Loan Repayment Performance of Smallholder Farmers: The Case of Oromia Credit and Savings Share Company in Tole District of Southwest Shoa Zone, Oromia Regional State, Ethiopia

Baisa Gurmesa*[1] and Zeray Negussie[2]

1 Jinka University, Faculty of Agriculture and Natural Resource, Department of Agricultural Economics, 165 and Jinka, Southern Ethiopia

2 Dilla University, Faculty of Agriculture and Natural Resource, Department of Agricultural Economics, 419 and Dilla, Southern Ethiopia

* Corresponding author: gurmesabayisa143@mail.com

Abstract

The aims this study is to identify those factors that affect loan repayment performances of smallholder farmer in Tole district of Southwest Shoa zone, Oromia regional state of Ethiopia. In order to address the stated objective data were collected through survey of 174 sample borrower farmer. To identify and analysis factors affecting loan repayment performances and intensity of loan recovery in the district two-limit Tobit model were used. From the total sample borrower farmer, 9.2%, 20.7% and 70.1% were complete defaulters, partial defaulters and non-defaulters respectively. A total of 17 explanatory variables were included in the analysis from which family expenditure and repayment period suitability affect loan repayment performance and intensity of loan recovery of the sample borrower farmer significantly and negatively. On the other hand, size of land holding, income from on-farm activities, income from off-farm activities, household saving and frequency of extension contact had a significantly and positively affect loan repayment performance and intensity of loan recovery of sampled smallholder farmer in the study area. Therefore, each concerned body aimed to improve loan repayment performances of smallholder farmer in the study area could be successful if they consider these factors.

Keywords: Ethiopia, Loan, Non-defaulter, Tobit

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1. INTRODUCTION

1.1. Background of the Study

Ethiopia is an agricultural country with the vast majority of its population directly or indirectly involved in the production of crops and/or rearing of livestock. The significant feature of Ethiopian economy is the predominance of subsistence agriculture and low productivity, which may be due to lack of capital. Agricultural is a key economic activity in Ethiopia, which provides employment opportunity to 72.7% of the labor force. The sector contributing 35.8% to the country's GDP and around 80% of the national export earnings was obtained from this sector (CIA, 2018). The sector is dominated by over 15 million smallholders (CSA, 2017). In developing countries majority of smallholder farmer persistent in poverty trap, in which they lack financial resources. The root cause of the poverty trap is not the constraint on physical resources but credit constraints that prohibit the acquisition of those resources to escape the poverty line (Calum, 2007). Since, poverty is the major challenge for agriculture and a fundamental concern of economic development in Ethiopia. The solutions to poverty are complicated issue as its causes. Many argue that an insufficient supply of credit is among the major reason for the reduction in agriculture product (Abafixa, 2003). Economically active with low-income people in the world needs a full set of microfinance services mainly in the form of credit and saving facilities (Aregawi, 2014). Therefore, micro-financing services are very important to enhance people's livelihood through providing credit and saving services to the poor. In Ethiopia in general and in Oromia region in particular farmers often face a shortage of capital to purchase seasonal farm inputs like fertilizer, improved seeds, pesticide and herbicides even to buy food during a certain period of time. In order to solve such problem in Tole district of southwest Shoa zone the use of credit has been envisaged by OCSSCO as one way of solving financial shortage of smallholder farmer. Although, loan repayment with in specified period of time is one of the critical problems in the district. Therefore, this study was initiated to assess loan repayment performance and intensity of loan recovery among smallholder farmers financed by Oromia credit and saving share company organization in Southwest Shoa zone of Tole district.

1.2. Statements of the Problem

Low agricultural productivity sub-Saharan Africa such as Ethiopia is mainly due to inaccessibility of the poor to the existing formal financial institutions as a result of multiple factors such as high collateral requirement and high transaction cost for small loans to purchase agricultural inputs. An inputs price such as fertilizer was rising

very rapidly every year. Consequently, the need of the subsistence farmer for credit has become substantially higher after GTP in the country. Even though, they get financial service by passing multiple factors they become defaulter because of farm output price variability and other human and natural factor in agriculture. With lack of access to credit, input/output price ratios can become a constraint to agricultural production (Dong *et al*, 2010; Ali and Deininger, 2012).

