



Determinants of Credit Default of Micro Finance Institution Borrowers: The Case of Hawassa City, Sidama Region, Ethiopia

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Abstract: The study examined the determinants of credit default by Micro Finance Institution borrowers the case Hawassa city. The researcher used a quantitative research approach with an explanatory research design to establish the effect of the independent variables on the dependent variable. The primary data were collected from 360 sampled borrowers of Micro Finance Institutions using a structured questionnaire. Both descriptive and inferential statistics analysis were done using SPSS version 21.0. Descriptive statistics were used to identify whether there is a large variance in data. The study also used correlation analysis to see the degree variation and direction of relationship among variables. Inferential statistics were used to test hypotheses. The researcher employed logit model to identify the impact of explanatory variables on dependent variable. The results of the study revealed that ten independent variables incorporated in the model that included gender, education, age, lack of experience, having other sources of income, lack of financial planning skill, loan diversion rate, repayment period, involvement in service sector business activity, and loan follow up have a statistically significant impact on credit default. Based on the findings of the study, the researcher forwarded possible recommendations for the Micro Finance Institutions to improve credit collection of borrowers more than the current status.

Keywords: Credit Default, Determinants, Microfinance Institutions, Hawassa City, Ethiopia

1. Introduction

The World Bank outlines microfinance as “Small-scale financial services such as credit and savings provided to people who small or micro enterprises at the local levels of developing countries, both rural and urban” [27]. The purpose of microfinance is to provide capital for micro enterprise development so the clients can grow their income and assets. The objective is to fight poverty through improvement of socio - economic conditions of the poor who have been kept out of the conventional banking practice on the ground that they are poor and unbendable. Services provided by microfinance institutions are not limited to credit facilities only, but it encompasses savings, insurance, and money transfers.

Micro Finance Institutions play a vital role in poverty reduction by providing credit to the lower income group of

society. Lower income group of society after obtaining credit from MFIs participate in productive economic activities to improve their living standards. This leads to the economic development of the nation. But, outreach and sustainability of MFIs is ensured if it sufficiently collected back the loan extended to customers on maturity date. As noted by Consultative Group to Assist the Poor [12], MFIs in developing countries like Ethiopia encountered serious loan recovery problems.

Girma (2018) has investigated the determinants of loan repayment in MFIs in Gedeo zone, SNNPRS, Ethiopia. The researcher collected data from 364 borrowers, which are selected by using stratified random sampling from borrowers by dividing the borrowers in to two strata, in terms of loan payment status as defaulters and non-defaulters [16]. The researcher collected data from different sources and analyzed by using binary logistic model. In the model ten explanatory

variables were included, out of these, six variables were found to be statistically significant to influence the probability of loan repayment namely, method of lending, nearness of borrower's residence to the institutions, family size, educational level and income from activities financed by loan and training. From the finding of the study, the researcher provided some recommendations that are vital to reduce loan repayment problems and improve loan repayment performance of borrowers.

Gudeta et al has investigated the determinants of default risks in microfinance institutions in Assosa zone [19]. The researchers collected primary data collected through structured questionnaire and captured secondary sources of data. The data analysis tools were descriptive and inferential analysis. The finding of the study revealed that credit diversion is positively related to number of dependents supported by the borrower, use of accounting records, credit/loan size and number of times borrowed (sig 10%) from the same source. Income from other sources than credit/loan, loan supervision made to the borrower and suitability of credit repayment period (1%) were found to be negatively related to loan diversion. The results of the study also revealed that credit diversion fitted value of credit/loan diversion rate is negative and significant related to credit repayment performance. The researcher recommended the MFIs to solve problems observed in its rationing mechanism.

There are several factors, which affects the achievement of microfinance institutions activities. Especially as is cited by Amha in Ethiopia MFI is mainly affected by the income of clients, which directly depends on the effectiveness of the small business of borrowers who live in urban areas; also, it depends on crop harvest and the high risk due to drought for rural areas [5]. The fluctuations of product prices, which are difficult to forecast and also it affect the performance of MFI.

It may be difficult to establish most favorable credit policy as the best combination of the variables of credit policy is quite difficult to obtain. A company may observe the effects by changing one or two variables at a time. According to Pandey (2008) the firm's credit policy is greatly influenced by economic conditions. As economic conditions change, the credit policy of the firm may also change. According to Kitonga conducted factors affecting credit collection practice of commercial banks in Kenya and found that staff competency, management information system and resource allocation has statistically significant influence on non-performing loan [31].

