



**MEKELLE UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF ECONOMICS**

**FACTORS INFLUENCING FORMAL LOAN REPAYMENT
PERFORMANCE OF URBAN WOMEN IN TIGRAY:**

*A CASE STUDY OF DEDEBIT CREDIT AND SAVING INSTITUTION, ADWA TOWN
WEREDA*

BY

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DECLARATION

I, **Solomon Etay**, here by declare that the thesis entitled “ *Factors influencing formal loan repayment performance of urban women in Tigray, A case study of Dedebit credit and saving institution, Adwa town woreda*” submitted by me for the award of the Degree of Master of science in economics of Mekelle University, through the Department of Economics is original work and it has not been presented for award of any other Degree, Diploma, Fellowship or Other similar titles of any other university or institution.

Name of the student _____ Signature & date _____
Mekelle, Ethiopia

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Thesis proposal Approval Form

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ABBREVIATIONS AND ACRONYMS

ACORD	Agency for Co-operation in Research and Development's
ADLI	Agricultural Development Led Industrialization
AEMFI	Association of Ethiopian Microfinance institutions
AEZs	Agro-Ecological Zones
ATA	Adwa town administration
BOFED	Bureau of finance and economic development
BRAC	Bangladesh Rural Advancement Committee
CBOs	Community Based Organizations
CSA	Central Statistical Authority
DECSI	Dedebit Credit and Saving Institution
EPRDF	Ethiopian people revolutionary front
km	Kilometer
m.a.s.l	Meters Above Sea Level
MDGs	millennium development goals
MFI	Micro Finance Institution
ML	Maximum Likelihood
mm	Millimeter
MTDP	Market Town Development Program
NBE	National bank of Ethiopia
NGOs	Non-Governmental Organizations
OLS	Ordinary Least Square
PEDO	Planning and Economic Development Office
POCSSBO	Project Office for the Creation of Small Scale Organizations
RD	Research and design
ROSCAS	Rotating and non-rotating savings and credit associations
UN	United nations
UNDP	United nations development program
WOFED	Woreda office of finance and economic development

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Abstract

This study was conducted with the aim of analyzing factors that influence formal loan repayment of urban women in Tigray and evaluating the loan rationing mechanism using primary data collected through structured questionnaire from 169 sample women borrowers of DECSI.

The estimation results of the descriptive statistics and the logit model show that level of education, income, loan size, number of times borrowed are important and significant factors that enhance the loan repayment performance.

Regarding the loan rationing, borrowers who are aged, have an access of another loan, number of times borrowed and health expenditure, were disfavored; while those who are with high level of education, number of dependents, apply for larger loan amounts, celebrating social ceremonies, perceive supervision as adequate, high income and loan diversion were favored. There were some serious problems observed in the rationing mechanism the institution employed, i.e., borrowers who are good payers (like those who are literate) were rationed more while those who contribute to the default problem (like those who have high medical expenses) were rationed less. The institution is particularly recommended to improve these problems observed in its rationing mechanism.

Key Words: microfinance, loan repayment performance, loan rationing and Creditworthy

Chapter one

1. Introduction

1.1 Background of the study

Many financial institutions in developing countries provide financial services such as saving and credit to aid several smallholder enterprises. This is an effort in line with the “Millennium development goals” which seeks to reduce poverty by 50% by the year 2015. However, the sustainability and continuity of the financial institutions to increase the volume of credit to stimulate the poverty reduction goal depends on the repayment rates. High repayment rates allow the institutions to lower the interest rates and processing costs and consequently increase patronage of loans. High repayment rates reduce the subsidy- dependence of the credit institutions to help them reach a better sustainability level. Repayment performance thus serves as a positive signal for increasing the volume of credit availability to various sectors of the economy (H.D. ACQUAH¹*, J. ADDO²,2011).

Hunt’s (2002) findings indicated that only a minority of women receiving credit from poverty-oriented micro-finance programmes are controlling their loans. Many women are merely passing the full amount of their loans directly to their husbands, sons or sons-in-law, with little or no access to the income generated and receiving back only enough money to make weekly loan repayments. In other cases, loan management and control within the family is more complex, with some women keeping part of their loans for their own enterprises and passing on the remainder to men.

In addition, lacking appropriate designs to increase borrower’s involvement in the activity funded by her loan, many programmes failed to reach their goals and might have even resulted in negative impacts on women borrowers. Related to this, Mayoux (1999) indicated that many programmes have had negative impacts on women. Where women have set up enterprises, this has often led to small increases in access to income at the cost of heavier workloads and repayment pressures. In many cases, the loans have been used by men to set up enterprises over

which women have little control. In some cases, they have been employed as unpaid family workers with little benefit. In others, there have been indirect benefits and improvements in various aspects of women's well-being as a result of greater recognition of their role in the household and community. While in some cases, women's increased autonomy has been temporary and led to withdrawal of male support. Moreover, in some programmes, there are increasing fears that women's small increases in income are leading to a decrease in male contribution to certain types of household expenditure.

Ethiopian microfinance has made remarkable progress over past decades. In Ethiopia there are over 27 microfinance institutions, reaching over 1.8 million clients in a country of about 80 million populations. However, it should be noted that twenty seven microfinance institutions meet only less than 20% of the demand for the financial service of the active poor. Unfortunately institutions are operating in a highly inflationary environment which has eroded institutional equity and increased financial expenses considerably. Only five institutions remained profitable and the sector was able to cover only 81% of their costs (AEMFI,2008).

In Tigray there are different governmental and nongovernmental microfinance/micro credit institutions working in financial working in financial services. Out of which Dedebit credit and saving institution (DECSI) is one of the largest micro finance institutions in Ethiopia that serve about 425,172 clients throughout Tigray, with more than 4.3 million population. 38% of the DECSI borrowers are women. In terms of outreach DECSI is the second largest microfinance in Ethiopia. Nevertheless, the depth of outreach to the poorest(core poor) is not yet acceptable.(AEMF, 2008).

In Adwa town there are a number of different microfinance/micro credit institutions including DECSI. The number clients in 2012 are 3061. Out of which 1682(55%) are women.

1.2 Statement of the Problem

Saving and credit are integral parts of development, which enable people to be engaged in economic activities that enhance self-reliance. Saving and credit schemes increase the productive potential of poor women and men and particularly of women-headed households.

The UN millennium project identifies micro credit as one of the development strategies that should be implemented and supported to attain the ambition of reducing world poverty by half. The very importance of micro finance, as a useful tool against poverty and food insecurity, has come from the United Nations with the designation of 2005 as the international year of micro credit. (UNDP, 2005)

In Ethiopia, the poverty reduction strategy is becoming the operational framework to translate the global MDGs targets in to national action (UNDP, 2005). Micro finance service intervention in Ethiopia have also be considered as one of the policy instrument of the government and non government organizations (NGOs) to enable rural and urban poor increase out put and productivity, induce technology adoption, improve input and productivity, induce technology adoption, improve input supply, increase income, reduce poverty and attain food security. The sustainability of micro finance 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 (Wolday, 2000)

The borrowed loans be invested for productive purposes and then the generated additional incomes be used to repay to the lending institutions to have sustainable and viable production process. The low repayment performance discourages the lender to promote and extend credit to large and fragmented poor women. Microcredit is extended to the borrowers on the basis of financial discipline in that clients are expected to display the required effort not only from the loans but also to repay their loans on time.

It is generally accepted that credit, which is put to productive use, results in good returns. But credit provision is such a risky business that, in addition to other reasons of varied nature, it may

involve fraudulent and opportunistic behavior. The lender in the formal financial system is at disadvantage of information on the borrower's behavior. Fortunately, group based microfinance system that involves peer pressure and joint liability has evolved to counter the problems of a conventional bank that provides a collateral banked credit alienating the poor (Mengstu, 2007).

For such MFIs to be successful, they should be sustainable both financially as well as institutionally. On top of sustainability one has to include development effects like income on the target group as core measure of success. For agencies that are involved in the development or in assisting the development of micro-credit institution, it is recommended that profitability and sustainability should be the final goals, and therefore the only indicators of success (Rudkins,1994).

Micro-finance interventions may lead to empowerment of women by increasing their incomes and their control over that income, enhancing their knowledge and skills in production and trade, and increasing their participation in household decision-making. As a result, social attitudes and perceptions may change, and women's status in the household and community may be enhanced (Kabeer,1996).

To realize the aforementioned objectives the Dedebit credit and saving institution(DECSE) program has been extending reasonable amounts of credits to urban women. However, the loan repayment performance of the beneficiaries is low, still in Adwa town woreda 32% of the women clients of dedebit credit and saving institution(DECSE) were not repay their loan on the right time in 2012 (DECSE Adwa branch). Moreover, factors contributing to the poor loan repayment performance of urban women are not studied more. To design appropriate lending strategies and procedures, information on relative importance of the factors, which affect urban women's loan repayment performance, is necessary.

1.3 Objectives of the Study

General objective

The main objective of this study is to investigate the factors affecting loan repayment performance of urban women in Tigray.

Specific objectives are

- To identify socio-economic and institutional factors affecting loan repayment performance of urban women.
- To identify the major factors used as a means of separating credit worthy borrowers from those who are not, i.e., to evaluate the efficiency of DECSI's screening mechanism.
- To contribute towards better credit administration with possible pay-off in improved loan repayment.

1.4 . Research questions

- What are the major socio-economic and institutional factors that affect loan repayment performance of urban women in the study area?
- What is the extent of repayment performance of formal loan with respect to informal loan?
- What characteristic of borrowers should be taken into consideration by DECSI in the process of screening their clients in a way that will not put in danger their financial position due to the default problem?

1.5 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.

Although some studies have been conducted on the credit schemes that targeted the poor in Ethiopia, a study of the factors affecting formal loan repayment performance is vital because it provides information that will enable effective measures to be undertaken to improve loan repayment performance and the success of urban women credit programs. It will also enable lenders such as non-governmental organizations and policy makers to have knowledge as to where and how to channel efforts in order to minimize loan defaults. The study is also expected to contribute towards better credit administration with possible pay-off in improved loan repayment.

1.6 Scope and Limitations of the Study

Although sustainability of MFIs includes financial, economic, institutional and borrower viability, this study focuses on only one aspect of it, i.e., borrower viability. Accordingly, the study focuses on loan repayment performance, screening mechanism and impact (which are all part of the borrower viability aspect of sustainability) based on data obtained from only one urban branch in **2011/2012**. More specifically, it refers to the Dedebit credit and saving institution (DECSI) credit program in Adwa town woreda administration. However, not all the borrowers were include in the survey. This limitation is attributable to the financial, time and other resource limitations. Therefore, the study will undertake to meet its objectives within the limitations mentioned.

1.6 Organization of the thesis

The rest of this thesis is organized in six sections. Section two deals with review of literature that includes definitions of concepts, the need for credit and empirical studies on loan repayment performance. Section three presents methodology with a brief description of the study area, sampling method and methods of data analysis. Results obtained are discussed in more detail in section four. Section five presents summary and policy implications.

Chapter two

2. Literature review

2.1 Definitions

Beckman and Foster (1969) defined credit as the power or ability to obtain goods or services in exchange for a promise to pay for them later. In other words, it is the power or ability to obtain money, through the borrowing process, in return for a promise to repay the obligation in the future. According to these authors, credit represents the actual or prospective debtor's power or ability to effect an exchange by offering his promise for future payment. Credit is necessary in a dynamic economy because of the time that elapses between the production of a good and its ultimate sale and consumption. The risk in extending credit is the probability that future payment by the borrower will not be made. Futurity is thus a basic characteristic of credit and risk is necessarily associated with the time element.

Regarding financial institutions, there are private and governmental organizations, which serve the purpose of accumulating funds from savers and channeling them to individuals, households and businesses, needing credit. Financial institutions are composed of deposit-type institutions-bank and non-bank-contractual saving institutions, personal and business financial companies, government and quasi-government agencies, and miscellaneous lenders. Formal financial institutions can be defined as institutions that are regulated by central bank's supervisory authorities for licensing and credit policy implementation. They usually use legal documents or the legal system to enforce contracts.

Formal loans are those disbursed by financial institutions that are set up legally and engaged in the provision of credit and mobilization of savings. In the Ethiopian context, these institutions are regulated and controlled by the National Bank of Ethiopia (NBE). On the contrary, informal loans are those provided by individuals, organizations and institutions that operate outside the

legal banking system and control of the National Bank. Bekele (1995) indicated that informal credit sources are categorized as commercial (those who lend money on short-term basis to obtain profit) and non-commercial (lenders that generally include friends, relatives and neighbors). Mutual help associations include Iddir, Iqqub, modern cooperatives, NGOs, etc. Popiel (1994) defined informal finance as the one that comprises of all lawful but unregulated activities, such as rotating and non-rotating savings and credit associations (ROSCAs), money lenders and money collectors and other providers of retail financial services. Iddir, Iqqub and Arata abedari can be incorporated into the above definition in the Ethiopian context.

