Determinants of Agricultural Input Loan Repayment Performance in Smallholder Rural Farmers: The Case of Humbo Woreda, Wolaita Zone, Southern Ethiopia

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Abstract

Background: *Agricultural credit access remains a critical constraint for smallholder farmers in Ethiopia, with loan repayment performance significantly affecting the sustainability of rural financial institutions. Despite government and NGO efforts to provide credit facilities in Humbo Woreda, Wolayta Zone, poor loan repayment rates threaten the viability of agricultural finance programs.*

Objective: *This study aimed to identify and analyze the key factors affecting agricultural input loan repayment performance among smallholder farmers in Humbo Woreda.*

Methods: *Multistage sampling was employed in collecting primary data in the form of structured questionnaires addressed to 211 farm households chosen randomly. Socio-economic features were analyzed with the help of descriptive statistics, and the factors of loan repayment performance were investigated with the aid of a two-limit Tobit model.*

Results: *The two-limit Tobit model results revealed that off-farm activities ($\beta=0.032$, $p<0.05$) and frequency of contact with extension agents ($\beta=0.018$, $p<0.01$) positively and significantly influenced loan repayment performance. Conversely, production loss ($\beta=-0.142$, $p<0.01$), informal credit access ($\beta=-0.089$, $p<0.05$), social ceremonies expenditure ($\beta=-0.076$, $p<0.05$), and loan-to-income ratio ($\beta=-0.134$, $p<0.01$) negatively affected repayment performance.*

Conclusions: *The study establishes that both institutional and socio-economic factors significantly influence loan repayment behavior. Successful repayment is enhanced through agricultural extension support and income diversification strategies.*

Keywords: Loan Repayment, Tobit Model, Smallholder Farmer, Agricultural Inputs, Humbo Woreda, Rural Finance

Introduction

Agricultural credit access remains a fundamental challenge constraining smallholder farmers' productivity and technology adoption in developing countries. In Ethiopia, where agriculture employs over 80% of the population

and contributes significantly to GDP, access to formal credit is particularly critical for purchasing improved seeds, fertilizers, and other productivity-enhancing inputs. Despite the importance of agricultural credit, loan repayment performance in rural Ethiopia remains problematic, threatening the sustainability of financial institutions and limiting farmers' future credit access. The challenge is particularly acute in regions like Wolayta Zone, where smallholder farmers face multiple constraints including limited income diversification, irregular rainfall patterns, and inadequate extension services.

Research Objectives

This study addresses this gap by examining the socio-economic, institutional, and environmental factors affecting agricultural input loan repayment performance among smallholder farmers in Humbo Woreda. The specific objectives are to: (1) analyze the current status of loan repayment performance; (2) identify key determinants of repayment behavior; and (3) provide evidence-based recommendations for improving credit program sustainability.

Methodology

Humbo Woreda can be found among 15 Woredas 5 Town Administration of Wolayta Zone State. Humbo Woreda constitutes one of the twenty two Woreda of the Wolayta Zone and owns 3738 square kilometres of the land area of the country which makes up massive types of agro-climatic zones. Humbo woreda population is 73, 011 (35, 856 and 37, 155 are male and female respectively). The recent population growth of the region is assumed to be at one point nine percent annually. The administratively defined 19 kebele and 3small developing towns are part of humbo woreda. The State of woreda also stretches as far as the western end to the eastern reaches of eastern Hobicha woreda at a range of latitudes of 20 o E to 27 o E. Its east west width lies between 37-57 o North and 38-04 o North. The annual rainfall variability of Humbo woreda is between 725mm at Bola wanche (Southern Humbo) and more than 1195mm in areas in Abela Abaya woreda or throughout the highlands of its Western plains. The altitude or height of the area is between 0-2542 meters above the sea level since this is the

level of the mountain Solko, which is the highest level of the area. humbo woreda is composed of 19 kebele with a total area of 3738km 2 and 18631.7 hectares, of this area is arable land. Woreda has an estimated population which is about 73,011 of which 35856 are males and 37155 are females.