Consequently, various research works have been conducted on factors affecting loan repayment in different countries outside Ethiopia. For instance (Koopahi and Bakhshi, 2002; Matin, 1997; Reza and Mansoori, 2008; Roslan and Zaini (2009; Eze and Ibekwe, 2007; Ume et al., (2018); Geraid & Deograties, 2013; Basil, 2013; Idowu, 2014; Oladeboeta, (2008), Daba, 2003; Okibo, 2013). Kashuliza (1993; Asiamah & Osei 2007; Agrekon (2004), Jama and Kulundu (1992) has studied the topic in (borrowers point of view) and found out that loan repayment of MFIs is

influenced by demographic characteristics of borrowers, economic factors, socio-cultural and MFIs related factors.

But, this study is different from empirical studies reviewed above by focusing on factors affecting credit default from lending institution point of view. Besides, there is difference in geographical scope of current study from prior studies outside Ethiopia due to fact that loan recovery of micro finance institutions is different from country to country since there is difference MFIs policies, economic status, politics, technology, and socio cultural aspects and study conducted in Ethiopia cannot become the duplication of the work of other similar studies outside homeland country, Ethiopia.

In Ethiopia, very few researchers have been conducted research about the issue under the study. For instance, Abreham, 2002, Binyam, 2013, Shaikand Tolosa, Ayele, and Girmastudied the same topic and found out that having other source of income, education, work experience, being male borrower, family size, age, loan size lack training, supervision, loan diversion rate, and loan repayment were factors affecting the loan credit default of MFIs in Ethiopia [6, 11, 16, 32].

To the best researcher's knowledge of the studies conducted in Ethiopia on the area are very limited and there is no study conducted with similar topic on MFIs in Hawassa city from borrowers' point of view. Therefore, the study fills the above-mentioned gaps by undertaking a research in MFIs in Hawassa city on identifying factors that credit default by focusing on the data that collected in 2020. Thus, the aforementioned problem necessitates the present study was conducted.

2. Material and Methods

2.1. Area of the Study

Hawassa is the capital city of Sidamaregional state. Based on the 2007 census conducted by the Central Statistical Agency (CSA), the total population of the city is about 350,000. The study area is Hawassa city. Hawassa City is chosen for the reasons that Microfinance institutions are densely populated.

2.2. Research Design

According to Zukmund and Carr (2006) research design is a strategic framework for action that serves as a bridge between research questions and the execution, or implementation of the research strategy. Research design is the plan, structure and strategy of investigation so visualized to obtain answer to the problem of the study. The main purpose of the research design is identification, development of procedures and logical arrangements required to undertake a study. And also research design aims to ensure identified and developed procedures are adequate to obtain valid and accurate answers to research objectives (Renjit, 2011). Therefore, this study used a mixed type of research design in collecting and analyzing data in order to better understand the research problem. A mixed

approach was implemented sequentially, in which the researcher started with collecting qualitative data and then collecting quantitative data.

2.3. Target Population

The target population of this study is borrowers in all Microfinance Institutions Found in Hawassa City, as of February, 2020. Currently there are 5 Microfinance Institutions Operating in Hawassa City. These are Omo Micro Finance, Sidama Micro Finance, Vision Fund Micro Finance, Agar Micro Finance and Kendile Micro Finance. In those five (5) microfinance institutions there are 3,649 borrowers. These are considered as the target population of the study.

2.4. Sample Size and Selection Techniques

The sample size is determined by using mathematical formula (Yamane, Taro, 1967). Each micro finance institution borrowers has an equal chance of being selected.

$$n = \frac{N}{1 + N(e)^2} = \frac{3,649}{1 + 3,649(0.05)^2} = 360$$

Where

n: is sample size

N: is total population

e: is sampling error

Sources of Data

To achieve the objectives, the study used both secondary and primary sources of data. The secondary data includes audited financial statements of each microfinance institutions. The primary data was obtained using questionnaire from those microfinance institutions operating in Hawassa city.

