

Determinants of Smallholder Farmers Loan Repayment Performance in Assosa District, Western Ethiopia

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Abstract

There are a lot of options to deliver financial services to the rural poor. The aim of this study is to analyze determinants of loan repayment performance of smallholder farmers in a special reference Assosa woreda. Purposive sampling technique was used to select sample kebele. For this study a total of 1571 households' credit users and from these 94 households were selected randomly followed by probability proportional sample from Assosa woreda'. Both primary and secondary data were collected for this study. Primary data were collected by direct interview of sample respondents; whereas, secondary data were also collected from published and unpublished documents. Descriptive statistics were used to summarize the demographic profile of the respondent. And, logistic regression model was employed to identify factors influencing loan repayment performance of farmers. Out of the total thirteen explanatory variables included in the model, livestock ownership, age, family size, income from crop product, get extension agent, off farm income, and sex were found to be statistically significant in determining loan repayment performance of smallholder farmers. Therefore, the study suggests the identified significant variables to be a spring board for further interventions by financial cooperatives, stakeholders and policy makers so as to come with a breakthrough to significantly decrease or even avoid defaulting problems.

Keywords: Determinants, smallholder farmer, loan, performance

INTRODUCTION

Many financial institutions in developing countries provide financial services such as saving and credit to aid several smallholder enterprises. This is an effort in line with the "Millennium development goals" which seeks to reduce poverty by 50% by the year 2015 (Solomon, 2013).

The provision of loan has increasingly been regarded as an important tool for raising the incomes of urban as well as the rural populations, mainly by mobilizing resources to more productive uses (Kibrom, 2010).

Agriculture is still the engine of Ethiopian economy. Despite its contribution to the economy the sector has been and is facing a multitude of challenges (UNDP, 2014). Thus, the nature of farming in Ethiopia is dominated by traditional micro holdings of the subsistence type, with less than two hectares of land being the average holding (CSA, 2015). One reason Ethiopia's agricultural sector to produce at subsistence level with incomes not adequate to cover the farmers' consumption and expenditures and allow them to invest back in to their farms. Where subsistence agriculture prevails and where small-holder farming dominates the overall national economy, farmers often face a scarcity of capital (saving) to adopt new agricultural technologies. Hence, short-term credits with favorable terms for seasonal inputs like fertilizer, improved seeds, pesticide and herbicides would generally be favored because better return would be achieved quickly within the crop season. The use of credit has been envisaged as one way of promoting technology transfer, while the use of recommended farm inputs is regarded as key to agricultural development (Takashi, 2010).

Smallholder farmers face severe shortage of financial resources to purchase productive agricultural inputs. The prices of inputs rise very rapidly every year. Consequently, the hope of the subsistence farmers on financial institutions for credit has become substantially higher in the recent times (Million *et al.* 2012). Development and adoption of new agricultural technologies and the use of credit facilities is vital for rapid growth in agricultural productivity. However, with the introduction of new production technologies, the financial needs of farmers increased by many-fold (Ayalew and Lemma, 2013). Generally, the accessibility of a good financial service is considered as one of the engines of economic development and the instruments to break the vicious circle of poverty (Sisay, 2008). There is no doubt about the crucial roles of credit in economic development. But the increasing default rate is one of the major problems of the lending institutions (Mohammad, 2009). Failure by a farmer to repay their loans on time or to repay them at all has been a serious problem faced by both agricultural credit institutions and smallholder farmers (Million *et al.*, 2012).

According to Guush (2004) a well-functioning and organized financial markets are pre-requisites for sustainable development. But such markets are often lacking in developing countries. The failure was partly due to failures to set up and implement prudent and innovative institutional approaches suited to local situations and contexts. Moreover, bureaucratic lending procedures, stringent collateral requirements, and high transaction costs made the problem worse (Jemal, 2003).

Loan default problem has been a tragedy as it leads to a system failure to implement appropriate lending

strategies and credible credit policies. In addition, it discourages the financial institutions from refinancing the defaulting members, which put the defaulters once again into vicious circle of low productivity (million *et al.*, 2012).

According to Bekele (2001 as cited in Amare 2005), in Ethiopia loan repayment was not a serious problem prior to 1990 and became a serious issue after 1990. For instance, it has been reported that loan recovery ratio in Ethiopia declined from 54% in 1990 to 37% in 1991 and further dropped to 15% in 1992.

In the subsistence agriculture sector, in low income countries such as Ethiopia, where smallholder farming dominates the overall national economy, smallholder farmers face a severe shortage of financial resources to purchase productive agricultural inputs. The prices of inputs rise very rapidly every year and consequently, the hope of the subsistence farmers on financial institutions for credit has become substantially higher in the recent times (Million *et al.*, 2012).

