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Factors Influencing Repayment Performance of Agricultural Loan: Evidence from Boloso Bombe Woreda, Wolaita Zone, Ethiopia

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1.1 Abstract
The major concern of this study was to identify factors affecting credit repayment performance by small farmers in the Boloso Bombe Woreda. For the purpose of this study primary data were collected from purposively selected 5 Kebeles in the Woreda in the year 2016/2017. A total of 90 households comprising 47 defaulters and 43 non-defaulters were included in the final analysis. In addition, secondary data were collected from relevant organizations and pertinent documents. Descriptive statistics were used for analyzing the data. Moreover, t-test and 2 -test were employed to compare defaulter and non-defaulter with respect to related variables. Abinary logit / regression model was employed to examine factors influencing agricultural credit repayment performance and. A total of 16 explanatory variables were included in the empirical model out of this 4 variables were significantly affect agricultural credit repayment performance. age.sex, number of oxen, and supervision of MFIs were highly important in influencing repayment performance of agricultural credit. Other variables like marital states, climate effect family size, and total farm land, credit experience distance from MFIs, social ceremony and education are less important variables in influencing repayment performance of agricultural credit in the study area. Finally, the study concludes with some policy recommendations that aim to enhance repayment rate.
1.2. KEY WORDS: Logistic regression, Repayment rate, Strata, Defaulter, Non-Defaulter, VIF

1.3. BACKGROUND OF THE STUDY

Agriculture is the main stay of the Ethiopian economy. The role that it plays in economic development is monumental. Agriculture meets the most essential needs of both human beings and small-scale industries. It accounts about 43 percent of the gross domestic product, contributes over 80 percent of the country's export earnings and 85 percent of the population earns living from it.

(Bekele, 2010). The country and its people have historically relied on rain-fed agriculture to meet their needs. This strategy has faced many challenges over the years, with the obvious short fall of food often arising from natural and economic disasters (ministry of finance and economy development (MOFED, 2008).

In Ethiopia, agricultural sector has been unable to produce sufficient quantities to feed the rapidly growing population. The reasons for low productivity of the agricultural sector and the growing gap between the demand and the supply of agricultural products are many in numbers and different in character. These include: poor and backward technology; limited use of modern inputs; lack of transportation and storage facilities; inadequate extension and credit facilities; natural calamities such as drought, meteorological drought, ecological degradation like global warming and deforestation (EEA.2007)

Various empirical studies have concluded that without the development and adoption of new agricultural technologies and the use of credit facilities, it is impossible to expect rapid growth of agricultural productivity. However, with the introduction of new production technologies, the financial needs of farmers increase manifold (MOFED.2008) Therefore, a rough investigation of the various aspects of loan defaults, source of credit, purpose of the loan, form of the loan, and condition of loan provision are of utmost importance both for policy makers and the lending institutions (Kelly, 2005) . In Ethiopia, the current agricultural loan repayment performance is not promising. Therefore, this study analyzed the extent to which agricultural credit functions and how non-default and default rates are associated with different demographic, institutional and socio-economic characteristics of farm households in Wolaita Zone in Bombe Woreda, Ethiopia.

In Bombe, financial institutions extend credit facilities to farming households to narrow the gap between the required and the owned capital to use new agricultural technologies that would increase production and productivity. The past empirical studies that were conducted on the factors influencing to loan default in different regions are not similar and the issues that were identified as problems in the previous studies may not issue today. This is because changes are in a continuous process or dynamic in nature that are bringing new challenges in terms of the conditions of credit supply, production technology, costs of production, the relative prices of the associated inputs and outputs , result finding and socio cultural difference , which could have impact on the general profitability of enterprises and economic growth. In addition to these, factors affecting

loan repayment performance of smallholder farmers even in the good harvesting years were not yet studied in the Boloso Bombe Woreda (BBWMFI, 2017).

1.4. STATEMENT OF THE PROBLEM

In subsistence agriculture and low income countries like Ethiopia, where the smallholder farming dominates the overall national economy, small peasant farmers often face scarcity of capital (saving) due to low level of production to adopt new agricultural technologies. Hence, short and medium 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 cropping season. Moreover, achieving household food security remains a major objective of rural development.