2.5. Method of Data Collection

For the purpose of this study, 5 MFIs were selected. For those selected microfinance institutions, 360 questionnaires were distributed. The analysis part of the study was depending on the answers taken from respondents.

2.6. Model Specification

The dependent variable of this study was, while different socio economic characteristics of borrowers, institutional related, loan related, project (business type related) and politico-cultural factors are considered as independent variables. In this study, the dependent variable is dummy and assumes values 0 and 1, which is 0 if the borrower is a defaulter and 1 if the borrower is non-defaulter. Therefore, credit default is treated as dichotomous dependent variable and a non-continuous dependent variable that does not satisfy the key assumptions in the linear regression analysis.

Dependent variable can be defined as whether borrowers had delayed repayment of loan to DBE or not. Hence, if borrower had not any delayed repayment, value of dependent variable will be 1 and otherwise 0. Shaikand Tolosa,; Ume et al, 2018; Girmaand Ofbaga 2018) used the binary logit model in analyzing determinants of loan repayment at different

study areas. Accordingly, the researcher adopted the same model by incorporating 10 explanatory variables in the model [16, 32].

In the binary response model, interest lies primarily in the response probability and derived it as follow:

$$P(y = 1/x) = P(y=1/x_1, x_2, \dots, x_k) \quad (1)$$

Where, $p(y=1/x)$ is the probability that $y=1$ (non-defaulting) given x (independent variable), y represents loan repayment and x denote the full set of explanatory variables such as gender of respondent (GEN), age of respondent (AGE), education level (EDL), lack of business experiences (LBE), Availability of other source of income (AOSI), Lack of financial planning skill (LFPS), loan diversion rate (LDR), involving in service sector (PT), loan repayment period (RPT), involving in service sector (PT) and project regular supervising and follow up (PFU) that affect credit default of MFIs borrowers.

The above equation is focused on concept of linear probability model (LPM). To avoid the limitations of (LPM), let us consider a class of binary response models of the form:

$$P(y = 1/x) = G(\beta_0 + \beta_1 x_1 + \dots + \beta_k x_k) = G(\beta_0 + x \beta) \quad (2)$$

Where, G is a function taking on values strictly between zero and one: $0 < G(z) < 1$, for all real numbers z . This ensures that the estimated response probabilities are strictly between zero and one. We write $x\beta = \beta_1 x_1 + \dots + \beta_k x_k$. Logistic function is a nonlinear function that is used for the function G in order to make sure that the probabilities are between zero and one. In the binary logit model, G is the logistic function, which is between zero and one for all real numbers z . This is the cumulative distribution function for a standard logistic random variable:

$$G(z) = \exp(z) / [1 + \exp(z)] \quad (3)$$

Where, $Z = X\beta = \beta_1 x_1 + \dots + \beta_k x_k$

Logit (P) can be back transformed to p by the following formula: since more than one i:

$$P(Y) = \frac{e^{\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n}}{1 + e^{\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n}} \quad (4)$$

Where, $P(Y)$ is probability of Y occurring, e is natural logarithm base ($e \approx 2.71828\dots$), b_0 is interception at y -axis, b_n is regression slope coefficient of X_n , and X_n is predictor or independent since one categorical binary dependent variable and ten independent variables are included in this study, the binomial logistic regression model of this study becomes:

$$P(Y) = \frac{e^{\beta_0 + \beta_1 GEN + \beta_2 AGE + \beta_3 EDL + \beta_4 LBE + \beta_5 AOSI + \beta_6 LFP + \beta_7 LDR + \beta_8 PT + \beta_9 IS + \beta_{10} PFU}}{1 + e^{\beta_0 + \beta_1 GEN + \beta_2 AGE + \beta_3 EDL + \beta_4 LBE + \beta_5 AOSI + \beta_6 LFP + \beta_7 LDR + \beta_8 PT + \beta_9 IS + \beta_{10} PFU}} \quad (5)$$

$P(Y)$ denotes the probability of loan repayment. Logit model limits probabilities for values of dependent variable between 0 and 1. The symbols such as GEN, AGE, EDL,

LBE, AOSI, LFP, LDR, PT, and PFU_{denote} the independent variables that influence loan repayment of DBE borrowers. Whereas, β_0 and β_1 up to β_9 , known as the parameters of the model are the intercept and slope coefficients respectively.