Low loan repayment in developing countries has become a major problem in agricultural credit administration; especially to smallholders who have limited collateral capabilities (Okorie, 2004). It is obvious that many rural credit schemes have sustained heavy losses because of poor loan collection. And yet a lot more has been dependent on government subsidy to financially cover the losses they faced through loan default (Firafis, 2014). According to Abreham (2002), borrowers involved in the agricultural sector are more defaulters compared with other sectors like industry and service.

According to Jamal's (2003) research result shows that urban borrowers have better repayment rate than rural household borrowers. The loan default problem has had bad effects leading to systems failure in the implementation of appropriate lending strategies and credible credit policies. In addition, it discourages the financial institutions from refinancing the defaulting members, which pits the defaulters in a vicious cycle of low productivity. Therefore, a thorough investigation of various aspects of loan defaulting is important for both the policy maker and the lending institutions.

When we came to the study area (Assosa Woreda) there is low repayment performance in rural borrower, it discourages the lender to promote and extend credit to large and fragmented farm households. Although there are such severe problems related to loan repayment in Assosa woreda, factors that affect loan repayment performance of small holders farmers had not been studied in this area. Though, for securing high loan repayment rate it is crucial to thoroughly investigate various aspects of loan defaults, and determining factors for loan repayment so that it can help financial institutions, policy makers and other stake holders have information on the issue and help them as a basis for intervention moves. Thus objective of this investigation is to explore the loan repayment performance of small holder farm household in Assosa Woreda. Therefore, to fill appropriate lending strategies and procedures, information on relative importance of the factors, which affect smallholder farmers' loan repayment performance, is necessary in Assosa woreda.

2. METHODOLOGY

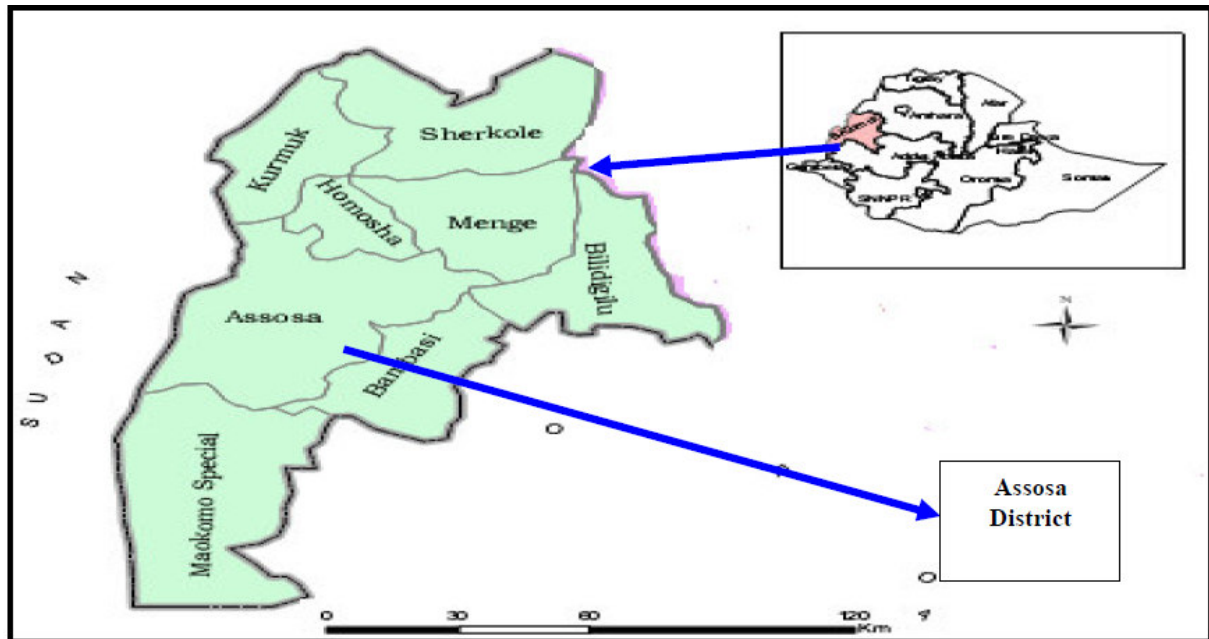
2.1 Description of the study area

Location: The study was conducted in Assosa Woreda; it is one of the 20 districts of Benishangul Gumuz region. The district is parts of Assosa zone and bounded by Kumuruk and Homosha in the north east; by Odabuldigilu in the east, Banbassi in the south east by Maokomo special woreda in the south and by Sudan in the west. It is located 687Km west of Addis Ababa region.

Population: The 2007 national census reported a total population for Assosa Woreda was 104, 107 from whom 52,968 male and 51,179 women. From this only about 24214 were urban dwellers and remain 79,933 of the total population were located in rural area of this woreda.

