

Micro-finance Repayment Problems in the Informal Sector in Addis Ababa

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Abstract

Repayment rate of microfinance credit in the city of Addis Ababa has decreased considerably and averaged around 69 percent of the total loans due per year. This study is an attempt to identify some of the main factors that influence microfinance level loan repayment performance of the informal sector. Data for the study was collected through a structured interview, questionnaire and informal discussion in the ten sub-cities of Addis Ababa. The collected data was analyzed using a multinomial logit technique to ascertain those factors constraining repayment performance of microfinance credit.

Results of the study indicate that better repayment performance is strongly and directly associated with educational level of the borrower. Insufficiency of the loan granted and unplanned engagements in the business activity do also reduce repayment performance. Government owned and not-for-profit non-governmental microfinance institutions were found out to face relatively larger non-repayment due to credit attitude of borrowers towards the loan, as if it were grant, instead of a liability at the time of difficulty.

1.0 Introduction

Crude estimates suggest that the informal sector is so large in developing countries that it accounts from 20-30% of employment and over 20% of Africa's GDP (UN 1996). In Ethiopia, the informal sector is emerging as an employer of the last resort holding 1.4 to 1.7 million, which reflects 78% of the total urban economically active population, compared to 62% for Africa as a whole (Portes 1994), (ILO 1995/97). The activity undertaken by the sector ranges from street vending to small manufacturing entities. According to CSA, around 130,000, of the total population engaged in the informal sector, is residing in Addis Ababa. This accounts for around 32% of the total employed and 51% of the economically active population. (CSA: 2003/173)

Surveys indicate that, many members of the informal sector are engaged in the sector due to its ease of entry, family ownership, and the labor intensive nature of method of production or a wider demand for the cheap and basic products of the sector. Ownership structure of the sector indicates that most of them exist in the form of sole proprietorship. For instance, in Addis Ababa 99.07% of

them exist as sole proprietorships and are dominated by family and relative establishments (CSA: 2003/179).

Despite its prevalence and size, the informal sector is constrained by so many problems and difficulties. The basic problems of the sector in many developing countries range from inadequate infrastructure, lack of technical skill and training to access credit for starting up and running the sector's activity (UN ECA 1996).

Lack of collateral and the smaller size of the loan demanded by the sector have resulted in a lesser interest on formal financial intermediaries, such as banks, to consider it as a potential customer. The higher interest rate charged by some informal money lenders made the financial problem more unreachable. MFIs were aimed to bridge this gap as their primary objective. Through MFIs, the poor, especially the informal sector, have been proved to be bankable (Ghatak 1998).

1.1 Statement of the problem

The informal sector is increasing from time to time as an employment sector, especially, for the urban population (ILO 1991). However it is encircled by so many deep-

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rooted problems that worsened the livelihood of its members. Lack/shortage of capital for starting up and running their sector activity, as per CSA's survey, is found in the centre of these diversified problems.

A number of studies on credit institutions in several developing countries reveal that the majority of them have encountered serious loan recovery problems. (Kashuliza 1993).

In most developing countries, credit is the pivot which the development of any sector rests on. Microfinance institutions are different from other financial institutions mainly because their services are directed towards the lower income group of the society. They are particularly established to meet the credit demand of poor households who are often not well-served by the organized formal financial market mainly due to lack of appropriate and adequate collateral (Stiglitz 1990).

Releasing the credit to those beneficiaries, however, does not necessarily alleviate the sector from the problems it is sustaining. It is most frequently seen that as many articles evaluate, MFI is primarily based on sustainability and outreach (Renee 2000), (Lariviere 1999). Sustainability of an MFI is measured in terms of generating enough revenues (excluding subsidies) to cover the cost of all factors of production and loanable funds. Whereas outreach is a hybrid measure that assesses the extent to which an MFI has succeeded in reaching its target clientele and the degree to which the MFI has met the clientele's demand for financial services (Yaron. 1992). One indicator of effectiveness of a loan release, however, is also the repayment performance of borrowers. Otherwise it adds an additional liability/burden to the client.

Microfinance institutions are commonly praised for their better repayment performance in comparison to other forms of lending institutions (Gibbons,1992). However, the existence of non-repayment in their loan portfolios will have a wider social and eco-

nomical implications on the national economy.

Default rates i.e. the amount of loans not collected on current and past due loans for the reference period, for loans taken from credit institutions vary from country to country, region to region, sector to sector. But all credits of developing countries were found to share one common characteristic; all suffer from a considerable amount of default rate (Kashuliza 1993).

Similarly, microfinance credits found in the city of Addis Ababa, which are striving to meet the financial need of the lower class of the society, primarily composed of the informal sector, are recently suffering from considerable amount of default/delinquency rate. Based on a preliminary data collected, on average for the year ended 1997 (EC), delinquency rate was estimated to reach around 31%.

Therefore, whether default is random and influenced by erratic behaviors or if it is influenced by certain factors in a specific situation needs an empirical investigation so that the findings can be used by micro financing institutions to manipulate their credit program for the better (Khandker et al.,1995) These states of affairs have necessitated the launching of this research to identify and ascertain underlying problems restraining timely repayment of microfinance credit by the informal sector.

1.2 Objectives of the study

The underlying interest behind this study is to identify and ascertain major problems constraining the informal sector from making on-time repayment of their debt.

Due to time and budget constraints, however, the scope of the study is restricted to members of the informal sector and MFIs operating residing in the City of Addis Ababa.

The specific objectives of the study include,:

- Categorizing outstanding microfinance beneficiaries based on their repayment

- status;
- Describing the attributes of microfinance institution clients based on their status in the repayment category;
 - Finding out and ranking possible determinants of repayment performance and their significance; and
 - Giving some indication towards credit policy making/adjustment of credit conditions.

2. Review of the Literatures

Credit, as indicated previously, is the pivot on which the development of any sector rests. The enhancement and development of the informal sector, as one of the most prevalent sectors in developing countries, also depends on the credit availability and quality. The MFIs, which are targeted towards providing smaller loans to the mass, have been operating in the country for long towards satisfying the credit demand of the lower class of the economy, mainly composed of the informal sector.