Default is defined as failure to pay a debt or a loan at the right time. On the contrary, non default is defined as payment of a debt or a loan at the right time. Hunte (1996) defined credit worthy (synonymous to non-defaulter) borrowers as those who satisfy the entire loan contract conditions and repay their loans without ever going into arrears. Non-credit worthy (defaulters), as opposed to non-defaulters, are those who breach their loan contracts and have repayment problems.

Moral hazard is the problem that arises in the credit market when lenders fail to discern the actions of borrowers. It can also arise in credit markets when the behavior of the borrower is influenced by the terms of the loan contract.

The adverse selection theory of credit markets originated with the paper by Stiglitz and Weiss (1981) (as sighted by Ghosh and Mookherjee 1999). The theory rests on two main assumptions: that lenders cannot distinguish between borrowers of different degrees of risk, and that loan contracts are subject to limited liability (i.e., if project returns are less than debt obligations, the borrower bears no responsibility to pay out of pocket). Credit rationing is broadly defined as a situation where the demand for loans exceed 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. The concept that will be addressed in this study is, the first type of rationing.

2.2 Other Countries Experience of microfinance

Empirical evidences gathered in diverse contexts suggest the prevalence of both negative and positive impacts of micro-finance on women socio-economic conditions. A study conducted by Amin et al in 1998, goes to argue that targeted credit can be used as a mechanism for enhancing poorer women's existing socioeconomic conditions and there by altering the relations between gender and class, to the benefit of the weaker parties. The authors attempted to explore the relationship between poor women's participation in micro-credit programmes and their empowerment by using empirical data from rural Bangladesh. This has been done by examining quantitative data collected from a representative sample consisting of female borrowers and non-borrowers from each of five NGO program areas, and the other sample consisting of non-borrowers from counterpart non-program areas with no significant presence of any NGO program.

The results show that the NGO credit members are ahead of the non-members in all three indices of empowerment, irrespective of nonmembers' residence in programme areas or non- programme areas. Moreover, the non-members within NGO programme areas show a higher level of empowerment on the autonomy and authority indices than do the non-members within the comparison areas.

The results further indicate that education, house type, yearly income, etc., tend to be positively associated with autonomy and authority indices. Also positively associated are duration of NGO membership and non-agricultural occupations. The implications of all these findings are that NGO credit programmes in rural Bangladesh are not only likely to bring about rapid economic improvement in the situation of women but also hasten their empowerment.

Contrary to what has been said above, Hossain (1984), concluded that low income women borrowers in Bangladesh invest cautiously in low-risk, familiar, low-productivity enterprises. A recent RD-12 study of loan use shows that rates of return for women's income-generating activities average 145% while rates for men, 211% (Matienzo, 1993). By far, the bulk of loans taken by women in special credit programmes are invested in traditional activities such as paddy, husking, petty trade, and livestock rearing, most of which show a negative return to labor when it is imputed to the male agricultural wage rate.

Hunt's (2002) findings indicated that only a minority of women receiving credit from poverty-oriented micro-finance programmes are controlling their loans. Many women are merely passing the full amount of their loans directly to their husbands, sons or sons-in-law, with little or no access to the income generated and receiving back only enough money to make weekly loan repayments. In other cases, loan management and control within the family is more complex, with some women keeping part of their loans for their own enterprises and passing on the remainder to men. Goetz and Gupta (1996) also found that, on average, only 37 per cent of loans provided by four different Bangladeshi credit organizations were either fully or significantly controlled by women, where significant control does not include control over marketing, and may thus imply little control over the income generated.

In addition, lacking appropriate designs to increase borrower's involvement in the activity funded by her loan, many programmes failed to reach their goals and might have even resulted in negative impacts on women borrowers. Related to this, Mayoux (1999) indicated that many programmes have had negative impacts on women. Where women have set up enterprises, this has often led to small increases in access to income at the cost of heavier workloads and

repayment pressures. In many cases, the loans have been used by men to set up enterprises over which women have little control. In some cases, they have been employed as unpaid family workers with little benefit. In others, there have been indirect benefits and improvements in various aspects of women's well-being as a result of greater recognition of their role in the household and community. While in some cases, women's increased autonomy has been temporary and led to withdrawal of male support. Moreover, in some programmes, there are increasing fears that women's small increases in income are leading to a decrease in male contribution to certain types of household expenditure.

A review of the literature raises serious questions about the extent to which women retain control over assets purchased as a result of credit. Kabeer (1998) finds that microfinance has been effective in increasing incomes and assets, although certainly not in the poorest households. She found that women tend to spend income, when they do control it, on household consumption and 'security related assets' such as homestead land, whereas male borrowers are more likely to invest in further productive activities.

On the other hand researches undertaken by BRAC showed very mixed results regarding the impact of micro-finance on whether women are able to acquire and control assets. While one study found that control of assets by women has increased due to their involvement in BRAC groups (Pitt and Khandker, 1995), another study (Halder and Husain, 1998) found that both the ownership of assets and the calorie consumption of BRAC members are negatively correlated with length of membership in BRAC groups. This implies that the poorest BRAC members needed to sell some assets for debt servicing, and that they are more likely to use their loans for less productive activities and for consumption.

2.3 The Micro-finance Experience in Ethiopia

A study conducted on the Dedit Credit and Saving Institution (DECSI); found that DECSI's program has had a positive impact on the livelihoods of its clients. Compared to non-clients, clients have experienced greater improvements over the last 12 years (2000 – 2012). Their situation has improved in terms of income, consumption and assets. They also seem to be more

food secure and less vulnerable to shocks and have a greater diversification in terms of income sources. The study found that the improvement in economic condition of the clients is a necessary condition for DECSI's program that could lead to social and political empowerment for the marginalized groups. The study also concluded that economic empowerment leads to social and political empowerment.

Teferi (2002) in his study on Dedebit Credit and Saving Institution (DECSI) found out that credit scheme has made its own positive contribution to the beneficiaries in relation to income, access to educational facilities, medical facilities, household diet and savings.

On the other hand, this study also indicated the negative effects of DECSI's program. A considerable number of credit-financed ventures fail with a possible effect on indebtedness and asset depletion of clients. In addition, a high level of school dropout rates of client's children is registered. This is for a purpose of shepherding animals purchased by program fund (Borchgrevink et al, 2005). The other study was conducted on OMO and SIDAMA micro-finance institutions' women clients in Awassa town, Southern Nations and Nationalities Peoples' Regional State. According to this study, a majority of the clients are involved in the making and trading of food, and food-related products. The study also witnessed there is no diversification in their business activity. The reason for this is that the production of food and related items trade involves less risk compared to other activities. The study further found that 92% of them are not very much aware that the savings are more important than credit to build their future. The researchers' explanation of this finding is that MFI's savings policy is only to cover the risk situation rather creating any element of thrift among the clients.

Nevertheless, the study argued that there is a good influence of micro credit on the urban women working groups in terms of income and self-employment generation. Furthermore, it also reflected in many cases in business improvements, decision making process and asset formation at low levels, and it is believed not sufficient (Padma and Getachew, 2004).

2.4 Microfinance Development and Women's Participation in Ethiopia

Up until the early 1990s, the sources of finance for rural and urban poor and micro and small enterprise operators in Ethiopia were confined only to informal sources of finance like moneylenders, friends and relatives (Itana et al, 2004). He further noted that, starting in the mid-1990s, following the drought of 1984/85, some Non-Government Organizations (NGOs) introduced the idea of saving and credit among poor people as a strategy for rehabilitation and development. Later on, special government programs operated mainly in collaboration with international financial institutions came into the picture. However, both types of programs were operated in a scattered manner and lacked sustainability until 1996.

Of the substantial measures taken to liberalize the financial sector, the promulgation of proclamation No.40/96 is most commonly cited. The proclamation provides the framework to create, expand and develop microfinance programs. Micro-financing is viewed as a means to alleviate poverty through pumping capital to subsistence agriculture and micro enterprises.

Following the Agricultural Development Led Industrialization (ADLI) strategy of the EPRDF government, rural finance has been considered as an important tool for agricultural and food security (Belay, 2001). Consistent with its ADLI policy, the government had to reconsider the operational modality of microfinance to facilitate a very significant improvement in service delivery and outreach. Consequently, the government came up with Proclamation No.40 in June 1996. The central elements of the proclamation seem to be outreach and sustainability. That is, if properly implemented, the proclamation has the potential to facilitate significant outreach, and the flourishing of several sustainable Micro-finance institutions (Meklit MFI et al, 2005). After the enactment of this Proclamation, about 26 MFIs have been legally registered by the National Bank of Ethiopia (NBE), (Wolday, 2007).

The importance of the micro and small enterprises sector in Ethiopia, particularly for the low-income, poor and women groups, is evident from their relatively large presence, share of employment and small capital requirement. These are sufficient reasons for governments and other stakeholders in development to be interested in micro and small enterprises (Gebrehiwot and Wolday, 2001). In line with the development of micro-finance institutions, the Government of Ethiopia set up participatory rules and policies which gave space for women productivity. Padma and Swamy (2003) noted that, government has formulated and issued the Ethiopian Women's Policy to speed up the economic and social advancement of women. This policy gives special emphasis to rural women by 'facilitating the necessary conditions whereby they can have access to basic services and to ways and means of lightening their workload'. Consequently, all development programs at national and regional levels should be able to integrate gender concerns in their plans and programs to ensure that women participate, contribute, benefit, become recognized, and obtain technological support. Rural development programs need to reorient their implementation strategies so that they would target rural women as beneficiaries of development initiatives and programs. Within this framework, anti-poverty and women empowerment could be aspects of the major development strategies.

Ethiopian MFIs have served 1,211,305 clients nation wide up to June 2005. The loan portfolio in the hands of active clients was about Br 1.5 billion. The average loan size was about Br.1000. Ethiopian microfinance industry is dominantly serving the rural poor. About 38 percent of clients of the MFIs are female (Wolday, 2007). As the overriding objective of MFIs in Ethiopia is to provide a broad range of micro-finance services to large numbers of poor households, it should be their (MFIs') priority to accommodate remarkable numbers of women clients to accomplish tangible changes in the livelihood of the rural poor.

2.5 Empirical Studies on Loan Repayment Performance

Loan repayment performance is affected by a number of factors, some of which are believed to negatively influence repayment while others have positive impact. Different studies have been carried out concerning loan repayment performance of borrowers in various countries by

different authors. In what follows, the findings of studies on loan repayment performance will be presented.

2.5.1 Literature on other Countries

The analysis of determinants of loan repayment of credit groups carried out by Zeller (1998) indicated that groups with higher levels of social cohesion have a better repayment rate. Moreover, the result led to the conclusion that it is not the level of physical and human assets of the group members but the degree of variance of risky assets among members that contributes to better loan repayment. His results also indicated that heterogeneity in asset holdings among members, and related intra-group diversification in on and off-farm enterprises, enables members to share risks so as to better secure repayment of the loan. Furthermore, gains in the repayment rate due to risk-sharing diminish at the margin, because of increased costs of coordination, monitoring, and moral hazard that come with greater heterogeneity in groups. Zeller (1998) emphasized that policy makers and program managers should be aware that the often-postulated homogeneity among group members has trade-offs by reducing the group's ability to repay loans in times of distress and to take advantage of risky, but more profitable, enterprises by spreading risks among members of the same group.

Jama and Kulundu (1992) in their study on smallholder farmers' credit repayment performance in Kenya considered some variables which they thought were related to loan repayment performance and found that loan diversion, farm income, farmers' attitude toward loan repayment, proper amount of purchased farm inputs and source of income from farming activity had statistically significant effect on loan repayment performance. They also reported that the proportion of loan funds diverted to non-intended purposes was positively related to the proportion of arrears on loans and was significant at 1% probability level. In addition, late loan issuing and inadequate supervision and advice to farmers were positively related to the proportion of loan diverted and were statistically significant at 1% and 5% probability levels, respectively.

Okorie (1986) reported that four factors had a tremendous effect on the loan repayment performance of Ondo State smallholders in Nigeria. These factors include time of loan disbursement, nature of loan disbursement (in cash or in kind), number of supervisory visits made by credit officers after disbursement, and the profitability of enterprises on which loan funds were invested. Likewise, Ike (1986) classified the problems of institutional agricultural loan recovery in Nigeria into three: farmer related problems; structural problems; and un-related problems. The author indicated that in Nigeria, a good percentage of farmers are illiterate, ignorant and misinterpret the objectives of the government in granting agricultural loans. Hence, loans are diverted to non-agricultural purposes, sometimes they are used for traditional ceremonies. He also indicated that some farmers could not manage their projects due to overexpansion and loan mismanagement. Inherent agricultural problems like natural hazards are also under the group of this problem. Structural problems relate to security, like supply and demand for funds and interest rate structure. Loans are usually made against security for agricultural production. Most of the farmers do not have tangible security. They may have guarantors but the main disadvantage of pledging guarantors as security is that in case of non-repayment, they may disappear, thereby failing to fulfill their loan obligations.