Religion: In the study area the religious of the people is found as Muslim covering 63.27 percent of the total population and orthodox about 31.18 percent and the remain about 5.23 percent protestant.

Climate Condition: Agro ecologically, Assosa Woreda is mostly classified as low land (kola) with an average rainfall of 1,275 mm per annum and an altitude of 1,550 masl (BOA, 2003).



2.2 Sampling & sample size determination

In Assosa woreda there are 74 kebeles and the total credit user households were 1571 then the study was using both purposive and simple random sampling techniques. The purposive sampling techniques were used to select sample kebeles in the study area. To select the sample households the study was employed simple random sampling technique. Because a simple random sampling technique was used in such a way that each member of the population had the same chance of being included the sample. So the households were given equal chance for the selection, then 4 kebeles were selected from the total of 74 kebeles by using purposive sampling techniques and then from these 4 kebeles, Amba 8, Amba 5, Amba 3 and Amba 1 were selected based on potentially of credit user (number of credit users) and the number of households are 22, 37, 22, and 30 respectively.

By using Yamane (1967) formula, with 95 percent confidence interval sample respondents were determined

$$\text{Formula : } n = \frac{N}{1+N(e)^2} = \frac{1571}{1+1571(0.1)^2} = 94$$

Where: n = sample size

N = total number of household from 74 kebeles'

e = margin of error

Then by using proportionality 94 number of respondent will distributed to the four available kebele as follows:

Table 1: Proportionality of the four kebeles

Amba	Credit user	Proportional
1	30	25
3	22	19
5	37	31
8	22	19
Total	111	94

Then to determine determinants of credit user loan repayment performance the researcher interview 94 households based on their proportionality in the above purposively selected kebeles and finally to analyze determinants of loan repayment performance (by targeting only the selected kebeles credit users).

2.3. Data Sources and Methods of Collection

In order to collect the reliable data, both primary and secondary data sources were used. The primary data that are qualitative and quantitative in nature are obtained from sampled households using interview schedule. Moreover, the study also used FGD and key informants interview to supplement the data obtained using interview schedule. The secondary data was obtained mainly from various reports, websites, literatures, journals and other sources, which are relevant to the study.

2.4 Method of data Analysis

The data analysis process was carried out after collection of the required information from primary and

secondary sources.

Descriptive statistics

The study employed both descriptive statistics and Econometrics model to analyze the collected data. Descriptive statistics such as mean, frequency, percentage, range and standard deviation were used to assess different demographic and socio-economic characteristics of the sampled households. And also the researcher use inferential statistics T-test for continuous and Chi square tests for discrete variables was used to indicate the significance of different variables on credit use and loan repayment performance.

Econometric model

Loan repayment is a dependent variable, while different socio-economic and lender related factors are considered as independent variables. The dependent variables value is equal to 0 and 1, which is 0 if the borrower is a defaulter and 1 if the borrower is non-defaulter. We were use binary logistic regression model because it has got advantage over the others in the analysis of dichotomous outcome variable in that it is extremely flexible and easily used model from mathematical point of view and results in a meaningful interpretation (Hosmer and Lemeshew (1989). Hence, the binary logistic model was selected for this study to test proposed hypothesis and to reveal the impact of different variables on credit use and loan repayment performance. Therefore, the cumulative logistic probability model is econometrically specified as follows:

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

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

$$\text{Therefore } \frac{p_i}{1-p_i} = \frac{1+e^{z_i}}{1+e^{-z_i}}$$

Then by taking natural logarithm $\ln\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_m X_m + u_i$

Where,

- **Pi** is the probability that an individual was make a certain choice (defaults or does not default) given Xi;
- **e** denotes the base of natural logarithms, which is approximately equal to 2.718;
- **β₀, β₁, β₂, and β_n** are coefficients of explanatory variables
- **x₁, x₂, and x_n** are predictor variables
- **m**= number of explanatory variables
- **ui**= error/stochastic term

Hypothesis and Definition of Variables

Dependent variables

The dependent variable for this study is loan repayment performance. It was hypothesized to be a function consisting of the following components.

Independent Variables

Definition and brief explanation of the explanatory variables selected for this study and their likely influence on loan repayment performance are presented below.

Age (AGE): It is continuous variable measured by total number of years from the respondent's birth until the survey was conduct. The households' age is hypothesized to have positive association with farmers' loan repayment performance. As the age increases, farmers' acquire experience knowledge, stability and honesty which in turn might help them to accumulate wealth over time which was enable borrowers to repay their debt in time than young borrowers. Therefore, it will expect that age affect loan repayment performance positively.

Sex(SEX): This is a dummy variable and the existing gender differences; male headed households have mobility, participate in different meetings and have more exposure to information(Sisay,2008).Therefore it was hypothesized that male headed households have more access to use formal credit than their counter part female headed household.