This section of the paper tries to examine studies and literature on areas related to definition of the informal sector, its main features and the problems it encounters. Furthermore, it also summarizes the operation and significance of MFI in general as well as in Ethiopia and Addis Ababa in particular.

2.1 Conceptual definition of the informal sector

The ILO has been in the forefront, if not the first, from among international institutions to be seized with the issues of conceptual perception and definition of the informal sector. In reporting to the 78th session of the International Labour Conference (ILC) of 1991, the Director General of the ILO in a document entitled "The Dilemma of the Informal Sector", defined the sector as consisting of:

"very small-scale units producing and distributing goods and services, and consisting largely of independent self employed and

procedures in urban areas of developing countries, some of whom also employ family labour and/or a few hired workers or none at all, which utilize a low level of technology and skills, which therefore operate at low level of productivity, and which generally provides very low and irregular incomes and highly unstable employment of those who work in it"

The above definition of ILO seems exhaustive definition for the term informal sector. However, most countries have preferred to make some adjustment to it and give their own national definition. This is because the informal sector and its features are influenced directly or indirectly by the socio-economic setting of the country and the society it belongs to. Accordingly, the Central Statistical Authority of Ethiopia (CSA) has given a conceptual and national definition for the term.

(Conceptual definition)

As a concept, informal sector refers to home based or individual establishment/activity operated by the owner with a few or no employees. They are for the most part unregistered and operating on a very small scale, with a low level of organization, productivity and income

(National definition)

"Unincorporated enterprises, with no book of accounts, mainly engaged in market production, with less than ten persons engaged in market production, and not registered as companies or cooperatives; also included are enterprises/activities which have no license" (CSA, 2003) .

In Ethiopian context establishments/activities, to be encompassed in the informal sector, should meet all of the following criteria:

- I. Which are mainly engaged in market production and
- II. Which are not registered companies or cooperatives and
- III. Which have no full written book of ac-

- counts and
- IV. Which have less than 10 persons engaged in the activities and
 - V. Which have no license.

Different countries use different criteria, such as (a) number of employees, (b) assets employed, (c) sales turn over, (d) or combination of the above factors to determine the size of enterprises in the sector.

2.2 Main features of the informal sector

The characteristics and structures of the informal sector may vary depending on the respective socioeconomic status of the specific country they are operating in. In general, there are common features that all or most of members of the informal sector share.

The World Bank in its study (World Bank 1996) classified their characteristics into two broad categories, small scale of operation and labour intensive mode of production.

Santos has given a somewhat exhaustive and summarized form of the common characteristics of the informal sector comparing it against the formal sector (Santos 1979).

More specifically, most of Africa's urban Informal sector, Addis Ababa being one of Africa's urban regions, is summarized as follows: (Mpyisi 1994)

- I. Indigenous micro enterprises engaging

around 2-5 persons where by, usually, the family owns and provides the initial means of production in the form of capital, material and labour.

- II. Technical know-how and operating skills required frequently or mainly obtained outside the formal education system.
- III. Poor working conditions with the majority of operations being without infrastructural support such as water, electricity, sanitary facilities and transport: thus no use of advance or even simple appropriate technology;
- IV. Operations that are largely outside the reach of government regulatory controlling mechanism;
- V. Operators who generally have low level of educational background.

Causes to engage in the Informal Sector

There are four common factors cited frequently as causes leading people to engage in the informal sector (CSA 2003):

1. Ease of entry: the informal sector is not registered and regulated by government offices and the required capital to start and run the sector's activity is low. These make individuals to use the informal sector as an escaping window.
2. family ownership of enterprises;
3. labor intensive method of production;
4. small scale operation ...

Table 2.1 Characteristics of formal and informal sector enterprises

Characteristics	Formal sector	Informal sector
Entry barriers	High	Low
Management	Bureaucratic	Family based
Capital	Abundant	Scarce
Work hours	Regular	Irregular
Wage labour	Normal	Limited
Inventories	Large	Small
Prices	Often fixed	Often negotiable
Financial services	Banks	Personal, informal
Customer relations	Impersonal	Personal
Fixed costs	Large	Negligible
Advertising	Necessary	Little to none
Government subsidy	Often large	None
Markets	Often export	Rarely export

2.3 Common constraints affecting the informal sector

Low entry barriers facilitate relatively easy enterprise set up, but managing and expanding small businesses usually call for additional resources and skills that are commonly in short supply. As per World Bank study these constraints are classified in two major categories (World Bank 1996):

1. non - financial constraints

- lack of demand for their products and services
 - * *Market problems:* - small and saturated market and increasing number of producers but stagnant number of buyers with low level of income.
 - * *Marketing problems:* - lack of product differentiation due to limited knowledge.
- Poor state of infrastructure in the region.

2. financial constraints

- Lack of money – i.e. insufficient working capital and narrower source of credit.

2.4 Possible sources of finance for the informal sector

Most of the informal sectors are unable to access financial resources from formal financial intermediaries, such as banks, due to any of the following reasons (Stiglitz 1990);

- * *Smaller size of their transactions.*
- * *Lack of collateral.*
- * *Inexperience, illiteracy or innumeracy of the borrower.*
- * *Physical remoteness of many of the informal sector enterprises.*
- * *Mobility of many informal sector enterprises.*
- * *Lack of bookkeeping or an appropriate compliance framework.*
- * *Lack of general information about*

the borrower and of predictability of the surrounding transaction.

As a result of these facts, bank as a source of financing for the informal sector is very limited. As an alternative, other sources are used to bridge the credit gap.

We can identify potential sources of finance for the informal sector in five categories:

- a. Formal banks,
- b. Microfinance institutions,
- c. Cooperatives,
- d. NGOs and Government Projects, and
- e. Semi-formal and informal sectors.

As it can be observed above, microfinance is among the ranges of alternate sources of finance for the informal sector. However, there is a mixed view of subsidized credit programs, as they have done little to improve access of operators to financial services, hindered the development of sustainable financial institutions and fostered a “non-repayment culture” among members of the sector.

