0073434	0.0050361	-1.46	0.145
LVSK	0.000075***	0.0000398	1.89	0.059
NDP	-0.1135034**	0.0502756	-2.26	0.024
FITLDR	-2.878546***	1.72271	-1.67	0.095
_cons	-1.534739	1.475238		

* Significance at 5% *** Significance at 10%

With this brief description of the estimation result, we now go to the evaluation of the loan rationing (screening mechanism). According to Hunte (1996), if a variable is positively signed in both equations, then the borrower with such a characteristic is correctly identified as creditworthy. If it is negatively signed in both equations, then the borrower with such a characteristic is correctly identified as non-creditworthy and hence should be rationed.

If on the other hand a variable is positive in the loan repayment equation and negative in the rationing equation, then the screening technique is incorrectly rationing a creditworthy borrower. Similarly, if a variable is negative in the repayment equation but positive in the rationing equation, it implies that the borrower having such a characteristic that results in poor loan recovery is less rationed while he/she must have been rationed more.

To proceed with the method of evaluation described above, the estimates of the probit models for loan repayment and loan rationing are reproduced in table 18 below for easy reference.

Table 18 Comparison of the two estimates

Variables	Loan Repayment			Loan rationing		
	Coefficient	Robust Std. Err.	P>|z|	Coefficients	Robust Std. Err.	P>|z|
D	1.218347***	0.681713	0.074	-0.5928361**	0.254508	0.02
AG	0.0077951	0.123421	0.95	0.1202621***	0.064093	0.061
SX	-0.1295234	0.633571	0.838	0.1747426	0.289726	0.546
OSC	3.057801*	1.112444	0.006			
LSZ	-0.0020723**	0.001014	0.041	0.0002257	0.000429	0.599
SRP	2.166316*	0.610789		0.5073275***	0.342139	0.138
SPV	0.9705793***	0.581182	0.095	0.0408717	0.242063	0.866
INCOM	0.0346739*	0.01451	0.017	-0.0073434	0.005036	0.145
LVSK	0.0013884*	0.00036		0.000075***	3.98E-05	0.059
NDP	-0.0415804	0.00036	0.71	-0.1135034**	0.050276	0.024
FITLDR	-9.794303**	4.710661	0.038	-2.878546***	1.72271	0.095

* Significance at 1% ** Significance at 5% *** Significance at 10%

Accordingly borrowers who are aged, perceive the repayment period as suitable, perceive loan supervision as adequate and own larger value of livestock are correctly identified as being creditworthy and were not rationed or are less rationed. Similarly borrowers who are loan

diverters and support larger numbers of dependents are correctly identified as being non creditworthy, and hence are rationed.

On the other hand, borrowers who earn more income from activities financed by the loan and who are more educated are incorrectly rationed despite being creditworthy, while those who applied for larger loan amount and those who are male are less rationed in spite of the fact that they contribute to poor loan recovery rate. Here the screening technique happens to be problematic. In fact the rationing of borrowers with more income could be taken as a deliberate pro-poor strategy followed by the institution.

Overall according to the evaluation technique given above the screening mechanism employed by OMF Konso sub branch seems to be fair (sound), since in six of the ten variables, the criteria used were correct.

Hunte (1996) further went on to investigate signs of the coefficients in conjunction with significance of the variable to evaluate the ***accuracy*** of the screening technique. Accordingly, only four variables are significant in both equations; namely: Suitability of repayment period, value of livestock, education and loan diversion. So borrowers who have larger value of livestock and perceive repayment period are correctly identified as being creditworthy, while literate borrowers were incorrectly rationed despite their being better in terms of loan repayment. Loan diverters are however, correctly identified to be non-creditworthy and rationed accordingly. Mengistu (1997) got the same result for the case of Awasa regarding education.

The fact that borrowers who are literate are incorrectly rationed is consistent with what has been stated earlier in the descriptive statistics. The institution rationed literate borrowers despite their good performance in loan repayment. This is an important issue for the institution to look into and take a corrective measure.

In concluding this section, it is important to point out that although in over half of the criteria discussed above the screening technique was sound; there are serious mistakes that are being committed. Overall four of the ten factors on the one hand and one of the four significant factors on the other, were incorrectly used by the institution for screening, which necessitates a careful examination of the screening technique being used by the institution.