Family size (FASZ): This is a continuous variable refers to the number of people under the same house. Peoples who have large number of family size may imply self-insufficiency in food consumption because large households consume more than do small households. This is usually true if the dependency ratio of the household is large. Therefore, the effect of family size, on loan repayment capacity was negative effect.

Educational status of the borrower (EDUBOR): This is a categorical variable, which is categorized as illiterate, primary education, secondary education. The farmers can read and write; they increase their ability to obtain, process, and use information. For example, literate farmers may seek information on prices more than the illiterates ones and consequently, was able to sell their product at reasonable prices. Moreover, education may enable farmers to become more aware of on the importance of formal loans and hence may reduce default rate.

Therefore education was expected to reduce the rate of default.

Total land size (TOLASI): It is continuous variable, indicate total farm size (in hectares) that owned by the family. Farmer with more hectares of land is expected to be better off in terms of loan repayment performance. This is because, of other factors of production increase, large farm size was give higher production that was enable the borrower to repay his/her loan. Therefore, this variable is expected to have a positive relation with the dependent variable. On the other hand people who have small land holding, no repayment performance.

Get extension agent (GEEEXAG): This is continuous variable number of days per month that farmer contacts a development agent for technical guidance. The higher the linkage between farmers and development agents, the more the information flow and the technological (knowledge) transfer from the latter to the former. Farmers who have frequent contact with extension workers are more likely to have up-to-date information on production technologies that would help them to increase their production and productivity and thus generate better income. Thus, those farmers who have frequent contacts with development agents are likely to settle their debts on a more time basis, as opposed to those who have none or few contacts.

Distance from credit source (DOCS): This is the continuous variable measured by the time that it takes the household to reach the credit source. Borrowers residing near the lending institution have a location advantage and can contact the lender more easily and frequently than those who live in more distant locations. Therefore, the location is near to credit source expected to increase the loan repayment performance and vice versa.

Incomes celebrating on social ceremony (ICESC): this is a continuous variable measured by the total amount of money spent (in Birr) on celebrating different types of social holidays like wedding. This variable was hypothesized to have negative impact on loan repayment as it is nonproductive expense. Belay (2002) found that celebrating social festival can negatively influence loan repayment performance it will expect negatively influence loan repayment performance.

Income from selling livestock product (INSLP): It is continuous variable Livestock may give services for their oxen membership, which is important for farm operations. The higher the number of livestock owned, the more the probability of being non-defaulter and vice versa. So it is expect that positive influence on loan repayment performance.

Amount of loan receive (AMLORE): It is continuous variable the greater the loan size, the greater the probability of unwilling default (negatively relate with loan repayment). This is because in the event of production failure, the borrower was finding it more difficult to meet repayment obligations out of his/her personal funds.

Off-farm income (OFFIN): It is continuous variable defined as the amount of income generated from activities other than crop and livestock production. These include petty trading, charcoal selling, firewood selling and others. These additional sources of income would encourage the borrowers to settle their debt even during hard times (belay, 2002).

Income obtained from selling crop (INSCP): it is a continuous variable the income obtained from crop production important for the loan repayment capacity of farmers, the higher increase the crop production, the more probability of being non defaulter and vice versa. So it will have positive influence on loan repayment performance.

Marital status (MASTAT): It is a categorical variable; the married house hold heads may have good performance of the access of credit, than single, divorced, and widowed.

Table 2: Hypothesized predictor variables on credit use

No	Factors(determinants)	Variable type		Impact on credit use
		Continuous	Categorical	
1	Educational status of household head		√	+
2	Marital status		√	-
3	Sex of household head		√	-
4	Contact with development agent	✓		+
5	Family size	✓		+
6	Land size in hectares	✓		-
7	Age of the household head	✓		+
8	livestock owner ship	✓		+
9	Non- farm income	✓		+
10	Amount of loan receive	✓		-
11	Celebrate social ceremony	✓		-
12	Distance from the credit source	✓		+
13	Income obtained from selling livestock product	✓		+

3. RESULTS AND DISCUSSION

3.1. Results of Descriptive Statistics Analysis

The descriptive statistics analysis made use of tools such as mean, percentage, standard deviation and frequency distribution, and also inferential statistics such as T-test for continuous variables and Chi square tests for discrete variables was used to indicate the significance of different variables on credit use and loan repayment performance. Rural household's borrower's loan repayment performance is influenced by demographic, economic and social characteristics of households. This section report is on the background and the difference between defaulters and non-defaulters of loan repayment performance on variables. Loan repayment performance by smallholder farmers to the context of this study is measured in terms of defaulters and non-defaulters.

