

Full Length Research Paper

Determinants of microfinance loan utilization by smallholder farmers: The case of Omo Microfinance in Lemo District of Hadiya Zone, Southern Ethiopia

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This study investigated factors determining microfinance loan utilization by smallholder farmers from Omo Microfinance institution in Lemo District of Hadiya Zone, Southern Ethiopia. Both primary and secondary data were used and a total of 118 sampled farmers were considered for the interview. Both descriptive statistics and independent double-hurdle model were used to analyze the microfinance loan utilization and loan amount received. The results showed that literacy status, household size, size of landholding, perception about loan repayment period and distance from residence to lending center were the significant determinants of microfinance loan utilization by smallholder farmers. The borrower's sex, literacy status, income level, saving level, purpose of loan taking and perception about loan repayment period were found to be the factors influencing loan amount received by smallholder farmers in the study area. The findings generally suggest the need to enhance appropriate actions on determining factors of microfinance loan utilization and its loan amount in order to lessen financial constraints of smallholder farmers through microcredit.

Key words: Lemo District, loan utilization, loan amount received, microfinance, smallholder farmers.

INTRODUCTION

Ethiopian economy depends to a great extent on the growth of agricultural sector. Agricultural sector accounts for about 46% of the country's gross domestic product, more than 80% of exports and employs 85% of the total labor force (CIA, 2014).

In rural areas of Ethiopia, households mainly rely on agriculture to get food, generate income and meet other household financial obligations. However, they suffer from income shocks due to fluctuations in weather

condition and farm output prices. When farm households face income shock, they finance their agricultural production and smooth their consumption by using accumulated savings and borrowing from outside. The source of credit for farm households is either formal lending institutions or informal lenders. Their choices of borrowing depend on how they can access credit providers and how they can obtain the loan (Nguyen, 2007).

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One of the major constraints that significantly affect the growth of agricultural production and productivity in developing countries, including Ethiopia, is limited use of modern inputs and technologies. Among others, one cause for this is lack of finance for the rural farm households (Wolday, 2004). Thus, developing rural financial markets is considered as one of the important tools for enhancing adoption of new and improved agricultural technology, rural income generation and poverty alleviation (Zeller, 1995; Addo et al., 2013; Akpan et al., 2013).

Ethiopian government has been working to eradicate the country's major enemy, poverty. One of the powerful tools that help to reduce poverty from households and a nation is provision of microfinance services to the poor in a sustainable way. The microfinance institutions (MFIs) are basically established to serve poor and low-income individuals who lack collateral, steady employment, verifiable credit history, or other requirements necessary to gain access to formal credit (CGAP, 2011; Hundanol and Berhanu, 2012; Dereje et al., 2013). The task of microfinance is crucial in the course of improving low-income and poor peoples' livelihoods. According to Haftom (2011) and Addo et al. (2013), microfinance allows poor people to diversify their sources of income and it is the essential pathway to move out of poverty and hunger. The development of financial sector is, therefore, vital to meet the government's development goal of poverty alleviation.

Despite many efforts made by the government, microfinance outreach is low and has not satisfied the demand of the rural poor in Ethiopia (Getaneh, 2005) in general and in Lemo District in particular. There are three MFIs: Omo Microfinance Institution (OMFI), Wisdom Microfinance Institution and Agar Microfinance Institution that have been providing micro financial services for the poor and low-income people in the District. The outreach of OMFI is relatively higher than other MFIs in the study area. However, many farmers have still not benefited from OMFI's credit service. To this point, no investigation has been undertaken on the factors influencing farmers' microfinance loan utilization and loan amount in the District. This initiated the study to examine determinants of smallholder farmers' microfinance loan utilization and loan amount received from OMFI. This understanding is essential for creating microfinance policy which is favorable to rural poor who are mainly farmers.