Credit provision is one of the most critical mechanisms of country improvement, which helps to achieve fast and reasonable development of agriculture in most developing countries. Briquiette (1999) argue that enhanced provision of rural credit would accelerate agricultural production and productivity which leads to utilization of modern agricultural technologies (Lemessa, A. and Gemechu, A., 2016).

Since, the rate of loan default has been a continuing problem in most agricultural credit schemes organized or supported by governments and/or NGOs in developing countries. Most of the loan defaults arose from poor management procedures by lenders, loan diversion, and unwillingness to repay loans. Based on those problems, lenders develop various institutional mechanisms expected to reduce the risk of loan default such as, (pledging of collateral, third-party credit guarantee, use of credit rating and collection agencies, etc.). Recently Group lending is recognized as potential ways through which loan is provided to the poor households that lack traditional collateral (Kohansal and Mansoori, 2009).

Based on the above idea loan repayment is one of the most important issues that hinder the willingness of micro financing institution provision of loan to smallholder farmer. Actually, there are several studies conducted on factors affecting loan repayment performances of smallholder farmer in different countries. Even though, many studies conducted on the loan repayments of smallholder farmer there are a few studies conducted on loan repayment of smallholder farmer with problem observed in specific lending institution in the study area. Additionally, the issues that were identified as problems in the previous studies may not issue today and repayment problem in different regions may or may not similar. This because changes is in a continuous process that bringing new challenges in terms of production technology, costs of input, supply of credit, the relative prices associated with inputs and outputs, which could have impact on the general profitability of a farmer. Therefore, identifying the socio-economic, natural and institutional factors that influences repayment performance is an essential issue to conduct this study.

1.3. Objectives of the Study
The General objective of the studies is to assess loan repayment performance of smallholder farmers financed by OCSSCO in Tole district.
The specific objectives of the study are:
➢   to determine the extent of loan repayment of smallholder farmer financed by OCSSCO in the study area, and
➢   to analyze the determinants of loan repayment performance of smallholder farmer financed by OCSSCO in the study area

2. METHODOLOGY
2.1. Description of the Study Area
The district is located in between 8º 30'N-8º 48'N and 38º 15' E- 38º 30'E and its total area is 41,019 hectares which are only 6% of the zonal area. According to Tole district communication office reports in 2017 a total population for this district is 84,615, of which 42,785 were men and 41,830 were women; 4,561 or 5.39% of its population were urban dwellers (TDCO, 2017). The major economic activities in the district are agriculture (which includes crop production and animal production and fattening). Off-farm activities such as trade are also practiced in the district.

OCSSCO, Commercial bank and Wasasa are the three formal financial institutions which gives banking services in the district. OCSSCO is the forefront financial institution that provides financial service to economically active with low-income farmer as well as the urban dweller in the district.
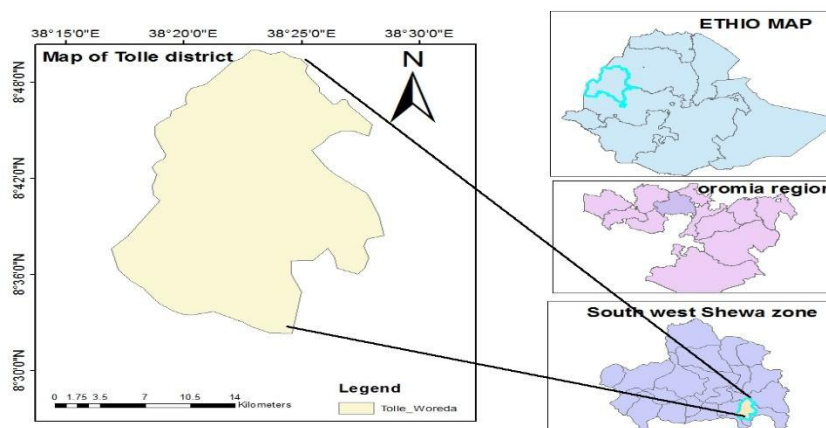
Figure 2: Map of Tole district
Source: Own study

2.2. Sampling method

Multistage sampling technique was used to select a sample respondent for this study. Primarily, Tole district was selected purposively because there is a large number of the borrower than any other Woreda in the Zone. Then, out of 26 kebeles found in Tole district 4 kebeles were selected purposively. Because, according to the information from OCSSCO office in Tole district smallholder farmer in four kebeles have large number of borrowers with long year experience in borrowing from OCSSCO than any other kebeles in the district. So, smallholder farmer from selected four kebeles are expected to have adequate information for the research at hand. Borrower farmer lists from each corresponding kebeles was used as a sampling unit for selecting the sample borrower farmer. Finally, from 615 borrower farmers who obtained loans from OCSSCO during the year 2016/17 a total of 174 borrower farmer was selected by using simple random sampling with probability proportional to sample size.