In the past five years failure by MFIs and their members to repay their loan had observed in many parts of the region, zone and the study area Boloso Bombe is also one of the areas which have a problem in loan repayment by MFIs (MFIs report, 2017). In Boloso Bombe, the current agricultural loan repayment performance is not promising because in this Woreda there is prevalence of low productivity, low supervision or extension support from concerned government officials, due to absence of irrigation canals, in the area high ginger production diseases and climatic drought, resistance to accept new technology, lack of infrastructure, low cultivation land, large family size, high transaction cost, institutional, socio-economic and political characteristics of farm households in Woreda…etc

Some of the reasons for low agricultural loan repayment and the loan repayment are scheduled at harvest time when the price of agriculture product relatively low. This strategy deprives the borrower of ripping the maximum benefits from investment using loan and create pressure on borrower to sell asset .This shows that there landing police are somewhat not line with the need of farmers .

The past empirical studies that wear conducted by various authors (Sisay, 2008) (Gebrehiwot, 2006) (Tsegaye, 2006) (Wolday, 2003) on the factors influencing to loan default in different regions are not similar and the issues that were identified as problems in the previous studies may not issue today. This is because changes are in a continuous process or dynamic in nature that are bringing new challenges in terms of the conditions of credit supply, production technology, costs of production, the relative prices of the associated inputs and outputs , result finding and socio cultural difference which could have impact on the general profitability of enterprises and economic development. In addition to these, factors affecting loan repayment performance of agricultural lone smallholder, farmers even in the good harvesting years were not yet studied in the study area.

In Boloso Bombe Woreda farming experience with credit, size of loan, household size, timeliness of loan disbursement, level of education of farmers, the farmers may be not able to use the recommended rate of farm input, sales of crops, degree of diversification, income, farm size ,age, martial states , asymmetric information , transfer and the quality of information and determinants of agricultural credit repayment and have also contributed to the credit worthiness/non defaulter of farmers.

Therefore, investigation of the various aspects of loan defaults, source of credit, purpose of the loan, form of the loan, and condition of loan provision are of at most importance both for policy makers and the lending institutions (Kelly V, 2005)

Therefore, to design appropriate lending strategies and procedures, information factors which affect loan repayment performance of agricultural loan and their relative importance of the factors is necessary. Hence, the principal task of the study is to deal the nature of loan repayment, to identify the major socio-economic factors which affect repayment performance agricultural loan and also to determine their relative importance in the study area.

1.5. RESEARCH OBJECTIVES:

The overall objective of the study is to identify factors influencing repayment performance of agricultural loan at small land holding farmers and determining their relative importance in Boloso Bombe Woreda.

The Specific objectives of this study are the followings:

- To identify socio-economic and institutional factors affecting repayment performance of agricultural loan at small land holding farmers in micro -finance institution.
- To compare defaulters and non-defaulters in terms of different explanatory variables
- To determine the extent of default in the repayment of loan offered to smallholder farmers in the study area

1.6. REVIEW OF RELATED LITERATURE:

1.6. 1. Concepts and definitions

Credit: - The Concise Mc Graw-Hill Dictionary of Modern Economics defines credit as an exchange of goods and services for a promise of the future payment. It also indicates that credit is necessary in a dynamic economy because of the time that elapses between the production of a good and its ultimate sale and consumption and

credit bridges this gap. The risk in extending credit is the probability that future payment by the borrower will not be made (Greenwal & Associates, 1983).

Loan repayment performance; - is the binary variable that represents loan repayment performance. Loan repayment is defined as the act of paying back money previously borrowed from microfinance institution by all members. It has a value of 1 if non-defaulter otherwise 0, if default.).In the study loan repayment refers to the period which small land holding farmer repay their agricultural input loan to their MFIs.

The loan repayment performance ;-for this study is define as the percentage of loan paid by borrowers during the specified repayment period, which calculated from the total amount of loan that a person's took. Its value ranges between zero and one. The borrowers that did not repay the amount of money they borrowed as per credit schedules are considered as complete defaulters (i.e. the value of repayment ratio in this case is zero). Likewise, On the other hand, borrowers who fully repaid the amount they borrowed are considered as non-defaulters and assume a value of one.