3.1.1 Descriptive Statistics of continuous variables on credit use

Demographic characteristics of sample households

Out of the total 94 interviewed households 54 (57.4%) were non-defaulters, and the remaining 40 (42.6%) were defaulters credit users as the information obtained from Assosa woreda saving and credit institution.

Age: Age was one of the independent variables related with borrower's characteristics and expected to determine successful loan repayment performance of the borrowers. The average age of the whole sampled household heads was 44.78 years with the minimum and maximum ages of 25 and 70 years, respectively. The average age of defaulter's credit users was 41.63 years while that of non-defaulter's credit users was 47.11 years with mean difference statistically significant at 1% probability level from table (3).

Table 3: Descriptive Statistics of continuous variables

No	Loan repayment performance	No respondent	Mean	Std. Deviation	Min	Max	t-value
Age of the household head(year)	Defaulter	40	41.63	9.591	25	70	-2.793***
	Non defaulter	54	47.11	9.173			
Family size of borrower(number)	Defaulter	40	3.45	1.131	1	6	-3.890***
	Non defaulter	54	4.35	1.084			
Income obtained from selling of livestock(birr)	Defaulter	40	2,819.50	2,531.470	0	9000	-2.13(NS)
	Non defaulter	54	2,920.37	1,847.934			
Off farm income(birr)	Defaulter	40	712.500	1,310.9377	0	8000	-
	Non defaulter	54	1,668.519	1,959.1174			2.8318***
Total land size(hectare)	Defaulter	40	.98	.218			.323(NS)
	Non defaulter	54	.96	.282	0	2	
Amount of loan(birr)	Defaulter	40	3,472.25	3,585.302			
	Non defaulter	54	2,990.74	3,317.792	400	13000	.664(NS)
Income invested for ceremony(birr)	Defaulter	40	3,470.00	6,101.070			
	Non defaulter	54	2,937.04	1,530.852	0	40,000	.540(NS)
Distance to obtained extension service(km)	Defaulter	40	10.38	3.417			.272(NS)
	Non defaulter	54	10.19	3.245	3	16	
Get extension service(day)	Defaulter	40	2.25	1.149			
	Non defaulter	54	4.07	1.358	1	6	-7.039***
Income obtained from selling of crop product(birr)	Defaulter	40	740.00	904.915	0	5000	-4.431***
	Nondefaulter	54	1,936.11	1,682.328			

***, **, * statistically significance at less than 1%, 5%, 10% respectively and NS=not significance

Source: Own survey (2017)

Family size: The average family size of the sample households is 3.97, the maximum family size 6 and the minimum is 1. The average family size of defaulter's credit users was 3.45 while that of non-defaulter's credit users is 4.35. With this, the mean difference statistically significant at 1% probability level from table (3).

Land ownership: Land is the basic asset of farmers. The average size of own cultivated was land nearly 0.97ha, the minimum and maximum being 0 and 2ha, respectively. Non defaulters and defaulters have on average area of land 0.96 ha and 0.98ha respectively. The mean difference between the land holding by defaulters and non-defaulters credit users was not significant difference between means of the two groups from table (3).

Off-farm income: The income generated from non-farm activity ranges from no income to a maximum of 8000.00. The mean annual non-farm income of sample households was found to be 1261.702 of the sample household heads reported that at least one of their family members was engaged in non-farm activities, which helped them to earn additional income. Non defaulters and defaulters have on average income of off farm

1668.519 birr and 712.5 birr respectively. The mean difference between the off farm income defaulters and non-defaulters credit users was statistically significant at 1% of probability level from table (3).

Amount of loan: The sample households on average borrowed Birr 3195.64 .However, the loan size varied in accordance with the type of financial institution. The survey result also revealed that the maximum amount of loan was 13000 and the minimum amount loan was 400. The average amount of loan was 3195.64 birr. The average amount loan of defaulter's credit users was 3472.25 birr while that of non-defaulter's credit users was 2990.74 birr with no significant difference between means of the two groups from table (3).

Celebrating and participating on social festivals: Respondents were asked how much finance they spent on celebrating and participating on Social festivals: Expenditure on social festivals includes expenditure for social ceremonies such as wedding, circumcision, funeral of a family member or close relative and engagement. All of the respondents were celebrated one or more of the above occasional ceremonies during the study period. From the small holder farmers the minimum and maximum amount of expenditures for such ceremonies were Birr 0.00 and Birr 40,000, respectively. As per this, on average Birr 3163.83 was spent for festivities. The average income invest on social ceremony of defaulter's credit users was 3470.00 birr while that of non-defaulter's credit users was 2937.04 with no significant difference between means of the two groups from table (3).

