Determinants of Credit Default: Microfinance Institutions in Jimma Zone, Jimma Ethiopia

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Abstract
Microfinance has emerged as a growing industry to provide financial services to very poor people. Microfinance institutions (MFIs) help those who have no access to the financial services of formal financial institutions. In addition, they contribute a lot to reduce the negative impact of local money lenders in areas they operate in. However, they are encircled by so many deep-rooted problems. A number of studies on MFIs in many countries have shown that the majority of those MFIs have encountered serious loan recovery problems. The results of the maximum likelihood estimate of logit model show that the probability for default is influenced by the Age, Sex, Marital status and experience of the borrower, revenue from the project, type of rode accessible to the market place, type of the project, Visiting of the project site before approval by the microfinance institution and visiting of the project sites by the microfinance institution after approval explains the probability of default. Household size, Loan taking frequency, Use of financial records, Availability of utilities in the project area, Accessibility of transportation to the market place, Level of education of borrowers does not explain the probability of default.

Keyword: Micro Finance institutions, financial services, loan recovery problems, default

Introduction
Majority of world’s population is poor, subsisting on $1 to $1.25 per day. Most of the world’s poor are economically active. They earn their livelihoods by being self-employed or by working in microenterprises (very small businesses which may employ up to 5 people). These microentrepreneurs make a wide range of goods in small workshops; engage in small trading and retail activities; make pots, pans and furniture; or sell fruits and vegetables. Yet these poor households often fail to secure the capital they need and miss opportunities for growth because they do not have access to financial resources – loans or a safe place to hold savings (UNDP evaluation office, 2002). Banks and other formal& large financial institutions fail to provide for the credit needs of micro enterprises, however, mainly due to their lending terms and conditions. It is generally the rules and regulations of the formal financial institutions that have created the fable that the poor are not bankable, and since they can’t afford the required collateral, they are considered as highly risky (UNDP evaluation office, 2002). According to Consultative Group to Assist the Poor (CGAP, 2007), nearly three billion poor people lack access to the basic financial services essential for them to manage their precarious lives. Over 80% of all households in developing countries do not have access to institutional banking services. This includes nearly all the poor people in the developing world. When there are no financial institutions to serve them, poor enterprises and households rely largely on informal sources such as family, friends, suppliers or moneylenders for their financial needs.

Microfinance has emerged as a growing industry to provide financial services to very poor people. Now at national level, there is recognition that poor people need a variety of financial services, not just credit. Current microfinance has therefore moved towards providing a range of financial services, including credit & savings to poor enterprises and households (Meron, 2008). Even if microfinance institutions are important especially in encouraging micro enterprises by providing credit without any collateral asset, they are not free of problems. Especially the question of collection performance and default are critical issues. Credit provision is not a simple task, especially microfinance institutions, since they provide loan for low income group without any collateral asset. It is too important for the MFIs to evaluate their
collection performance and uncover major determinants of default so that they will incorporate them when they screen borrowers.

**Statement of the problem**

Hunte (1996) argues that default problems destroy lending capacity as the flow of repayment declines, transforming lenders into welfare agencies, instead of a viable financial institution. It incorrectly penalizes creditworthy borrowers whenever the screening mechanism is not efficient. Loan default may also deny new applicants access to credit as the Financial Institution’s cash-flow management problems augment in direct proportion to the increasing default problem. According Roslan and Karim, 2009 the question of repayment (collection) of microcredit loan is one of an important question in microfinance since the borrowers are predominantly the poor and the low income group, where most of them are self-employed and without having any collateral assets. Their lack of financial records, limited credit history and lack of assets for collateral has made lending to them not only costly but also very risky since it involves high screening, monitoring and enforcement costs. These explain why it is almost impossible for them to obtain credit from the formal financial institutions. Default debilitates the lending capacity of MFIs and then it will make them out of their purpose. Well established and studied loan provision has undeniable contribution to reduce default and enhance collection performance.

**Objective of the study**

The main objective of the study is to examine Determinants of credit defaults of microfinance institutions in Jimma Zone. More specifically, the research has the following objectives:

i. To evaluate whether there is a significant difference in default rate between rural and urban loan
ii. To identify major factors which determine credit default in the microfinance institutions

**Hypothesis of the Study**

Borrower’s specific characteristics, failure of MFIs in properly screening projects and/or borrowers, and Loan specific characteristics are hypothesized to be core issues behind the explanation of poor collection performance and credit default in microfinance institutions in Jimma Zone.