The bank related problems include lending policies and procedures as well as personnel capacity of the banks. Some bank managers do not apply the principles of good lending while giving loans to farmers. Related to this is the problem of skilled and adequate number of staff. Wenner (1995) stated that formal lenders find it difficult and costly to: accurately ascertain the likelihood of defaults and to monitor closely how borrowers use funds and what technologies they choose for project implementation. Thus, borrowers may not take actions that make repayment more likely (moral hazard). Weak legal system, lack of secure collateral and pervasive views that government bank loans are patronage, magnify loan enforcement costs for formal lenders.

Matin (1997) in his study on the loan repayment performance of borrowers in Bangladesh obtained a significant positive relationship between household's asset/income position/ and its loan default status. In his analysis, he related this situation to a very strong demonstration effect where borrowers having relatively small loan sizes behave in the same way as those who have larger loans. The education status of the household was reported to have strong negative effect

on default status irrespective of the household's income position. The total operated land holding of the household was the other variable, which was negatively associated with default after a certain level. It was also indicated that housing loan increases default probability by about 22%.

Khandker et al., (1995) based on their study of Grameen Bank's microcredit operation at branch level reported that loan default is not completely a result of borrower's erratic behavior. Rather, factors like roads, electrification, educational infrastructure, borrower's age, incentives, etc., were reported to have a strong bearing on repayment performance. Kashuliza (1993) reported a positive and significant relationship between borrowers' attitude to repayment and repayment performance based on a case study in Tanzania. He also reported a positive relationship between repayment and farm income and a negative but statistically insignificant relationship between household size and repayment performance.

Kulundu (1990) in his study on Kenyan small holder farmers using cross-sectional data found that loan diversion, use of purchased farm inputs, farm income and attitudes towards repayment had statistically significant impact on loan recovery; whereas crop performance, off-farm income and farmers education proved to have statistically insignificant influence on loan repayment. Regarding loan diversion, his results showed that inadequate supervision and technical support as well as delay in loan delivery had significant influence on loan repayment.

Empirical study made in Guyana by Hunte (1996) using logistic model showed that certain factors such as activities in fishing, male borrowers in food crops and livestock credit experience and sugar cane production resulted in low default risks, minimum or low credit rationing (giving nearly the amount the borrower requested or demanded) and high repayment performance. Alternatively, other factors, such as extended grace period in loan contracts and long processing times led to high default risk and low repayment. Moreover, the result clearly showed that wealthy borrowers exhibited poor repayment performance.

Mwinijilo (1987) studied the causes of medium term loan defaults among smallholder farmers in Salima Agricultural Development Division of Malawi and found that about 50 per cent of the

borrowers who had defaulted assigned higher priority to non-farm uses of the income accruing from the use of loan assets. The income generated during the repayment period was used for non-farm purposes such as health problems, domestic needs, payment of school fees and tax, and payment of private loans. These cases took priority over loan repayment. Miller (1977) also reported that the use of farm income for non-farm purposes led to defaults on loans offered to farmers. Too much rainfall, low rainfall and erratic rainfall could adversely affect farm productivity. This, in turn, may affect the repayment process.

The study made by Kuhn and Darroch (1999) in South Africa, using a multinomial logit model associating loan default to various factors, indicated that clients with larger loans were less likely to default for such loans tended to be associated with more (verifiable) collateral, lower administration costs per unit of credit and probably better quality information on potential investment returns.

Mosley (1995, cited in Bekele, 2001) investigated what he called optimal incentives to repay in institutional lending to low income groups in Indonesia. He identified three types of incentives and tried to find out the optimum levels of these incentives to optimize the payoffs of lenders and borrowers from the game. These were:

- incentives to the borrower to pay on time, consisting of a discount on interest payments, which are refunded when all payments due have been made;
- an incentive to the borrower consisting of a credit limit, which is expanded at the rate proportionate to repayment performance of the previous loan; and
- incentives to the staff of lending institution to optimize their efficiency in monitoring and securing repayment by making a portion of income dependent on some indicators of the performance of the institution, usually profit or loan recovery.

2.5.2 Literature on Ethiopia

Knowledge on determinants of loan repayment is undoubtedly important for it provides information to the lender on the incentives available for the borrower to comply with repayment schedules. Empirical studies in this connection are however limited in Ethiopia, though recently

researchers are showing interest and hence carrying out relevant studies. As regards the determinants of loan repayment, Mengistu (1997) conducted a study on the Market Town Development Program (MTDP) credit scheme for Bahir Dar and Awassa towns using a binomial probit model. For Bahir Dar, the author found out that expectation of repeatloan and number of workers employed by the credit beneficiary were positively related to full loan repayment; while loan diversion and access to additional credit sources are negatively related to repayments. On the other hand, his findings for Awassa depict that variables like number of workers employed by the loanee; level of education and weekly repayment period have a positive impact on loan repayment while having a negative influence on loan diversion.

Berhanu (1999) analyzed the determinants of full loan repayment for Project Office for the Creation of Small Scale Organizations (POCSSBO). His regression results indicate that variables like borrower's age, perceived cost of default and expediency of repayment period have positive impact on full loan repayment. On the other hand, he reported that loan diversion and loan size contribute to reduction of the probability of full loan repayment.

Defaults in Ethiopia, according to Bekele (1995), may arise from three major factors. First, the inability of borrowers to repay the loan as a result of crop failure for various reasons. Second, due to unwillingness of borrowers to repay the loan viewing the loan as a grant or as a political patronage. The third factor could be institutional and policy problems, that is, the system of credit delivery and collection mechanisms of the lenders have contributed to poor loan recovery performance.

Belay (1998) considered in his study twenty eight demographic and socio-economic variables which were hypothesized to influence repayment of fertilizer credit among smallholder farmers in the central highlands of Ethiopia, Alemgena District. Out of these variables nine were found to have a statistically significant potential power to discriminate between on defaulter and defaulter groups of the fertilizer loan. More specifically, five continuous variables, namely health care expenditure, amount borrowed from formal sources, experience in credit, total number of livestock owned and the number of days per year a farmer pays visit to a development agent for technical guidance and four discrete variables namely, perceived price of the output (good or

bad), sufficiency of holding as perceived by the household, celebration of social ceremony and loan diversion were found to be significant using t-and chi-square tests, respectively.

Belay (1998) also indicated that out of eighteen variables entered into the stepwise regression, analysis eight of them were found to be statistically significant at less than 10% level. These variables were: experience in credit use, experience in own farm, proportion of area under teff and wheat production, on-farm income, number of draught oxen owned, total livestock owned in livestock unit, number of days that the borrowers contacted development agents for technical assistance, and the distance of the respondents' village from that of the development agent.

Belay (1998) suggested that diversification of credit, in terms of activities in livestock production, may help to reduce loan default, thereby minimizing production and market risks by distributing it among different enterprises. Appropriate communication channels and frequent bilateral communication between farmers and development agents were also believed to ensure timely loan repayment. The author's other recommendation was that, it is necessary to seek other alternative strategies such as rural credit and saving schemes or micro financing to mitigate the current production credit scarcity and repayment problem. The results of Belay (1998) indicate also that occasionally celebrated social ceremonies cost a lot of money beyond what farmers can afford and were found to be one of the major causes of delinquency in loan repayment. Therefore, he recommended strongly that elders, community leaders, local farmers' associations and religious organizations should make concerted effort to minimize these traditional ceremonies and cut sharply the associated expenditures through time.

Bekele (2001) hypothesized fifteen demographic, socio-economic, natural and institutional variables to explain the loan repayment performances of smallholders in Amhara and Oromia regions of Ethiopia. His logistic regression model results show that, seven variables, namely timeliness of input supply, amount of formal loan per hectare, total grain production, participation in off-farm activities, total livestock owned in monetary terms, informal loan and yield loss due to bad weather were significant while the remaining eight variables were less powerful in explaining the variations in the dependent variable.

Fantahun (2000) hypothesized twenty one socio-economic variables to influence the loan repayment performance of Agency for Co-operation in Research and Development's (ACORD) Community Based Organization Revolving Credit Scheme. Accordingly, his fitted tobit model revealed that factors such as the size of loan issued, the use of bookkeeping and the number of dependents of the borrower were significant factors that influenced loan diversion at 1%, 5%, and 5% level of significance, respectively. The binomial probit model's estimates of the full loan repayment performance equation fitted by the same author showed that the variables, other income sources, loan supervision visits, cost of default and income from loan financed activities had a positive and significant impact at 1%, 5%, 5% and 1% probability level, respectively.

Based on the nature of the credit market and information asymmetry, Fantahun (2000) hypothesized that the higher the interest rate charged on borrowed funds, the more the possibility of the existence of adverse selection (*exante*) and moral hazard (*expost*). Incidences of adverse selection and moral hazard are on the other hand expected to affect loan repayments negatively. The coefficient for the rate of interest is however positive, implying that a borrower will be a good loan repayer as the rate of interest increases. Though, this appears apparently contradictory to the conjecture of the credit market model, it can be reasoned out that in a user-owned local financial institution, the prevalence of information asymmetry is minimal and borrowers consider the interest charge as own saving and hence, will be feeling as if they have higher savings at higher interest rates.

On the other hand, Fantahun (2000) hypothesized that, the use of bookkeeping by a borrower would assist him to identify his repayment status at any one time and respect his repayment schedules. The coefficient for this variable, however, has been negative indicating that the use of bookkeeping contributes to poor loan repayment performance.

Fantahun (2000) also indicated that if the size of loan issued to a borrower is greater than his project cost, it is possible that the borrower might spend that part of the loan proceed which is in excess of what is required to cover his business costs. This in turn could affect repayment negatively. On the other hand, the rate at which a borrower diverts funds and the nature of diversion affect repayment in one way or another. If a sizable amount of loan is diverted for

productive ends by the borrower, then repayment will be affected positively and vice versa otherwise. The author emphasized that, since loan repayment performance is an issue to carefully follow-up, the factors that determine full loan repayment have to be taken care of.

The Community Based Organizations (CBOs) and ACORD as an intermediary have to focus on stringent loan supervision, high cost of default and actions that support the borrower's capacity to generate greater income from loan financed activities.

The various studies on loan repayment performance in different countries identified the most probable causes of loan default. Moreover, the major independent variables such as credit experience, loan diversion, education level, weak supervision, etc; were analyzed using different models, which in turn would help to compare and contrast those findings with the results of the intended study so as to recommend remedies that might mitigate the problems to be identified. In the literature reviewed, nothing was indicated about the factors influencing loan repayment performance of women in general and rural women in particular. Hence, this research could contribute its share towards narrowing this gap.

Chapter three

3. Methodology

3.1. Description of the study area

3.1.1 Location and Physical Situation

According to(BOFED,2012), Tigray Regional administration is neighbored by Eritrea in the north, Afar Region in the East, Amhara Region in the south and Sudan in the west .The region has seven administrative zones. The region further divided into 34 rural woredas and 12 urban woredas. The region's total area is estimated to be 53,623 square kilometers.

The Adwa Town administration (ATA) is located in the central zone of Tigray national regional state. In the west, north, south and east it is bounded by the tabias of Adwa rural woreda. The ATA comprises of diversified topographic features with altitudes varying from1880 m.a.s.l around Yekatit stadium 1985 m.a.s.l in the area of Endaraesi. Due to this altitudinal ranges, ATA have been recognized as Weynadega(Adwa WOFED statistical bulletin,2012)

Adwa, which is one of among the 12 town woreda administration in Tigray, is the site of the Administratives of Adwa Town wereda and the rural woreda of Adwa. It lies1006 kms North of Addis Ababa and 224_kms away from the capital city of Tigray, Mekelle.

The mean monthly rainfall ATA varies from 0 mm to 245.3 mm ranges.The monthly mean maximum temperature ranges from 30.4 °c, which is recorded in the months of July, to 34 °c recorded in the month of may. Likewise, the monthly mean minimum temperature varies from 0 °c in February to 13.5 °c in may.(Adwa WOFED statistical bulletin,2004)

3.1.2 Population Situation

According to the 2007 population and housing census of Ethiopia projection, the total population of the Adwa town administration estimated to be 60,748, out of which the female population is 27,894. The overall population density of the ATA is 2638 persons/km².The average family size is 3.4 persons per household.

3.1.3 Infrastructure and Social Services

3.1.3.1 Roads: In ATA there is a total 60.7km road, out of which 7.3 km Asphalt road,0.3 km cobblestone,1.5 km paved road and 15 km Gravel road.