2.7. Methods of Data Analysis

Data collected were analyzed using SPSS version 21.0. The researcher employed both descriptive and inferential statistics.

3. Data Analysis and Discussion

3.1. The Result of Descriptive Statistics

Table 1. Summary of Descriptive Statistics.

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Credit default (LRP)	360	0	1	.61	.489
Gender of the borrowers (GEN)	360	0	1	.61	.489
Education level (EDL)	360	1	4	2.24	.973
Age of the borrowers (AGE)	360	1	5	2.86	1.067
Business experience (BE)	360	0	1	.29	.453
Other source of income (OSI)	360	1.00	5.00	3.3969	.87578
Lack of financial skill (LFPS)	360	1.00	5.00	3.1178	.81735
Loan diversion rate (LDR)	360	1.00	5.00	3.0318	.91222
Project type (PT)	360	1.50	5.00	3.0489	.73572
Repayment period (RPT)	360	0	1	.56	.498
Loan Follow up (IFU)	360	0	1	.46	.499

Sources: Survey Questionnaire (2020)

Credit default was the dependent variable of this study and measured by dummy scale through yes or no logically stated questions yes coded as (1) or no code as 0 question was prepared in which the borrowers answer yes if they pay their loan on maturity date (none default) and answer no if they delay in loan repayment (defaulters). Accordingly, the summary statistics table shows approximately 61 percent of sample are no- defaulters while the reaming 39 percent of total sample are defaulters (see table 1).

The gender of respondents as one explanatory variable which is dummy variable considered as (female respondent=0) and male=1) was already displayed in table 1 above showed that 62 percent of sample is males and the reaming 38 percent are female borrowers. This implies that more than half sample observation or majority of respondents were male borrowers.

Education level of the borrowers was also measured by ordinal scale that ranging education status of respondents as (below diploma=1), (diploma=2), (first degree level=3), (masters candidate=4) and masters and above=5). The average value of education level as showed in the above table 1 was 2.86 \cong 3 indicates that majority of respondents have completed BA degree education. From this it can be discussed as the morality of most borrowers is more developed by education since their education status were more concentrated on BA degree and above.

The age of the respondents as independent as can be observed in table 1 given the average value of the age was 2.24 which indicates the majority age of the respondents falls within age interval of 25 to 46 and above years because it was coded as (< 25 years=1), (from 25 to 36=2), (37 to 46 years=3) and > 47=4) to enter in to SPSS for analysis purpose. This conveys the majority of DBE borrowers were lie within productive (working) age in which borrowers do business effective as much as possible means since ability to

carry out audit work is more than if they are in old age of above 50 years.

With regarding to business experience (BE) as one the explanatory variables affecting loan repayment of the MFIs borrowers was measured on nominal base dummy variable represented by 0=experienced but not experienced internal auditors represented by=1). The average of yes or no question was showed in the above table was 0.29 means 29 percent of respondents were not experienced in conducting work but the reaming 71 percent of the borrowers in sampled were experienced borrowers. This implies that the majority of sampled borrowers obtained the training provided by the MFIs that enhance the awareness level of borrowers in one hand and loan repayment status in other hand.

The other source of income (OSI) as factor affecting loan repayment was measured by 5 point liker scale the average was 0.4 or 40%. This indicates that majority of respondents around 60% has other source of income but only 40% of the respondents have no other source of income. The financial planning skill (LFPS) of the project or business manager is the one factor that leads to success or failure of business in one hand and repayment within due date or not of loan borrowed from lender. It was also measured on the same Likert scale base as showed in the above table 1 with average value of 3.11 implies that on average the agreement or disagree was approximately which was falls around 3 the value of neutral that is neither positive nor negative but indirectly will negative perception because not putting agreement or being neutral in human behavior in a given situation by itself is negative attitude of the borrowers.

Besides, the loan diversion rate (LDR) as one explanatory variable that affecting loan repayment measured by the continuous scale of measurement. LDR has an average value of 3.01 have average value of more than three which indicates that more respondents have not stated their positive

agreement on questions asked to measure the loan diversion rate. This conveys that more the probability of having loan diversion rate is low by borrowers of DBE in Hawassa city.

With regarding to business type (PT) which one of the factors affecting loan repayment of borrowers of DBE was measured by continuous{(1=manufacturing), (2=general merchandising), (3=service), (4=agro processing) and (5=urban agriculture)} The above table shows that about 3.40 percent of sampled respondents participated in agro processing.