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

Agricultural input credit: -In the study, Agricultural input credit refers to short term credits extend to farmers for purchase of agricultural inputs like fertilizer, chemicals, seed etc

1.6.2 .Theoretical literature review

In the literature, there is a paucity of theory explaining loan able fund at the microeconomic level. But important theories relating to interest rate that can be applied include: the classical theory of interest rate, loan able funds theory, the Keynesian and the modern theory of interest (jhingan, 2010). But of interest to this study is the loan able funds theory.

The famous Swedish economist, Knut Wick sell, expounded the loan able-funds theory of interest, also known as the neo-classical theory of interest. The loan able funds theory is an attempt to improve upon the classical theory of interest. It recognizes that money can play a disturbing role in the saving and investment processes and thereby causes variations in the level of income. Thus, it is a monetary approach to the theory of interest, as distinguished from that of the classical economists.

In fact, the loan able funds theory synthesizes both the monetary and non-monetary aspects of the problem. According to the loan able funds theory, the rate of interest is the price that equates the demand for and supply of loan able funds. Thus, fluctuations in the rate of interest arise from variations either in the demand for loans or in the supply of loans or credit funds available for lending. This implies that interest is the price that equates the demand for loan able funds with the supply of loan able funds.

Loan able funds are "the sums of money supplied and demanded at any time in the money market."

Applying this theory to our study, we can deduce that loan able fund is not without some cost (interest). The implication here is that the interest element of a credit facility is an important determinant of its repayment by the beneficiary.

Small land holding farmers that are capable of paying up the interest element of loan administered to them are likely to get the nest time they apply. At the microeconomic level, factors other than the interest rate influence credit access and consequently repayment. Some of this includes institutional factor and socioeconomic factors. The important ramification of this study is that it will develop a theoretical model to explain and highlight the important determinants of repayment ability of loan able funds to farmers especially the small land holding farmers in the rural areas,

1.6.3. Empirical Studies Related to Credits in the Ethiopian Context

Generally speaking, loan repayment was not a serious problem prior to 1990. However loan recovery became a serious problem after 1990. For instance ,it has been reported that the recovery ratio declined from 54% in 1990 to 37% in 1991 and only to 15% in 1992 (Mulat, 1994) (FAO, 1997). (Bekele, 1995) Underlines that default is progressively increasing and banks, particularly, DBE, have been facing the prospect of incurring substantial losses. This might be as a result of the dissolution of producers` cooperatives and service cooperatives, which were responsible for the collection formal loans. (Assefa, 1989) .,empirically tested set of socio-economic and other important factors influencing agricultural credit use among small farmers aimed at differentiating borrowers from non-borrowers. Using discriminate analysis, Assefa found that large farm size, high investment, adoption of improved technology were significant variables in distinguishing borrowers from non-borrowers. He noted that policy implications regarding combined services of input supply, credit, marketing, training extension, etc. should be adopted to increase agricultural productivity .(Wolday, 1989) .Followed log-linear farm income function and probit models to identify the factors, which inhibit the income of small farmers, and to access the major factors that limit the consumption of fertilizer and improved seed in peasant farming his study was based on the sample survey conducted during 1987/88-crop year in Shebedino woreda, Ethiopia. His empirical test

confirmed that the size of land holding, amount of fertilizer used, number of cattle, and value of farm tools in the farm income function and farm lab our, , ownership of radio, and extension contact in the probit model were significant and satisfactory variables to explain the variations in farm income and the adoption of fertilizer use by small farmers. There have been a large number of studies in the literature that have been carried out on the topic of loan default. Previous studies have presented some of the reasons for the issue of default that include but not limited to attitude of loan receivers, ineffective policies within credit institutions, losses from farm investments, application of loans in non-farm enterprises, and regarding loan as a share of national resources without a need to pay.

Zeller, (1998), investigated repayment of micro loans using Tobit model and showed that groups with a higher level of integrity had a better repayment. In his study of the factors affecting repayment of micro loans in Ethiopia,(Gebeyehu, 2002) concluded that loan rate, loan influential factors affecting loan repayment in that area. In addition, (Admassie, 1987) (Gaquin, 2004) analyzed the performance of small financial institutions on repayment of micro loans. Using Probit model, he identified the ways to improve the collection of loans and showed that improvement in the rate of repayment, non-financial services, dynamic incentives, reduction in the cost of loan allocation, farmer education, proper selection of borrowers who did not have any overdue repayment had a positive effect in the collection of repayment performance.