2.5 Microfinance institutions in Ethiopia

It is believed that the provision of micro credit to poor households would increase their assets and income. As a result, microfinance credit is considered as one of the methods of alleviating poverty. Since in the mid-1980s, many non-governmental organizations in Ethiopia have started providing micro-credit to poor households for income generating activities. Moreover, the Development Bank of Ethiopia, in collaboration with the Ministry of Trade, has launched a Micro Enterprise Lending Program. Since 1994, recognizing the importance of Microfinance facility, the present government issued a proclamation that laid down the framework for Licensing and Supervision of the Business of Microfinance Institutions (MFIs) in July 1996, through Proc. No. 40/1996.

The objectives of the proclamation were (a) to provide a legal framework that brings

the activities of MFIs within Ethiopia's monetary and financial policies and (b) to provide a legal framework for the promotion of MFIs. The proclamation allows MFIs to undertake both financial and non-financial activities. The licensing and supervision of MFIs enhanced the status of MFIs as it authorized them to, among many other things, legally accept deposits from General Public (hence diversify their sources of fund), draw and accept deposits, and manage funds for Micro Finance businesses (art 3. (20.b.i)).

Presently, there are around 22 MFIs operating throughout the country licensed under The National Bank of Ethiopia. It was estimated, however, that they have met only 9% of the demand for financial services of the active poor by the beginning of the year 2001 (Berhanu 2001). Twelve MFIs are currently operating in the city of Addis Ababa, with more than 90,000 clients and all operating by targeting the active poor. The total outstanding loan extended by these institutions amounted more than 200 million birr.¹

3.0 Data sources and Research Methodology

3.1 Data sources and Sampling procedures

To fulfill the just described objectives, six MFIs operating in the city of Addis Ababa were selected. These institutions were chosen based on their magnitude of outreach and size of outstanding loans extended. The selected six MFIs cover more than 67 % of the total outstanding Micro finance credit outstanding in the city of Addis Ababa.

To ascertain and analyze repayment problems of beneficiaries the loan list of the selected MFIs were surveyed. Based on the loan list survey there were totally around 55,000 outstanding clients from these institutions.

Based on this, a sample size of 225 clients was randomly selected for response to the designed data collection instruments.

To reduce the adverse effect of geographical location on the response of the selected subjects, clients from branches of the selected MFIs were selected randomly from each of the ten sub cities of the city of Addis Ababa.

From each selected branch, found in the given sub city, a proportional number to the total number of clients was randomly chosen from the loan list.

3.2 Data collection instruments

In the course of the research, both qualitative and quantitative empirical data were gathered using the following tools and techniques. These instruments were tested and amended through a pilot survey conducted in selected operational areas of the city to validate and enrich the questionnaires.

In order to generate first hand information on personal characteristics of the target group and to determine the factors affecting their repayment performance, it was essential to conduct a survey. Members of the informal sector found in the city of Addis Ababa were the final unit of analysis for the study.

An in-depth structured interview was held among 35 members of the informal sector to identify their views, characteristics and ascertain determinants for credit repayment problems. Furthermore, the first set of questionnaire was administered to the remaining members of the randomly selected members of selected sample microfinance institution clients.

A structured interview was also held with credit officers of the selected MFIs so as to find out loan processing procedures, evaluation criteria and loan supervision and enforcement condition

3.3 Scope and limitation of the study

Due to time and budget constraints, the research tried to determine microfinance credit repayment problems among the informal sector found only in the city of Addis

¹ &2 Internal report by AEMFI, June 2005

Ababa.

The major problem faced in the course of conducting this research was accessing and getting unbiased response of some members of the target group; especially those who fall under the category of delinquency and default. To mitigate this shortcoming, survey of their loan list and independent visit of their business site was conducted by the researcher and enumerators.

In addition, balancing the desired level of precision of the estimate and the time and fund available posed a considerable limitation on the research process.

3.4 Model specification

For analytical purpose, selected borrowers were classified into three mutually exclusive groups as, Good Credit Risk, Delinquent and Default borrowers, based on their credit status as of the sampling date in the respective MFIs. The general approach followed is intended to explain why a particular population group falls under the three credit repayment categories.

All borrowers of the microfinance credit that have repaid their loans when due or within thirty days from the due date were classified as Good credit risk. Those who repaid within ninety days after due date were classified as delinquents; while those who did not repay fully three months after the due date were classified as defaulters.

The variables which significantly affect repayment performance on the basis of the study are determined quantitatively in a model implicitly specified as follows:

$$R = f(\text{AGE, SEX, HHSIZ, PRIEDU, SECEDU, TEREDU, BUSEXPR, SALES, REASON, CREDEXP, REPSIZ, INTEREST, LOANDEV})\dots\dots\dots(1)$$

Where,

R = repayment performance, measured as polychotomous variable with values reflecting the repayment status of the borrowers. R

will take three mutually exclusive values, 0, 1, and 2 for Good credit risk, Delinquent and Default borrowers respectively.

AGE = age of the borrower (number of years);

SEX= sex of the borrower (1 for female, other wise, male 0);

HHSIZ = number of peoples in the borrower's family;

PRIEDU= borrowers with primary education;

SECEDU= borrowers who have attended secondary level education;

TEREDU= borrowers who have attended higher level education;

REPSIZ= monthly loan repayment of the borrower (birr);

INTEREST= annual interest rate the MFI charges the borrower on the loan (%);

LOANDEV= the difference between the amount of loan requested by the borrower and the amount of loan approved to the borrower.

CREDEXPR= borrower's experience (number of months);

SALES= monthly sales of the borrower from the business engagement (birr);

BUSEXPR= experience in the business (number of years); and

REASON= the cause for the borrower to engage in his/her current business activity (engagement with self interest = 1, other wise 0)

Theoretical background

A formal analysis of the relative importance of various factors associated with the likelihood of being in each of the above categories of repayment can be carried out with the help of probability models such as, logit. The logit model assumes a logistic distribution, non-linear relationship of variables. This approach, however, rests on the assumption that the probability of being in a particular repayment category is determined by an

underlying response variable.