3.1.3.2 Education and Health: According to the Planning and Economic Development Office of Adwa town (Statistical bulletin, 2004), ATA has 4 secondary schools and 19 primary schools. Concerning the population size of the students, the total number of students enrolled in the secondary education was 8416. Of this, the number of male and female students was 4607 and 3789, respectively. Similarly, the number of students who attended primary education was 9274. Of this, 4525 and 4729 were male and female students, respectively.

With regard to health related services in the ATA, there is 1 hospitals, 2 health centers,19 pharmacies (Statistical bulletin, 2004).

3.1.3.3 Water Supply: According to the Planning and Economic Development Office of Adwa town (Statistical bulletin, 2004), In ATA there are 20km transmission network and 40km Distribution network. Due to this the water coverage of ATA is 96%.

3.2 Data Sources, Sampling and data Collection

3.2.1 Data Sources

For this study, primary and secondary data were used. The primary data was collected from the sample of women benefiting from the micro-credit service of Dedebit credit and saving

institution, through structured questionnaire. Moreover, personal observations and informal discussions with borrowers used to generate primary information. Secondary data was obtained from DECSI head office and Adwa branch, government offices and other relevant organizations.

List of borrowers was found from a book called master group register. This is a book containing lists of clients recognized and registered at the office along with group number, centre number, sex and age of clients. It also contains information on clients that quitted membership, date and reason for the quitting.

Information obtained using the survey questionnaire includes:

- Borrower characteristics like age, marital status, level of education, household size, occupation, etc.
- History of loan (amount of loan, purpose and utilization of loan, etc)
- Information on group formation (group monitoring, group responsibility, group action)
- Information on income (from activities financed by the loan and from other sources)
- Information like access to medical and educational facilities, nutritional status etc.
- Information on savings and financial recording
- Information on borrowers' perception of cost of default and adequacy of supervision, and
- Other relevant variables.

Information obtained from the branch office include:

- Information on loan like the numbers of female borrowers, how many of them are defaulters and non defaulters, etc.

3.2.2 Sampling and Data Collection

3.2.2.1 Selection of study area

The study area is selected purposely. According to DECSI head office, DECSI Adwa sub branch is one of among the sub branches which has clients with a low loan repayment performance. So, in order to study the determinants of loan repayment performance, DECSI Adwa town sub branch is favorable to the study.

3.2.2.2 Sampling method

The population of the study is heterogynous. It includes two type borrowers(Non defaulter and Defaulter). So, in order to avoid choosing one type borrower stratified sampling method were selected for this study. There were two strata, the none defaulter strata and defaulter strata.

According to DECSI Adwa town sub branch, In the 2011/2012 fiscal year there were 1682 urban women borrowers of DECSI in the ATA. Out of which 538(32%) were defaulters which is the defaulter strata. From this strata 32% of the total sample i.e 54(32% of 169) were selected by simple random sampling method. Similarly, 1144 of 1682 women borrowers were non defaulter which is non defaulter strata. From non defaulter strata 68% of the total sample i.e 115(68% of 169) were selected by simple random sampling method.

The sample borrowers were from all kebelles of the town. Five enumerators, who completed secondary education and familiar with the culture and language of the community, were employed to conduct the interview.

Appropriate training was given to the enumerators to develop their understanding regarding the objectives of the study, the content of the questionnaire, how to approach the respondents and conduct the interview.

3.3 Methods of Data Analysis

3.3.1 Econometric Models

Regression models in which the regress and evoke a yes or no or present or absent response are known as dichotomous, or dummy, dependent variable regression models. They are applicable in a wide variety of fields and are used extensively in survey or census-type data (Gujarati, 1995). The dependent variable in this study is also a dummy variable, which takes a value of zero or one depending on whether or not the borrower defaults. However, the independent variables are of both types that are continuous or categorical.

The loan repayment performance is a dependent variable, which is dichotomous taking on two values, one if the borrower is a non-defaulter and zero otherwise. Estimation of this type of relationship requires the use of qualitative response models. In this regard, the non-linear probability models, logit and probit models are the possible alternatives. However, several estimation problems arise particularly when Ordinary Least Squares (OLS) regression and linear probability models are employed (Aldrich and Nelson, 1984). The OLS regression technique, when the dependent variable is binary, produces parameter estimates that are inefficient and a heteroscedastic error results in the structure. Consequently, hypothesis testing and construction of confidence interval become inaccurate and misleading. Likewise, a linear probability model may generate predicted values outside the 0-1 interval, which violates one of the basic tenets of probability. To alleviate these problems and produce relevant empirical outcomes, the most widely used qualitative response models are the logit and probit models (Amemiya, 1981).

3.3.2 Specification of the Logit Model

This study will be intend to analyze which and how much the hypothesize regressors will be relate to the loan repayment performance of urban women. As already noted, the dependent variable is a dummy variable, which will took a value zero or one depending on whether or not a borrower defaulted. However, the independent variables were of both types, that is, continuous or categorical.

Probit and logit models are similar and yield essentially identical results. Aldrich and Nelson (1984) indicated that in practice these models yield estimated choice probabilities that differ by

less than 0.02 and which can be distinguished, in the sense of statistical significance, only with very large samples. The choice between them therefore, revolves around practical concerns such as the availability and flexibility of computer programs, personal preference, experience and other facilities.

The probit and the logit models are commonly used in studies involving qualitative choices. The probit probability model is associated with the cumulative normal probability function, whereas, the logit model assumes cumulative logistic probability distribution. The advantage of these models over the Linear Probability Model is that the probabilities are bound between 0 and 1. Moreover, they fit best the non-linear relationship between the probabilities of the dependent variable and the explanatory variables, that is one which approaches zero at slower and slower rates as an explanatory variable (X_i) gets smaller and smaller and approaches one at slower and slower rates as X_i gets larger and larger. Gujarati (1988), Feder et al., (1985), Aldrich and Nelson (1984) and Maddala (1981) have recommended probit model for functional forms with limited dependent variables that are continuous between 0 and 1, and logit models for discrete dependent variables. Hence, the logistic model is selected for this study. Therefore, the cumulative logistic probability model is econometrically specified as follows:

$$P_i = F(Z_i) = F(\alpha + \sum \beta_i X_i) = \frac{1}{1 + e^{-Z_i}} \dots \dots \dots 1$$

Where, P_i is the probability that an individual will make a certain choice (default or does not default) given X_i

e denotes the base of natural logarithms, which is approximately equal to 2.0718;

X_i represents the i^{th} explanatory variables; and

α and β_i are parameters to be estimated

Hosmer and Lemeshew (1989) pointed out that the logistic model could be written in terms of the odds and log of odds, which enables one to understand the interpretation of the coefficients. The odds ratio implies the ratio of the probability (Pi) that an individual would choose an alternative to the probability (1-Pi) that he/she would not choose it.

$$(1-P_i) = \frac{1}{1+e^{z_i}} \dots\dots\dots(2)$$

Therefore,

$$\frac{(P_i)}{(1-P_i)} = \frac{1+e^{-z_i}}{1+e^{z_i}} = e^{z_i} \dots\dots\dots(3)$$

Or,

$$\frac{(P_i)}{(1-P_i)} = \frac{1+e^{-z_i}}{(1+e^{z_i})} = e^{(\alpha+\sum \beta_i X_i)} \dots\dots\dots(4)$$

Taking the natural logarithm of the equation(4)

$$Z_i = \ln\left(\frac{P_i}{(1-P_i)}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_m X_m \dots\dots\dots(5)$$

If the disturbance term (Ui) is taking into account, the logit model becomes

$$Z_i = \alpha + \sum^m \beta_i X_i + u_i \dots\dots\dots(6)$$

3.3.3 Working Hypotheses and Definitions of Variables

Review of literatures on factors influencing loan repayment performance of borrowers, past research findings and the author's knowledge of the credit schemes of the study area were used to establish working hypotheses of this study. In other words, among a number of factors, which have been related to borrowers' loan repayment performance, in this study, the following

demographic, socio-economic and institutional factors were hypothesized to explain loan default situations of urban women in the study area

Description of the Dependent variables together with their expected models is given below:

Dependent variable (LR): Was defined as the loan repayment performance of borrowers, which is a dummy variable taking a value one if the borrower is non-defaulter and zero otherwise.

the models for loan repayment is

$$LR = f(AG, ED, LSZ, TM, LD, INCOM, INCA, ASRP, SPV, NDP, NTB ei) \dots \dots \dots (1)$$

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

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

AG= age of borrower

ED= educational level of borrower

1= illiterate

2= Grade 1-8

3= Grade 9-12

4= Above grade 12

LSZ= loan size in Birr

TM= timeliness of loan release

1= if timely released 0= otherwise

LD= Loan Diversion

1= if a borrower diverts her loan 0= otherwise

INCOM = income from activities financed by loan (annual)

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

SRP= suitability of repayment period

1= if suitable 0= otherwise

BK= use of financial records

1= if borrower keeps financial records 0= otherwise

ASPV= adequacy of supervision visits made to a borrower

1= if adequate 0= otherwise

NDP= number of dependents

NTB=number of times borrowed

HEEX =Health care expenditure in Birr

CRMN=Celebration of social ceremonies

ei = Error term

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. **Educational Level of Borrower:** 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.

3. **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).

4. **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.

5. **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 sign of this variable can't be predetermined.

6. Income from activities financed by the 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 more 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

7. 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.

8. 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.

9. 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.

10. Availability of other sources 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.

11. Number of times borrowed: If a borrower is a repeat borrowers she may have acquired more experience on the institution's rules and regulations, and hence could efficiently utilize the loan for the intended purpose. It is expected to have a positive impact on loan repayment performance.

12. Health care expenditure in Birr (HEEX): Illness of family members increases expenditures in consumption and credit need from other sources to finance medicaments and health care. Therefore, health related expenses are expected to reduce borrowers' capacity to repay loans in time (Belay, 1998; Bekele, 2001).

13. Celebration of social ceremonies (CRMN): These are ceremonies celebrated occasionally such as wedding, burial (funeral) and others. The expenses on these ceremonies are some times too large relative to borrowers' economic status. If a person has celebrated one or more of these, CRMN takes a value one, but zero otherwise. As this variable can be a proxy for use of income for non productive purposes, it is expected to have a negative impact on loan repayment performance.

3.3. 4 Loan Screening (Rationing) Mechanism

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). 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:

$$LRN = \beta X_i + e_i \dots \dots \dots (1)$$

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

X_i = set of explanatory variables

e_i = Error terms

Note that LRN_i^* are latent variables like the LRN_i 's. All the explanatory variables of loan repayment equation are to be employed by the LRN 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 we are 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.

Chapter four

4. Results and Discussions

This chapter presents the results from the descriptive and econometric analyses. The descriptive analysis made use of tools such as mean, percentage, standard deviation and frequency distribution. In addition, the t- statistics was employed to compare defaulters and non-defaulters group with respect to some explanatory variables. Econometric analysis was carried out to identify the most important factors that affect the loan repayment performance and to measure the relative importance of significant explanatory variables on loan repayment.

4.1 Descriptive statistics

As reported earlier in chapter three, In 2011/2012 fiscal year there were 1682 urban women borrowers of DECSI in the ATA. These borrowers were from all kebelles of the town. Of the total 1682 borrowers 169 borrowers (10% of the total urban women borrower) were selected by both stratified and simple random sampling method and include in the survey.

4.1.1 Demographic and Socio-economic Characteristics of the Sampled Households

The average age of sample women was about 38.2 years with the minimum and maximum ages of 20 and 70 years, respectively.

Table1 Age structure of the borrowers by borrower group

Age group	Non-defaulters		Defaulters		Total	
	Number	Percent	Number	Percent	Number	Percent
20-35	67	28.26	26	48.15	93	55.03
36-45	28	24.35	2	3.7	30	17.75
>45	20	17.39	26	48.15	46	27.22

Total	115	100	54	100	169	100
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Source: Survey results

Table 1 indicates that of the total sample respondents, 115 were non-defaulters, whereas 54 were defaulters. Similarly, the table shows clearly that 55.3 and 27.22 percent of the sample respondents were within the age brackets of 20-35 and older than 45 years, respectively. Whereas those respondents who within the age brackets of 36-45 years represented about 17.75 percent of the sample borrowers.

In terms of educational background, most of the borrowers in the sample, i.e., 129(76.33%) can read and write. Those who have not attended either elementary or junior secondary school are 40(23.67). Most of those who are illiterate i.e.,20(50% of sample illiterate) are in the age group above 60. While most of those who attended grades9-12 above(i.e.,45%)are in the younger age group 20-35. (See table 2 below).