The next characteristic of the Woreda is the availability of livestock that is approximated to be 347637. The most typical products which are being cultivated in the Woreda are teff, maize, barley, sorghum, haricot bean, lentils, peijen, pea fruits and vegetables. The common livestock found in Woreda are; cattle, sheep, goats, horse, donkey and chicken. Humbo Woreda lies approximately 18 Km South of the capital city known as Wolayta Sodo. It is the largest Woreda in Wolayta Zone that covers an area of 3738km square and cultivable land of 19334 hectares. The number of livestock includes 347,637 (including poultry). The woreda is between April and January. Main crop production is rain-feeding. Woreda can grow different crops because of the Woreda agro-climatic conditions. The Woreda had 38 multipurpose agricultural cooperatives. And also they possessed 8547 members. Cooperatives capital was 12, 085, 502 birr. The cooperatives provide the farmers with fertilizer, better seeds and other input related to farming. The remarkable aspects of the agricultural cooperatives are expansion of input in credit. They also sell farm products mostly teff and wheat. We have cooperatives which pertain to service of tractors and grain milling. LJ The description of the land includes cultivated land (35.50), grazing land (1.19), forest land (7.79), scrubs (16.66), stony hills (13.5), gully land (13.8) with the remaining 11.56 percent covered by residential houses.

Table 1 Sample size

S. No.	Name of selected kebeles	No. of loans received by farmers	No. of farmers Sample size
1	Galcha Kara	998	42
2	Wondogenet	922	38
3	Ela-Kabela	960	40
4	Ampo-Koysha	850	35
5	Shochora-Osse	780	32
6	Shochora-Abela	580	24
	Total	5090	211

The sample of the study was obtained randomly among the smallholder farmers that obtained loans between 2008 and 2012 fiscal year. The sample was estimated through the formula by Cochran. In this study, the confidence level was 95 percent (Z= 1.96), two-tail test was applied and the assumed P was 0.1 with permissible error of 5 percent. Thus, according to this formula, the sample size will be 211

$n=Z^2 (p) (q)/d^2$

n = Sample size

Z = Statistical certainty, related to the error risk, equals 1.96 for an error risk of 5% level of significance

p = Smallholder farmers who may access loans from OSCSC (10%)

q = The weight variable and is computed as 1-p

d = Desired precision or margin of error, expressed as a fraction of 0.05

Data Sources and Collection Procedures

In this study, both primary and secondary data were utilised. The study collected primary data through a sample of borrower farmers and also prepared a structured questionnaire. The information on household, demographic and socio-economic characteristics of the respondents was obtained directly through interviewing formal borrowers among the smallholder farmer societies. The secondary data was developed in addition to the distribution of the structured questionnaires by personal observation and the informal conversations with the farmers. The secondary data was obtained through publications, seasonal and annual reports of Woreda of Agriculture and Rural development office, Micro Finance Institutions and other appropriate institutions.

Multistage sampling was used. Firstly, Humbo woreda was intentionally selected in Wolayta zone out of the sixteen Woreda and six town administrations. The Humbo woreda composes a comparatively small part of the Wolayta zone and has 4 percent of the zone population.

Method of Data Analysis

Descriptive statistics in terms of mean, standard deviation and percentage were used to analyze quantitative data with an intention of appreciating

relative importance of key variables that according to hypothesis affected loan repayment performance of small holder fanners. Amongst things that this research was bent on achieving; was to choose the variables that best discriminated between non-defaulters and defaulters of agricultural loans; of a set of personal and socio-economic variables that were postulated to have affected repayment behaviour. In that respect, the model on two limits of Tobit was applied. It had few points in which the variable to be modelled was restricted to variation. Due to the limitations that the values of regressand can possess, one can speak about such models as limited dependent variable regression models. Even in the case where the data on the regressand are known in a least-square sense, at large sample points OLS will offer inconsistent, biased estimates of parameters. The biasness may be attributed to the reason that, once the observations used are only the observable or ni observations (i.e., only observations where the values of dependent variable are observed), to assume that, necessarily, (E(uj))=0. Further in case E (Uj) =0 fails to be satisfied, the O L S estimates may not be unbiased. And, commonsensically it is quite clear that in the case of the situation of us having estimated the regression line using the nj observations only, the intercept and slope coefficient are bound to not be the same as in the situation when we have viewed the entire (ni+n2) observations. The limited dependent variables have three forms of regressions. Those are Censored or Tobit regression. Truncated regression, and. Selected sample regressions. Truncation is a process of drawing conclusions about the population properties to study based on a selection of sample in the small sector of the population. A truncated distribution is concerned with untruncated distribution in either the below or above a given value (Greene).