METHODOLOGY

Description of the study area

Lemo District is one of the 10 rural Districts of Hadiya Zone. It is located 230 km South of Addis Ababa. According to 2007 Census, the District has a total population of 118,594. Of whom 58,666 were men and 59,928 women; 2,049 or 1.73% of its population were urban dwellers. The district is agro-ecologically divided in to two: highland (*Dega*) and midland (*Woyna Dega*) which accounts for

about 5 and 95%, respectively.

Sampling technique and sample size determination

The study was carried out in Lemo District of the Zone. To select respondent farmers, two-stage sampling technique was employed. There are 33 peasant associations (PAs) in the District. All PAs are the beneficiaries of OMFI's credit service: both in cash and kind form. Three PAs namely: Ambicho Gode, Jawe and Shurmo were randomly selected. By taking the list of farm household heads from each selected PAs, 118 representative farm household heads were randomly selected in probability proportion to size of each PA's population.

Data sources and methods of data collection

Both primary and secondary data sources were used in the study. Semi-structured interview schedule was used to generate the primary data from the selected interviewees. The data were collected with the help of enumerators under supervision of the researchers. Secondary data were obtained from published and unpublished documents of different organizations.

Methods of data analysis

Both descriptive statistics and econometric model were used to analyze the data. The respondents' demographic and socio-economic conditions as well as institutional factors were analyzed using mean, frequency and percentage. Furthermore, the variables hypothesized to influence farmers' microfinance loan utilization from OMFI were tested for statistical mean and proportion differences using t-test and Chi-square (χ^2) test, respectively.

Positive amount of loan received by smallholder farmers is seen after making decision in two distinct stages, that is, in the first stage, smallholder farmers make a decision whether to use microfinance loan or not and in the second stage, those farmers who once decided to use a loan again decide how much loan to take. Therefore, this study used independent double-hurdle model in which the two decisions by smallholder farmers are determined sequentially. It is an appropriate model in the absence of selection bias. The model makes use of two regressions in the two hurdles. For the first hurdle, that is, to identify key factors influencing microfinance loan utilization decision by smallholder farmers, the model makes use of a univariate probit regression while for the second hurdle, that is, to identify the determinant factors of loan amount received by smallholder farmers it applies the truncated regression. The independent double-hurdle model for both loan utilization equation and loan amount equation are specified as follows:

$$Y_{i1}^* = X_i' \beta + v_i \quad (1)$$

$Y_i = 1$, if $Y_{i1}^* > 0$, that is, if a farmer utilized microfinance loan and

$$Y_i = 0, \text{ otherwise}$$

$$Y_{i2}^* = Z_i' \alpha + u_i \quad (2)$$

Table 1. Mean and proportion difference tests of variables between loan users and non-users.

Variables	Overall mean/proportion	Users mean/proportion	Non-users mean/proportion	t/ χ^2 -value
Dummy variables				
Sex (male=1)	0.88	0.92	0.86	1.098
Literacy status (literate=1)	0.62	0.86	0.45	20.204***
Access to credit from other lenders (yes=1)	0.48	0.43	0.52	0.996
Perception of loan repayment period (constraint=1)	0.29	0.08	0.43	17.422***
Perception about interest rate charged on microcredit (high=1)	0.09	0.06	0.10	0.598
Collateral (couldn't provide=1)	0.22	0	0.38	23.682***
Continuous variables				
Household size (adult equivalent)	6.56	7.48	5.91	3.217***
Size of landholding (ha)	0.69	0.88	0.56	4.295***
Livestock ownership (TLU)	3.06	2.45	3.90	-3.983***
Household income level (ETB)	14570.51	13800	15100	-0.694
Saving level (ETB)	306.61	701.63	26.01	27.801***
Distance (km)	8.18	7.10	8.94	-3.155***

Source: Own survey result, 2014; ***represent significance at 1% significance level.

$$Y_i = Y_{i2}^* = Z_i' \alpha + u_i, \text{ if } Y_{i1}^* > 0 \text{ and } Y_{i2}^* > 0 \text{ and}$$

$$Y_i = 0, \text{ otherwise}$$

Where: Y_{i1}^* is a latent variable describing farmers loan utilization, X is the vector of variables explaining utilization of microfinance loan, β is the vector of parameters to be estimated in the first hurdle, Y_{i2}^* is a latent variable describing factors influencing loan amount received by farmers, Z is the vector of variables explaining loan amount, α is the vector of parameters to be estimated in the second hurdle, Y_i is the observed value (that is, loan amount), and v and u are error terms and are assumed to be independent and normally distributed with mean zero and constant variance. Farmers are represented by subscript i .