Fikirte, (2011), also investigated the factors affecting the repayment of micro loans in Addis Ababa. Analysis of data was conducted through Logit model a total of twelve explanatory variables were entered in the regression equation. According to the results, variables such as age, type of business, (Sub market, kiosk, knitting and sewing services, and agriculture), gender, business experience played a significant role on the performance of micro loans repayment. In another study

According to (Tenaye, 2003), the study revealed that credit users are in a better position as compared to non-users. However, credit was not adequately extended and not given to all activities as a package. It is probably because of inadequate source of credit, untimely supply of credit, lack of extension services, problem of infrastructure, and others. In this study, farm size was found to have a strong negative impact on agricultural credit use of the sample households, implying that farmers who had larger farm size were not agricultural credit users. This may be attributed to the substitutability between land and fertilizer as factors of production.

According to Ayalew, (2005), the finding reveals that there are four important factors which affect the borrower's timely repayment of their debts in the region. Zemen has used Linear Discriminate Analysis to identify these important variables. The variables which differentiate the sample borrowers into non-defaulters and defaulters were size of cultivated land, loan diversion behavior, membership condition and amount of other credit borrowed during the study period. The finding of the study indicated that the larger cultivated land per household, the smaller the occurrence of defaulters, and this result agrees with the assumption that the farmer with larger cultivated land will remain efficient and earn more income compared to farmer with smaller cultivated land size and associated poor earning capacity. So that farmer with large cultivated land size has the productive resources properly and earn more income and settle their debt service on time compared to farmer with smaller cultivated land size. Regarding to loan diversion, borrower who allocated his/her input credit for different purposes would be forced to use an input below the recommended rate, therefore, he/she cannot attain the expected output level to fulfill his/her obligation. Membership condition has also found to be one of the best discriminating variables in the analysis. The borrower who is a member of the cooperative is most likely not to be a defaulter. The reason being beyond his/her attitude to belongingness to the cooperatives, his/her daily contact and other economical relations abide him/her not to do so' (Bekele H. , 2001) .has summarized his findings using logit model as follows. The results showed that individuals who took larger loan had better repayment performance than those who took smaller loans. This directly indicates that individual's loan application were carefully evaluated, sized and approved by the local lenders.

Thus, local screening groups should be strengthened and encouraged to set a uniform minimum standard for screening loan applications. Group lending is also another way of acquiring information on credit worthiness that is critical in reducing default risks. Late disbursement of inputs purchased by the loan funds was an important bottleneck facing the sample households and is directly related to two major problems. 1) It is attributable to late repayment of previous loans which emanate from the existing lax loan collection mechanism 2) The problem of late disbursement of inputs was related to late arrival of the inputs from the sources which could be in turn associated with long-drawn-out procedures of making bids lengthy decision making process at different administrative levels, poor infrastructure, etc (Bekele H, 2001). According to Kebede, (1998) on the basis of Linear Discriminate Analysis, three variables were found to be strongly and statistically significant in discriminating between non-defaulters and defaulters of formal fertilizer credit. 1) Those farmers who made frequent contact with development agents were those who paid their loans back to the lenders in time whereas those who had less or no contact were defaulters 2) Likewise, livestock number in livestock unit was also found to influence strongly and significantly loan repayment performance. Borrowers with more livestock unit settled their debt timely and were non-defaulters whereas those who owned less were found to be defaulters. 3) On the

other hand, celebrated social ceremonies affect loan repayment negatively for farmers who celebrated at least one of them in the production year. (Berhe, 2006) Has performed his research using logit regression model and showed that five variables were significant to affect borrower's loan repayment performance. These variables include: educational status of the sample household, family size of the household, duration of cooperative membership of the household, total size and use of land holding of the household and amount of money borrowed by the household.

1.7. RESEARCH METHEODOLOGY

The study adopted both qualitative and quantitative survey design as it aims at collecting information from respondents on Factors Influencing Repayment Performance of Agricultural Loan in Boloso Bombe Woreda. Multi stage random sampling technique was employed to select a total of 90 farmer households from the Woreda. From the Woreda 5 Kebeles, from each Kebeles the respondents were interviewed. Namely, Bombe/01/, Bombe/02/, Adela, Ajora and Bombe Gebere Mehebere were covered in the study. Moreover, Binary Logit model that best fits the data was used for identifying factors influencing repayment performance of agricultural credit.