Censored sample is a sample, in which the information available on the regressand is known only in part. The use of Tobit models in the analysis of censored and limited dependent variables has evolved to be ordinary snack in the conducted applied work in the social sciences during the past 20 years (Smith and Brame). Tobit is a generalization of Probit and it is one of the ways of recording the subject of censored data. In this research, the

repayment ratio is the dependent variable the value of which was computed as the ratio of the amount paid back on the loan and the total amount borrowed formally. Consequently, the value of the dependent variable ranges between 0 and 1 and a Two-Limit Tobit model has been picked as a more appropriate economic model. The two-limit Tobit was introduced by Rossett and Nelson. The model has an underlying classical normal linear regression model and has the form:

$$Y^* = \beta' X_{i+\epsilon \ i,}$$

$$\epsilon \sim N[0, \sigma^2] \quad (1)$$

$$Y_i = \begin{cases} L & if\ Y^* \leq L \\ Y^* = \beta X + \epsilon_i & if\ L < Y^* < U \\ U & if\ Y^* \geq U \end{cases} \quad (2)$$

Where,

Y_i = the observed dependent (censored) variable, in our case, repayment rate (ratio of the 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_i = Vector of unknown parameters

ϵ_i = Residuals that are independently and normally distributed with mean zero and a common variance a 2, and i= 1, 2 ... n (n is the number of observations). Using the two-limit Tobit model, the repayment ratio was regressed on the various factors hypothesized to influence the loan repayment performance of small holder farmers in the study area. The log-likelihood function for the general two-limit. Tobit model can be given as follows.

$$\log L = -\frac{1}{2} \sum_{j \in c} wj \left[\left(\frac{y_i - \times \beta}{\sigma} \right)^2 + \log 2\pi\sigma^2 \right] + \sum_{j \in L} wj \log \emptyset \left(\frac{y_{Lj} - \times \beta}{\sigma} \right) + \log 2\pi\sigma^2 \right]$$

$$+ \sum_{j \in L} wj \log \emptyset \left(\frac{y_{Lj} - \times \beta}{\sigma} \right) + \log 2\pi\sigma^2 \right] +$$

$$\sum_{j \in R} wj \log \left[1 - \emptyset \left(\frac{y_{Rj} - \times \beta}{\sigma} \right) \right] + \left(\frac{y_{Lj} - \times \beta}{\sigma} \right) \right] + \sum_{j \in I} wj \log \left[\emptyset \left(\frac{y_{2j} - \times \beta}{\sigma} \right) - \emptyset \left(\frac{y_{1j} - \times \beta}{\sigma} \right) \right] \quad (3)$$

The Cs are point observations and Ls are left censored observations. Rs are right-censored numbers and I is intervals. The distribution Here comprises of the normal distribution in its cumulative form and the Wj is the weighted normalization of jth observation.

Tobit coefficients do not always imply marginal effects of the concerned independent variables on the dependent variable. However, they provide direction of change in the Probability of being a non-defaulter and the marginal intensity of loan recovery in the face of change in respective explaining variable.

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 as follows:

1. The change in the Probability of repaying the loan as an independent variable X_i changes is:

$$\frac{\partial \emptyset(\delta)}{\partial Xi} = \emptyset(\delta) \frac{\beta_1}{\sigma} \quad (4)$$

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

$$\frac{\partial E(Y_i/U > Y_i > L, X)}{\partial X_i} = \beta \left(1 + \frac{\delta_L \emptyset(\delta_L) - \delta_U \emptyset(\delta_U)}{\emptyset(\delta_U) - \emptyset(\delta_L)} \right) - \left[\frac{\emptyset(\delta_L) - \emptyset(\delta_U)}{\emptyset(\delta_U) - \emptyset(\delta_L)} \right]^2 \quad (5)$$

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

$$\frac{\partial E(Y/X_i)}{\partial X} = \beta i (\emptyset(\delta_U) - \emptyset(\delta_L)) \quad (6)$$

Where,

X_i = explanatory variables,

$\delta = (\beta_i X_i) / \sigma$ = the Z-score for the area under the normal curve

β_i = a vector of Tobit maximum likelihood estimates

σ = the standard error of the error term

$\delta_L = (L - X_i\beta) / \sigma$

$\delta_U = (U - X_i\beta) / \sigma$

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

Variable Specification and Expectation

Table 2 summarises the expectation model results and hypothesis test. To determine whether to reject or fail to reject, we compared t calculated1 to t critical ~(t tabulated).