In the case of a binary repayment status:

Prob (event j occurs) = Prob (R=j)

Prob (R=j) = F [relevant effects, parameters]

Prob (R =j/x) = F[x,β], where j =0,1

Prob (R =1/x)= F[x,β]

Prob (R =0/x)=1- F[x,β]

When a linear relationship pertains among variables:

Prob(event j occurs) =

E(R=1/X_j)=β₁ + β₂ X_j.....1

Where:

R is repayment performance

X determinant variables

β indicates the set of parameters, reflecting the impact of changes in x on the probability.

$$Prob(Y = 1/x) = \frac{e^{x'\beta}}{\sum_{m=0}^2 e^{x'\beta}} \quad j = 0, 1, \text{ or } 2 \dots\dots\dots (2)$$

Explaining the probability of a particular borrower group falling in any of the above three categories is best approached with an ordered multinomial logit or probit model. The Logit model is among other models satisfying, along with a computational convenience, the need for determining the probability of an outcome involving qualitative response variables, with a non-linear relationship between the regressor and the regressant.

This approach is justifiable, because the sample group was ordered explicitly as good credit risk, delinquent and defaulters in a cumulative distribution of a repayment rate. For its mathematical convenience, a polychotomous multinomial logit is applied for this model.

Logit technique

The logit technique following Maddala (1990) and Greene (1990) can be specified as:

$$Prob(Y = 1/x) = \frac{e^{x'\beta}}{1 + e^{x'\beta}} = \Lambda(x'\beta) \dots\dots\dots (1)$$

The multinomial logit model is employed in estimating the model. Given the polychotomous description of loan repayment performance, the multinomial logit specification gives rise to a system of three variables.

Where:

β_j is a vector of parameters that relates the explanatory variable,

X_i to the probability that Y_i = j.

Λ(.) indicates the logistic cumulative distribution function. (6)

Because the three probabilities must sum to one, a convenient normalization rule is to set one of the parameter vectors, say β₀, equal to zero. The probabilities for the three alternatives can therefore be expressed as follows, (7)

$$P_0 \equiv Prob(Y_j = 0) = \frac{1}{1 + \sum_{m=1}^2 e^{\beta_m x_i}} \dots\dots\dots (3)$$

Equation 3 indicates probability for the constant, in this case the good credit risk category.

$$P_j \equiv Prob(Y_i = j) = \frac{e^{\beta_j x_i}}{1 + \sum_{m=1}^2 e^{\beta_m x_i}} \quad j = 1 \text{ or } 2, \dots\dots\dots (4)$$

Equation 4 indicates probability for the other two outcomes, i.e. delinquency and default category

Marginal effect:

$$\left[\frac{\partial E[y/x]}{\partial x} = \left\{ \frac{dF(x'\beta)}{d(x'\beta)} \right\} \beta = f(x'\beta)\beta, \dots\dots\dots \right]$$

f(.) is the density function that corresponds to the cumulative distribution function F.

For the logistic distribution, the marginal effect will be:

$$\frac{d\Lambda(x'\beta)}{d(x'\beta)} = \frac{e^{x'\beta}}{(1 + e^{x'\beta})^2} = \Lambda(x'\beta)[1 - \Lambda(x'\beta)] \dots\dots\dots (6)$$

There fore the marginal effect for the logit distribution will be:

$$\frac{\partial E[y/x]}{\partial x} = \Lambda(x'\beta)[1-\Lambda(x'\beta)] \dots \dots \dots (7)$$

This technique is employed in estimating the model. Given the polychotomous description of loan repayment performance, the multinomial logit specification gives rise to a system of three probabilities:

$$Prob (R = 0/x) = \Lambda (x'\beta)$$

$$Prob (R = 1/x) = \Lambda (\mu - x'\beta) - \Lambda (-x'\beta)$$

$$Prob (R = 2/x) = 1 - \Lambda (\mu - x'\beta)$$

Where:

R, as indicated before, is the dummy for credit repayment performance;

μ = unknown parameter to be estimated with β ;

x' is the vector of factors that determine credit repayment performance; and

β is the vector of parameters or coefficients.

$\Lambda (\cdot)$ indicates the logistic cumulative distribution function.

The probability of credit repayment can therefore be obtained by evaluating Λ given $x'\beta$.

The explanatory variables, used to explain repayment performance can be categorized into three major classes. First is the set of borrowers' characteristics. This includes: AGE, SEX, PRIMEDUC, SECEDUC, TERTEDUC and HHSIZ. Second, is the set of loan and lenders' characteristics, such as, CREDEXP, LONDEV, REPSIZ and INTEREST. And third, is the set of business related characteristics; such as, SALES, REASON, and BUSEXP.

As clearly stipulated in the first part of this paper, the underlying objective is to assess the determinants of the probability of falling in any of the above three microfinance credit repayment classes. It is hypothesized that all the above variables have significant effect on the repayment status of the borrowers.

The sex variable (SEX) was included to capture the effect of gender difference in

credit repayment among the informal sector. Many Microfinance specialists believe that women are better loan payers than males (Hunte 1996, Ephraim 1994). It is believed that, as in most cases, delinquency and default rate is believed to be lower among female borrowers than their male counterparts.

AGE, age of the borrower is believed to be positively related with repayment performance. This is because with increase in age the borrower may acquire stability (Vigano 1993) as well as a business experience. Relatively older borrowers are assumed to be credit conscious and risk avert due to social and personal characteristics, than younger borrowers. Therefore, it is believed that as the age of the borrower increases it is least likely to fall under delinquent or default category.

It is also hypothesized that as educational level increases from primary to secondary and tertiary level the probability of defaulting and delinquency will decrease. This stems from the assumption that, those who have attended more of formal education than who have not, shall plan and evaluate their business well before taking the credit. In many empirical studies, it was found that more educated beneficiaries tend to use the loan funds for the intended purpose than less educated or non-educated borrowers (Kuluindu 1990).

Household size (HHSIZ), which is measured by number of dependents in the borrower's family, is another factor that can have a significant impact on micro-enterprise loan repayment. It tends to squeeze the return from the business from which credit is paid. There fore, it is believed to be negatively related with repayment performance.