2.2.1. Sample size determination

The number of sample borrower farmers was determined based on the Yamane (1967) formula.

$$n_0 = \frac{N}{1+N(e)^2} = \frac{615}{1+615(0.05)^2} = 242.36 \cong \mathbf{242}$$

Where, n_0 - is the sample size,

N - is the population size (total number of borrower from selected four kebeles equal to 615) and

e - is the level of precision (equal to 5%).

With finite populations, correction for proportions is necessary. If the population is small then the sample size can be reduced slightly. This is because a given sample size provides proportionately more information for a small population than for a large population. The sample size (n_0) can thus be adjusted using the corrected formulae.

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}} = \frac{242}{1 + \frac{(242 - 1)}{615}} = 173.866 \cong \mathbf{174}$$

Then, sample farmer from each kebeles were calculated as:

$$n_i = \frac{\text{Total sample size} \times \text{total number of borrower from given kebeles}}{\text{Total borrower farmer in each kebeles}}$$

Table 1: Population and sample borrower farmer

No	Selected kebeles	Number of borrower in given kebeles	Sample selected
1	Golole	137	39
2	Alanu	149	42
3	Kura Luku	185	52
4	Dhokat	144	41
	Total	615	**174**

Source: Own computation, 2017

2.3. Method of Data Analysis

In order to achieve the stated objectives of the study, both descriptive statics and two-limit Tobit were employed. Moreover, F-test and Chi-square statistics were also employed to compare complete defaulter, partial defaulter and non-defaulter groups with respect to different explanatory variables.

The two-limit Tobit was originally presented by Rossett and Nelson (1975). The model derives from an underlying classical normal linear regression and can be represented as:

$$y^* = \beta' X_i + \varepsilon_i, \tag{1}$$

$$\varepsilon \approx N[0, \sigma^2]$$

$$Y_i = \begin{cases} L \ if Y^* \leq L \\ Y^* = \beta X + \varepsilon_i \ if L < Y^* < U \\ U \ if Y^* \geq U \end{cases} \tag{2}$$

Where,

Y_i = the observed dependent (censored) variable, in this case repayment ratio (ratio of amount repaid to the amount borrowed)

Y_i^* = the latent variable (unobserved for values smaller than 0 and greater than 1).

X_i = is a vector of independent variables (factors affecting loan repayment and intensity of loan recovery).

L and U are threshold values (L =0 and U =1) β= Vector of unknown parameters

ε, = Residuals that are independently and normally distributed with mean zero and a common variance σ^2.

By using the two-limit Tobit model, the loan repayment ratio was regressed on the various factors hypothesized to influence loan repayment performance of smallholder farmers in the study area.

The log likelihood function for the general two-limit Tobit model can be given as follows Maddala (1992) and Long (1997):

$$\log L = -\frac{1}{2} \sum_{j \varepsilon c} w_j \left[\left(\frac{y_{i-x\beta}}{\sigma} \right)^2 + \log 2\pi\sigma^2 \right]$$
$$+ \sum_{j \varepsilon L} w_j \log \Phi \left(\frac{y_{Lj} - x\beta}{\sigma} \right)$$
$$+ \sum_{j \varepsilon R} w_j \log \left[1 - \Phi \left(\frac{y_{Rj} - x\beta}{\sigma} \right) \right] \tag{3}$$
$$+ \sum_{j \varepsilon I} w_j \log \left[\Phi \left(\frac{y_{2j} - x\beta}{\sigma} \right) - \Phi \left(\frac{y_{1j} - x\beta}{\sigma} \right) \right]$$

Where, C's are point observations, L's are left censored observations. R's are right-censored observations, and I's are intervals. The Φ is the standard cumulative normal distribution, and the w_j is the normalized weight of the jth observation.