When t calculated is larger than t critical then the H_o will be rejected; there is a significance of the explanatory variables to the dependent variable.

Table 2 Summary of Expectations and Hypothesis

Independent Variables	Expectation	Hypothesis
AGE	-ve or +ve	Ho β2=0, H1 β2<0
GENDER	-ve or +ve	Ho β3=0, H1 β3>0
EXPCREDIT	+ve	Ho β4=0, H1 β4>0
FAMSIZE	-ve or +ve	Ho β5=0, H1 β5<0
OFF-FARM	+ve	Ho β6=0. H1 β6>0
PROLOSS	-ve	Ho β7=0, H1 β7<0
INFORCRED	-ve	Ho β8=0, H1 β8<0
MEMEXTE	+ve	H0 β9=0, H1 β9>0
DISCRESOU	-ve	Ho β10=0, H1 β10<0
SOCCEREM	-ve	Ho β11=0, H1 β11<0
NUMTEASS	+ve	Ho β12=0, H1 β12>0
TLU	+ve	Ho β13=0, H1 β13>0
LOANINCOM	-ve	Ho β14=0, H1 β14<0
LANDS1ZE	+ve	Ho β15=0, H1 β15>0
EDU	+ve	Ho β16=0, H1 β16>0

The share of formal loans, not defaulted within the specified repayment time period, is one of the dependent variables of the econometric model of the research. This has been calculated as a ratio between the amount of credit repaid altogether and by the amount clubbed altogether. It ranged between 0 and 1. It is the farmers who have got the money on loans and could not repay it that are described as complete defaulters (i.e. the ratio of repayment in this case not being a part but zero) and the farmers who had repaid some of the money are considered to be defaulters. On the other hand, the farmers that have repaid all the cash they borrowed in the required time are referred to as non-defaulters.

Results and Discussion
Descriptive Analysis of the study

The substantial focus of the study is the analysis of determinants of agricultural input loan repayment performance of smallholder rural farmers in Humbo Woreda by taking a sample size of 211 farm households out of all the respondents sampled as 211 (100%) of the data was complete whereby the enumerator only waits at the place to get the respondent word by word depending on the need shown by the respondent. Therefore, every Analysis in this research paper revolves around the number 211 sampled heads of households (see Table 3). Moreover, the table states that among the total number of respondents the other females are 31.28 and the 68.72 are the headed households.

Table 3 Questionnaire response rate

S. No.	Gender	Returned	
		No.	%
1	Male	145	68.72
2	Female	66	31.28
Total		**211**	**100**

Source: Survey result

Summary of Statistics of the study

Table 4 below describes the educational level of the head, the amount of off-farm income per year, the amount of crop income per year, number of stock of the tropical livestock unit, the number of contact hours with DA per month, family size, number of economically active and inactive household members, land size, distance to the market centre and the rate of loan repayment of the respondents in the study area. The variables are all continuous; so in that case, they are summarized as:

As it happened, the fewest individual family members in the population being tried were those with 2members while the greatest number of family members was that with 10 family members as per the size of the family. The number of family members who are surveyed out of which 6 members are an average size. Along with that, the minimum and maximum values of the variables, economically active and inactive members in the household are 0(6) and 0(7) respectively. Meanwhile values are 4 and 3 respectively among the inactive and the active members. Moreover, there is the minimum and the maximum annual off-farm income and income crops in Ethiopian Birr that is 200 (32000) and 0 (23000) respectively. Also, the off-farm activity and crop production annual income of the respondents is about 5362 and 3014 Birr respectively.