4.6. Assessing the Impact of Omo Micro Financing Scheme

As explained in chapter three, the methodology that will be used to deal with this part of the study is the before-after approach of impact assessment. The impact indicators to be used include effect of the program on income, access to education, access to health facilities and nutritional status.

We have attempted to quantify the changes achieved in this regard in the descriptive analysis. However, such effects of the credit scheme should be analyzed by comparing the indicators before and after participation in the loan scheme. This requires hypothesis testing by formulating the null and the alternative.

Test of hypothesis can be classified into two: parametric and non parametric. The former is just the standard tests like the t-test, which are based on the distributions of the population. Such tests require assumptions about certain properties of the parent population from which the sample is taken.The non-parametric tests on the other hand do not require such assumptions. They are used with two related variables to test the hypothesis that the two variables have the same distribution. It makes no assumptions about the shapes of the distributions of the two variables. These tests take into account information about the magnitude of differences within pairs and give more weight to pairs that show large differences than to pairs that show small differences. The test statistic is based on the ranks of the absolute values of the differences between the two variables. Since such tests are helpful in comparing the situation before and after participation in the loan scheme, we will employ Walcoxon's matched pairs non-parametric test.

This test calculates the differences between each observed values and ranks these differences in order of magnitude, beginning with the smallest absolute difference. Next the actual signs of the differences will be sorted out to corresponding ranks and the sums of the positive and negative ranks are calculated, after which they are denoted as **T+** and **T-** respectively. If **Xb** and **Xa** denote a variable X that is observed before and after a certain change, then the alternative hypothesis and the test statistic can be set as follows (the null hypothesis being Xa=Xb)

	Alternative Hypothesis	Test Statistic
H1=	Xa<Xb	T+
	Xa>Xb	T-
	Xa≠Xb	Smaller of T+ or T-

We start checking whether the living and economic condition of the borrower has improved after the loan using the income variable. Denoting the mean annual income before and after the loan by LECB and LECA our hypothesis becomes:

Ho: LECA=LECB

H1: LECA>LECB and the following test result are obtained:

Ranks		N	Mean rank	Sum of the Ranks
LECA-LECB	Negative Ranks	80[1]	47.69	3070
	Positive Ranks	22[2]	42.28	850
	Ties	101[3]		
	Total	203		

1 LECA<LECB 2 LECA>LECB 3 LECA=LECB

Test statistics[1]	LECA-LECB
Z	-4.821[2]
Asymp. Sig. (2-tailed)	0.000

1 Wilcoxon Signed Ranks Test 2 Based on the positive ranks

The above test indicates that the null hypothesis is rejected at the 1% level of significance. This confirms that the average annual income of the borrowers after loan is significantly greater than that before the loan.

Next we see effect of the program on access to medical facility through the expenditure on health. Denoting the annual health expenditure before and after loan by AMFB and AMFA respectively we obtained the following result.

Ranks		N	Mean rank	Sum of the Ranks
AMFA-AMFB	Negative Ranks	10[1]	95	267
	Positive Ranks	140[2]	70	8920
	Ties	40[3]		
	Total	190		

1 AMFA<AMFB 2 AMFA>AMFB 3 AMFA=AMFB

Test statistics[1]	AMFA-AMFB
Z	-9.5[2]
Asymp. Sig. (2-tailed)	0.000

1 Wilcoxon Signed Ranks Test 2 Based on the Negative ranks

The above result leads us to the rejection of the null hypothesis at the 1% significance level, showing that the average annual expenditure on health after the loan is significantly greater than that before loan.

Finally we see the effect of the credit scheme on household nutritional status using the average annual expenditure on household consumption expenditure. Denoting the consumption expenditure before and after loan by HCB and HCA respectively the following test results are found.

Ranks		N	Mean rank	Sum of the Ranks
HCA-HCB	Negative Ranks	2[1]	181.50	363
	Positive Ranks	198[2]	90.68	19737
	Ties	30[3]		
	Total	203		

1 HCA<HCB 2 HCA>HCB 3 HCA=HCB

Test statistics[1]	HCA-HCB
Z	-11.384[2]
Asymp. Sig. (2-tailed)	0.000

1 Wilcoxon Signed Ranks Test 2 Based on the Negative ranks

The above test result leads to the rejection of the null hypothesis at the 1% level of significance, indicating that the annual expenditure on consumption after loan is significantly greater than that before the loan. In general the above tests show that there is improvement in the living conditions of the beneficiaries, and in line with this 92.4% of the respondents have reported such an improvement during the survey.