1.7.2 Model Specification

Abebe, (2002) pointed out that a logistic distribution (Logit) has got advantages over others in the analysis of dichotomous outcome variable that is extremely flexible and the justification for using Logit is its simplicity of calculation and its probability lies between 0 and 1. Moreover, its probability approaches zero at a slower rate as the value of explanatory variable gets smaller and smaller, and the probability approaches 1 at a slower and slower rate as the value of the explanatory variable gets larger and larger (Gujarati, 1999).The usual logit model can be used without any change even with unequal sampling rates Logit is the natural logarithm of the odds ratio. The Logit model Specified as follows:

$$P = E(Y) = \frac{1}{XI}) = \frac{1}{1 + EZ2}$$

Zi = Bo + B1X1 + B2X2 + B3X3……..+BkX

Where:

Xi =ith explanatory variable

Bi= Coefficient of explanatory variables to be estimated

K=represents number of explanatory variables included in the model

Therefore,

$$\left(\frac{PI}{1+PI}\right) = \frac{1+e^{zi}}{1+e^{-zi}} = e^{zi} = e^{\text{Bo+B1X1+B2+X2+}\cdots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{BkXk}}$$

$\left(\frac{PI}{1+PI}\right)$ Is the odds-ratio that implies the ratio of the probability that an individual would (1-Pi) choose an alternative Pi to the probability of the borrower would not choose it taking natural logarithms of

In $\left(\frac{PI}{1+PI}\right)$=Zi=Bo+B1X1+B2X2=B3X3……BkXk

This log-odds ratio is a linear function of the explanatory variables and we call it Logit model. In this case our data is based on individual observations; we used the method of maximum Likelihood function to estimate the model. To Guajarati (2003), in my estimation procedure, our objective is to maximize the log linear function (llf) that is to obtain the values of the Unknown.

1.8. DATA ANALYSIS AND DISCUSSION

The descriptive analysis made the use of tools such as mean, percentage, standard deviation and frequency distribution. In addition, the t- and Chi-square statistics were employed to compare defaulters and non-defaulters group with respect to some explanatory variables. Econometric analysis was carried out to identify the most important factors that affect the loan repayment performance of agricultural lone at small land holding farmer in the study area and to measure the relative importance of significant explanatory variables on loan repayment.

In this part the econometrics model defines the factor affecting repayment performance of agricultural loan. Thus before estimating the logit model the following diagnostic tests should considered whether the data set fulfills the measure assumptions of logit model. 2.1. Diagnostic tests

Before running logit regression model, the following diagnostic tests multicollinearity, and model adequacy tests are considered. All diagnostic test results were presented under Appendix part were made to check the existence of multicollinearity, heteroscedasticity, and model adequacy in the regression analysis. Normality test is not considered here because of the nature of error terms distribution under of logit model, it assumes a standard logistic distribution rather than normal distribution. In Addition, autocorrelation is a considerable problem in time series data, hence we rule out it from our cross-sectional data. Before running logit regression model, the following diagnostic tests multicollinearity, and model adequacy tests are considered. All diagnostic test results were presented under Appendix part were made to check the existence of multicollinearity,

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1.8.1.1. Multicollinearity (MC) diagnosis

Prior to running the logit regression model, both the continuous and discrete explanatory variables were checked for the existence of multicollinearity (MC) problem. MC problem arises when at least one of the explanatory variables is a linear combination of the others. The existence of MC might cause the estimated regression coefficients to have the wrong sign and smaller t-ratios that might lead to wrong conclusion. To test the presence of serious multicollinearity problem, VIF test for both discrete and continuous variables was applied. From this test the value of Variance Inflation Factor (VIF) was used as a rule of thumb, if VIF of the variable exceeds 10, there is MC problem. The VIF values displayed in Table 1A in the appendix part have shown that all the continuous and discrete variables have no serious multicollinearity problem.

1.8.1.2. Heteroscedasticity Diagnosis

Heteroscedasticity problem arises when the variance of the error term may increase or decreases with the dependent variable or one of the independent variables (Gujarati, 2003). Under hetroscedasticity problems, the estimators of the regression coefficients are unbiased and consistent. However, the estimated variances of the regression estimators are biased and the conventionally calculated confidence intervals and test of significances are invalid which leads to wrong conclusions.