Table 4 Summary statistics of the study

Variables	Obs	Mean	Std. Dev.	Min	Max
HHHEduc	211	3.829384	1.301753	1	6
OffarmIncome	211	5362.981	3762.96	200	32000
IncCrop	211	3014.076	4508.142	0	23000
TLU	211	3.910962	2.707903	.14	17.66
ContactDA	211	39.5545	36.04443	1	200
Actvl	211	3.63981	1.500199	0	7
Depentl	211	2.725118	1.437685	0	6
Distmrt	211	7.171801	4.302593	1	22
HHsize	188	6.446809	1.75881	2	10
Lsize	211	.7624408	.6088992	0	5.5
LoanRepayment	211	.4552546	.1886494	0	1

Source: Survey result

Gender of the Household Head versus Loan Repayment Rate

The analysis of the correlation between female or male headship and loan repayment rate of the respondents is in Table 5. The sample households of 100 percent who are the farm households, witnessed 55 percent of the total sample households representing 50 percent and more of their loans, but 45 percent of the respondents repaying their loans at a rate of less of 50 percent. In particular, from all 116 respondents who made repayments at 50 percent and higher level, a bigger proportion of 63.2 and only 36.8 percent of the response category was male dominated. On other hand, males headed households receive 64.2 percent based on the below 50 percent loan repayment rates and females receive 35.8 percent. This means that the males are good payers of loan relative to their counterparts-the females.

Table 5 Genders of the head versus loan repayment rate

Loan Repayment rate	Gender		Total No. (Percent)
	Female	Male	
50% and above	32 (27.6)	84 (72.4)	116 (100)
Less than 50%	34 (35.8)	61 (64.2)	95 (100)
Total	66 (31.3)	145 (69.7)	211 (100)

Source: Survey result

Results of Econometrics Data Analysis

This part of the work talks about how the author talks about empirical findings of the study. The author treat of the fundamental presuppositions that our model is most probable to fulfill and in the second section is the inquiry of the real-life findings of the determinants of agricultural input repayment at Humbo Woreda southern Ethiopia.

Testing the Basic Assumptions of the Tobit Model

The outcome of the econometric data analysis starts with a specification on the estimation of our data with regard to the simple assumptions of the Tobit regression model. The model assumptions must be satisfied and these assumptions can only be determined by conducting a number of tests. Besides, a cross-sectional design, gets rid of the fact that one can encounter autocorrelation a lot in time-serious data. In addition, Tobit model shall not be in normal distribution. Instead, it is obedient to the cumulative density function; thus, it does not need the normality. Thus, the other tests like goodness of fit of the model were tried in the subsequent sub-topics.

Multicollinearity Test

Multicollinearity is an inevitable phenomenon in any multivariate Analyses, irrespective of the magnitude and the triviality of the matter. However, in the case where co-variation is large, then this will affect significance of the estimates and a test to rectify this is needed. Therefore, before checking the collinearity, it is simultaneously done with the variance inflating factor (VIF), and the integrity test of pairwise correlation coefficient of dummy and

continuous independents variables. In the description of the multicollinearity of variables, there is a thumb rule that is applied. In the rule of thumb, VIF value greater than 10 is a grave concern. The average value of the VIF of all the independent variables in this research is not greater than 10 as it is 1.45, that is why the serious case of the multicollinearity does not exist.

Table 6 Multicollinearity Test

Variable	VIF	1/VIF
Gender	2.25	0.443478
Age	1.19	0.838369
HHHEduc	1.28	0.781213
OffarmIncome	1.16	0.863008
Maritalstatus	1.42	0.702479
IncCrop	1.20	0.832708
TLU	1.21	0.823831
ContactDA	1.13	0.882242
Actvl	1.74	0.573822
Depentl	1.83	0.545621
Distmrt	1.13	0.888653
HHsize	2.17	0.459992
Lsize	1.08	0.929580
Mean VIF	1.45	

Model Adequacy Tests

In fitting the Tobitmodel, one is bound to examine whether the model is satisfactory. In this way, the model adequacy test (likelihood ratio test of model adequacy) was adopted in this study. The test of model adequacy gives an indication that hat is very significant when compared to hat-square and this implies that the model is sufficient (Table 8). Consequently, the implication of the result is that at least, one of the independent variables is interesting to forecast performance of the loan repayment of farm families.