REPSIZ and INTEREST increase the amount of money periodically required from the borrower. This is believed to challenge the repayment performance of borrowers and increase their probability of default and delinquency. (LOANDEV) is alleged to put a limit on the amount of investment on the sought business-activity of the borrower; this

is estimated to restrain the borrower from making on-time repayment. (Von Pishke 1991, Kashuliza, 1993) explains credit below a certain amount doesn't effectively promote yield/output and income.

From those business related determinants, SALES, and BUSEXP, are expected to be positively related with repayment performance. As the monthly sales level increases, the amount of fund available for credit repayment also increases enhancing repayment performance. An increase in income from the business activity financed by the loan is assumed to increase repayment. But sometimes success in the business may mean the beneficiary will no more require credit from the same institution hence reducing the incentive to repay (Adeyemo 1984).

Similarly, as experience in the business (BUSEXP) of the borrower increases, the more knowledgeable he/she would be about the business and the more efficient and profitable it would become in its operation. This is believed to enhance the repayment capacity of the borrower. Reason for engagement in the business, (REASON), is classified into

two major categories. Engagement in the business sector, with self interest and/comparative advantage, increases the borrowers' probability of falling under the good credit risk category. Those borrowers who are engaged in their current business because of no other choice and only as a last resort are expected to be come delinquent or default than Good credit risk borrowers.

4. Data Analysis and Discussions

4.1 Demographic distribution and nature of repayment problems

Demographic distribution of respondents

The demographic distribution of sample of respondents indicates that around 65% of the total respondents were females. This sample proportion is also indicated in the total population distribution of the target group. From the total number of microfinance clients in the city of Addis Ababa, around 62.8% are estimated to be female.

As shown below on fig. 4.1 & 4.2, the

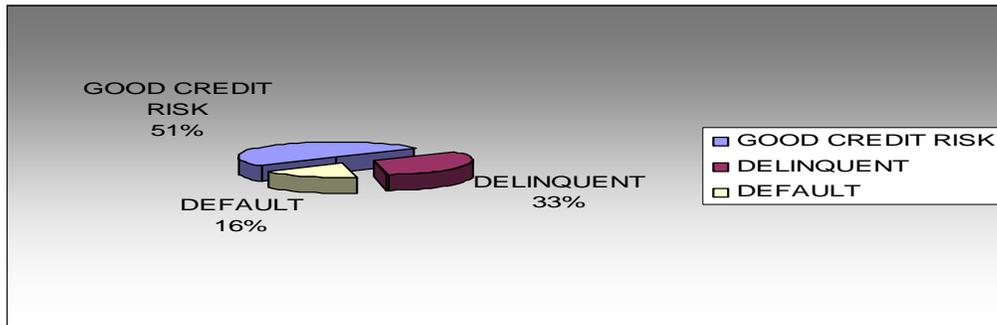


Fig.4.1. Classification of Borrowers Based on Repayment Performance

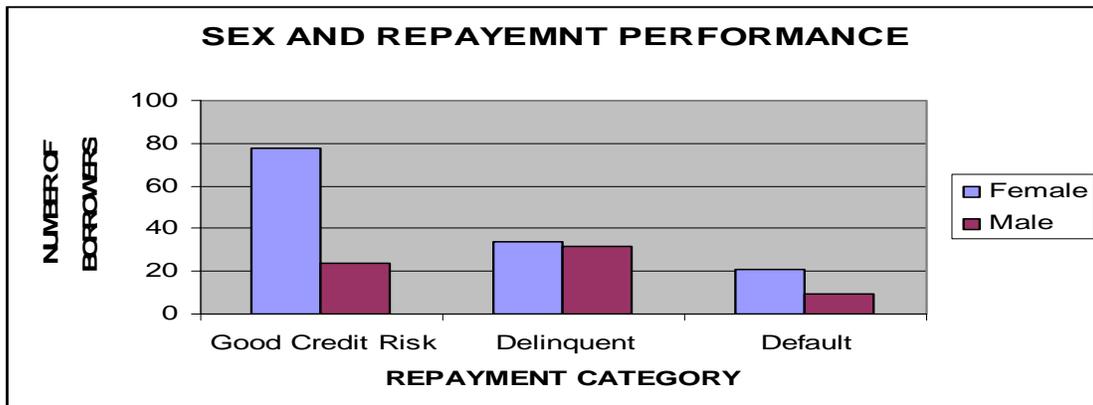


Fig.4.2 Gender Distribution of Borrowers With respect to Repayment Performance.

total numbers of respondents are categorized in to three major credit status categories. From the total sample of respondents 51% were determined to be good credit risk borrowers and the rest 33% and 16% were found to be delinquent and default borrowers respectively.

When this is further broken-down on the basis of sex distribution, 72% of the good credit risk borrowers were females. However in the case of the delinquent category, gender is evenly distributed among males and females. The share of females in default category rises to 77% of the total default category of the sample.

Nature of repayment problems

The delinquency and default problems observed among the borrowers can be evaluated in four categories. In other words, the causes of delinquency and default can be summarized in to four:

- (i) Borrower related causes;
- (ii) Causes related to business operation;
- (iii) Lender related causes and
- (iv) Extraneous causes.

The borrower-related causes include ill-health, unexpected pregnancy, death of spouse... The causes which are related to loan utilization are low sales, fall in product prices,

Table 4.1 Causes of Loan Repayment Problems

Causes	(%) of respondents
(i) Borrower-Related	
- ill-health	26%
- death of spouse/partner	12%
- family problem	40%
- lack of formal education	18%
(ii) Business-related	
- increase in input price	60%
- lack of business premises	45%
- high competition/low sales	90%
- decline in selling price	36%
(iii) lender/loan related	
- smaller loan size	92%
- higher interest rate	25%
(iv) extraneous factors	
- political instability	37%
- Others	12%

low demand for products... The lender related causes are high interest rate, insufficient loan size. Other critical but extraneous factors include general rise in price of inputs, lack of working place and the like.

Two of the four categories of causes of loan repayment problems appear to be particularly troublesome judging by the high amount of borrowers that attributed their inability to repay to them. These are the business and loan related problems. The rise in price of inputs accompanied by decline in selling price and lower demand for their products limits their repayment capacity considerably. The insufficiency of loan size for their planned or current engagement is cited by 91% of the respondents to have an adverse effect on making on-time repayment of their loan.