Table 2 Respondents by age group and level of education

Age group	Level of education				Total
	Illiterate	Grade 1-8	Grade9-12	Above 12	
20-29	5	19	21	9	54
30-39	3	16	18	7	44
40-49	1	11	9	4	25
50-59	11	10	1	0	22
Above 60	20	4	0	0	24
Total	40	60	49	20	169

Source: Survey results

As can be seen from the table 3 below 40(23.67%) keep financial records, while only 40(23.67%) of the borrowers are illiterate, 39(97.5%) 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 1 (2.5%) of the total illiterate borrowers in the sample keep record. Most of those who don't use financial records, i.e., 76 out of 127, which is 59.84% reported lack of knowledge as the main reason for not recording their financial transactions, while the remaining

49(38.58%) reported their financial position as being too little to keep records, and the rest 2(1.57%) reported no need to keep records.

Table 3 Financial recording habits and level of education.

Loan repayment performance	Using financial recording	Level of education				Sub Total
		Illiterate	Grade 1-8	Grade9-12	Above 12	
Non defaulter	No	7	28	31	10	76
	Yes	0	12	17	10	39
	Sub Total	7	40	48	20	115
Defaulter	No	32	20	1	0	53
	Yes	1	0	0	0	1
	Sub Total	33	20	1	0	54
	Total	40	60	49	20	169

Source: Survey results

In line with the existence of educated non defaulter borrowers 108(93.91%) being able to attend grades 1 through 12 as compared to only 21(38.89%) of the defaulter borrowers being able to attend the same level of education, the number of non defaulter borrowers that keep records are 39(33.91%) while that for the defaulter borrowers is only 1(1.85%).

The mean loan amount is Birr 4106.51 with the minimum and maximum amount being Birr 1500 and Birr 20000 respectively.

In terms of sufficiency of the loan amounts released, table 6 below shows that 138(81.66%) of the borrowers in the sample reported the loans they received to be sufficient for the purpose they planned. On the other hand 31 (18.34%) i.e., 19 (35.2%) of the defaulter borrowers and 12 (10.43%) of the non defaulter borrowers declared that the loan amount they took was not sufficient. This has some implication for loan diversion.

Table4 Respondents by loan repayment performance and opinion on sufficiency of loan size

Sufficiency of loan amount	Non defaulter	defaulter	Total
No	12	19	31
Yes	103	35	138
Total	115	54	169

Source: Survey results

With respect to the purpose for which loan was taken, we observe that the majority of the borrowers, i.e., 166 (98.22%) took the loan for petty trade. The next activity for which most of the borrowers took loan is to purchase house equipment, 2 (1.2%), and 1 borrower took the loan for fattening .

Table 5 Respondents by loan repayment performance and the purpose for which they took the loans.

Purpose	Defaulter	Non defaulter	Total
Petty trade	53	113	166
Fattening	1	0	1
Purchase of house equipment	0	2	2
Total	54	115	169

Source: Survey results

To see if at all purpose of borrowing has some association with loan repayment performance, table 5 is constructed from the survey data. Accordingly 68.1% of those who borrowed for the purpose of petty trade were non-defaulters.

Sufficiency of supervision on loan utilization is an important factor contributing to a better loan repayment performance. 74 (55.22 %) of the respondents in the sample declared that supervision on loan utilization is not sufficient.

Table 6 Respondents' perception on adequacy of loan supervision.

Sufficiency of supervision	Non defaulter	Defaulter	Total
No	41	33	74
Yes	50	10	60
Total	91	43	134

Source: Survey results

From the table above, 50(54.95%) of the non defaulter borrowers and 10 (23.26%) of the defaulter borrowers in the sample reported that supervision is adequate, while 41 (45.05%) of the non defaulter respondents and 33 (76.74%) of the urban respondents said that supervision on loan utilization is insufficient.

Regarding suitability of repayment only 169(99.4%) of the sample respondents are of the opinion that the repayment period is suitable.

Another finding is that 47(27.81%) of the sample borrowers have violated the loan agreement, all of them diverting the loan proceeds to other purposes than they planned. Of these 4(8.51%) reported that the loan agreement didn't match with their true intention they had in their mind, while 4(8.51%) reported market problem, 17(36.17%) too small loan amount and 15(31.91%) reported other reasons for not keeping their agreement. See table 7 below.

Table7 Reason for loan diversion

Reason for loan diversion	Freq.	Percent
Loan amount was not enough for the intended purpose	17	36.17
Loan agreement did not coincide with my initial intention	4	8.51
Market problem	4	8.51
To repay another loan	7	14.89
Buying fixed assets	12	25.53
For food	1	2.13
To cover social ceremony expenditure	2	4.26
Total	47	100

Source: Survey results

Looking at how loan is rationed, we observe that 30(17.75%) of the total respondents were rationed of which 18 (60 %) are defaulters. In relation to loan diversion, the institution favored non-diverters by rationing only 6(20%) as compared to 24(80%) who were diverters being rationed. See table 8 below. More will be said about loan rationing in section 4.3 below.

Table 8 Rationing by Loan diversion

	Diverted	Not diverted	Total
Rationed	24(80%)	6(20%)	30(100%)
Not rationed	23(16.55%)	116(83.45%)	139(100%)
Total	47(27.81%)	122(72.19%)	169(100%)

Source: Survey results

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 DECSI 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., 152(89.94%) 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 104(61.54%), i.e. the majority of the borrowers responded fear of losing another loan in the future the most important factor forcing them to repay their loans in time.

Table 9 Perceived cost of default

Perceive Cost of default	Frequency	Percent
Claims against personal wealth	22	14.47
Claims against wealth of guarantors	2	1.32
Social sanction	2	1.32
Fear of losing another loan	104	68.42
The interest rate	22	14.47
Total	152	100

Source: Survey results

On the other hand, during the survey it was observed from informal discussions with borrowers that many borrowers who took loans for petty trade. 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 DECSI and then they immediately repay the money lenders after DECSI releases the next cycle of loan.

According to the results of the sample survey, it was known that 108(63.91%) of the sample respondents were found to have informal sources of credit in addition to that of DECSI. Out of

these 37(34.26%) reported moneylenders as their additional source of credit, 30(27.78%) from equb and eddir while the rest 41(37.96%) indicated that they also borrow from friends or relatives since their participation in the credit scheme by DECSI. See table10 below.

Table10 Other source of credit

Other source of credit	Freq.	Percent
Edir/equb	30	27.78
Money lenders	37	34.26
Friends/relatives	41	37.96
Total	108	100

Source: Survey results

Household size is another important variable considered in this study. The mean number of dependents is 1.72 varying between a minimum of 0 and a maximum of 6.

Table 11 Descriptive statistics on number of dependents

Number of dependents	Number defaulter	Number of non defaulter	Total
0	14	41	55
1	3	19	22
2	12	32	44
3	6	15	21
4	11	7	18
5	7	1	8
6	1	0	1
Total	54	115	169

Source: Survey results

As shown in table 12 about 94 (55.62%) of the borrowers in the sample reported they were having income source before the loan program.

Table 12 Respondents by availability of source of income before and after program

Availability of income source	Before loan		After loan	
	frequency	percent	frequency	percent

Yes	94	55.62	55	32.54
No	75	44.38	114	67.46
Total	169	100	169	100

Source: Survey results

According to the survey results 55(32.54%) of the sample borrowers have managed to create additional sources of income after participation in the credit scheme (See table 12 above). On the other hand as shown in table 13 below the majority of the borrowers, i.e., 26(27.37%) earn an annual income Birr > 5000 before loan, where as 46(80.7%) were earning the same level of income after participating in the loan scheme.

Table 13 Respondents by household annual income before and after loan

Income Range	Before the loan from DECSI		After the loan from DECSI	
	Frequency	Percent	Frequency	Percent
<1000	0	0	0	0
1001-2000	11	11.57	2	3.5
2001-3000	21	22.11	1	1.75
3001-4000	22	23.16	1	1.75
4001-5000	15	15.79	7	12.28
>5000	26	27.37	46	80.7
Total	95	100	57	100

Source: Survey results

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 her having saving before participation in the program, while 167 (98.82%) of them reported of having savings after the program, mostly saving 50 and below 50 Birr per month (i.e., about 84.61%). 56.21% of the sample borrower those who have saving account after the loan are saving nothing . which shows that much have to be done in terms of mobilizing more savings.

Table 14 monthly saving amount after the loan

monthly saving amount after the loan	Freq.	Percent
0	95	56.21
50	48	28.40
100	15	8.88
150	2	1.18
200	1	0.59
300	8	4.73
Total	169	100

Table 15 Response on availability of savings before and after loan from DECSI

Response given	Before the loan from DECSI		After the loan from DECSI	
	Frequency	percent	Frequency	Percent
Yes	21	12.42	167	98.82
No	148	87.58	2	1.18
Total	169	1000	169	100

Source: Survey results

Regarding access to medical facilities 149(88.17%) of the respondents of reported having access to medical facilities. 20(11.83%) reported of not having any access, the number of borrowers who reported themselves as being bearers of medical expenditure were 84(55.63%), other family member 57(37.75%), free service 4(2.65%) while that for borrower and other family member were 6(3.97%). This can be seen from table 17 below.

Table 16 Response on the bearer of medical expenditure

Bearer of the medical expenditure	Before the loan	Percent
Borrower her self	84	55.63

Other family member	57	37.75
Relatives	0	0
Free service	4	2.65
Borrower and other family members	6	3.97
Total	151	100

Source: Survey results

In terms of medical expenditure before loan and after loan, the mean annual expenditure is Birr 65.97 and Birr 221.4 ranging between Birr 0 to Birr 500 for the former and between Birr 0 to Birr 1000 for the latter. Although we shall test whether the credit scheme has brought about any change in this respect in section 4.3, it is obvious that the average expenditure on health services has increased after the program.

Table17 Summary statistics on expenditure items and number of enrollment of school age students

	N	Minimum	Maximum	Mean	Std. Dev.
Medical expenditure before the loan	159	0	500	65.97	87.53
Medical expenditure after the loan	154	0	1000	221.49	181.39
Number of school age students enrolled before the loan	140	0	5	0.84	1.28
Number of school age students enrolled after the loan	193	0	4	1.156	1.19

Educational expenditure before the loan	162	0	1000	68.83	146.81
Educational expenditure after the loan	169	0	3000	273.31	429.48
Annual Consumption expenditure before the loan	169	1000	32000	6248.52	4198.10
Consumption expenditure before the loan	169	3000	35000	8129.59	4975.39

Source: Survey results

Similarly the mean number of school-age students enrolled has increased from 0.84 to 1.156, while the expenditure on education has shown an increment of Birr 204.48 on the average. The same is true of mean consumption expenditure, which has shown an increment of Birr 1881.07 on the average as shown in table 17. These comparisons are made based on the data collected before and after participation in the credit scheme, which ranges from one to five years.

Concerning social ceremonies in the study area, other than those commonly celebrated, New year, gena, fasica, Of the total respondents 45.83% reported that they had celebrated one or more of these occasional ceremonies and 54.17% stated that they had not celebrated any of them during the study period.

4.1.2 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 the 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 section 4.1 we have seen that 169(68%) of the sample borrowers have settled their loans in full and hence are creditworthy; while the rest 54 (32%) are defaulters. The mean age for creditworthy borrowers 36.21 is less than that of defaulters, which is 42.35. This implies defaulters are older than non-defaulters.

Table 18 comparison of credit worthy and non credit worthy borrowers in the case of level of education

Description	Non defaulter		Defaulter		t-value	Total	
	Mean	Std.Dev	Mean	Std.Dev.		Mean	Std.Dev.
Level of education	9-12	.83	Illiterate	.53	-10.53*	9-12	.95

*significant at 1%

Source: Survey results

There is significant difference between the two groups in terms of level of education, since creditworthy borrowers have attended on average grades 9-12 while defaulters are on average illiterate. This shows the existence of a positive relationship between education and loan repayment.

Table 19 comparison of credit worthy and non credit worthy borrowers in terms of loan size

Description	Non defaulter		Defaulter		t-value	Total	
	Mean	Std.Dev	Mean	Std.Dev.		Mean	Std.Dev.
Loan size	4993.9	2617.29	4666.67	2586.25	-0.71	4875.74	2603.67

Source: Survey results

The mean loan size for credit worthy borrowers is Birr 4973.91 which is greater than that of the defaulters (Birr 4666.67) showing that there is a positive 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.

Table 20 comparison of credit worthy and non credit worthy borrowers in terms of loan diversion

Description	Non defaulter		Defaulter		t-value	Total	
	Mean	Std.Dev	Mean	Std.Dev.		Mean	Std.Dev.
Loan diversion	.0870	.2830	.6851	.4688	10.28*	.2781	.4494

*significant at 1%

Source: Survey results

Regarding loan diversion, 68.52% of the defaulters have diverted the loans they received to other purposes than specified in their loan agreement, while only 8.7% 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.