**Review of Literature**

The meaning of microfinance is derived from its main characteristics and functions provided. It has been defined as the means by which poor people convert small sums of money into large lump sums (Mayoux, 2001). Thus, micro finance broadly refers to small scale financial services, primarily credit and savings provided to poor people who farm or fish or herd or; who operate small enterprises or micro enterprises where goods are produced, recycled, repaired or sold; who provide services: who work for wage or commissions; who gain income from renting out small amounts of land, vehicles, draft animals, or machinery and tools; who engaged in petty trading ;and to other individuals and groups at local levels of developing countries both rural and urban (Robinson,2001). The new modern microfinance trend calls for the redesign of micro-finance risk management. The literature has paid little attention to risk analysis in microfinance. The scarce attention dedicated to risk management in microfinance can be explained mainly by the fact that the main goal of microfinance lies in social and humanitarian objectives. This approach, together with the dependency from public subsidies, has created a tendency to under-estimate the financial performance of microfinance programs or institutions (Rients Galema, 2010). Credit risk is the challenging factors in microfinance institutions. Credit risk is usually defined as the risk that the borrower will not pay back interest and/or principal. In fact, credit risk has a much broader meaning. It is the risk of an unexpected change in the creditworthiness of the borrower that may lead to a lower value of the loan or to a loss. Since borrowers in micro finance institutions are not capable to get credit from the formal sector, it makes it very challenging to screen the right borrowers. Moreover no collateral is required. It is believed that
group lending makes evaluation easy and reduce default (Jonathan Morduch, 2005).

Kashuliza (1993) argued that 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. It used a linear regression model to analyze determinants of loan repayment in smallholder agriculture in the southern highlands of Tanzania. His study showed that level of education, attitude towards repayment; farm income and off-farm income positively affect loan repayment with farm income being significant, while age, household expenditure and household size have negative influence on loan repayment performance with household expenditure being significant. Marie Godquin (2004) In his study of microfinance repayment performance in Bangladesh he test the explanatory power of theoretical models that attribute the performances of MFIs in terms of repayment to the use of such financial innovations. He used household level data, which allowed him to compute detailed repayment performance variables. The results suggest that the provision of non-financial services has a positive impact on repayment performance. This provides arguments in favor of the integrated development strategies. The results also show that MFIs allocate larger loans to borrowers as the age of their borrowing group increases. This can be justified by the use of dynamic incentives, as the number of allocated loans is likely to grow with the age of the group. The age of the group was also found to have a negative impact on the repayment. This raises the need to develop new incentives for experienced borrowers to avoid decreasing repayment performance and negative domino effects as the clientele of the MFI becomes more mature. Another important point that emerged from the study is that MFIs tend to attribute larger loans to homogeneous groups in terms of age. Group homogeneity was not, however, found to affect the repayment performance in a significant way. Ajayi (1992) employed correlation and multiple regression analysis in his study about factors affecting default in residential mortgages of the Federal Mortgage bank of Nigeria. His results revealed that cost of construction, monthly repayment, loan to valve ratio, market value of property, age of borrower and annual income of borrower enhance loan defaults, while expected rental income from property reduces loan default.

Looking at the situation of Ethiopia empirical studies on the analysis of determinants of loan repayment and impact analysis are very few. Regarding loan repayment an econometric estimation was conducted by Mengistu (1997), taking the case of micro enterprises in Awasa and Bahir Dar towns. The analysis consisted of estimating two equations, one for loan repayment and the other for loan rationing. According to the estimation results (employing binomial probit model for loans repayment) he reported that the number of workers employed has positive relation with full loan repayment for both towns, while loan size and loan diversion were negatively related. Age and weekly repayment period had positive relation with repaying loan in full for Awasa. In the case of Bahir Dar, loan expectation and number of workers employed have a positive relation with full repayment, while loan diversion and availability of other sources of credit have a negative impact. The predicted probabilities of full loan repayment were 53% and 78% for Awasa and Bahir Dar respectively.

Jemal (2002), employed probit and logit model to study determinants of loan repayment performance in case of Oromiya saving and credit share company in kuyu. The result revealed that education, suitability of repayment period and number of years borrowed are significant determinants of the probability of loan diversion. Regarding direction of influence, number of dependents, loan size, use of financial records and number of years borrowed enhance, while education, loan supervision and suitability of repayment period undermine the probability of loan diversion. Factors that are found to be significant determinants of loan repayment performance were education, loan size, and loan diversion, availability of other credit sources, loan supervision, and suitability of loan repayment period, income and value of livestock. All of these factors except loan diversion and loan size increase the probability of loan repayment. Number of dependents and being male reduce the loan repayment performance in addition to loan diversion and loan size.
Research Design and Approach
The study is quantitative by its very nature, because there is much emphasis on precise measurement of variables and the testing of hypothesis gathered from empirical studies. In addition, the study tries to examine causality and measure the relationship among variables quantitatively by using some statistical techniques.