Reason for engagement in the business

As table 4.2 on the next page indicates, 50% of the total respondents were engaged in their current business, with out prior knowledge, because of no other choice and/or as the last alternative, among many other worst, than sitting idle.

			Proportion to total borrowers	Good credit risk	Delinquent	Default	Total
Business engagement	Planned		49%	32%	11%	6%	
		Proportion within the group		51%	28%	10%	100%
	Unplanned		51%	28%	10%	13%	
		Proportion within the group		55%	25%	20%	100%

Table 4.2 Types of Business Engagement

From total respondents, 49% have expressed that they are engaged willingly in their business either because they had the knowledge, interest or any other comparative advantage, such as assistance from family or friends. From this group in total, only 6% and 11% have fallen under the defaulter and delinquency group. From those borrowers who are engaged in the business with out prior knowledge, simply as the last resort, 20% and 25% have become defaulter and delinquent respectively.

4.2 Determinants of loan repayment performance

The multinomial logit is used to assess the variables which significantly indicate the likelihood of a borrower belonging to any of the three particular repayment categories. Thirteen variables are hypothesized to be key in determining the repayment status of the borrowers.

Table 4.3 indicates the descriptive statistics, means and standard deviations, of these variables for the target group as a whole with respect to the three identified repayment cate-

Table 4.3 Descriptive Statistics of Non-categorized Determinant Variables

Continuous variables	n	Mean	Standard deviation
AGE	165	38.121	11.520
HHSIZ	220	4.694	3.116
BUSEXP	220	81.936	66.816
CREDEXP	220	2.161	1.564
LONDEV	220	1139.516	1274.313
REPSIZ	220	221.121	167.605
INTEREST	220	14.750	4.606
SALES	186	2191.734	4326.942

gories-good credit risks, delinquents and defaulters.

It is necessary to compare the average variables of respondents as a whole against the respective repayment categories. The average age in years and household size of borrowers was estimated to be around 38 and 4.7 number of dependents, respectively. This is almost the same with the mean age and household size of the three repayment categories described on table 4.4.

Experience in business engagement shows, as a whole, close to 82 months but with high standard deviation of 66.8 months. Therefore, there is high amount of deviation in business experience among borrowers. The categorical table indicates that those good credit risk borrowers are more experienced with average number of months of 92 compared to 71 months for delinquent and default borrowers. The loan deviation variable indicates a total mean of birr 1,139 but with a standard deviation of birr 1,274. The large amount of variation in approval deviation is indicated in the categorical description as the average amount of approval deviation for good credit risk borrowers is 1,205 compared to 752 and 1,750 birr for delinquent and default borrowers respectively.

Default borrowers' category repays

monthly the smallest amount of birr 185 compared to 229 and 227 birr for delinquents and good credit risk borrowers. This might give an insight about the strength in effect of repayment size as a repayment performance determinant. Interest rate shows not significant deviation both within a group and among the three categories. Uniformity in interest payment is indicated irrespective of the repayment performance of a borrower.

The sales variable shows high amount of deviation, both within the same category in all categories and among the three categories. Sales within the good credit risk category shows an average of birr 2,323 and standard variation of birr 5,449. In delinquency the average sales was 1,895 birr with a very high amount of variation of birr 2,866. The average sale of default borrowers was 2,407 birr and is well above the total average of birr 2,192. At this level sales level does not seem to have the expected direct relationship with repayment performance.

4.2.1 Estimation of loan repayment performance

Table 4.5 on the next page presents the parameter estimates and asymptotic t-characteristics resulting from the multinomial

Table 4.4 mean and standard deviation of categorized variables

Continuous variables						
Factor	Good credit risk		Delinquents		Defaulters	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
AGE	38.600	11.342	36.980	10.706	39.050	13.938
HHSIZ	4.919	3.503	4.429	2.706	4.550	2.704
BUSEXP	92.190	68.543	71.950	70.134	71.100	50.158
CREDEXP	2.210	1.803	2.167	1.429	2.000	.973
LONDEV	1205.000	1373.000	752.400	1115.100	1750.000	1750.000
REPSIZ	227.300	169.700	229.000	185.230	185.250	117.246
INTEREST	14.530	4.551	15.400	4.596	14.050	14.050
SALES	2323.000	5449.000	1895.000	2866.400	2407	2801.680

logit. The parameters are normalized using the category of (good credit risk) as a base. Hence the estimated coefficients reflects the effects of the explanatory variables on the likelihood of being in a given repayment category relative to the good credit risk category

Table 4.5 Multinomial logit estimates of loan repayment performance

Variables	REPAYMENT CATEGORY 1 (DELINQUENTS)		REPAYMENT CATEGORY 2 (DEFAULTERS)	
	Coefficient	t-ratio	Coefficient	t-ratio
AGE	0.0241703	0.17	-0.132	-0.764
SEX	-0.664*	-1.403	0.24	0.336
HHSIZ	0.048	0.407	-0.048	-0.352
PRIEDU	-1.6364**	-2.254	-3.161**	-3.06
SECEDU	-0.616	-0.93	-1.54*	-1.73
TEREEDU	-0.647	-0.947	-36.5***	-31.15
BUSEXP	-0.622e02	-1.023	-0.404e02	-0.687
REASON	0.891*	1.709	-1.707*	-1.528
CREDEXP	-0.037	-0.221	0.031	0.173
LONDEV	-0.317e03	-1.3	0.000421*	1.723
INTEREST	0.053	0.983	0.078	0.94
REPSIZ	-0.15e02	-0.97	-0.487e02*	-1.661
SALES	6.37e-06	0.111	0.144e03*	1.763
Number of obs.	220			
Wald chi2(34)	5389.78			
R2	0.2345			
Source: author's calculation.				
*** Significant @ 1% level, ** significant @ 5% level, * significant @ 10% level.				

Eight of the explanatory variables within the delinquents category have negative coefficient while, the remaining five have positive coefficient. A positive coefficient shows that the variable is associated with a higher probability of being in the delinquent category than that of being in the good credit risk category. However, the relationship is statistically significant in respect to the REASON variable only.