RESULTS AND DISCUSSION

Descriptive statistics of sampled smallholder farmers

The summary statistics of the variables used in the analysis, and mean and proportion difference tests of the variables between microfinance loan users and non-users are presented in Table 1. Out of the total respondents, about 62% were literate and the rest 38% were illiterate. Of a total of 73 literate smallholder farmers, about 58 have utilized microfinance loan and the rest have not. Of the total 45 illiterate smallholder

farmers, only 16% have utilized microfinance loan and the majorities, 84% have not utilized it. An average household size of the sampled farmers was 6.56 persons in adult equivalent. It was larger for borrower farmers than non-borrower farmers. An average size of landholding by sampled smallholder farmers was 0.69 ha. It was larger for borrower farmers than non-borrower farmers. An average livestock possession by loan user farmers was 2.45 in TLU while it was 3.90 for non-user farmers. It revealed that those smallholder farmers who had more livestock have not utilized microfinance loan as much as those farmers who had less livestock in the study area.

Saving helps farmers to access microfinance loan and to receive larger size of loan. Saving level by respondent households was higher for credit users than non-users. About 78% of respondent farmers reported they had no problem to form self-selective group collateral and the remaining 22% reported that they have been facing challenges in providing collateral. An average distance from farmers' residence to the lending center was shorter for credit user farmers than non-user farmers in the study area. Out of the sampled respondents, about 71% perceived the loan repayment period as good to make the repayment from the returns of their farm activities while the rest 29% perceived it as not good. Almost all sampled farmers (92%) perceived the interest rate charging on credit as not high while the remaining 8% perceived it as high.

In the study area, the sources of credit for farmers were formal, semi-formal and informal lenders. Majority of borrower farmers utilized the loan obtained from OMFI for

Table 2. The first-hurdle (Probit regression) estimates of determinants of microfinance loan utilization by smallholder farmers.

Variable	Coefficient	Standard error	Marginal effect
Constant	1.96	2.403	
Sex	0.19	0.510	0.067
Literacy status	1.24***	0.340	0.410
Household size	0.12*	0.065	0.045
Level of household income	-0.39	0.262	-0.143
Size of landholding	0.97**	0.481	0.361
Livestock ownership	-0.07	0.110	-0.025
Access to credit from other lending sources	-0.09	0.304	-0.032
Perception about loan repayment period	-1.10***	0.399	-0.353
Perception on interest rate	-0.43	0.569	-0.146
Distance from residence to lending center	-0.11**	0.050	-0.043
Observations		118	
LR Chi ² (10)		64.610***	
Pseudo R ²		0.403	
Log likelihood		-47.784	

Source: Own survey results, 2014; ***, ** and * represent significance at 1, 5 and 10% significance level, respectively.

production purposes. In general, out of 49 respondent microfinance users, about 86% took a loan for production purposes while the rest 14% took a loan as for production purposes but utilized it on non-production activities.

When the primary data were collected, the sampled borrower farmers were asked to report the amount of loan they have taken out from OMFI in both cash and kind form. Out of total sample farm households, only 41.5% have utilized loan from OMFI in the prior year of the survey.

Determinants of microfinance loan utilization by smallholder farmers

The result of the first-hurdle (Probit model) regression is presented in Table 2. The result shows five variables which significantly influenced the probability of utilizing microfinance loan by smallholder farmers. Saving level, purpose of loan taking and collateral are omitted/dropped due to collinearity by dependent variable.