Data source and Methods of Data Collection
The study used both primary and secondary data. The sources of primary data were borrowers of the MFI and employees of the Institution. Primary data has been collected using structured cross sectional questionnaire. Secondary data were collected from different published and unpublished documents of the institutions, Journals of Association of Ethiopian Microfinance Institutions as well as previous researches that have been done on the area. Using stratified and simple random sampling 351 borrowers of the institutes were selected and 305 give response.

Data Presentation and Result Analysis
An econometrics model used to discuss some factors which explain the probability of default.

Probability of default
The probability of default which is dependent variable is depend on the following independent variables which are categorized in to three (I) Borrowers specific Characteristics which is include; Age, Gender, Household size, Marital Status, Experience, Level of education (II) Type of the project, Accessibility of transportation to the market place, Type of the rode accessible to the market place, Availability of utilities in the project area, Revenue from the project, Use of financial records, Supervision (III) Loan taking frequency. Accordingly, the dependent variable, yi is dichotomous, where yi = 1 if there is loan default and 0 otherwise.

Default probability = f (Borrowers specific Characteristics, The Characteristics of projects financed, Loan Specific characteristics).
Default Probability=f (Age, Gender, Household size, Marital Status, Experience, Level of education, Type of the project, Accessibility of transportation to the market place, Type of the rode accessible to the market place, Availability of utilities in the project area, Revenue from the project, Use of financial records, Supervision by visiting the project place before approval of the loan, Supervision by visiting the project place after approval of the loan, Loan taking frequency).

Where therefore the probability of default of the loan i: Pi=

\[
\frac{e^{(b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + \ldots + \beta_{12}X_{12} + \beta_{13}X_{13} + \ldots + \beta_{32}X_{32} + \beta_{33}X_{33} + \ldots + \beta_{312}X_{312})}}{1 + e^{(b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + \ldots + \beta_{12}X_{12} + \beta_{13}X_{13} + \ldots + \beta_{32}X_{32} + \beta_{33}X_{33} + \ldots + \beta_{312}X_{312})}}
\]

Tests of Model Fit
After building a model, it is necessary to determine whether it reasonably approximates the behavior of the data. The Binary Logistic Regression procedure reports the Hosmer-Lemeshow goodness-of-fit statistic. Hosmer- Lemeshow goodness- of- fit help to determine whether the model adequately describes the data. According to Hosmer-Lemeshow statistic if the significance value is less than 0.05 the fit is poor. As shown in table 5.1 the Hosmer-Lemeshow’s goodness-of-fit statistic significance of the model in this study is .997. So here, the model adequately fits the data. Table 1 shows the results of the maximum likelihood estimate of logit model. The results show that the probability for default is influenced by the Age, Sex, Marital status and experience of the borrower. The result also shows that revenue from the project, type of rode accessible to the market place, type of the project, Visiting of the project site before approval by the microfinance institution and visiting of the microfinance institution after approval explains the probability of default. Household size, Loan taking frequency, Use of financial records, Availability of utilities in the project area, Accessibility of transportation to the market place, Level of education of borrowers are not explain the probability of default.
Table 1 logistic regression model summary of determinants of Credit Default in microfinance