The Tobit coefficients do not directly give the marginal effects of the associated independent variables on the dependent variable. But their signs indicate the direction of change in the probability of being a non-defaulter and the marginal intensity of loan recovery, as the respective explanatory variable change (Amemiya. 1985; Goodwin. 1992; Maddala, 1985).

The Tobit model has an advantage in that; its coefficients can be further disaggregated to determine the effect of a change in the ith variable, on changes in the probability of being non-defaulter (Me Donaled and Moffit, 1980) as follows:

1. The change in the probability of repaying the loan as an independent variable X, changes is:

$$\frac{\partial \Phi(\delta)}{\partial X_i} = \phi(\delta) \frac{\beta_i}{\sigma} \tag{4}$$

2. The change in intensity of loan recovery with respect to a change in an explanatory variable among non-defaulters is:

$$\left(\frac{\partial E\left(Y_i / U > Y_i^* > L, X \right)}{\partial X_i} \right) = \beta_i \left(1 + \frac{\delta_L \phi(\delta_L) - \delta_U \phi(\delta_U)}{\Phi(\delta_U) - \Phi(\delta_L)} - \left[\frac{\phi(\delta_L) - \phi(\delta_U)}{\Phi(\delta_U) - \Phi(\delta_L)} \right]^2 \right) \tag{5}$$

3. The marginal effect of an explanatory variable on the expected value of the dependent variable is:

$$\frac{\partial E(Y/X_i)}{\partial X} = \beta_i \left(\Phi(\delta_U) - \Phi(\delta_L) \right)$$

Where,

X_i = explanatory variables,

$\Phi(\delta)$ = the cumulative normal distribution

$\delta = \frac{\beta_i X_i}{\sigma}$ = the Z-score for the area under normal curve

β_i = A vector of Tobit maximum likelihood estimates

σ = The standard error of the error term

$$\delta_L = \frac{L - X_i \beta}{\sigma}$$

$$\delta_U = \frac{U - X_i \beta}{\sigma}$$

L and U are threshold values (L =0 and U =1)

ϕ and Φ are probability density and cumulative density functions of the standard normal distribution, respectively.

2.3.1. Dependent variable
In this study, the dependent variable is loan repayment ratio (LRR) defined as the amount of loan repaid by individual borrower farmer out of the total amount of loan disbursed to them from OCSSCO. Thus, the value of the dependent variable ranges between 0 and 1.

$$\text{Loan Repayment Ratio (LRR)} = \frac{\text{Total Loan Collected}}{\text{Total loan Demand}}$$

Total loan demand is the amount of loan that has been expected to be collected within the period under consideration according to the loan repayment schedule. It is computed as the sum of loans in arrears and loan collected.

2.3.2. Independent variable
Based on the literature review and the discussions held with stakeholders, the explanatory variables selected for this study were broadly categorized under demographic, socioeconomic, institutional and natural factors. A brief description of the explanatory variables selected for this study and their likely influence on the loan repayment performance was discussed below.

Table 2: Table summary of explanatory variable

No	Variable	Variable type	Hypothesis	Measurement
1	Age of borrower (AGE)	Continuous	+/-	Years
2	Gender of borrower (GENDER)	Dummy	+/-	1, if male, 0 otherwise
3	Family size (FAMSIZE)	Continuous	+/-	Number
4	Total size of land holding (TSLHOLD)	Continuous	+	Hectare
5	Total livestock owned (TLU)	Continuous	+	TLU
6	Education level borrower (EDULEVEL)	Continuous	+	Number of years of schooling
7	Distance of borrower from OCSSCO (DBCS)	Continuous	-	Kilometer
8	Income from on-farm (IONFARM)	Continuous	+	Ethiopian Birr
9	Income from off-farm (IOFFFARM)	Continuous	+	Ethiopian Birr
10	Family expenditure (FAMEXP)	Continuous	-	Ethiopian Birr
11	Adequacy of credit (ADCR)	Dummy	+/-	0, adequate and 1,inadequate
12	Repayment period suitability (RPS)	Dummy	+/-	0, suitable , 1, Unsuitable
13	Amount of loan borrowed from other sources (ALOTHERSO)	Continuous	+/-	Ethiopian Birr
14	Natural Hazard (NHAZARD)	Categorical	-	0, No any natural hazard occur 1, Crop failure 2, Animal death 3, Borrower injurious 4, Multi problem