Table 21 comparison of credit worthy and non credit worthy borrowers with respect to perception of borrowers about supervision on loan utilization

Description	Non defaulter		Defaulter		t-value	Total	
	Mean	Std.Dev	Mean	Std.Dev.		Mean	Std.Dev.

Loan supervision adequacy	.5495	.5003	.2326	.4275	-3.58*	.4478	.4991
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*significant at 1%

Source: Survey results

With respect to perception of borrowers about supervision on loan utilization 54.95% of the creditworthy borrowers think that supervision of on loan utilization is adequate, while only 23.26% of the defaulters are of the opinion that the supervision on loan utilization by DECSI staff is sufficient. So the relationship between supervision and repayment performance seems to be positive as expected. The t-test shows that there is a significant difference between the two groups of borrowers in terms of loan supervision adequacy.

Table 22 comparison of credit worthy and non credit worthy borrowers regarding perception of suitability of repayment period

Description	Non defaulter		Defaulter		t-value	Total	
	Mean	Std.Dev	Mean	Std.Dev.		Mean	Std.Dev.
Suitability of repayment period	1	0	.98	.136	-1.46	.994	.0769

Source: Survey results

Regarding perception of suitability of repayment period 100% of the respondents who consider it as suitable are creditworthy, which is greater than the corresponding figure for the noncredit worthy borrower (98%). This is an indication that the variable under consideration is positively related with repayment performance. the difference is not significant according to the t-test.

Table 23 comparison of credit worthy and non credit worthy borrowers in terms of income financed from activities from loan

Description	Non defaulter		Defaulter		t-value	Total	
	Mean	Std.Dev	Mean	Std.Dev.		Mean	Std.Dev.
Income financed from activities from the loan	4001-5000	1.211	2001-3000	1.258	-8.995*	2001-3000	1.562

*significant at 1%

Source: Survey results

The mean annual income from the activities financed by the loan for the case of creditworthy borrowers is Birr 4001-5000 while that for defaulters is below Birr 2001-3000, the difference between the two groups being significant.

As explained earlier from a total of 50 borrowers who diverted their loans 18(36%) have indicated the fact that the loan amount was not enough for intended purpose , while 7(14%) of them to repay another loan , of which 6 (12%) indicated the loan agreement did not coincide with initial intension a reason for their diverting the loan they received and the rest 15(30%) gave other reasons for diverting the loan. In health expenditure regard the mean annual health expenditure of creditworthy borrowers is Birr 233.43 while that for defaulters is below Birr 195.1, though the difference between the two groups is not significant.

Table 24 comparison of credit worthy and non credit worthy borrowers in terms of number of dependents

Description	Non defaulter		Defaulter		t-value	Total	
	Mean	Std.Dev	Mean	Std.Dev.		Mean	Std.Dev.
Number of dependents	1.4	1.3	2.4	1.83	4.08*	1.72	1.56

*significant at 1%

Source: Survey results

The mean number of dependents for the creditworthy borrowers is 1.4, which is less than that for the defaulters (2.4). Here we observe that defaulters support on average a bigger number of dependents than creditworthy borrowers, there is significance difference between both. This is saying that the number of dependents that are supported by the borrowers is negatively related to loan repayment performance.

The other informal sources of credit for urban women, identified during the survey were shopkeepers, friends and relatives. These sources were linked with kinship, cultural and social ties in which the borrowers found themselves. The survey result confirmed that 100% of the money borrowed from these sources was repaid prior to settling DECSI credit. Table 25, summarizes the amount borrowed and repaid from these informal sources. The loan from these sources had no interest attached to it.

Table 25 comparison of credit worthy and non credit worthy borrowers regarding loan from informal sources and repayment status

Source of informal credit	Type of borrower			Amount borrowed	Amount repaid	Recovery rate(%)
	defaulter	Non	Total			

		defaulter				
equb	16	14	30	54900	54900	100
Money lenders	12	25	37	84900	84900	100
Frinds/relatives	15	26	41	54400	54400	100
total	43	65	108	194200	194200	100

Source: Survey results

Table 25 indicates that 27.8 %, 34.26 % and 37.96 % of the sample borrowers had obtained credit from equb, money lenders and friends/relatives. The recovery rate for all was 100%.

The comparison of the differences between the means of the loan received from friends, from relatives and shopkeepers of non-defaulters and defaulters group revealed that the values were not statistically significant at conventional levels of probability.

4.1.3 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 section 4.1, the proportion of those who are rationed (i.e. given loan amounts that are less than requested) is 17.18%, while the rest 82.18% were not rationed. The mean age of those borrowers who are rationed is 36.6, which is lower than the mean age of the borrowers who are not rationed 38.51. That is younger borrowers are more rationed than their older counterparts as is expected.

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 40(23.67%) of the respondents are illiterate while the rest 129(76.33%) borrower has gone to school. 22(17.05%) of the literate borrowers were rationed while only 8(20%) of the illiterate borrowers were rationed, showing that the institution is rationing illiterate borrowers more.

The mean loan amount released to the borrowers who are rationed (Birr 3283.33) is less than that for the non-rationed borrowers (Birr 4284.17). Here we observe that the more borrowers apply for larger loans the more they are not rationed, just in the way explained above.

Table 26 comparison of rationed and non rationed borrowers in terms of adequacy loan supervision

Description	Rationed		Not rationed		t-value	Total	
	Mean	Std.Dev	Mean	Std.Dev.		Mean	Std.Dev.
adequacy of loan supervision	.4444	.5064	.4486	.4997	0.0385	.4478	.4991

Source: Survey results

Table 27 comparison of rationed and non rationed borrowers regarding suitability of repayment period

Description	Rationed		Not rationed		t-value	Total	
	Mean	Std.Dev	Mean	Std.Dev.		Mean	Std.Dev.
Suitability of repayment period	1	0	.99	0.84	-0.46	0.994	0.76

Source: Survey results

The proportion of borrowers who are rationed and non-rationed is little bit difference when one considers borrowers who perceive supervision as adequate, i.e., 44.44% and 44.86% 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 100% of those who perceive repayment period as suitable are rationed, while the corresponding figure for those who are not rationed is 99.3%, indicating a positive relationship. The difference between the two groups though is not significant.

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. Here we observe that the mean number of dependents for the former group (the rationed group) is 2.1, which is greater than that for the latter group(the non rationed group) is 1.65. So this variable is negatively related to the loan rationing as is expected.

Concerning loan diversion 51.06 % of the diverters are rationed while only 4.9 % of the non diverters were rationed, which is in line with our expectation. The difference between the two groups is significant in this regard.

4.2. Econometric Analysis

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

4.2.1 Determinants of Loan repayment performance

As discussed earlier, the logit econometric model was selected for analyzing the factors influencing the loan repayment performance of the borrowers. Prior to running the logistic regression analysis both the continuous and discrete explanatory variables were checked for the existence of multicollinearity. In this research, in order to minimize or to avoid the existence of multicollinearity robust standard errors was used.

incom	1.164507**	.4564657	2.55	0.011
lsz	.00035**	.0001586	2.21	0.027
ld	-1.350102	1.074333	-1.26	0.209
ntb	1.793008*	.5343741	3.36	0.001
Heex	-.0035013	.0021299	-1.64	0.100
Crsc	-.525307	1.10454	-0.48	0.634
con	-13.60098	4.317668	-3.15	0.002

* 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 suitability of repayment period are dropped because they were inestimable using the software.

Four of the eleven explanatory variables used in the estimation of loan repayment performance equation were found significant. According to the estimates, even though the loan diversion is in significant, it is negatively related to loan repayment performance as expected. The negative sign probably implies the use of diverted funds for non-income generating purposes. similarly, Number of dependents in the family, Availability of other sources of credit, health expenditure and celebrating social ceremonies are all negatively related to the probability of loan repayment, none being inconsistent with prior expectation. This result is consistent with the findings in Teferi (2000) and Berhanu (1999).

On the other hand age was found to be positive. This shows that as age increases, the probability of loan repayment increases. But it is insignificant. Similarly, Income from activities financed by the loan, loan size, number of times borrowed, loan supervision and education level are positively related to loan repayment performance. We have seen that the same conclusion was made in the descriptive analysis part. The coefficient for educational level is significant at 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. The sign of the variable representing health expenditure and celebrating social ceremonies has an expected sign (negative) but insignificant.

Availability of other sources of credit has been included in the estimation and it was found to be negatively related to loan repayment performance, consistent with prior expectation. This could be a possible explanation for the fact that some 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.

Celebration of social ceremonies (CRMN): The results of the logit model reveal that this variable affects loan repayment performance negatively, but it is insignificant. The possible explanation is that celebration of one or more of social ceremonies needs much material and financial resources, which are beyond what the borrowers could afford. This means, the money which could have been used for repayment might have been used for the aforementioned purposes. Miller (1977), Singh et al., (1985), Mwinijilo (1987), Zeller and Sharma (1996), and Belay (1998) have also reported the negative effect of this variable on loan repayment.

In summary, literacy level, income from activities financed by the loan, loan size and numbers of times borrowed are significant factors that enhance the probability of repayment.

4.2.2 Evaluation of the Loan Rationing Mechanism

Five out of the nine variables included in the model were found to be significant. According to the estimates presented in the table 20, loan diverters, borrowers who take large size of loan, borrowers earning more income, borrowers who take adequate loan supervision, borrowers who celebrate social ceremonies and illiterate borrowers are more rationed, i.e., the probability of such borrowers being rationed is high. On the other hand, level of education, size of loan, celebrate social ceremonies, health expenditure and loan diversion are found to be significant in the model.

Table29 Maximum likelihood estimate of a logit model for loan rationing

Logistic regression

Number of obs = 113

Wald chi2(11) = 32.70

Prob > chi2 = 0.0006

Log pseudolikelihood = -19.218972

Pseudo R2 = 0.5830

lr	Coef.	Robust std.Err	z	P> z
ag	-.0077219	.0342832	-0.23	0.822
ed	.7236101	1.375941	0.53	0.599
ndl	-2.405015	1.840133	-1.31	0.191
ndp	.2819274	.293129	0.96	0.336
aspv	2.936783***	1.774805	1.65	0.098
incom	.4502847	.318162	1.42	0.157
lsz	.0003701*	.0001152	3.21	0.001
ld	5.901676*	2.28609	2.58	0.010
ntb	-.325277	.6961287	-0.47	0.640
Heex	-.0106742*	.0038102	-2.80	0.005
Crsc	3.682836***	1.956485	1.88	0.060
con	-9.0896	3.641883	-2.50	0.013

* Significance at 1%

** 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 she must have been rationed more.

To proceed with the method of evaluation described above, the estimates of the logit models for loan repayment and loan rationing are reproduced in table 21 below for easy reference.

Table30 Comparison of the two estimates

Variables	Loan repayment			Loan rationing		
	coefficients	Std.	p>/z/	Coefficients	Std.	p>/z/
Ag	.0688239	.0485782	0.157	-.0077219	.0342832	0.822
Ed	2.904593***	1.663906	0.081	.7236101	1.375941	0.599
Ndl	-1.583121	1.662803	0.341	-2.405015	1.840133	0.191
Ndp	-.3349244	.4926239	0.497	.2819274	.293129	0.336
Aspv	1.118842	1.377519	0.417	2.936783***	1.774805	0.098
incom	1.164507**	.4564657	0.011	.4502847	.318162	0.157
Lsz	.00035**	.0001586	0.027	.0003701*	.0001152	0.001
Ld	-1.350102	1.074333	0.209	5.901676*	2.28609	0.010
Ntb	1.793008*	.5343741	0.001	-.325277	.6961287	0.640
Heex	-.0035013	.0021299	0.100	-.0106742*	.0038102	0.005
Crsc	-.525307	1.10454	0.634	3.682836***	1.956485	0.060

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

Accordingly borrowers who perceive loan supervision as adequate, borrowers who have high level of education, loan size and who have high income from activities financed by the loan are correctly identified as being creditworthy and were not rationed or are less rationed. Similarly borrowers who have another source of loan and borrowers whose health expenditure high are correctly identified as being noncredit worthy, and hence are rationed.

On the other hand, borrowers who are aged and those who are number of times borrowed high are incorrectly rationed despite being creditworthy, while those who are loan diverters, borrowers with high numbers of dependents and those who are celebrates social ceremonies are less rationed in spite of the fact that they contribute to poor loan recovery rate.

Overall according to the evaluation technique given above the screening mechanism employed by DECSI Adwa branch seems to be fair (sound), since in six of the eleven 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 one variables is significant in both equations; namely: loan size. So borrowers who receive high loan size are correctly identified as being creditworthy

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 five of the eleven factors were incorrectly used by the institution for screening, which necessitates a careful examination of the screening technique being used by the institution.