We need to test for hetroscedasticity problem. As indicated in Table 1B, the Breusch-Pagan / Cook-

Weisberg test for the problem of heteroskedasticity showed that the data have no problem of Heteroskedasticity. Since the Prob - chi2=0.7601is greater than 1% level of significance, we accept the null hypothesis. Hence the model has no hetroscedasticity problem.

1.8.1.3. Model adequacy tests

In logit estimation the study used two alternative ways to test the model; namely, the likelihood ratio test for model adequacy and goodness of fit tests. As we see from the results in Table 1D the goodness of fit test results the p-value is 0.3901 which is greater than 1% level of significance and in bias of accepting the null hypothesis, which indicates that the model fits the data.

In addition, the summary statistics of the logit specification on Table 1C show that the model adequately fitted the data. Thus the result indicates the existence of at least one of the independent variables is significant in predicting the loan repayment.

Table 1A: multicollinearity test for independent variables

Variable	VIF	1/VIF
Distance from MFIs	1.74	0.575880
Ox number	1.61	0.621546
Marital states	1.60	0.623263
Sex	1.59	0.627186
Natural calamity	1.55	0.644885
Super vision of MFI	1.54	0.648124
Repayment period	1.46	0.685255
Education	1.45	0.688927
Age	1.44	0.695837
Income source	1.38	0.725414
Distance from Das	1.35	0.741067
Social ceremony	1.27	0.784720
Credit experience	1.27	0.790244
Appriopritancece repayment period	1.26	0.795239
Family size	1.22	0.817406
Training	1.14	0.873833
Mean VIF	1.43	

Source: the researcher's survey result, 2016/2017

Total livestock ownership is as expected positively related to the dependent variable (significant at less 1% level). The implication is that, livestock are sources of cash in rural area and serve as security against crop failure and use for financial institution as collateral. 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 odds ratio result reveals that farmers with more number of livestock are more likely to repay their debts in time than farmers who have small number of livestock and showing that it increases non-defaulter by a factor of 3.60 for experienced household heads. Similar result was also reported by (Thgay, 2006).

Logistic regression				Number of obs =	90	
LR chi2(18) =32.45						
Prob > chi2 =0.0194						
Log likelihood = -42.686715				Pseudo R2 =	0.2754	
Loan repayment	Odds Ratio	Std. Err.	Z	P>z	[95% Conf.	Interval]
Age	2.53015	1.269718	1.85	0.064*	.9462008	6.765645
Sex	.2237115	1803446	-1.86	0.063*	.046078	1.086133
Marital states	2.908802	5.967997	0.52	0.603	.0521557	162.2284
Education	.6831788	1.494768	-0.17	0.862	0093786	49.76564
Family size	.9072225	.432241	-0.20	0.838	.3565855	2.30815
Social ceremony	1.107458	.7575896	0.15	0.881	.2897597	4.232695
Income source	1.240404	.4188385	0.64	0.523	.6399469	2.404265
Credit experience	1.12879	.236796	0.58	0.564	.7482541	1.702852
Ox number	3.601823	1.74461	2.65	0.008***	1.393886	9.307171
natural calamity	.4383041	.3152541	-1.15	0.251	1.794774	1.794774
Distance from Das	.8663101	.1534561	-0.81	0.418	.6122003	1.225895
Distance from MFIs	1.007954	.0802866	0.10	0.921	.8622631	1.178261
Supervision of MFIs	6.10793	4.82732	2.29	0.022**	1.297652	28.74946
Repayment period	1.384472	1.016049	0.44	0.658	.3285463	5.834069
Interest rate	.8508759	.4136375	-0.33	0.740	.3281485	2.206287
Training	1.378431	.8137527	0.54	0.587	.4333915	4.38419

Supervision of credit beneficiaries by lone committee of micro finance institutions as expected, positively related to the dependent variable (significant at less 1% level). Supervision of credit beneficiaries by loan committee and by concerned government officials determine repayment performance of agricultural loan in the study area, In order to ensure efficient utilization of credit timely supervision of lending institution and concerned government official is very important. Such supervision prevents the misuse of credit for non productive purpose and hence facilitates regular loan repayment. Utilization of credit for the intended purpose in turn ensures increase in production and income and ultimately for the agricultural development commonly loan collection of micro finance the study area is performed by loan committee of the MFIs.