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>Sig.</th>
<th>Odds Ratio</th>
<th>95.0% C.I.for EXP(B)</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>0.003</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE(1)</td>
<td>-1.403</td>
<td>0.048</td>
<td>0.246</td>
<td></td>
<td>0.061</td>
<td>0.988</td>
</tr>
<tr>
<td>AGE(2)</td>
<td>-3.612</td>
<td></td>
<td>0.027</td>
<td></td>
<td>0.004</td>
<td>0.18</td>
</tr>
<tr>
<td>AGE(3)</td>
<td>-1.752</td>
<td>0.153</td>
<td>0.174</td>
<td></td>
<td>0.016</td>
<td>1.918</td>
</tr>
<tr>
<td>SEX(1)</td>
<td>1.312</td>
<td>0.069</td>
<td>3.712</td>
<td></td>
<td>0.904</td>
<td>15.246</td>
</tr>
<tr>
<td>MARIT</td>
<td></td>
<td>0.016</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARIT(1)</td>
<td>3.118</td>
<td>0.001</td>
<td>22.6</td>
<td></td>
<td>3.415</td>
<td>149.573</td>
</tr>
<tr>
<td>EXPERCAT(1)</td>
<td>-2.386</td>
<td>0.0001</td>
<td>0.092</td>
<td></td>
<td>0.025</td>
<td>0.342</td>
</tr>
<tr>
<td>REVENUECAT(1)</td>
<td>-1.826</td>
<td>0.008</td>
<td>0.161</td>
<td></td>
<td>0.041</td>
<td>0.625</td>
</tr>
<tr>
<td>TPROJECT</td>
<td></td>
<td>0.151</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TPROJECT(1)</td>
<td>18.693</td>
<td>1</td>
<td>1.31E+08</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>TPROJECT(2)</td>
<td>2.886</td>
<td>0.058</td>
<td>17.928</td>
<td></td>
<td>0.906</td>
<td>354.742</td>
</tr>
<tr>
<td>TPROJECT(3)</td>
<td>1.658</td>
<td>0.31</td>
<td>5.249</td>
<td></td>
<td>0.214</td>
<td>128.705</td>
</tr>
<tr>
<td>TPROJECT(4)</td>
<td>4.122</td>
<td>0.016</td>
<td>61.673</td>
<td></td>
<td>2.161</td>
<td>1.76E+03</td>
</tr>
<tr>
<td>TPROJECT(5)</td>
<td>0.606</td>
<td>0.536</td>
<td>1.833</td>
<td></td>
<td>0.269</td>
<td>12.516</td>
</tr>
<tr>
<td>TPROJECT(6)</td>
<td>0</td>
<td>1.000</td>
<td>1</td>
<td></td>
<td>0.213</td>
<td>4.691</td>
</tr>
<tr>
<td>TPROJECT(7)</td>
<td>2.072</td>
<td>0.208</td>
<td>7.941</td>
<td></td>
<td>0.315</td>
<td>200.297</td>
</tr>
<tr>
<td>TYACCTRANMP(1)</td>
<td>-1.887</td>
<td>0.008</td>
<td>0.151</td>
<td></td>
<td>0.038</td>
<td>0.606</td>
</tr>
<tr>
<td>VIPRJBAPL(1)</td>
<td>4.921</td>
<td>0</td>
<td>137.136</td>
<td></td>
<td>19.431</td>
<td>967.838</td>
</tr>
<tr>
<td>WNVASP</td>
<td></td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WNVASP(1)</td>
<td>6.831</td>
<td>0</td>
<td>925.837</td>
<td></td>
<td>57.674</td>
<td>1.49E+04</td>
</tr>
<tr>
<td>WNVASP(2)</td>
<td>1.016</td>
<td>0.129</td>
<td>2.761</td>
<td></td>
<td>0.745</td>
<td>10.235</td>
</tr>
<tr>
<td>WNVASP(3)</td>
<td>6.038</td>
<td>0</td>
<td>418.987</td>
<td></td>
<td>14.92</td>
<td>1.18E+04</td>
</tr>
</tbody>
</table>

Number of obs. 305
Nagelkerke's R² 65.4
H- L goodness- of- fit .997

Conclusion
The econometrics result discovers that the probability for default is influenced by Age, Gender, Marital status and experience of the borrower. The study also revealed that revenue from the project, type of rode accessible to the market place, type of the project, Visiting of the project site before approval by the microfinance institution and visiting of the microfinance institution after approval explains the probability of default. Household Size, Loan taking frequency, Use of financial records, Availability of utilities in the project area, Accessibility of transportation to the market place, Level of education of borrowers are not explain the probability of default.

Similar results were obtained regarding Age of borrowers in Ajayi (1992), Marie (2004) and Kashuliza (1993). But Micha’el (2006), Roslan and Karim (2010) Jemal (2000) found that age does not have significant influence on the probability of default. In most case household size assumed to have adverse impact on the probability of default.

As opposed to (Njoku and Odii 1991), Kashuliza (1993), House hold size is found to be insignificant in determining the probability of default. But the result is concurrent with Micha’el (2006), and Roslan and Karim (2010). In most case gender is significant but in this research gender is found to be insignificant the result is the same with Micha’el (2006). In line with Micha’el (2006), Roslan and Karim (2010), and Jemal (2000), experience is significantly affect the probability of default. This may be because borrowers from their business experience they know how to play in the market and how to avoid risk of market loss. As opposed to many researches educational status of borrowers in
this study does not have any significant influence on the probability of default. This might be because of most of borrowers are illiterate or having primary school only. As in Roslan and Karim (2010) type of project and revenue from the project are significantly affect the probability of default. Use of financial record does not determine the probability of default. The result is supported by Roslan and Karim (2010) and Jemal (2000). This is because most of microfinance borrowers do not have financial records. So it makes them similar in this regard.

The study also incorporate variable those are not included in other researches. This are; type of road accessible to the market place, Visiting of the project site before approval by the microfinance institution, visiting of the microfinance institution after approval, Loan taking frequency, Availability of utilities in the project area, Accessibility of transportation to the market place. Of this additional variables type of rode accessible to the market place, visiting of the project site before approval by the microfinance institution, visiting of the microfinance institution after approval are found to be significantly affects the probability of default.

Generally the econometrics result supports the argument of Kashuliza (1993) which says 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.

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