CHAPTER FIVE

5. Summary, Conclusions 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 formal loan repayment performance of urban women borrowers of DECSI in Tigray 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 32 % of the respondents are defaulters. The majority of the respondents are literate (76.33%).

Above 99% 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. Regarding loan utilization 27.81% of the respondents have violated loan agreement, their main reasons being inconsistency of the agreement is the loan amount was not enough for the intended purpose and to repay another loan.

More than half of the respondents had some source of income prior to the loan scheme, their main source being petty trade. Currently 26.42% earn an income level of above Birr 5000 after using the loan from DECSI. This improvement has to be seen against the average number of dependents of 1.72.

A large proportion (98.82%) is now having saving account of the institution, while only 12.43% was having saving personally before the launching of the credit scheme. This is one area of a positive contribution of the institution.

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, illiterate, and loan diverters. They also receive a smaller loan amounts, earn smaller income, support more dependents than the non-defaulters.

The same analysis was done on loan rationing. Accordingly, borrowers high level of education, applied for larger loan amount, whose income is high, those celebrate social ceremonies, perceive loan supervision adequacy, loan diverters, availability of another loan and who support more dependents are rationed.

Factors that are found to be significant determinants of loan repayment performance were level of education, income financed from the loan, loan size and number of times borrowed. All of these factors increase the probability of loan repayment. Even though they are insignificant, availability of another loan, loan diversion, number of dependents, medical expenses and celebrating social ceremonies reduce the loan repayment performance.

These findings tally with those in the descriptive statistics mentioned above with the exception of loan size. Similar results were obtained regarding age, loan diversion and supervision in Berhanu (1999) and Mengistu (1997), while that of education and income is same in Abrham(2002), Reta(2000), Berhanu (1999) and Mengistu (1997) .

Coming to the screening technique, the empirical evidences show that although there were some problems of separating between creditworthy borrowers from those who are not, in most of the cases the technique was found to be good. Factors like borrowers who are aged and number of times borrowed are incorrectly rationed despite being creditworthy, while those who are loan diverters, number of dependent and who are celebrates social ceremonies are less rationed in spite of the fact that they contribute to poor loan recovery rate.

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

Comparison of the studies that were conducted with somehow similar objectives as the current one is presented below. Looking at the determinants of loan repayment there seems to be a consensus in the findings (sign), particularly concerning the variables education, income, loan size, loan supervision and loan diversion. Regarding evaluation of the loan rationing mechanism similar findings were obtained in terms of the signs of loan size and loan supervision. Studies that assessed impact as one of their objectives were Retta(2000), Teferi(2000) and Berhanu(1999), and all them had similar findings, that the credit schemes have contributed positively to the improvement of the living condition of their beneficiaries.

5.2 Conclusions and Policy Implications

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 urban women borrowers and the screening technique, which the institution follows to ration loan to its clients, were found to be sound.

The other significant determinant that was found to enhance 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.

Factors like income, age, level education, adequacy of supervision, income, number of times borrowed and loan size 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.

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 who are aged and number of times borrowed were incorrectly rationed despite their being creditworthy, while those loan diverters, those have high number of dependents and those who are celebrating social ceremonies were rationed less despite their being non-creditworthy.

Moreover we have seen that only one out of eleven variable 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.

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 DECSI 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 high, 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.

6. References

- Abreham Gebeyehu (2002), "Loan repayment and its Determinants in Small-Scale Enterprises Financing in Ethiopia: Case of private borrowers Around Zeway Area", M. Sc. Thesis, AAU.
- Adams, D. and D. Graham, 1981. A Critique of Traditional Agricultural Credit Projects and Policies. *Journal of Development Economics*. Vol. 8: 374-66.
- Adeyemo, R. (1984), "Loan Delinquency in Multi-Purpose Cooperative Union in Kawara State", *Savings and Development*, Vol.7 No.3

- Adwa WOFED statistical bulletin ,2012
- AEMF(association of Ethiopian microfinance Association),2008,bulletin 5.
- Agricultural Office, 1998. Land Use Development Potential Study of the Dire Dawa Administrative Council. Ethiopia.
- Agricultural Office, 2001. Progress Report. Dire Dawa, Ethiopia.
- AIDB (Agricultural and Industrial Development Bank), 1993. “Zena Limat Bank”. Bulletin of June. Pp. 32-34.
- Aldrich, J.H. and Nelson, F.D. 1984. Linear Probability, Logit and Probit Models: Quantitative Applications in the Social Science: Sera Miller McCun, Sage Pub. Inc; University of Minnesota and Iowa. New Delhi.
- Amemiya, T. 1981. Qualitative Response Model: A Survey. Journal of Economic Literature. 19: 1483-1536.
- Assefa Admassie, 1987. A Study of Factors that Affect the Use of Agricultural Credit among Peasant Farmers in Ethiopia: A case of two District. M Sc. Thesis, Addis Ababa University, Ethiopia.
- Assefa Admassie and Franz Heidhues, 1996. Estimation of Technical Efficiency of Smallholder Farmers in the Central Highlands of Ethiopia. Ethiopian Journal of Agricultural Economics. 1(1): 18-37.
- Beckman, T.N.and Foster, R.S. 1969. Credits and Collections: Management and Theory. Eighth Edition. McGraw-Hill Book Company. New York, U.S.A.
- Bekele Hundie, 2001. Factors Influencing the Loan Repayment Performance of Smallholders in Ethiopia. M.Sc.Thesis, Alemaya University, Ethiopia.
- Bekele Tilahun, 1995. Rural Credit in Ethiopia. In: Dejene Aredo and Mulat Demeke (eds), Ethiopian Agriculture: Problem of Transformation. Proceedings of the Fourth Annual Conference on the Ethiopian Economy. Pp. 353-372. Addis Ababa.
- Belay Kassa, 1998. Structural Problem of Peasant Agriculture in Ethiopia. Research Report. Alemaya University of Agriculture. Ethiopia.
- Belay Kebede, 1998. Agricultural Credit and Factors Impeding Loan Repayment Performance of Small-holders in Central Highlands of Ethiopia: The Case of Alemgena District. M.Sc. Thesis, Alemaya University of Agriculture, Ethiopia.
- Birhanu Lakew, 1999. Micro-enterprises Credit and Poverty Alleviation in Ethiopia; The case

- of Addis Ababa, Addis Ababa.
- Berhanu Taye, 1993. An Analysis of Factors Influencing Fertilizer Consumption and Access to Fertilizer Credit in Ethiopia. M.Sc. Thesis, Alemaya University of Agriculture, Ethiopia.
- BOFED statistical bulletin ,2012
- CSA (Central Statistical Authority), 1994. Results for Dire Dawa Provisional Administration. Ethiopia.
- DECSI Adwa branch (2012) ‘Profile of Dedebit Credit and Saving institution Adwa branch’, Adwa, Ethiopia.
- Dejene Aredo, 1993. The Informal and Semi-Formal Financial Sectors in Ethiopia: A Study of the Iqqub, Iddir and Savings and Credit Cooperatives, AERC, Nairobi.
- _____, 1999. Informal Credit and Insurance Markets in Developing Countries: A Preliminary Survey of the Literature, Addis Ababa.
- Dorward, A., J. Kydd and C.Poulton, eds.1998. Smallholder Cash Crop Production Under Market Liberalization: a new institutional economics perspective. CAP International, UK.
- Fantahun Melles, 2000. Informal Financial Institutions: Impact Analysis of ACORD's Credit Intervention through Iddirs in Dire Dawa. M.Sc. Thesis, Addis Ababa University, Ethiopia.
- FAO. 1996. Rural Informal Credit Markets and the Effectiveness of Policy Reform. Economic and Social Development Paper. No. 134, Rome.
- Feder, G. Just, R.E., and Zilberman, D. 1985. Adoption of Agricultural Innovation in Developing Countries: A Survey World Bank Staff Working Papers, No. 542. The World Bank, Washington DC, USA.
- Fidler P. and Webster L. (1996), “The Informal Sector and Micro Finance Institutions in West Africa”, *World Bank Regional and Sectoral Studies*, The World Bank, Washington D.C.
- Getachew Olana, 1993. Farmers’ Response to New Coffee Development Technologies and Factors Influencing it: The Case of Small Farmers in Gimbi CIPA, Wollega. M.Sc. Thesis, Alemaya University of Agriculture, Ethiopia.
- Gonzalez-Vega, C. 1977. Interest Rate Restrictions and Income Distribution. *American Journal of Agricultural Economics*. 59(5): 973-76.

- Ghosh, P. and D. Mookherjee, 1999. Credit Rationing in Developing Countries. An overview of the Theory. Readings in the Theory of Economic Development. Chapter 11:383-401.
- Government of Ethiopia and the United Nations Children's Fund, 1995. Guidelines for Establishing Savings and Credit in WIBS Woredas. Addis Ababa, Ethiopia.
- Gujarati, Damodar N. 1988. Basic Econometrics. Second Edition. McGraw-Hill Book Company, New York. U.S.A.
- _____. 1995. Basic Econometrics. Third Edition, McGraw-Hill Book Company, New York.
- HCS (Hararghe Catholic Secretariat), 2001. Progress Report. Dire Dawa , Ethiopia.
- H.D.ACQUAH^{1*}, J.ADDO² .2011.Determinants of loan repayment performance of fishermen: Empirical evidence from Ghana.Vol.XLIV,No.4(148).
- Hosmer, D.W. and Lemeshew, S. 1989. Applied Logistic Regression. A Wiley-Inter-science Publication, New York.
- Hossain M. (1988),”Credit for alleviation of Rural Poverty: The Grameen Bank in Bangladesh”, *International Food Policy Research Institute*, Research Report 65
- Hunte, C. Kenrick, 1996. Controlling Loan Default and Improving the Lending Technology in Credit Institutions. Saving and Development. Quarterly Review-No. 1: 45-59.
- Ike, D.N. 1986. The Problem of loan defaults in Nigerian Agriculture. Indian Journal of Economics. Vol 66 (262), pp 409-422.
- ILCA (International Livestock Center for Africa), 1990. Livestock Research Manual, Working Paper 1, Vol. 1, ILCA, Addis Ababa, Ethiopia.
- Jama, M.A. and Kulundu, D.M. 1992. Smallholder Farmers Credit Repayment Performance in Lugari Division, Kakamega District, Kenya. East African Economic Review. 8(2): 85-91.
- Johnson S. and Rogaley B. (1997), Micro Finance and Poverty Reduction, OXFAM,(UK and Ireland)
- Kabeer, N. 1998. Agency, well-being and Inequality: Reflections on the Gender Dimensions of Poverty. IDS Bulletin. 27(1). Pp. 11-21.
- Kashuliza A. 1993. Loan Repayment and its Determinants in Small holder Agriculture :A case

- study in the southern highlands of Tanzania, *Eastern African Economic Review* Vol. 9, No.1, Nairobi.
- Khandker Shahidur R. Khan Z.ahed, Khalily Baqui. 1995. *Sustainability of a Government Targeted Credit Program: Evidence from Bangladesh*, Washington D.C.
- Kmenta, J. 1986. *Elements of Econometrics*. Second Edition. Macmillan Pub. Co. New York. U.S.A.
- Kothari, C.R. 1990. *Research Methodology: Methods and Techniques*. Second Edition. Washwa Prakashan Pub., New Delhi, India.
- Kuhn, Manfred E.and Darroch, Mark A.G. 1999. *Factors Affecting Rural Medium-Term Loan Repayment: Evidence from a South African Development Financial Institution*. Sacramento, California.
- Kulundu D.M. 1992. *Small holder Farmers Credit Repayment Performance in Lugari Division, Kakamega District, Kenya*. *Eastern African Economic Review* Vol. 8, No.2, Nairobi.
- Kumar, P., Joshi, P.K., and Muralidharan, M.A. 1978. *Estimation of Demand for Credit on Marginal Farms A Profit -Function Approach*. *Indian Journal of Agricultural Economics*. 33(4): 106-114.
- Liao, T.F. 1994. *Interpreting Probability Models. Logit, Probit and Other Generalized Models*. Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-101. Thousand Oaks, CA: Sage, California..
- LWF (Lutheran World Federation), 2001. *Progress Report*. Dire Dawa, Ethiopia.
- Maddala, G.S. 1983. *Limited Dependent and Qualitative Variables in Econometrics*. Cambridge University Press, New York.
- _____.1989. *Introduction to Econometrics: Business Economics*. Second Edition. Florida University, Macmillan Pub.Comp., New York.
- Matin, Imran, 1997. *Repayment Performance in Grameen Bank*. *Saving and Development Quarterly Review*-No. 4. XXII: 451-473.
- Mayoux.I.(1999).*Questioning virtuous spirituals: Microfinance and women's Empowerment in Africa* , *journal of international Development* pp:957-984
- Mengistu Bediye, 1997. *Determinants of Micro-enterprise Loan Repayment and Efficiency of Screening Mechanism in Urban Ethiopia: The case of Bahir Dar and Awassa Towns*, Addis Ababa.