No	Variable	Variable type	Hypothesis	Measurement
15	Frequency of extension contact (FECONT)	Continuous	+	Number of day per three months
16	Purpose of loan (PURLOAN)	Categorical	+/-	0, For purchase of agriculture input 1, For food purchase 2, For house construction 3, To repay other loan 4, To celebrate social ceremonies 5, For multipurpose
17	Household saving (HHS)	Continuous	+	Ethiopian Birr

Source: Own definition, 2017

3. RESULTS AND DISCUSSION

3.1. Determinants of loan repayment and extent of loan recovery

The estimated results of the two-limit Tobit model with the maximum likelihood and the marginal effects are shown in Table 5 and 6 below respectively. The result obtained shows that out of 17 explanatory variables hypothesized to determine the probability loans repayment and intensity of loan recovery of borrower farmer seven of them were found to be statistically significantly affected the probability loans repayment and intensity of loan recovery of borrower farmer in the study area. Among them family expenditure and repayment period suitability affect the probability loans repayment and intensity of loan recovery of borrower farmer significantly negatively. On the other hand, total size of land holding, income from on-farm activities, income from off-farm activities, household saving and frequency of extension contact had a significantly positively affect the probability loans repayment and intensity of loan recovery of borrower farmer in the study area. The robust option was used on the same regression of Tobit model to correct the problem of heteroscedasticity.

Total size of land holding: - It was one of economic factors which positively and significantly affected loan repayment performances of smallholder farmers at 10% level of significances. Each additional hectare of land holding of smallholder farmer increases the probability of being non-defaulter by 0.2 percent (Table 5). On the other hand, on average each additional hectare of land holding of smallholder farmers increases the rate of loan repayment by 0.154 percent for the entire sample borrower farmer and by 0.153 percent among non-defaulters (Table 6). As more and more land is brought under cultivation, farm income is expected to increases due to the increase in farm output. Therefore, having larger size of land increase the borrower's ability to repay his/her loan on predetermined periods of time than those who cultivate small size of land in hectares, *ceteris paribus*. This is consistent with the study result of (Amare, 2005 and Zelalem *et al*, 2013).

Income from on-farm activities: - This is another economic factor which affected loan repayment performances of smallholder farmer positively and significantly at 1% level of significances. One Birr increases in income from on-farm activities increase the probability of being non-defaulter by 1.99e-04 percent (Table 5). This additional Birr increase in income from on-farm activities also increases an average rate of loan repayment by 1.69e-04 for entire sample borrower farmer and by 1.68e-04 for non-defaulter (Table 6). The possible justification is that borrowers that earn higher income from their farm activities have the ability to repay their loan on predetermined periods of time than those who earn less income from on-farm activities. This is consistent with study result of, (Abebe, 2011).

Income from off-farm activities: - It is also another economic factor that affects loan repayment performance of smallholder farmers positively and significantly at 1% levels of significances. One Birr increase in income obtained from farmer participation in off-farm activities increase the probability of being non-defaulter by 4.51e-04 percent (Table 5) and on average increase the rate of loan repayment by 3.82e-04 for the total sample borrower farmer and 3.79e-04 among the non-defaulters (Table 6). The possible justification for this result is that off-farm income was additional sources of income for farmer which back-up the farmers to repay their loan even during bad harvesting seasons and when repayment period coincides with low agricultural output prices. During this time, farmers that practice off-farm activities can easily repay their loan on predetermined periods of time than those who don't participate or little participation in off-farm activities. So, an increase in income from off-farm activities increases the smallholder farmer capacity to repay loans on predetermined periods of time, *ceteris paribus*. This result is in line with study result of (Amare, 2005; Abebe, 2011; Milion, 2012 and Daniel, 2014).

Family expenditure: - This is another important economic factor, which affects loan repayment performances of smallholder farmer significantly and negatively at 10% level of significance. One Birr increases in family expenditure decrease the probability of being non-defaulter by 6.45e-05 percent (Table 5). Each one Birr increases of family expenditure decrease the rate of repayment by 5.47e-05 for the entire sample borrower farmer and by 5.42e-05 among non-defaulters, *ceteris paribus* (Table 6). This implies that farmers with more family expenditure were unable to repay their loan than those who had less family expenditure. Hence, family

expenditure had a negative impact on loan repayment performance of the farmers.