Literacy status

It was found to be an important determining factor that influences smallholder farmers' microfinance loan utilization in the study area. Keeping other things constant, being literate, farm household head increased the probability of utilizing microfinance loan by 41% and this was statistically significant at 1% significance level. It influenced farmers' microfinance loan utilization positively. This result is similar to the findings of Bakhshoodeh and Karami (2008), Ibrahim and Aliero (2012) and Abunyuwah and Blay (2013) which revealed that rural

farmers with better literacy qualification had more likelihood of accessing credit from formal financial institutions.

Household size

Size of household member revealed significant influence on smallholder farm households' decision to utilize microfinance loan. It was positively related to farmers' microfinance loan utilization in the study area. The model result predicted that as the number of household member increased by 1 adult equivalent the probability of microfinance loan utilization increased by 4.5% keeping other things constant. Actually, as the size of household member increases, the farm household's need to take a loan increases too. This is because as the number of the household member increases, the amount of money needed for smoothing household consumption also increases and thus, a household has a higher demand for credit. This result is consistent with study of Hao (2005).

Size of landholding

Land is one of the main factors of production in agricultural. In the study, size of landholding was found to be a significant determining factor of farmers' microfinance loan utilization in the study area. Keeping other things constant as the size of landholding increased by 1 hectare, the probability of microfinance loan utilization increased by 36.1%. The reason for this might be that larger farms require higher input use which in return needs higher financial resources utilization either through

Table 3. The second-hurdle (truncated regression model) estimates of loan amount received by smallholder farmers.

Variables	Coefficient	Standard error
Constant	7.82	6.34
Sex	0.060*	0.031
Literacy status	0.052**	0.026
Household size	0.003	0.003
Income level	-0.083***	0.012
Size of landholding	0.004	0.021
Livestock ownership	-0.006	0.006
Saving level	0.131***	0.018
Purpose of loan taking	0.635***	0.034
Access to credit from other lending sources	-0.042	0.028
Perception about loan repayment period	-0.102***	0.032
Perception on interest rate	-0.030	0.039
Sigma	0.057	0.043
Observation	49	
Wald chi ² (11)	95.1***	
Log likelihood	70.258	

Source: Own survey results, 2014; ***, ** and * represent significant at 1, 5 and 10% significance level, respectively.

owning or borrowing. This result is consistent with the findings of Mohamed (2003), Kiros (2012) and Abunyuwah and Blay (2013) which revealed credit utilization had a positive relationship with farm size.

Farmers' perception about loan repayment period

In the study, it was negatively related to farmers' microfinance loan utilization. Keeping other things constant, perceiving a loan repayment period as not good reduced the likelihood of microfinance loan utilization by 35.3% and this was statistically significant at 1% significance level. The perception about loan repayment period by smallholder farmers is for the short term period. This result is consistent with the previous findings of Sisay (2008) and Chauke et al. (2013) which revealed that access to credit is negatively influenced by the perception of loan repayment period.

Distance from farmer's residence to the lending center

There was a negative relationship between distance and farmers' microfinance utilization. In the study, as distance from farmers' residence to the lending center increased by 1 km, the probability of farmers' microcredit utilization reduced by 4.3% and this was statistically significant at 5% significance level. This implies that farmers residing farther away from the credit lending center had less likelihood of utilizing microcredit than those farmers

reside closer to the lending center. This is because farmers with long distance may be challenged in transportation and may not get information easily. This result is similar to the findings of Bakhshoodeh and Karami (2008), Akpan et al. (2013) and Sebu (2013) which revealed that access to credit and distance from borrowers' residence to lending center had negative relationship.

Determinants of loan amount received by smallholder farmers

Table 3 presents the result of the second-hurdle (the truncated tobit model) regression. The model estimated the determinants of farmers' loan amount received from OMFI in the study area. Out of the hypothesized variables, six were significantly influencing the loan amount received by farmers.