- Miller, L.F. 1977. *Agricultural Credit and Finance in Africa*. The Rockefeller Foundation. U.S.A.
- MOA (Ministry of Agriculture), 1995. *Agricultural Credit Policies*. National Agricultural Workshop. Addis Ababa, Ethiopia
- Mosely, P., 1995. *Aid and Power. The World Bank and Policy-based Lending*. Volume1, London and New York, Rout ledge.
- Mwinijilo, M.L. 1987. “A Study in to the Causes of Medium-term Loan Defaluts among Smallholder Farmers in Salima Agricultural Development Division”. A Research Report Submitted to the National Research Council of Malawi. Lilongwe.
- Okorie, Aja, 1986. Major Determinants of Agricultural Smallholder Loan Repayment in a Developing Economy: Empirical Evidence from Ondo, Nigeria. *Saving and Development, Quarterly Review*, No.1-X, pp 88-99.
- Pindyck, Robert S. and Rubinfeld, Daniel L. 1981. *Econometric Models and Economic Forecasts*. Second Edition. McGraw-Hill Book company, New York.
- Pischke Von J.P. 1980. Rural Credit Project Design, Implementation and Loan Collection Performance. *Saving and Development*, 4(2):81-91.
- PEDO (Planning and Economic Development Office of Dire Dawa), 2000. Report on Situation Analysis of Saving and Credit Services. Ethiopia.
- PEDO (Planning and Economic Development Office of Dire Dawa), 2001. Base line Survey. Dire Dawa, Ethiopia.
- Pehlvan, H. (1996), “Financial Liberalization and Bank Lending Behavior in Turkey”, *Savings and Development Quarterly Review*, Vol.XX, No. 2
- Popiel P.A. 1994. “Financial Systems in Sub Saharan Africa”, the World Bank, USA.
- Rudkius, T. (1994), “Sustainability in micro credit- the need to eliminate access Barriers”, *Small Enterprise Development*, Vol.5, No.1.
- Singh, Gurbachan, Sidhu J.S. and Singh Balawant, 1985. A Study on Repayment Performance of Borrowers in Punjab. *Financing Agriculture*. April-June, India.
- Solomon Damte, 1996. Credit to Poor households: The case of Financing Micro. Enterprises in the Debre Berhan Town and North Shoa. Proceedings of the Fourth Annual Conference on the Ethiopian Economy, Addis Ababa, Ethiopia.
- Stiglitz, J. and Weiss, A. (1981), *Credit Rationing in Markets with Imperfect Information*,

American Economic Review, Vol. 71, No.3

Stiglitz, E., 1989. Financial Markets and Development. *Oxford Review of Economic Policy*. 5(4): 55-68.

Tamiru Tessema, Yirgalem G.Egziabher, Mengistu Bediye, Seyfu Belay, Kassa Woldeesenbet, Kumsa Legesse, 1998. The Market Town Development Program, Papers Presented in the National Micro-enterprise Project Work shop, Addis Ababa, Ethiopia.

UNDP(United nations development program) report,2005.

Teferi Zewdu (2000), “Micro Finance and the Poor: The Case of Dedebit Credit and Saving Institution(DESC) in Tigray”, M.Sc. Thesis, AAU.

Vigano, Lawra (1993), “A Credit Scoring Model for Development Banks: An African Case Study”, *Saving and Development*, Vol. XVII, No. 4

Von Pischke, J.D. (1991), ‘Finance at the Frontier: Debt Capacity and The Role of Credit in the Private Economy’, *EDI Development Studies*, The World Bank, Washington D.C.

Wenner, Mark D. 1995. Group credit: A Means to Improve Information Transfer and Loan Repayment Performance. *Journal of Development Studies*. 32(2): 263-281.

Wolday Amha (2000) “The Establishment of AEMFI: Forum to Learn from Others’ Experience”,*MFDR*, Vol. 1, No. 1

Zeller, Manfred, 1998. Determinants of Repayment Performance in Credit Groups: The Role of Programme Design, Intragroup Risk Polling, and Social Cohesion. International Food Policy Research Institute. Reprint No. 384.

Zeller, M and M. Sharma, 1996. Repayment Performance in Group-Based Credit Programs in Bangladesh: An Empirical Analysis. Food Consumption and Nutrition Division, International Food Policy Research Institute, Washington D. C., USA.

Iteration 0: log pseudolikelihood = -46.086439
 Iteration 1: log pseudolikelihood = -27.8587
 Iteration 2: log pseudolikelihood = -21.724287
 Iteration 3: log pseudolikelihood = -19.453689
 Iteration 4: log pseudolikelihood = -19.224787
 Iteration 5: log pseudolikelihood = -19.218982
 Iteration 6: log pseudolikelihood = -19.218972
 Iteration 7: log pseudolikelihood = -19.218972

Logistic regression

Number of obs = 113
 Wald chi2(11) = 32.70
 Prob > chi2 = 0.0006
 Pseudo R2 = 0.5830

Log pseudolikelihood = -19.218972

l r n	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
ag	-.0077219	.0342832	-0.23	0.822	-.0749158 .059472
d	.7236101	1.375941	0.53	0.599	-1.973184 3.420404
ndl	-2.405015	1.840133	-1.31	0.191	-6.01161 1.20158
ndp	.2819274	.293129	0.96	0.336	-.2925948 .8564497
aspv	2.936783	1.774805	1.65	0.098	-.5417711 6.415338
lncm	.4502847	.318162	1.42	0.157	-.1733013 1.073871
lsz	.0003701	.0001152	3.21	0.001	.0001442 .000596
ld	5.901676	2.28609	2.58	0.010	1.421023 10.38233
ntb	-.325277	.6961287	-0.47	0.640	-1.689664 1.03911
heex	-.0106742	.0038102	-2.80	0.005	-.0181421 -.0032062
crsc	3.682836	1.956485	1.88	0.060	-.1518048 7.517477
_cons	-9.0896	3.641883	-2.50	0.013	-16.22756 -1.951641

Annex III The Survey Questionnaire

Questionnaire

KEBELE _____

ENNUMERATOR _____

DATE _____

I: PERSONAL DETAILS

1.1 Name of Borrower _____

1.2 Age _____

1.3 Marital Status _____ 1. Single 2. married 3. divorced 4. widowed

1.4 Educational level _____ 1. Illiterate 2. grade 1-8 3. grade 9-12 4. above grade 12

1.5 Number of dependents: With in the household _____ Outside the household _____

1.6 Occupation: Main _____ Second _____ Third _____

II: INFORMATION ON GROUP FORMATION

2.1 How many members does the group in which you belong have? ___ 1) 3 2) 5 3) 10

2.2 Did you know all (most) of the members in your group? ___ 1. Yes 0. No

2.3 Did you feel responsible to other members of your group? ___ 1. Yes 0. No

2.4 Did you have the feeling that you might be sued in case of failure to repay the loan? ___
 1. Yes 0. No

2.5 Do you attempt to know or monitor the loan utilization of the other members of your

group? ____ 1. Yes 0. No

- 2.6 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 DECSI 2) Accuse the diverter 3) Put social sanction 4) Other(specify)_____

III: LOAN AND ITS REPAYMENT

- 3.1 Did you have any source of credit other than DECSI? ____ 1. Yes 0. No
3.2 If yes, what is your source? __ 1)Iddir 2)Money lenders 3)Friends/relatives 4) Banks 5) Other
3.3 How many times and how much money did you receive from these sources during the past 12 months?

Source	year	Amount of loan

- 3.4 Have you finished repayment on loan from these sources? ____ 1. Yes 2. No
3.5 How much money did you receive in loan from DECSI credit scheme? _____
3.6 Is the repayment period set by DECSI suitable in your opinion? ____ 1. Yes 0. No
3.7 If no, recommend a suitable repayment period: _____
3.8 Was the loan issued timely? ____ 1. Yes 0. No
3.9 If no, what was the impact of the delay? _____

- 3.10 What is the status of recent loan? _____
1. Fully repaid 2. Repayment on schedule 3. Repayment in arrears

3.11 If in arrears what is the balance remaining? _____

3.12 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) _____

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

3.14 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

- 4.1 What was the purpose for which the loan was taken ? _____
 1. Petty trade 2. Purchase of urban agricultural inputs 3. Fattening
 4. Other (specify) _____
- 4.2 Was the amount of loan you took enough for the purpose intended? _____
 1. Yes 0. No
- 4.3 If no, what was the amount you requested? Birr _____
- 4.4 Did you spend the entire loan on purposes specified in the loan agreement? ____
 1. Yes 0. No
- 4.5 If no, state those non-intended purposes and the amount spent on them

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

- 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

- 5.1 Have you ever been supervised regarding loan utilization by DECSI staff?
 1. Yes 0. No
- 5.2 Have you ever been supervised for loan repayment? ____ 1. Yes 0. No
- 5.3 If yes to either on. No. 5.1 or 5.2, how many times were you supervised? ____
- 5.4 If yes to either 5.1 or 5.2, was it adequate in your opinion? _____ 1. Yes 0. No
- 5.5 Do you consider supervision as being important for loan repayment? ____ 1. Yes 0. No
- 5.6 Did you get any training before receiving loan? _____ 1. Yes 0. No
- 5.7 If yes, what kind of training was it? _____
 1. Business 2. Marketing 3. Saving 4. Book keeping 5. Other (specify)
- 5.8 Do you think that the training has helped you increase your income? ____ 1. Yes 0. No

VI: INCOME AND WEALTH

- 6.1 Did you have a source of income (cash income) for your household before 2012 fiscal years, i.e. before joining the DECSI program loan? ____ 1. Yes 0. No
- 6.2 If yes, what was/were the source(s) and level of your income?

Source	Annual Income
_____	_____
_____	_____
_____	_____

6.3 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 |

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

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

Source	Annual Income
_____	_____
_____	_____

6.6 What is the estimated value of your assets currently?

- | | |
|------------------------------|-----------------------------|
| 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 |

6.7 Did/do you've your own house? ___ 1. Yes 0. No

6.8 If No, how much did you pay for rent? _____

VII: MEDICAL EXPENDITURE AND ACCESS TO MEDICAL SERVICES

7.1 Do your family and yourself have access to health services currently? _____

1. Yes 0. No

7.2 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) |

7.3 What is your average annual medical expenditure during the last 12 months? Birr _____

7.4 Do you think that your annual medical expenditure has increased over the past 5 or so years?

1. Yes 0. No

7.5 How much was the average annual medical expenditure before 5 years? Birr _____

7.6 Do you think that your access to medical facilities has improved after your participation in the credit scheme? ___ 1. Yes 0. No

7.7 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) _____ |

VIII: EDUCATIONAL EXPENSE AND ACCESS TO EDUCATION

- 8.1 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 _____
- 8.2 Do you think that there is improvement of access to educational facilities of you and your family? ___ 1. Yes 0. No
- 8.3 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) _____

IX :EXPENDITURE FOR CELEBRATION OF SOCIAL FESTIVALS

- 9.1 Did you celebrated social ceremonies in 2012 fiscal year? 1. yes 0. no
- 9.2 If yes, what was the celebrated social ceremonies?
1. wedding
 2. Funeral ceremonies
 3. engagement
 4. Circumcision
 5. Tsiwa mahber
 6. others (specify) _____
- 9.3 For these ceremonies, how much do you estimate to have invested on it? _____
- 9.4 The source of the money you invested _____

X. CONSUMPTION AND LIVING CONDITIONS

- 10.1 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 credit? Birr _____
- 10.2 Who was the bearer: During the last 12 months? ___ Before credit? _____
1. Myself
 2. Other family members
 3. Myself and other family members
 4. Donors
 5. Other (Specify)
- 10.3 What is the status of the household diet currently after the credit? ___
1. Improved
 2. Same
 3. Worsened
- 10.4 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

- 11.1 Please list the major products and/or services produced from your business that is financed by the loan from DECSI?

1. _____
2. _____
3. _____

11.2 How was the demand for your product? ___ 1. High 2. Average 3. Low

11.3 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

12.1 Did you have a saving account before participating in the credit scheme of DECSI? ___
1. Yes 0. No

12.2 If yes, what is the average amount that you manage to save monthly? Birr _____

12.3 Do you have a saving account after program participation? ___ 1. Yes 0. No

12.4 If yes, what is the average monthly amount of your saving? Birr _____

11.5 Do you keep accounting records? _____ 1. Yes 0. No

12.6 If yes, for what purpose?

- 1) To evaluate profit and loss
- 2) For loan repayment purpose
- 3) Other (specify) _____

12.7 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) _____

12.8 Has your living condition improved in general because of your participation in the credit scheme? ___ 1. Yes 2. No

12.10 What is your overall opinion about the credit scheme?