Lastly, repayment period (RP) is measured on ordinal scale basis from lower to higher probability (short=0) and long period (=1) the responses. The average value of repayment period as already in the above table 3 showed approximately 56 percent of loan is long repayment period while the remaining 44 percent of sampled borrowers responded that they short loan repayment period for the fund taken from MFIs.

With respect to project follow up and supervision of MFIs,

it was measured through nominal scale of measurement since it was considered as discrete variable and coded as (0=for not getting follow up and supervision and (1=get supervision and follow up services provided by bank loan officer). Table 1 clearly indicates that (45 percent) of borrowers proportions were get in supervisor service and the remaining 55 percent) of borrowers were not get loan repayment follow up and supervision. This result indicates, to ensure repayment, less peer pressure from the bank to make the borrowers to repay loan.

3.2. Pearson Correlation Matrix for Independent Variables

Correlation analysis measures the relationship between two items. The resulting value (called the "correlation coefficient") shows if changes in one item will result in changes in the other item. Correlation is a way to index the degree to which two or more variables are associated with or related to each other.

Table 2. Pearson correlation matrix for independent variables.

Variables		CRD	GEN	EDL	AGE	BE	OSI	LFP	LDR	RP	PT	LF
CRD	Pearson Correlation	1	.231**	.237**	-.061	-.251**	.526**	-.089	.558**	.476**	.207**	-.161**
	Sig. (2-tailed)		.000	.000	.279	.000	.000	.111	.000	.000	.000	.004
GEN	Pearson Correlation	-.231**	1	.026	.035	.031	-.071	.150**	-.148**	-.107	-.050	.019
	Sig. (2-tailed)	.000		.645	.529	.575	.202	.007	.008	.056	.369	.734
ED	Pearson Correlation	.237**	.026	1	-.015	-.056	.122*	.143*	.096	.078	.024	.034
	Sig. (2-tailed)	.000	.645		.785	.320	.030	.010	.087	.163	.667	.540
AGE	Pearson Correlation	-.061	.035	.015	1	.099	.074	.055	-.027	.007	.021	-.053
	Sig. (2-tailed)	.279	.529	.785		.078	.189	.330	.626	.906	.706	.344
BE	Pearson Correlation	-.251**	.031	.056	.099	1	.008	-.077	-.148**	-.187**	-.072	.084
	Sig. (2-tailed)	.000	.575	.320	.078		.888	.171	.008	.001	.199	.136
OSI	Pearson Correlation	.526**	-.071	.122*	.074	-.008	1	.028	.319**	.270**	.051	-.240**
	Sig. (2-tailed)	.000	.202	.030	.189	.888		.622	.000	.000	.363	.000
LFP	Pearson Correlation	-.089	.150**	.143*	.055	-.077	.028	1	-.024	.207**	-.153**	-.175**
	Sig. (2-tailed)	.111	.007	.010	.330	.171	.622		.663	.000	.006	.002
LDR	Pearson Correlation	.558**	.148**	.096	-.027	-.148**	.319**	-.024	1	.193**	.089	-.092
	Sig. (2-tailed)	.000	.008	.087	.626	.008	.000	.663		.001	.114	.100
RP	Pearson Correlation	.476**	-.107	.078	.007	-.187**	.270**	.207**	.193**	1	.002	-.083
	Sig. (2-tailed)	.000	.056	.163	.906	.001	.000	.000	.001		.973	.138
PT	Pearson Correlation	.207**	-.050	.024	.021	-.072	.051	.153**	.089	.002	1	.060
	Sig. (2-tailed)	.000	.369	.667	.706	.199	.363	.006	.114	.973		.281
LF	Pearson Correlation	-.161**	.019	.034	-.053	.084	.240**	.175**	-.092	-.083	.060	1
	Sig. (2-tailed)	.004	.734	.540	.344	.136	.000	.002	.100	.138	.281	
N		320	320	320	320	320	320	320	320	320	320	320

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Survey Questionnaire (2020)

The table 2 reveals the relationship between dependent variable (credit default (CRD) and independent variables with coefficient of correlation 1.00 indicates that each variable is perfectly correlated with each other. The result shows that gender (GEN) being male (negative), education (EDL), lack of Business experience (BE) (negative), other source of income (OSI) (positive), loan diversion rate (LDR) positive, project type being service sector (PT) positive were found to be significantly correlated with credit default (CRD) at 1% significance level (as $P < 0.01$). But, other variables such as age of borrowers (EDL) and financial planning skill of borrowers have no relationship with credit default (CRD) since $p > 0.01$ and 0.05.