Before concluding this section, there are some points that deserve explanation about the abovementioned positive impact of the loan scheme. In all the cases, we have seen income and expenditure levels after loan being significantly greater than that before the loan. But simple increase in income and expenditure levels may not necessarily imply that the living condition of the borrowers has improved. Cost of living rises over time due to various reasons and household size gets larger and larger from time to time. This may be reflected in increased expenditures of consumption, education and health care; while no notable improvement is observed in terms of the nutritional health status, etc. Also there is problem of recalling earlier sources and levels of income. Moreover change in the access to health may come about due to various reasons such as changes in the health infrastructure (e.g., new heath centers being built in the area), prevalence of health problems necessitating health care. So the findings about improvement of the situations after loan as tested by the Wilcoxon Matched Pairs Test should be seen in light of these limitations.

CHAPTER FIVE

SUMMARY, CONCLUSION AND POLICY IMPLICATIONS

5.1 Summary of the findings of the study

In this study attempt was made to look into the factors that affect the repayment performance of microfinance borrowers and to evaluate the loan rationing mechanism used by the institution. Moreover it assessed the impact of the credit scheme on the economic and living conditions of the borrowers. Both descriptive statistics and econometric analysis were carried out to accomplish the above-mentioned tasks.

The descriptive statistics show that only 19.2% of the respondents are female. The proportion of female respondents in the rural sample is even smaller (13%). This indicates that little is done on the part of the institution in terms of woman empowerment, particularly in the rural areas. The majority of the respondents are illiterate (63.5%). Rural borrowers receive on average smaller loan amounts than their urban counterparts.

Above 87% of the respondents reported that the repayment period is suitable. This belief is likely to have a positive impact on loan repayment. All of the respondents believe that loan from such lending institutions is something to be repaid back. Similarly all reported that loan was released timely. Regarding group formation and peer pressure issues, almost all of them reported that they know each other, monitor each other's actions and impose sanctions on members that default. These issues may have contributed to a relatively better repayment rate (93.6%).

Regarding loan utilization 27.1% of the respondents have violated loan agreement, their main reasons being inconsistency of the agreement with their initial intention and market problems.

The majority of the respondents (91.1%) own livestock of which 90.8% of them were rural borrowers. More than half of the respondents had some source of income prior to the loan scheme, their main source being sale of farm produts. Currently 75.8% earn an income level of

Birr 1000-3000 after using the loan from OMF. This improvement has to be seen against the average number of dependents of 6.89.

A large proportion (93.1%) are now saving some amount of money with the institution, while only one was saving personally before the launching of the credit scheme. This is one area of a positive contribution of the program, although most of the borrowers are saving just the compulsory (center and group) saving amounts set by OMF. (See annex I).

With the aim of identifying the determinants of loan repayment, an attempt was made to compare defaulters with non-defaulters accordingly the former were found to be on average a bit younger with more proportion of them being male, illiterate, and loan diverters. They also receive a smaller loan amounts, earn smaller income, own livestock of less value and support more dependents than the non-defaulters. The difference between the two groups was found to be significant in terms of loan diversion, value of livestock, and income.

The same analysis was done on loan rationing. Accordingly, borrowers who are younger, applied for larger loan amount, whose income and value of livestock is less and who support more dependents are disfavored. Also a larger proportion of those who are rationed were literate and loan diverters, while a relatively less proportion of them perceive supervision as adequate and the repayment period as suitable.

The findings of the econometric analysis presented in section 4.5 reveal that, education, suitability of repayment period and number of years borrowed are significant determinants of the probability of loan diversion. Regarding direction of influence, number of dependents, loan size, use of financial records and number of years borrowed enhance, while education, loan supervision and suitability of repayment period undermine the probability of loan diversion.