Household saving: - Household Saving affected loan repayment performance positively and significantly at 5% level of significances. One Birr increase in household saving increases probability of being non-defaulter by 4.65e-04 percent (Table 5) and on average increases the rate of loan repayment by 3.94e-04 for the total sample borrower farmer and 3.91e-04 among the non-defaulters (Table 6). This implies that farmer that saves their money gave more emphasis to credit repayment and repay their loan on predetermined periods of time than those farmers that don't practice saving. Saving serve as a security which allow the beneficiaries to repay their loan during hard time. This is consistent with study result of, (Abebe, 2011).

Frequency of extension contact: - It is one of the most important institutional factors, which positively affected loan repayment performances at 5% level of significance. Each additional day of extension contacts increase the loan repayment rate by 0.072 units among the entire sample farmer and by 0.072 percent among non-defaulters farmer (Table 6). It was also observed that each additional increase in extension contact increase the probability of being non-defaulter by 0.08 percent (Table 5). From this result a farmer who had more extension contact had more chances to use modern agricultural technologies and more access to technical assistance on agricultural activities than those who had less or no extension contact. As the farmer frequency of extension contacts increase the probability of obtaining technical guidance's on the use of modern agricultural technology also increase that leads to increases in farmer production and productivity. Hence, as the income of the household increases the ability of farmer to repay loan on predetermined periods of time also increase. This is consistent with the study result of (Oladeebo, J.O. and Oladeebo, O.E., 2008) and (Zelalem *et al*, 2013).

Repayment period suitability: - It is one of the most critical variable that affected loan repayment performances of smallholder farmer negatively and significantly at 1% levels of significances. The repayment period set by OCSSCO during the year 2016/17 was during December 5-25 for smallholder borrower farmer in Tole district. During the period the crop is already harvested but the crop and animal market price is very misleading in the study area. So, the farmer who had the willingness to sell more crops at prevailed price could repay their loan during these periods and those farmers who had no capacity or unwillingness to sell their crops at prevailed price are willingly or unwillingly forced to default as a result of unsuitability of repayment period. Unsuitability of repayment period set by the institution decrease probability of being non-defaulter 0.2 percent (Table 5) and on average decrease the rate of loan repayment by 0.215 among entire sample respondent and by 0.214 among non-defaulter sample borrower farmer (Table 6).

Table 5: Maximum likelihood estimates of the Two-limit Tobit model and the effect of explanatory variables on the probability of being non-defaulter

Variables	Coef.	Robust Std. Err.	T-ratio	Effect of change in independent variable on probability of being non defaulter $\frac{\partial \Phi(\delta)}{\partial X_i}$
Age of borrower	0.008	0.006	1.21	9.01e-05
Gender of borrower	-0.017	0.095	-0.17	-1.86e-04
Education level borrower	0.007	0.013	0.53	8.44e-05
Family size	-0.032	0.020	-1.6	-3.78e-04
Total size of land holding	0.154	0.090	1.7*	0.002
Livestock owned	0.034	0.038	0.9	4.03e-04
Income from on-farm	1.69E-04	3.6E-05	4.69***	1.99e-06
Income from off-farm	3.82E-04	1.53E-04	2.5***	4.51e-06
Family expenditure	-5.5E-05	2.94E-05	-1.86*	-6.45e-07
Household saving	3.94E-04	1.71E-04	2.31**	4.65e-06
Frequency of extension contact	0.072	0.035	2.04**	8.51e-04
Distance of borrower from credit source	-0.006	0.012	-0.55	-7.64e-05
Amount of loan borrowed from other sources	-4.2E-05	2.71E-05	-1.57	-5.00e-07
Purpose of loan	-0.007	0.023	-0.31	-8.4e-05
Adequacy of credit	-0.074	0.070	-1.05	-8.72e-04
Repayment period suitability	-0.215	0.074	-2.91***	-0.002
Natural Hazard	-0.012	0.041	-0.29	-1.38e-04

Note: ***,** and * means significant at 1%, 5%and10% probability level respectively
Source: Computed from survey data, 2018