3.3. Regression Analysis

Here, regression analysis was undertaken in order to identify determinants of credit default of MFI borrowers in Hawassa city. As previously stated, binary logit model was employed to estimate the effects of hypothesized explanatory variables on the loan repayment of borrowers. The model was used to satisfy the specific objectives of the study i.e., to identify effect of gender of the borrowers, age of borrowers, education level of borrowers, experience of borrowers, other source of income, financial planning skill of the borrowers, loan diversion rate, the loan repayment period, project type, and project follow up on loan repayment of the borrowers in

MFIs Hawassa city.

Table 3. The Goodness-of-Fit Model.

		Chi-square	Df	Sig.
Step 1	Step	298.492	10	.000
	Block	298.492	10	.000
	Model	298.492	10	.000

Source: Computed result (2020)

The results of binary logistic model on determinants of loan repayment of performance of borrowers are presented in the table 2 a total of 10 explanatory variables were incorporated in the model (often referred to as logistic regression). Out of these, 10 variables Such as gender of the borrowers, age of borrowers, education level of borrowers, experience of borrowers, other source of income, financial planning skill of the borrowers, loan diversion rate, the loan repayment period, project type, and project follow up of MFIs were found to be significantly influence the probability

of loan repayment at different significance level.

From above table 3 to test the measure of goodness of fit in logistic regression analysis, the chi-square was computed and showed that the model was significant at 1 percent significance level. Consequently, the null hypothesis stating the coefficients of independent variables to be equal to zero was rejected and the alternative hypothesis of non-zero slope was accepted. The value given in the Sig. column is the probability of obtaining the chi-square statistic given that the null hypothesis is true. In other words, this is the probability of obtaining this chi-square statistic (298.492) if there is in fact no effect of the independent variables, taken together, on the dependent variable. This is, of course, the p-value, which is compared to a critical value, perhaps .05 or .10 to determine if the overall model is statistically significant. In this case, the model is statistically significant because the p-value in the sig. column is less than 0.01 or 0.00

Binary Logit Model Regression Result: Loan Repayment (LRP)

Table 4. The Regression result of the study.

		B	S. E.	Wald	Df	Sig.	Exp (B)	95% C. I. for EXP (B)	
								Lower	Upper
Step 1 ^a	GEN	-1.417	.521	7.400	1	.007	.243	.087	.673
	AGE	.851	.254	11.232	1	.001	2.341	1.424	3.850
	EDL	-.510	.237	4.629	1	.031	.600	.377	.956
	BE	-1.405	.541	6.741	1	.009	.245	.085	.709
	OSI	1.617	.354	20.826	1	.000	5.037	2.515	10.085
	LFPS	-1.343	.380	12.520	1	.000	.261	.124	.549
	LDR	2.393	.396	36.446	1	.000	10.947	5.034	23.807
	RP	2.749	.485	32.169	1	.000	15.631	6.045	40.417
	PT	1.114	.494	5.088	1	.024	3.046	1.157	8.018
	PF	-1.180	.497	5.646	1	.017	.307	.116	.813
Constant		-15.099	2.448	38.029	1	.000	.000		

a. Variable (s) entered on step 1: gen, age, edl, be, osi, lfs, ldr, rp, pt, pf.

Source: Survey Questionnaire (2020)

3.4. Hypothesis Testing

The study has developed ten hypotheses. To test these hypotheses, the researcher restates them in null form. Accordingly, the researcher begins with the hypothesis related to gender as follow:

Ho1: Being male borrower has negative and statistically significant effect on credit default

With regarding to gender of the borrowers, the regression result of the study showed that being male borrowers with regression coefficient of ($\beta = -1.417$) and ($p\text{-value} = 0.007$) has negative and statistically significant at 1% level of significance because $p\text{-value} = 0.007 < 0.01$. This result is consistent with finding by Ofbga (2018) who has used binary logistic regression model that indicated that male borrowers have negative impact on loan repayment. But dissimilar by finding by Abreham (2002) studied the same topic using tobit model found sex (being male) has positive and significant relationship on loan repayment. Therefore, the researcher rejects the alternative hypothesis and accepts the null hypothesis.