Moreover the committee has a responsibility to made timely supervision and to follow up the credit utilization of borrowers at their locality. According to survey result, the variable supervision has a positive and statistically significant effect on loan repayment behavior of farm households at 1% level of significance. With an odds ratio of 6.10793, these household who get supervision service from loan committee are 6.10793 times more likely to be non-defaulters than those who don't get this service. , the smaller result reported (Ewuola, 1999).

Age, age is continues variable that measured in years by the head of house hold, has a positive and statistically significant effect on loan repayment at 10% level of significance. With an odds ratio of 2.53015, house hold heads with one additional years of age are 2.53015 times more likely to be non-defaulters. This is because as the age progress farmers acquire experience in the farming business and knowledge in credit use which in turn might help them to accumulate wealth over time which would enable borrowers to repay their debt in time than young borrowers, similar result reported by (Fikirte, 2011)and (Abafita, 2003).

Logistic regression				Number of obs = 90		
LR chi2(18) =32.45						
Prob > chi2 =0.0194						
Log likelihood = -42.686715				Pseudo R2 = = 0.2754		
Loan repayment	Coefficient	Std. Err.	Z	P>z	[95% Conf.	Interval]
Age	.9282786	.5018352	1.85	0.064*	-.0553004	1.911858
Sex	-1.497398	.8061481	-1.86	0.063*	-3.077419	.0826234
Marital states	1.067741	2.051703	0.52	0.603	-2.953523	5.089005
Education	-.3809987	2.18796	-0.17	0.862	-4.669322	3.907325
Family size	-.0973675	.4764443	-0.20	0.838	-1.031181	.8364462
Social ceremony	.1020677	.6840795	0.15	0.881	-1.238703	1.442839
Income source	.2154371	.3376629	0.64	0.523	-.4463701	.8772443
Credit experience	.121146	.2097787	0.58	0.564	-.2900126	.5323047
Ox number	1.28144	.4843686	2.65	0.008***	.3320953	2.230785
natural calamity	-.8248423	.7192589	-1.15	0.251	-2.234564	.5848792
Distance from Das	-.1435123	.1771376	-0.81	0.418	-.4906957	.2036711
Distance from MFIs	.0079223	0796531	0.10	0.921	-.1481949	.1640396
Supervision of MFIs	1.809588	.7903366	2.29	0.022**	.2605568	3.358619
Repayment period	.3253186	.733889	0.44	0.658	-1.113077	1.763715
Interest rate	-.161489	.4861314	-0.33	0.740	-1.114289	.791311
Training	.3209456	.5903472	0.54	0.587	-.8361137	1.478005
Constant	-4.166818	2.884744	-1.44	0.149	-9.820812	1.487177

***, ** and * indicates 1%, 5% and 10% level of significance respectively.

Sex, Sex is measured as a dummy, 1 for male and 0 for female, **sex** has a negative coefficient and it is significant at 10% level. The Finding of Show that Females are norm hypothesized to be very discipline when it comes to loans management. Therefore females may have higher repayment rates. Those male farmers are less likely to be able to repay their loans than female farmers. Female are more likely to be able to repay their lone than male. With an odds ratio of 0.2230793, these female household are 0.223 times more likely to be non-defaulters than male household.

1.9: CONCLUSION

Agriculture is the main stay\livelihood\ of the Ethiopian economy. The role that it plays in economic development is monumental. Agriculture meets the most essential needs of both human beings and small-scale industries.

To address the objectives of the study, relevant and related studies were reviewed. The primary data, on which the study mainly depends, was collected from a sample of 90 household heads drawn from 5 kebeles. A structured survey questionnaire was employed to interview the selected sample households. Whereas the secondary data was gathered from various sources such, semi-annual and annual reports of MFIs in the Woreda and the study the binary logit model was used to identify the factors that affect loan repayment performance of smallholders in the study area. In addition to the econometric model, descriptive statistics were also used. The descriptive analysis showed that the non-defaulter group is economically better off than the defaulter group.