On the other hand, a negative coefficient indicates that the variable is associated with a lower probability of being in the delinquent category than that of the good credit risk category. Judging by statistical significance, females and primary education attended borrowers are more likely to be in the good credit risk category than the delinquent category.

Looking at the defaulters' parameter estimates, all the three educational parameters have the expected negative sign. This implies a borrower who has attended, primary, secondary or tertiary level education has a lower chance of falling under the default category and increases probability of being under good credit risk category. Especially, tertiary level completed borrowers are the least likely to default. Another statistically significant positive coefficient is reason of engagement. Those borrowers, who are engaged by planning their business in advance or with prior experience, are least likely to fall under default category, than those unplanned engagement.

There are two coefficients in the default category with positive sign. The loan deviation parameter, as expected, has a direct relationship with the probability of falling under default category in stead of the base category. Interestingly, monthly sales size is directly related with the probability of falling under the default category, although the probability is very small.

Nonetheless, the signs and significance of the coefficients are indicative of the effects of the explanatory variables. It is impor-

tant to stress that the estimated coefficients themselves do not represent the effect of a change in an independent variable on the probability of being in a repayment category. Moreover, the policy relevance of the estimated coefficients does not necessarily imply anything about the sign and magnitude of the effects on repayment performance caused by changes in the explanatory variables. It is therefore, necessary to compute their marginal effect.

Determinants of repayment performance, as described in the previous section, was classified into three groups, relate to: borrower's characteristics, business characteristics and lender characteristics.

4.2.1.1 Marginal Effects of Borrower Characteristics

As the result on table 4.2 indicates, three of the education variables from the six borrowers' characteristics have a statistically significant marginal effect in determining the probability of falling in any of the three credit category. AGE,

SEX, and HHSIZ, in contrary to prior expectation, do not have any statistically significant marginal effect in affecting the probability of the borrower in any of the above three repayment categories. Even though in totality SEX, as a female borrower, had positive effect on repayment, marginally it has no significant effect.

Estimation of Marginal Effects of Loan Repayment Performance

variable	GOOD CREDIT RISK		DELINQUENTS		DEFAULTERS	
	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
AGE	-0.555e02	-0.169	0.562e02	0.171	-0.686e04	-0.8575
SEX	0.155	1.400	-0.156	-1.400	0.226e03	0.730
HHSIZ	-0.011	-0.408	0.011	0.409	0.315e04	0.525
PRIEDU	0.325**	2.790	-0.324**	-2.785	-0.892e03**	-2.125
SECEDU	0.140	0.959	-0.139	-0.955	-0.595e03**	-1.804
TEREEDU	0.207*	1.518	-0.095	-0.725	-0.112**	-1.945
SALES	1.52e-06	0.152	1.450e-06	0.145	-0.688e-08	-0.312
BUSEXP	0.144e-02	1.028	-0.144e-02	-1.027	-8.610e-07	-0.526
REASON	0.204*	1.757	0.205*	.768	-0.109e02	-.0010874
CREDEXP	0.845e-02	0.221	-0.848e-02	-0.222	0.214e04	0.306
LONDEV	-0.732e-04	-1.22	-0.735e-04	-1.225	2.610e-03*	1.922
INTEREST	-0.012	-0.987	0.012	0.985	0.284e04	0.71
REPSIZ	0.348e-03	0.966	-0.346e-03	-0.960	-2.10e-06	-0.105
Source: author's calculation.						
*** Significant @ 1% level ** Significant @ 5% level * Significant @10% level						

One interesting outcome of the marginal analysis is the uninterrupted effect of education on repayment. The findings in this study on the sign of level of education were consistent with that reported by Mengistu (1997). Attending a primary education increases the probability of repayment without problem by 32.5% and decreases probability of delinquency and default by 32.4% and 0.01% respectively. Attending a secondary level education increases repayment by decreasing default by 0.06%. Attending a tertiary level education increases repayment without problem by 20.7%. It also decreases default without problem by 11.2%.

In the process of the survey, unexpectedly, considerable numbers of tertiary level completed, mostly of diploma holders, were

found engaged in one of the informal sectors of activities. These borrowers mainly fall within the range of 20-35 years old. From the sample respondents who have fallen under the category of defaulters, no single individual borrower with a tertiary level of educational background was present. This indicates the unprecedented effect of educational level in improving repayment performance.

Of the total good credit risk borrowers, 28% expressed maintaining positive relationship with the guarantee as their primary reason for on-time loan repayment. Where as 32% expressed that maintaining good relationship with the MFI as their underlying reason for on-time repayment so that they would be able to access larger loan upon completion.

The research also found out that experi-

ence in the business did not have the expected positive effect on repayment performance. This is mainly because, borrowers perform better in repayment in early cycles in order to obtain larger loans in the future by maintaining good relationship with the institution. As borrowers complete more and more of a loan cycle, they normally take a larger loan and are accustomed to the institution and credit officers and become reluctant to repay.

4.2.1.2 Marginal Effects of Business Characteristics

The REASON variable have marginally positive effect in improving repayment performance by increasing the probability of falling under the good credit risk category by 20.4% and though insignificant it has the negative sign on default decreasing the probability of falling under default category. Majority of these borrowers are engaged in household manufacturing and production activity requiring special skill or experience, like wood and metal work. Due to this they will face a relatively lighter competition and less number of entrants to their market. Therefore, borrowers who are engaged in sector of business, where they have prior experience and are engaged willingly, will generate sufficient return to discharge their loan repayment.

Monthly sale does also have the expected sign, but it was not statistically significant to influence repayment performance. An increase in income from the business activity financed by the loan was assumed to increase repayment. But sometimes success in the business may mean the beneficiary will no more require credit from the same institution hence reducing the incentive to repay. (Adeyemo 1984). Therefore, sales or income level of the borrower does not have a significant impact in influencing repayment performance of the borrower.

4.2.1.3 Marginal Effects of Loan and Lender's Characteristics

The result from the model in relation to the size of loan requested but not approved, LONDEV, as expected increases the probability of default, by 0.03%. Most borrowers request below sufficient amount and are granted even below their request. This condition leads to lower amount of investment on business, unable to hold all the necessary stocks demanded by the market and minimal return from business activity. As noted on table 4.1 this was the main reason cited by borrowers for lower return.