Ho2: Increase in age of the borrower has negative and

statistically significant effect on loan credit default

Concering the gender of the borrowers, theregression result of the study showed that increase in age of the respondents with regression coefficient of ($\beta = -0.510$) and ($p\text{-value} = 0.031$) has negative and statistically significant at 5% level of significance because $p\text{-value} = 0.031 < 0.05$. This implies that when age of borrowers increase they are unable to access information, manage resouces, evaluate the performance and unable to understand new thechonology. This result is in consistent with finding by Abreham (2002) and (ShaikandTolosa, 2014), Ayelewho found out that age has (negative) effect on credit default of MFIs. Therefore, the researcher accept the null hypothesis and rejects the alternative one [6, 32].

Ho3: Increase in education level has negative and statistically significant effect on credit default

Concering the education of the borrowers, theregression result of the study showed that increase in age of the respondents with regression coefficient of ($\beta = 0.851$) and ($p\text{-value} = 0.001$) has positive and statistically significant at 1% level of significance because $p\text{-value} = 0.001 < 0.01$. This implies that when the level of education increase borrowers

has ability to access to business, evaluate their activities, they will manage resource properly which may increase their productivity. This result is in consistent with finding by Abreham (2002) and (Shaik and Tolosa, 2014), Ayele who concluded that education level has positive and significant effect on loan default. Therefore, the researcher accepts the alternative hypothesis and rejects the null one [6, 32].

Ho4: lack of experience in doing business has negative and statistically significant effect on credit default

It was hypothesized that increase in year of experience in doing business has positive influence on loan repayment of borrowers but lack of experience has the reverse impact on loan repayment. So, the result from binary logit regression model in the above table 4 indicates negative sign for lack of business experience variable with coefficient of regression of ($\beta = -1.405$), which implies that the longer the experience in doing business the better knowledge, skills and attitude in developing business. Since the Sig. statistic or p-value in some other statistical application (.009) is smaller than the chosen significance level (0.01), the negative association between business experience and loan repayment is statistically significant. The result is consistent with Girma [16]. Therefore, the researcher accepts the null hypothesis and rejects the alternative one.

Ho5: Availability of other source of income has negative and statistically significant effect on borrower's loan recovery capacity

It was hypothesized that there is significant association between other source of income and credit default. The result of model in the above table 5 reveals with regression coefficient of ($\beta = 1.617$) and ($p\text{-value} = 0.000$) has positive and statistically significant at 1% level of significance because $p\text{-value} = 0.001 < 0.01$. This shows that as borrowers have other source of income, the probability of borrowers to repay their loan increase. Having other source of income might lead the borrowers to use the loan they obtain from MFIs for repaying other loans taken from other source of income. Hence, the ability of borrowers to repay the loan from Microfinance institutions on time will be lost and result in loan default. This result is consistent with the descriptive statistics result and with most empirical findings such as Abraham (2002), Samuel (2011), Berhanu (2005), Abafita (2003) and Fikirte (2011) who argued that availability of other income sources is important and significant factor that enhances the loan repayment performance and thereby reducing loan default problem. But, inconsistent with the findings of Girma (2018). Therefore, the researcher accepts the alternative hypothesis and rejects the null hypothesis.

Ho6: lack of good financial planning skill has negative and statistically significant effect on credit default

The financial planning skill of the project or business manager is the factor that leads to success or failure of business in one hand and payment within due date or not of loan borrowed from lender. It has hypothesized that having good marketing skill has positive and significant influence on loan repayment of the borrowers. The regression result of this

study shows that, marketing skill of the respondent has positive and statistically significant influence on loan repayment of DBE with regression coefficient of ($\beta = -1.343$) and ($p\text{-value} = 0.000$) has positive and statistically significant at 1% level of significance because $p\text{-value} = 0.000 < 0.01$. So, H6 is accepted. This finding is consistent (Ofbaga, 2018) has suggested that lack of financial skill has negative on loan repayment of the borrowers. Therefore the researcher accepts the alternative hypothesis and hence rejects the null one.