Factors that are found to be significant determinants of loan repayment performance were education, loan size, loan diversion, availability of other credit sources, loan supervision,

suitability of loan repayment period, income and value of livestock. All of these factors except loan diversion and loan size increase the probability of loan repayment. Number of dependents and being male reduce the loan repayment performance in addition to loan diversion and loan size.

Coming to the screening technique, the empirical evidences show that although there were some problems of separating between creditworthy borrowers from those who is not, in most of the cases the technique was found to be good. Factors like income, level of education were incorrectly used to ration creditworthy borrowers, while the institution wrongly used loan size and gender to identify borrowers who shouldn't be rationed despite their being non-creditworthy. The rest six variables were used efficiently and accurately to identity borrowers into creditworthy and non- creditworthy.

Mengistu (1997) got similar results regarding incorrect rationing of educated borrowers who were actually found to be good payers, and failing to ration those who applied for larger loan amounts despite the fact that they were found to be non-creditworthy.

Regarding impact, it was found that the credit scheme has contributed positively towards improving the income, access to education, access to health service, and nutritional status of borrowers. Overall it seems that the scheme is contributing towards reducing poverty.

5.2 Conclusions and Recommendations

Based on the major findings of this study, the following conclusions could be drawn along with some policy implications to be brought to the attention of the institution and any other interested parties. Generally the evidences in the study reveal that the overall repayment performance of the borrowers and the screening technique, which the institution follows to ration loan to its clients, were found to be sound. Similarly, it was found that the credit scheme has contributed positively in terms of improving the incomes, access to education, access to health facilities and nutritional status of the borrowers. The following recommendations are derived from the findings:

1. Specifically, loan diversion was found to be one of the important and significant factors influencing loan repayment performance negatively, i.e., it increases default risk significantly. This variable is itself influenced by many factors, of which loan supervision, education and suitability of repayment period were found to reduce the probability of diverting loan to nonproductive uses that ultimately lead to reduced recovery rate. So there is a need for a continuous supervision on loan utilization and training so as to reduce both the problem of using loan for non-income generating activities as well as lack of skill observed because of the wide-scale illiteracy (particularly in the rural areas).

2. The other significant determinant that was found to undermine the repayment performance was loan size. This implies that there is a need to determine an appropriate loan amount that just suffices the project cost or purpose of the borrowing, through a thorough investigation of the demand for loans and proposals/plans submitted by borrowers.

3. Factors like income, value of livestock, availability of other sources of credit and being female were found to enhance the probability of repayment. Although designing the lending strategy in such a way that factors enhancing the repayment performance are duly taken in to account can be recommended in general, this needs a great care. For instance income was found to significantly increase the probability of repaying loan in full. But it is not recommended to exclude those with low income hoping to reduce loan default, since this contradicts the very objective of MFIs.

4. On the other hand evidences in this study show that female borrowers have performed better in terms of loan repayment than their male counterparts. But we have seen that the number of women being served particularly in the rural parts of the district is very small. This is also in conflict with one of the objectives of the establishment of such an

institution; i.e., empowerment of women. So the institution has to do much in this direction.

5. In line with the basic idea of improving the loan repayment performance, the screening of borrowers deserves good attention. From the evidence provided in this study, borrowers with more income and educational level were incorrectly rationed despite their being creditworthy, while those applying for larger loan amounts and those who are male were rationed less despite their being non-creditworthy.

6. Rationing those with more income could be seen, as a deliberate pro-poor action on the part of the institution, if at all it is done with such an intention. On the other hand the majority of the institution's clients whose eligibility for participation in the scheme is based on the criteria of being poor are illiterate. Since most of the time literacy and wealth are positively related, and that it seems that the institution is focusing more on equity than efficiency by rationing the literate clients more strictly than the illiterate ones.

7. Although promoting equity may help OMF move towards its objective of poverty reduction, it cannot sustain such an objective on a permanent basis. Screening of the clients is carried out by the Local Poor Representatives and administrators, assisted by the branch staff. Since this procedure is meant to identify the poor who are the target clients of OMF, the issue of equity is somehow being addressed in the screening process. So it should focus more on making its services sustainable rather than promoting equity temporarily. Hence the institution is advised not to incorrectly ration creditworthy borrowers (the literate ones in this case) and also not to leave non-creditworthy borrowers un-rationed (those applying for larger loan amounts and those who are male).