The number of livestock owned by the non-defaulters is greater than the number of livestock owned by the defaulters. More over that suggest that out of 16 variables hypothesized to influence the loan repayment performance of borrowers in the study area 4 were found to be statistically significant.

The maximum likelihood estimates of the logistic regression model shows that number of oxen, age, sex and supervision of micro finance institution, were important factors influencing the loan repayment performance of borrowers in the study area, in Boloso Bombe Woreda. More specifically, these coefficients were statistically significant at less than 5 percent probability level.

On the other hand, the coefficients of 12 explanatory variables, namely marital states of the household, family size of the household, total farm size of the household, Expense of the household for social ceremony, education of household, training access of the household, climate effect, appropriateness' of repayment period ,distance of house hold from agent and distance of house hold from MFIs influence on loan repayment were less powerful in explaining loan repayment performance of the sample borrowers in the study area, in Boloso Bombe.

The descriptive analysis showed that the non-defaulter group is economically better off than the defaulter group. The number of livestock owned by the non-defaulters is greater than the number of livestock owned by the defaulters Based on the suggestion and ideas collected from respondents more than 60% respondents suggest that close supervision, training in rural area and the need of extension work to solve the problem in input

application are very important to improve the loan performance of the farmers. The econometric analysis showed that out of 16 variables hypothesized to influence the loan repayment performance of borrowers in the study area 4 were found to be statistically significant and more power full to explain the dependent variables such as age, sex, supervision ,livestock unit and the other 12 were less power full to explain the dependent variable.

1.10: RECOMMENDATIONS

Based on the findings of the study the following recommendations were forwarded:

- The finding of this study revealed that, livestock are important farm assets that improve the farmer's repayment performance and it is positive and significant. As livestock a resources of income and serve as security against crop failure. It is, therefore, important that more attention be given to the livestock sector at least in the following areas: feed resource improvement and management; genetic resource improvement; control and/or prevention of animal diseases and parasites; and development of marketing facilities for animal and animal products. But this demands concerted efforts and integrated task of the government, NGOs and the farmer herself.
- The finding of this study also revealed that, sex is important variable and coefficient negative significant at 10 % in this finding that implies Sex has a negative coefficient. Show that Females are normally hypothesized to be very discipline when it comes to loans management. Therefore females may have higher repayment rates. Duty to that government and NGs must work in improving both male and female household by giving intensive training about the use of credit management and utilization and both male and female development agent and extant ion officers should be exposed to intensive gender sensitization and training on improving outreach to both farmers which should be supported by comprehensive practical training. The extension agent should develop mechanism of contact farmers in order to increase outreach to male farmer but in our society's family participation in credit use is small as compare to that of male so that government and NGOs must work on to narrow the gap b/n male and female farmer participation on credit market.
- The finding of this study also revealed that, supervision by loan committee of MFIs is important variable and coefficient positive significant at less than 5 % in this finding that implies. There should be close supervision by loan committee of MFIs and loan expert of Woreda and concerned government official must evaluate and inspect the borrower about credit utilization and repayment on time must be supervised. The study focuses that in order to minimize the rate of loan default; MFIs need to have mandatory supervision borrowers on loan utilization and repayment, which should be done quarterly. Such supervision will enable the MFIs monitor the performance of borrowers closely done. Also training of borrowers before and after receiving loans should be done focusing on areas such as business management, book keeping and savings. Such measures will bring down the rate of defaulters.
- The finding of this study also revealed that age of household head: is important variable and coefficient positive significant at less than 10% in this finding - this variable was measured in years and it was a continuous variable represented by positive integer values. The household's age was hypothesized to have positive association with farmer's loan repayment. This is because as the age progress; farmers acquire experience in the farming business and knowledge in credit use which in turn might help them to accumulate wealth over time which would enable borrowers to repay their debt in time than young borrowers. According to the finding young borrowers have less repayment rate this shows the need to formulate police or program that support the young borrowers and government and NGO must work on capacity building that improving credit utilization and increasing production and productivities through intensive training and woreda agricultural office must give extension support about the use of technology like seed ,chemical ,fertilizer and holistic support must be given to young borrowers in order to improve repayment performance of agricultural loan
- Finally, this study has focused on certain variables related to determinants of loan repayment performance of borrowers. However, loan repayment performance on behalf of the institution was not investigated. Thus, further researches can conduct on this issue to breach the gap in this area.

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