Number of livestock owned: This means the total livestock owned by the respondents. The respondent get the incomes from selling livestock were the minimum and the maximum amount of birr, 0 and 9,000 respectively and the total average mean was 2877.45 birr. Non defaulters and defaulters have on average income from livestock production been 2920.37birr and 2819.50 birr respectively. The mean difference between the livestock income defaulters and non-defaulters' credit users was no significant difference between means of the two groups from table (3).

In farming area livestock are part of the operation. It may serve as a proxy for oxen ownership, which is important variable have a positive influence on loan repayment performance because the number of livestock increase the repayment capacity the farmer also increase.

Income from crop: From the survey the farmer generated income from crops activities were increase the prepayment capacity of farmers. The maximum and the minimum amount of income was 0 and 5,000 birr respectively. And the average income obtained from crop product was 1427.13.Non defaulters and defaulters have on average income from crop 1936.11birr and 740.00 birr respectively. The mean difference between the income from crop defaulters and non-defaulter's credit users was statistically significant at 1% level of probability level from table (3). So this farmer was not got the required amount of income due to lack of soil fertility, crop disease. The higher the income from, indicate the greater the repayment capacity of the farmers and the higher the probability to be non-defaulter and vice versa.

Distance from service: The distance in kilometers that the borrowers travelled to get main road for accessing different services. In line with this, the total average distance traveled by the respondents to the main road to obtained service was about 10.27 kilometers and the maximum and the minimum distances to obtained extension service were 16 and 3 respectively. The average amount distance of defaulter's credit users was 10.38 kilometer while that of non-defaulter's credit users was 10.19 kilo meter with no significant difference between means of the two groups from table (3).

Get extension service: From the sample respondent the number of days per month that a farmer contacts a development agent for technical guidance. The minimum and the maximum contact days was 1 and 6 respectively per month. And the total average of the contact days was 3.30.Non defaulters and defaulters have on average get extension service was 4.07 days and 2.25 respectively. The mean difference between the get service defaulters and non-defaulters credit users was statistically significant at 1% level of probability level from table (3).The higher the linkage between farmers and development agents, the more the information flow and the technological (knowledge) transfer from development agent to farmers. Farmers who have frequent contact with extension workers are more likely to have up-to-date information on production technologies that would help them to increase their production and productivity and thus generate better income. Thus, those farmers who have frequent contacts with development agents are likely to settle their debts on a timely basis.

3.1.2 Descriptive statistics of discrete variables on credit use

Sex of borrower

The sample was composed of both male and female-headed households, of the total sample household heads 79.8 percent were male household heads and 20.2 percent were female household heads. And also from the total of households 15 percent of the defaulters' and 24 percent of the non-defaulters were female households respectively and also 85 % and 76% of the male households were defaulters and non-defaulters respectively, with regard to sex of household head were not statistically significant between two groups. From this study the participations of females were very low. So governments to encourage female's participations in the accesses of credit.

Table 4: Loan repayment performance of sex

Variable	Loan repayment performance				Total	chi-square
	Defaulter		Non defaulter			
	N	%	N	%	N	%
Sex of the borrower						
Female	6	15	13	24	19	20.2
Male	34	85	41	76	75	79.8

NS =not significance even at marginally, Source: own survey (2017)

Education of borrower

Education is an important determinant of loan repayment. From the total survey, 59.6 percent of the household heads were illiterate and 35% and 5.4% of primary and secondary education. About 63%, 31.5% and 5.5% percent of non-defaulters were illiterate, primary level and secondary respectively. While 55%, 40% and 5 percent of defaulters were illiterate, primary and secondary educational level respectively. Therefore, the survey result shows that the difference between non-defaulters and defaulters with regard to educational level of household head was not statistically significant between two groups.

Table 5: Loan repayment performance of education

Educational status of the borrower	Loan repayment performance				Frequency	Chi-square
	Defaulter		Non defaulter			
	N	%	N	%	N	%
Educational status of the borrower						
Illiterate	22	55	34	63	56	59.6
Primary	16	40	17	31.5	33	35
Secondary	2	5	3	5.5	5	5.4
Total	40		94		5	5.4

Source own survey (2017), NS =Not significance

Marital status: From the total survey results also revealed that 83.3 percent of the sample household heads were married, 7.5 percent were single, 3 percent were divorced and 1 percent was widowed. Whereas the marital status households of married, single, divorced and widowed of the household's heads of non-defaulters were 94.3, 1.9, 1.9, 1.9 percent and defaulters were 80, 15, 5 and 0 respectively with regard to marital status level of household head was statistically significant at less than 10% probability level. From this the married in marital status group were largely participate in the accesses of credit use.