8. Moreover the researcher observed that only four out of eight variables that were significant in the loan repayment equation were also found significant in the rationing equation during the comparison of the two equations that was made to evaluate the

rationing mechanism. This means that important information is being ignored as in the case where some variables contributing to good repayment performance are neglected when it comes to the use of these variables in identifying good borrowers with such characteristics. So another area of focus as far as rationing is concerned should be towards using more of the factors that can be used for identifying clients into creditworthy and non creditworthy, while at the same time the institution should attempt to avoid incorrect use of such factors as criteria for rationing.

9. Finally there are some important points that may need further investigation. These issues may serve as points of departure for further research. We have seen that complementarily was observed between the credit scheme of OMF and that of the moneylenders operating in the area of study. Since from the data collected for this study the number of respondents that reported having access to other credit sources is very few, this finding needs to be further studied. Also there may be a need to test if there is some sort of association between loan repayment and purpose of borrowing. Also it would be better to employ the control group approach of assessing impact of such credit schemes, probably by employing the methodology suggested by Karlan (2001), which uses first time borrowers as the control group. This method may solve the problem related to the costliness of the control group approach of assessing impact.

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Appendices!

Annex I: The number of clients being served by OMF Konso Sub Branch, Repayment rate and savings deposit.

Year	Number of clients			Amount of loan extended			Repayment rate (%)	Savings deposit
	Male	Female	Total	Male	Female	Total		
2007/8	830	120	950	168750	56250	225000	100	196000
2008/9	947	188	1135	394750	56450	451200	98	345690
2009/10	1470	255	1725	838010	122690	960700	96	723065
2010/11	1785	315	2100	1586890	139455	1726345	97.3	169777
2011/12	2025	475	2500	2077575	219125	2296700	92.5	2969748

Annex II: OLS estimation for loan diversion

LDVR	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
D	-.0633728	.0320203	-1.98	0.049	-.1265254	-.0002201
NTB	.0079533	.0150224	0.53	0.597	-.0216749	.0375816
NDP	.0025386	.0058819	0.43	0.667	-.0090621	.0141394
INCA	-9.41e-06	.0000461	-0.20	0.839	-.0001004	.0000815
BK	.0458713	.0500829	0.92	0.361	-.0529055	.1446481
SPV	-.0091645	.029392	-0.31	0.756	-.0671334	.0488044
LSZ	.0000423	.0000456	0.93	0.354	-.0000475	.0001322
SRP	-.1091256	.0424052	-2.57	0.011	-.1927601	-.0254912
_cons	.1152355	.0803967	1.43	0.153	-.0433284	.2737993

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

Annex III: Questionnaire

I am a student of Addis Ababa University College of Business and Economics Department of Accounting and Finance. As partial requirement of the program, I am undertaking a research study with the title: Micro Finance Credit Rationing and Loan Repayment Performance-the case of Omo Micro Finance in Konso sub Branch. The purpose of this questionnaire is to systematically and objectively secure information to better understand the factors affecting loan repayment performance, factors used for credit rationing mechanism and microfinance's role on improving the life style of beneficiaries. So you are kindly requested to extend your cooperation for the success of this study by genuinely answering all questions in the questionnaire. I assure you that your individual answers will be kept strictly confidential. I would like to thank you in advance for your kind cooperation.

I: PERSONAL DETAILS

1. Name of Borrower_____ 1.2 Age_____

2. Sex_____ 0. Female 1. Male

3. Marital Status_____ 1. Single 2. Married 3.divorced 4. Widowed

4. Educational level _____ 1. Illiterate 2. Grade1-8 3. Grade 9-12 4. Above grade 12

5. Number of dependents: Within the household _____ Outside the household_____

6. Occupation: Main_____ Second_____ Third_____

II: INFORMATION ON GROUP FORMATION

1. How many members does the group in which you belong have?

1. 4 2. 5 3. 6

2. Did you know all (most) of the members in your group?

1. Yes 0.No

3. Did you feel responsible to other members of your group?

1. Yes 0. No

4. Did you have the feeling that you might be sued in case of failure to repay the loan?

1. Yes 0. No

5. Do you attempt to know or monitor the loan utilization of the other members of your group?

1. Yes 0. No

6. If yes, what action do you take in case you observe wrong utilization of the loan, say usage of loan for non-intended purpose? 1) Inform OMF 2) Accuse the diverter 3) Put social sanction 4) Other (specify) _____