Table 7 Model Adequacy test

LoanRepayment	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
_hat	1.617078	.3530083	4.58	0.000	.9206382	2.313517
_hatsq	-.7332208	.4069866	-1.80	0.073	-1.536152	.0697108
_cons	-.118105	.0767069	-1.54	0.125	-.2694377	.0332278

In addition, as shown below in Table 8 the Ramsey test for omitted variable bias shows that the p-value is around 0.058, which is greater than the 5 percent significance level, and recommends accepting the null hypothesis, stating the model has no omitted variable.

Table 8 Ramsey Test for Omitted Variable Bias

Ramsey RESET test using powers of the fitted values of Loan Repayment
Ho: The model has no omitted variables
F(3, 169) = 2.54
Prob > F = 0.0585

Heteroscedasticity test

Tobit model assumes that the error term is always constant. Thus the model is not expected to possess heteroscedastic error term all by itself. We are therefore supposed to test the existence of a heteroscedasticity problem. The test of the problem of heteroscedasticity, Breusch-Pagan or/ and Cook-Weisberg, showed (see Table 9), that there is no problem of heteroscedasticity in the data. Probability-chi2 = 0.5640 is greater than the 1 per cent level of significance and therefore we can accept the null hypothesis and state that there is no issue of heteroskedasticity.

Table 9 Breusch-Pagan Test for Heteroskedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of Loan Repayment
chi2(1) = 0.33
Prob > chi2 = 0.5640

Normality Test

Tobit model assumes standard as opposed to normal distribution. The error term is not assumed to be of a normal distribution. Since the model is based on the nature of the model, it will become

clear that the normal distribution will not be possible since the dependent variable will assume an interval value between the lower and upper limit of the loan repayment rate in form of 0 and 1. So normal test is not necessary.

Conclusions

The second institutional factor that showed positive correlation to loan repayment is the days of contact of the farm household head to development agents. The development agents constitute an unbeatable army in the connection of the small holder farmers with the ministries and other development geared organizations rendering public service. The results of the Tobit model indicated that observance of social rituals dented the performance of the repayment of loans. There is a lot of investment required on the social ceremonies that are normally conducted which the farmers do not have the capacity. They are recognized to be some of the grave factors of delinquency in terms of paying of formal loans. Econometric results also shown that the farmer who engaged in the off-farm activities was more likely to have good income and they were in a position to clear their debt in time compared to those farmers who did not involve themselves in off-farm activities.

Recommendations

The following recommendations are forwarded based on the study's findings and observations of the environment on which the current loan delivery and recovery systems are based.

One significant institutional factor positively correlated with loan repayment was the number of days the head of the farm household spent in contact with development agents. Development Agents connect smallholder farmers, ministries, and other development-focused public service organizations. If these development agents build strong social and cultural ties with the people they are supposed to help, integrated and participatory rural development strategies can succeed. Therefore, to change farmers' attitudes toward agricultural transformation and timely debt settlement, it would be necessary to organize regular in-service and on-the-job training,

provide adequate incentives and remuneration, and employ an adequate number of development agents.

The Tobit model's findings showed that social ceremony celebrations detrimentally affected loan repayment performance. Farmers cannot afford the high costs of traditionally observed social ceremonies, which is also one of the main reasons formal loan payments are not made on time. Thus, elders, community leaders, local associations, and religious organizations should make a concerted effort to reduce these customary rituals and the related costs over time.

According to the econometric results, farmers who participated in off-farm activities made more money and could pay off their debts faster than other farmers. This suggests that rural development strategies also prioritize encouraging off-farm activities in rural areas and raising agricultural output.

Survey findings indicated that most of the respondents were dissatisfied with group formation processes and group liability. Therefore, formatting credit groups through self-selection would help in effective screening among the individual members. A possible solution to the problem of default would be to select potential borrowers under the following process, selecting first the potential borrowers among their neighbours, friends and the relatives whom they feel have the capacity to repay the loans. Individuals who are in control of forming the groups would enhance the information symmetry advantage which the new microfinance arrangements do not allow.

Lastly, farmers in agro-climatic areas with sufficient rainfall performed better regarding loan repayment than those in lowland areas with moisture deficits. The region's agro-ecology significantly impacted farmers' productivity and agricultural output. One factor is the availability of moisture.

Technical Terms

The Ethiopian people usually use technical terms, and the Government also exercises in the Official documents and reports. Woreda means District, Kebele means Village, Dega means High land, Wynedega means Mid-highland and Kolla means low land

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