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Table 6: Marginal effect of independent variable on rate of repayment

Explanatory variables	Effect of change in independent variable on dependent variable		
	Change for observation at upper limit	Change for partial defaulter	Change for all observation
Age of borrower	0.008	4.98e-04	0.008
Gender of borrower	-0.016	-0.001	-0.016
Education level borrower	0.007	4.66e-04	0.007
Family size	-0.032	-0.002	-0.032
Total size of land holding	0.153	0.010	0.154
Livestock owned	0.034	0.002	0.034
Income from on-farm	1.68e-04	1.1e-05	1.69e-04
Income from off-farm	3.79e-04	2.49e-04	3.82e-04
Family expenditure	-5.42e-05	-3.56e-06	-5.47e05
Household saving	3.91e-04	2.57e-05	3.944e-04
Frequency of extension contact	0.072	0.005	0.072
Distance of borrower from credit source	-0.006	-4.22e-04	-0.006
Amount of loan borrowed from other sources	-4.21e-05	-2.76e-06	-4.24e-05
Purpose of loan	-0.007	-4.64e-04	-0.007
Adequacy of credit	-0.073	-0.005	-0.074
Repayment period suitability	-0.214	-0.013	-0.215
Natural Hazard	-0.012	-7.61e-04	-0.012

Source: Computed from survey data, 2018

4. CONCLUSION AND RECOMMENDATIONS

➢ Since, it is a political issue to increase the size of land for the farmer. In order to replace the farmer, need for additional farm land intensive use of existing land is the possible solution to reduce the land shortage in the study area. These because land holding is getting smaller and smaller with a rapid population growth. So, the farmer should follow the intensification method to increase their production and productivity from the small size of land that help them to repay loans on predetermined periods of time. In addition, the government should expand extension program related to intensification method of production in the study area to increase farmer production which leads to good repayment performances.

➢ An increase in income from on-farm activities increases loan repayment performances of smallholder farmer. One of the suggested ways to improve income from on-farm activities mainly to use improved method of production by smallholder farmer that increase their farm output. Even though, the use improved farm input is recommended to carry out improved methods of production the farmer ability to purchase improved farm input may be low as a result fund shortage. Since, smallholder farmer in the area mainly uses OCSSCO for their credit, so timely provision of the loan by the institution allows the farmer to purchase needed farm input on time which increase farmer income from on-farm activities. Hence, the concerned body including OCSSCO should provide loan on-time for farmer which leads them to good repayment of loan on predetermined periods of time.

➢ Income from off-farm activities is additional source of income that help the participant farmer to repay their loan timely than non-participant farmer. Therefore, rural development strategies that work on increasing rural livelihood through increasing on-farm income should have to give similar attention to off-farm income of smallholder farmer to achieve good loan repayment performances.

➢ One of an important factor that reduces loan repayment performances of smallholder farmer is family expenditure. There is a time gap between family production expenditure and earning revenue which leads to unbalance family budget. Hence, an increase in families' expenditure decreases loan repayment performances of smallholder farmer on predetermined periods of time, *ceteris paribus*. So, smallholder farmer should balance their family expenditure with their income that leads them to repay their loan on settled periods of time.

➢ Saving serve as security during crop failure or animal death to repay loan at predetermined periods of time. OCSSCO is one of the micro financing institutions that give credit and saving at the same time. So, the institution should have to give similar emphasis on farmer saving as credit to motivate the borrowers to save more and improve awareness of those borrowers who don't know about the importance saving and by

providing incentives like high interest rate for their saving.
➢ As the frequency of extension contact increase the farmer's ability to have information and use modern agriculture technology also increase which lead to increase in their income and help them to repay loan on predetermined period of time. Hence, the farmer should have to be under close supervision of extension agent to have up-dated information on the use of modern agriculture technology which leads to increase their production and productivity that enable them to repay their loan on predetermined periods of time. The government agencies also need to work to strength close contact between extension and smallholder farmer through making different development program which leads to improvement in farmer loan repayment performances.
➢ The repayment period set by the OCSSCO is among the factor that leads the farmer to default on their loan repayment. Hence, this study recommends the OCSSCO to extend the repayment period from the previous if there is a possibility to extend to enable the farmer to repay their own loan on predetermined periods of time.

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