III: LOAN AND ITS REPAYMENT

1. Did you have any source of credit other than OMF and/or IQUB? 1. Yes 0. No

2. If yes, what is your source? 1) Iddir 2) Money lenders 3) Friends/relatives 4) Banks 5) Other

3. How many times and how much money did you receive from these sources during the past 12 months?

source	year	Amount of loan

4. Have you finished repayment on loan from these sources? 1. Yes 2. No

5. How much money did you receive in loan from OMF'S credit scheme?

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6
Year						
Amount						

6. Is the repayment period set by OMF suitable in your opinion? 1. Yes 0. No

7. If no, recommend a suitable repayment period: _____

8. Was the loan issued timely? 1. Yes 0. No

9. If no, what was the impact of the delay? _____

10. What is the status of recent loan?

1. Fully repaid 2. Repayment on schedule 3. Repayment in arrears

11. If in arrears what is the balance remaining? _____

12. What was the problem for the loan to be in arrears?

1. Loan based business activity was not profitable
2. Used some of the loan for household living expense
3. Sold on credit but did not get paid back on time
4. Loss of assets acquired by the loan
5. Other (specify) _____

13. Do you perceive the cost of default to be high? 1. Yes 0. No

14. If yes, which of the following is the most important in forcing you to repay the loan in time?

1. Claim against personal wealth
2. Claim against guarantors
3. Social sanctions (e.g. loss of social status)

4. Fear of losing another loan in future 5. Other (specify) _____

IV: Loan Utilization

1. What was the purpose for which the loan was taken? 1. Purchase of farm oxen

2. Purchase of agricultural inputs 3.Fattening 4. Petty trade 5 other (specify) __

2. Was the amount of loan you took enough for the purpose intended? 1. Yes 0. No

3. If no, what was the amount you requested? Birr _____

4. Did you spend the entire loan on purposes specified in the loan agreement? 1. Yes 0. No

5. If no, state those non-intended purposes and the amount spent on them

Purpose	Amount spent (Birr)
1 _____	_____
2 _____	_____
3 _____	_____

4 _____ _____

6. What was/were the reason(s) for spending part/entire loan on non intended purposes?

1. The loan amount was not enough for the intended purpose
2. The loan agreement did not coincide with my initial intention
3. Market problem 4. To repay another loan
5. To make a more profitable business
6. Other (specify) _____

V: SUPERVISION, ADVISORY VISITS AND TRAINING

1. Have you ever been supervised regarding loan utilization by OMF staff? 1. Yes 0. No
2. Have you ever been supervised for loan repayment? 1. Yes 0. No
3. If yes to either on. No. 1 or 2, how many times were you supervised?
4. If yes to either 1 or 2, was it adequate in your opinion? 1. Yes 0. No
5. Do you consider supervision as being important for loan repayment? 1. Yes 0. No
6. Did you get any training before receiving loan? 1. Yes 0. No
7. If yes, what kind of training was it? 1. Business 2. Marketing 3. Saving 4. Book keeping 5. Other (specify)
8. Do you think that the training has helped you increase your income? 1. Yes 0. No

VI: INCOME AND WEALTH

1. Did you have a source of income (cash income) for your household before five years, i.e., before joining the program loan? 1. Yes 0. No
2. If yes, what was/were the source(s) and level of your income?