Table 6: Marital status of loan repayment performance

Marital status of the borrower	Loan repayment performance of borrower				Frequency	Chi-square
	Defaulter		Non defaulter			
	N	%	N	%	N	%
Married	32	80	51	94.3	83	88.3
Single	6	15	1	1.9	7	7.5
Divorced	2	5	1	1.9	3	3.2
Widowed	0	0	1	1.9	1	1
Total	40		54		94	

Source own survey (2017) * =significance at 10%

3.4 Results of the Econometric Model

Out of the total thirteen variables which were hypothesized to determine loan repayment Performance of farmers based saving and credit cooperatives' members, seven of them were found to be statistically significant. Out of the seven significant explanatory variables, four of them were significant at less than 5%. These variables are; age, family size, income from selling livestock, and off farm income. and also two of them get extension agent, and income from selling crop product are significant at 1% the remaining one variable sex, significant at 10%. whereas the remaining six variables (i.e. marital status, education of borrower, total land size, amount of loan receive, income invest on social ceremony, and distance obtained extension service are statistically insignificant)

Table 7: logistic regression result (with odd ratio report)

Logistic regression

Number of obs =94

LR Chi² (13) =91.59

Prob>chi²=0.000

Pseudo R²=0.7144

LOREPE	Coef.	Odd ratio	Std.Err	Z	P> Z
AGE	0.1899504	1.20919	0.992934	2.31	0.021**
MASTAT	-0.541766	0.6040027	0.4689826	-0.65	0.516
SEX	-2.475579	0.0841142	0.110602	-1.88	0.060*
FASIZE	1.26242	3.533965	1.981412	2.25	0.024**
EDUBOR	1.33612	3.804253	3.740469	1.36	0.174
INSLP	0.0008025	1.000803	0.0003722	2.16	0.031**
OFFINC	0.0009971	1.000998	0.0004441	2.25	0.025**
TOLASI	-1.13605	0.3210848	0.603611	-0.60	0.550
AMLORE	-0.0000557	0.9999443	0.000195	-0.29	0.775
HICESC	-0.0001637	0.9998363	0.0001134	-1.44	0.149
DOBX	0.382926	1.039035	0.20107	0.20	0.843
GEEEXAG	1.885578	6.590159	3.804806	3.27	0.001***
INSCRO	0.0021482	1.002151	0.0007766	2.77	0.006***

Source: own survey 2017, *, **, * at 1, 5, and 10% significant respectively**

Age (AGE): The variable Age was positively associated with loan repayment capacity rate. From the binary model result as citrus Paribas the odd ratio in favor of the loan repayment performance increase by odds of 1.2 as age increase by one year. And the binary relation was significant at 5% level and also positively related with to the hypothesis. Its implication is the number of year's increase their honesties also increase due to religions afraid of God, the person to repay the loan. And also increase work experience and elders are better than youngsters in adopting technologies, being flexible, accessing education and the like

Income obtained from selling livestock product: As it was initially hypothesized, this variable influenced the loan repayment performance of the respondent farmers positively. From the binary model result as citrus Paribas the odd ratio in favor of the loan repayment performance increase by odds of 1 as the income from livestock increase by one unit. And in the binary result significantly at 5% probability level. An increase in the income from livestock increases the probability of being non-defaulter. The implication is that, livestock can be easily liquidated into money and serve as security against crop failure. Farmers who owned more livestock are able to repay their loans even when their crops fail due to natural disaster. In addition, as a proxy to oxen ownership the result suggests that farmers who have larger number of livestock have sufficient number of oxen to plough their field timely and as a result obtain high yield and income to repay loans. The result is also supported by findings of Amare (2005), and Abebe (2011).

Off-farm income: This variable affects the loan repayment performance of the respondents positively, as it was hypothesized initially. From the binary model result as citrus Paribas the odd ratio in favor of the loan repayment performance increase by odds of 1 as the off farm income increase by one unit. And log it regression significance at 5% probability level. This indicate that the off-farm activities were additional sources of income for smallholders and the cash generated from these activities could back up the farmers' income to settle their debt even during bad harvesting seasons and when repayment period coincides with low agricultural prices. Each additional unit of Off-farm income increases probability of being non-defaulter. However, this result is contrary to Bekele's (2001), findings that, off-farm income was negatively related with loan repayment performance of farmers.

Get extension agent: The variable contact with extension agent positively associated with loan repayment performance. From the binary model result as citrus Paribas the odd ratio in favor of the loan repayment performance increase by odds of 6.59 as the get extension agent increase by one day. Its relation the binary log it was significant at 1% level and positively related with the hypothesized. Its advantages the number of contact days of the household head increase, the repayment capacity of smallholder farmers attitude also increase. And also increase the contact day of stallholders' farmers with the extension agent increases the probability of being a non-defaulter. This implies that, farmers with more access to technical assistance on agricultural activities were able to repay their loan as promised, more than those who had less or no assistance at all. The reason for this is that, farmers who have frequent contact with development agents are better informed about markets and production technologies. As a result, they are motivated to repay their loans on time.