Insignificance of interest rate in measuring repayment performance is the other outcome of the analysis. Despite the fact that non-government owned MFIs charges average interest rate of 17.5% in relation to the government owned MFI of 10%, repayment performance, on average, remains the same for both, around 32%.

Despite the fact that 92% of respondents have responded the loan amount approved as insufficient to their planned or current engagement, the mean amount of approval deviation is birr 1,025 and 1,750 for good credit risk borrowers and defaulters respectively. This implies that majority of those who have defaulted were granted a loan much lower than their request in relation to those of good credit risk borrowers.

However, due to the factors indicated in the beginning, the amount applied in the first place is influenced by the credit officers' advice of what amount would possibly be approved with the given status of the borrower, irrespective of his/her demand.

5.0 Conclusion and Recommendations

Repayment performance of borrowers is one dimension of measuring effectiveness of the loan released by any credit institution. The informal sector, which is not an attractive potential market for the organized commercial banks, is the primary target and user of MFIs.

Repayment performance of the informal sector is affected by several factors ranging from the borrower's characteristics to factors relating to the loan and lending institutions. These factors are believed to have either positive or adverse effect on the repayment performance of the borrower. Some of the factors functioned as per the prior expectation, where as others were determined to be insignificant or contrary to prior expectation.

In most occasions, house hold size is assumed to have an adverse effect on repayment performance of borrowers, since it squeezes the resources available for repayment. Although borrowers of larger family could shoulder much burden than those with smaller number of or no dependents, they repay as good or bad as the other group. According to a study conducted by Njoku and Odii household size was determined to be inversely related to loan repayment (Njoku and Odii 1991). Kashuliza in his Tanzanian study obtained the same result (Kashuliza 1993). However, family size was determined to have no significant effect on repayment performance of microfinance borrowers in Addis Ababa. This could be attributed to several factors. Primarily, the house hold heads are highly conscious about the negative name of non-repayment in the society, secondly they want to maintain their good relationship with the guarantee and the MFI by discharging their liability. Due to this, the expected sign was not indicated.

Insignificance of the sex characteristics also entails that, repayment performance does not depend on gender characteristics with regard to microfinance credit repayment performance in the city of Addis Ababa.

The findings in respect of educational background serve as an unbiased base of evaluating borrowers. It can be concluded from the result that, as educational level increases riskiness of the borrower decreases. Especially borrowers with college or vocational diplomas are most likely to become good credit risk borrowers. One possible reason that could be given for better repayment performance by this group of borrowers is the comparative advantage they have in their business opening and operation by applying their technical know-how from their formal education.

It is there fore highly recommended to provide a specific loan class for these group of borrowers, in addition to the group lending facility made by the government owned Addis Credit and Saving Institution S.C. A loan scheme that avails a credit size comparable to the request of tertiary level school leavers must be designed .

Even though educated borrowers were found to be the least risky, discriminatory policy should not be designed and adopted, since majority of the informal sector does not have any or little access to formal education.

Repayment is highly influenced by loan deviation at the time of approval. The size of loan approved by MFIs is decided based on many factors, primarily on the basis of the experience of the borrower and the salary size of the guarantee offered by the borrower. This will limit the access to the loan required for the sought business, even though it is mostly within the MFIs' credit range. Subsequently this will lead to limited operation size and lower return in business activity, which possibly leads to non-performance.

Average loan size or loan to guarantee salary should be increased from its current level by the MFIs. The microfinance credit by it self should enable the average borrower to start and run it line of business. Majority of borrowers take the loan as one source of financing to be subsidized by some other possible sources. With the given high cost of inputs the borrower could not engage in the

business at full scale. The MFIs, should, therefore, making through analysis of feasibility of the business, extend reasonably sufficient amount of loan. However, loan size increment, will probably lead to possible delinquency or default if not accompanied by longer credit duration and grace period and proper follow-up.

Besides micro forces related to the borrower, lender and the business operations, there are other extraneous factors which are responsible for the inability of borrowers to fulfill their repayment obligations. These include general increase in price level of inputs, lack of appropriate working place and higher competition due to large number of entrants. These constraints need to be relaxed through appropriate policy actions by all tiers of governmental units of the city: such as, a greater commitment to train members of the informal sector. This will enable to solve many of the above problems. It will enable them to possess an appropriate technical know-how in the line of activity they are engaged and enjoy the comparative advantage. This will also diversify their line of activity and reduce the tense of competition which leads to lower return.

Although difficulty of obtaining a personal guarantee with larger salary restricts access to larger loan size, it is determined to be an effective way of repayment enforcement. Since mostly the guarantee is a person closely related to the borrower, borrowers do not often want to spoil their relationship with the guarantee.

Therefore, even though profit from their business engagement is not sufficient; they attempt to repay their loan as promptly as possible by mobilizing money from different sources.

Interest rate as a determinant of repayment performance was not reflected in microfinance credit borrowers of the city of Addis Ababa. The insignificance of interest rate could be attributed to the ownership structure of MFIs. Reason for a relatively larger default in governmental MFIs, who

charge lower interest rate than private MFIs, can be attributed to two primary factors; first as it was expected there is an attitude of viewing the government or NGO assisted MFI and its credit facility as a social welfare facility. Especially at the time of difficulty, the credit payable is not considered as a priority obligation. In some occasions, in the survey, an opinion of loan cancellation for their arrears, "since the government stands for the well-being of the society" was encountered.

The second reason for higher non-performance of government MFI borrowers is that, the institutions are being used as policy enforcement tool. It was learned that borrowers engaged in businesses identical to other defaulting borrowers engaged in similar business and the same location are sometimes granted loans. This contributes to higher delinquency and repayment rate of the institution.

This interest rate-repayment performance disparity of the two major classes of MFIs, made interest rate an insignificant variable in general to influence repayment. Therefore, government owned and not for profit NGO assisted MFIs need to consider an educational and training program to build a strong and loan-conscious attitude among their clients.

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