Source	Annual Income

3. What was your annual income from activities financed by the loan during the last 12 months?

   1. Below Birr 1000 2. Between Birr 1001-2000

   3. Between Birr 2001- 3000 4. Between Birr 3001-4000

   5. Between Birr 4001-5000 6. Above Birr 5000

4. Do you have other/new sources of income currently? 1. Yes 0. No

5. If yes, what are these other sources and your annual income from them?

Source	Annual Income

6. What is the estimated value of your assets currently (this is excluding livestock)?

   1. Below Birr 1,000 2.Between Birr 1,001-3,000

   3. Between Birr 3,001- 5,000 4.Between Birr 5,001-7,000

   5. Between Birr 7,001-10,000 6.Above Birr 10,000

7. Do you have livestock currently? 1. Yes 0. No

8. If yes, list their type and number:

Type	Number
1. oxen	
2. cows	
3. goats	
4. sheep's	
5. donkey	

9. Did/do you've your own land? 1. Yes 0. No

10. If yes, how many hectares? Cultivated land_____ Uncultivated land_____

VII: EMPLOYMENT AND PRODUCTION

1. How many workers other than yourself helped you with your work currently? ____
2. Who are they: 1. Family Members 2. Apprentice 3. Hired labour 4. Others_____
3. Do you see any improvement regarding employment for you and your family over the past 5 or so years, i.e. since you joined the program? 1. Yes 0. No
4. Do you use purchased inputs for your business currently (fertilizers, chemicals, improved Seed, etc)? 1. Yes 0. No
5. Do you think that your overall inputs have improved following the program? 1. Yes 0. No
6. Would you explain why? _____

VIII: MEDICAL EXPENDITURE AND ACCESS TO MEDICAL SERVICES

1. Do your family and you have access to health services currently? 1. Yes 0. No
2. If no, go to 8.3. Otherwise who was the bearer of the medical expense?
   1 .Myself 4. Served free
   2. Other family members 5.Myself and other family members
   3. Relatives 6. Others (specify
3. What is your average annual medical expenditure during the last 12 months? Birr_____
4. Do you think that your annual medical expenditure has increased over the past 5 or so years? 1. Yes 0. No
5. How much was the average annual medical expenditure before 5 years? Birr_____
6. Do you think that your access to medical facilities has improved after your participation in the credit scheme? 1. Yes 0. No
7. If no, what do you think is the main reason(s)?
   1. Shortage of medical facilities 3. Low level of income
   2. Unaffordable cost of medical services 4. Other (specify) _____

IX: educational experience and access to education

1. If you have children and other dependents
   -How many of them were going to school during the last academic year? _____

- How much was your total annual educational expense last year? Birr_____

- How many children were you sending to school before 5 years? _____

- How much was your total annual expense on education at that time (5 years back)? Br_____

2. Do you think that there is improvement of access to educational facilities of you and your family? ___ 1. Yes 0. No
3. If no, please indicate the main reasons?

   1. Lack of educational facilities

   2. Unaffordable cost of educational facilities

   3. Low level of income

   4. Distance of educational facilities 5. Other (specify) _____

X: consumption and living conditions

1. What is the average annual consumption expenditure of your household:

   - During the last twelve months? Birr_____

   - Before some five years, i.e., before prior to participation in the program? Birr_____

2. Who was the bearer: During the last 12 months?____ Before 5 years?_____

   1. Myself 2.Other family members 3.Myself and other family members

   4. Donors 5. Other (Specify)

3. What is the status of the household diet currently after the credit?

   1. Improved 2. Same 3. Worsened

4. If it has improved, do you think the nutritional status has improved after program participation? 1. Yes 0. No

XI: market situation and credit benefit

1. Please list the major products and/or services produced from your business that is financed by the loan from OMF?

   1. _____

   2. _____

3. _____

2. How was the demand for your product? ___ 1. High 2. Average 3. Low
3. What was the trend of profits in the level of your business in the past two years or so?
   1. Increased 2. Decreased 3. Stayed the same
4. If increased, what do you think is the reason?
   1. Sufficient fund 2.Availability of market 5. Other (Specify)___
   3. Favorable price 4.Quality advantage

XII: information on other issues

1. Did you have a saving account before participating in the credit scheme of OMF? 1. Yes 0. No
2. If yes, what is the average amount that you manage to save monthly? Birr_____
3. Do you have a saving account after program participation? 1. Yes 0. No
4. If yes, what is the average monthly amount of your saving? Birr_____
5. Do you keep accounting records? 1. Yes 0. No
6. If yes, for what purpose?
   1) To evaluate profit and loss 2) For loan repayment purpose
   3) Other (specify _____
7. If no, explain the reason(s) of not keeping records?
   1. Lack of knowledge
   2. Transaction too small to keep a record
   3. Other (specify) _____
8. Has your living condition improved in genera because of your participation in the credit scheme? 1. Yes 2. No

What is your overall opinion about the credit scheme? _____