Family size: As it was initially hypothesized, this variable influenced the loan repayment performance of the

farmers negatively. From the binary model result as citrus Paribas the odd ratio in favor of the loan repayment performance increase by odds of 3.53 as the family size increase by one person (child) and significantly at 5% probability level. The outcomes this have a positive effect on loan repayment performance of the smallholder farmers. An increase the family members, the more the labor force available for production purpose. Therefore, there is a possibility to have more alternative sources of income to overcome credit risks. Compared to those with less or no contact with extension agents. Similar result was also obtained by Chirwa (1997), Belay (2002). Roslon and Karin (2009).

Sex of house hold head: The variable sex was negatively associated with loan repayment capacity rate. Its relation was significant at 10% level. In the farm household's male household was play a significant role in the participation of credit use. In gender differentials that female-headed households are less experienced in formal credit and hence will be defaulters because they know little about the consequences of loan defaulting. The participation of women in the access of credit was low but in the opposite that, female borrowers tend to be more loyal to the lenders than male borrowers. This may arise from the fact that females are more responsible for childcare and home management and hence they may be more concerned than males, about the possible undesirable consequences arising from the default. Therefore, it has a negative impact on the loan repayment performance of the respondents.

Income obtained from selling crop product: As it was initially hypothesized, this variable influenced the loan repayment performance of the respondent farmers positively. From the binary model result as citrus Paribas the odd ratio in favor of the loan repayment performance increase by odds of 1 as the income obtained from crop increase by unit and the binary log it result significantly at 1% probability level. An increase in the income from crop increases the performance of being non-defaulter. The implication is that, the crop product used for marketing activity and easily can liquidated into money and recovers the credit risk. Farmers who owned more crop productivity are able to repay their loan.

4. CONCLUSION AND RECOMMENDATIONS

4.1 CONCLUSION

The main problems of Ethiopian rural societies include poverty, low agricultural productivity, Unemployment etc. which can basically be attributed to limited access to financial services. Microfinance services are considered as one of the tools for fighting poverty in rural societies through providing efficient saving and credit services. Access to finance in rural areas creates opportunity for rural dwellers especially to small holder farmers to increase their productivity and income through purchase of farm inputs, accessing seed capital to start income generating activities etc. with possibility of reduction in poverty and improvement in standard of living. There are lots of options to deliver financial services to the rural poor smallholder farmers of which microfinance are the one. Cooperative societies as part of the rural finance providers is a cost - effective model for providing financial services to those segments of the population that have little or no access to other formal financial services.

The objective of this finding is to identify factors influencing for small holder loan repayment performance. The source of data used for both primary and secondary data source, primary source formally through structured questionnaires that was collect face to face and direct interview of respondents and secondary data sources were gathered through reviewing, examination of documents, reports and different books. The descriptive statistics results showed that out of 94 households 54 (57.4%) were non defaulters (able to pay their loan on time) and 40(42.6%) households were defaulters that were unable to pay their loan on time. Under this method of data analysis, descriptive statistics including mean, standard deviations, frequency, percentages, minimum, maximum etc. T-test for continuous and Chi square tests for discrete variables was used to indicate the significance of different variables on credit use and loan repayment performance. The result of the logit econometric model showed that, from a total of 13 explanatory variables used in the model, seven variables age, sex, income obtained from selling livestock product, family size, off farm income, get extension agent, income obtained selling crop product, had statistically significant influence on the loan repayment performance of the sample households.

4.2 RECOMMENDATION

Age: This variable was positively associated with credit access and repayment performance, facilitation on experience sharing and selective training to younger household is essential. An increase the family members, the more the labor force available for production purpose. Therefore, there is a possibility to have more alternative sources of income to overcome credit.

Livestock ownership: This variable has found to be significant in loan repayment performance of small holder farmers thus due attention should be given to the sector so as to sustain the status. The attention can be in terms of introducing best breeds, veterinary services, feed, water and other modern management practices. The other point is farmer should intensify their land by using fertilizer and other modern input by accessing credit

and to improve his repayment performance.

To access credit use and increase the contact of extension agent important to the loan repayment performance of the households, and also kebele education office should provide adult learning program for illiterate households.

Regarding to income from crop product farmer should increase their farm income by increasing crop cultivation and animal husbandry. Before borrowing the money from credit institutions the household should have to know the purpose of credit to use properly. Therefore farmers should invest the borrowed funds for productive purpose and these would enable farmers to generate income and the loan would be repaid to the lending institutions than those who used for consumption purpose.

Income from other activities or off farm: Being engaged in different types of income generating activities increases once income level thus awareness creation should be given to women to diversify their income and the required accesses should be arranged by government and other stakeholders.

Sex of borrower: From this study the participations of females were very low. So governments should be to encourage female's participations in the accesses of credit.

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