Ho7: Loan diversion rate has negative and statistically significant effect on credit default

It was hypothesized that there is negative and significant association between nearness of borrower's loan diversion rate and loan repayment of DBE. Accordingly, the result from binary logistic regression model in the above table 5 indicates positive sign for loan diversion rate variable ($\beta = 2.394$) and statistic or p-value in some other statistical application (.000) is smaller than the chosen significance level (1 percent). This finding is similar with the result Shaik and Tolosa, (2014) found that loan diversion rate has (negative) influence on loan repayment of borrowers. But, the finding of this is not similar with findings of studies by Ayele, Muluken (2014), (Abafita, 2003), and (Ofbaga, 2018) find out that loan diversion rate has positive and statistically significant [6]. Therefore, the researcher rejects the null hypothesis and accepts the alternative one.

Ho8: Repayment period has negative and statistically significant effect on credit default of borrowers.

It was hypothesized that there is no positive and significant association between and credit default. Accordingly, the result from binary logistic regression model in the above table 5 indicates positive sign for loan diversion rate variable ($\beta = 2.794$) and statistic or p-value in some other statistical application (0.000) is smaller than the chosen significance level (1 percent). This implies that the longer the period of repayment of loan the better the ability to repay. This finding is consistent with the finding of Ayele, Muluken (2014), (Abafita, 2003), and (Ofbaga, 2018) find out that loan diversion rate has positive and statistically significant. But, the finding is not similar with Shaik and Tolosa found that loan diversion rate has (negative) influence on loan repayment of borrowers. Therefore the researcher accepts the alternative hypothesis and rejects the null hypothesis [6, 32].

Ho9: Involving in service business activity has negative and statistically significant effect on credit

It is argued that different types of projects have different level of risks hence profitability. Thus, borrowers with different types of projects may have different repayment rates. However, it is expected that borrowers who engage in service giving sectors are expected to have successful loan repayment performance; this is because now a day the demand for service giving sectors is highly increasing. It can be measured as continuous variable. The result of this study concerning shows there is positive and relationship between type of business and loan repayment of MFIs borrowers with regression coefficient of ($\beta = 1.114$) and p-value of 0.024 which is less than 0.01. This implies that business type is

statistically significant 1% level of significance with most high coefficient of (Haile. 2015). Therefore the researcher accepts the alternative hypothesis and rejects the null one.

Ho10: Effective project follow up and control has negative and statistically significant effect on credit

It was hypothesized that there is significant association between project follow up and loan repayment of MFIs in Hawassa city. But, the result from binary logistic regression model in the above table 4 reveals negative sign of coefficient for this variable ($\beta = -1.180$), that shows negative association project follow up and loan repayment of borrowers in DBE. This shows that as follow up frequency decrease, the probability to repay their loan decreases. If the DBE loan officers frequently follow up of project, this would positively influences the probability borrower's loan repayment performance. As the p-value (.017) is smaller than the chosen significance level (5 percent), the negative association between method of follow up and loan repayment is statistically significant. This finding is similar with the result Shaik and Tolosa found that supervision and follow up has (negative) influence on loan repayment of borrowers [32]. But, the finding of this is not similar with findings of studies by Ayele (2016), Muluken (2014), (Abafita, 2003), and (Ofbaga, 2018) find out that project follow up has positive and statistically significant [6]. Therefore the researcher accepts the null hypothesis and rejects the alternative hypothesis.

4. Conclusion

This study was designed to achieve the determinants of loan credit default of borrowers, to test ten hypotheses and to provide recommendation based on the results of the study by collecting data from the selected borrowers of MFIs using questionnaires, descriptive statistics and statistical analysis (binary logistic regression model) have been performed. Hence, descriptive statistic found that MFIs in Hawassa city is generating more than 50% loan repayment of borrowers as mean value of loan repayment is 61% the repayment performance. Based on this finding the researcher concluded that the credit status of borrowers is good and enables the bank to smoothly run its business activity if other things remain constant. On other hand, the finding from regression analysis indicated that out of ten independent variables incorporated in the model eight variables such as gender being female, age, lack of experience, education status, having other source of income, lack of financial planning skill, service sector, loan diversion rate, involving in service sector business activity, repayment period and project follow up and statistically significant.

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