Sex

The sex of farm household heads was found to be a significantly influencing factor of the loan amount received by farmers from OMFI in the study area. The sign of its coefficient indicates that the loan amount was positively related to being male-headed farm household. The result of the truncated regression model revealed that, keeping other things constant, being male-headed household increased the loan size by 6% at 10% significance level. The reason for this might be female headed households might have engaged on activities

which do not require larger loan as compared to male headed households. This result is consistent with the previous findings of Mohamed (2003), Mpuga (2004), Ololade and Olagunju (2013) and Otunaiya et al. (2014) which revealed that being a female reduces the probability of receiving larger loan amount.

Literacy status

The loan amount taken out by sampled farmers was higher for literate respondents than illiterate respondents. The reason might be that literate farmers could plan and engage on different farm enterprises that need more money to run their enterprises and hence, increase their need for larger amount of loan. The model output predicted that literacy of farm household head increased the loan size by 5.2% citrus Paribas. It was found to be statistically significant predictor of loan amount at 5% significance level. This result corresponds to the findings of Mohamed (2003), Lensink et al. (2005), Abunyuwah and Blay (2013) and Addo et al. (2013) which revealed that loan amount taken by literate households were larger than that of illiterate households.

Income level

Level of household income earned per annum by smallholder farm households was found to be a significant determining factor of loan amount received from OMFI in the study area. As level of income earned per annum increases, the operating expenses spent on input procurement to produce any production activities could be more covered by increased income. If a farm household has a higher income per annum he/she might not go to borrow from external credit sources. Earning higher income level would likely reduce the amount of microfinance loan utilization by smallholder farmers. In this study, the level of income earned per annum was negatively related to the loan amount received by smallholder farmers. The truncated regression result revealed that as the level of household income earned per annum increased by 1%, the loan amount received by smallholder farmers would reduce by 8.3%. This was statistically significant at 1% significance level (Table 3).

Saving level

As prerequisite, the borrowers should have save some amount of money in OMFI in order to obtain a loan from that institution. The lending institution requires borrowers to start saving in it before six months of the time to go to ask for credit. The borrowers must save a minimum of 20% of the loan amount they want to obtain. This implies the more money households save in OMFI, the more

chance they get a larger loan from OMFI. As magnitude of saving by farmers increased by 1%, the size of loan increased by 13.1% and it was a statistically significant predictor of loan amount at 1% significance level.

Purpose of loan taking

The reason for taking loan is an important element that formal credit lenders want to know before offering credit. The lender (OMFI) has been providing loan for the purpose of financing agricultural production, petty trades, hand crafts and services. These are all income generating activities. Those farmers requested a loan primarily for the purpose of production activities have got larger loan size than those farmers applied for other than production activities. In the study, the purpose of loan taking for production activities increased the loan amount by 63.5% and it was found to be statistically significant at 1% significance level. This result differs from the finding of Lensink et al. (2005).

Farmers' perception about the loan repayment period

In the study, farmers' perception about the loan repayment period as not good reduced the loan amount by 10.2% at 1% significance level. It was negatively related to the loan amount received by smallholder farmers. This is because those farmers who perceived the loan repayment period as not good to make the repayment from the returns of their farm output would not get confidence to take larger amount of loan. On the other hand, those farmers who perceived the loan repayment period as good might request the amount of loan he/she wants to borrow without any fear and could obtain up to the maximum amount of loan allowed by the lending institution.

CONCLUSION AND RECOMMENDATIONS

In Ethiopia, among other things, limited access to credit has remained one of the basic problems that slow down agricultural production, productivity and related agribusiness in many rural areas where smallholder farmers dwell. In line with this, the study was conducted with the main aim of identifying determinant factors influencing farmers' microfinance loan utilization in Lemo District of Hadiya Zone, Southern Ethiopia. Both primary and secondary data sources were used to obtain all the necessary data. The data was analyzed using descriptive statistics and independent Double-hurdle model. The model results revealed farmers' literacy status, household size, size of landholding, perception about loan repayment period and distance from farmers' residence to the lending center as the factors significantly influencing

farmers' microfinance loan utilization. On the other hand, the farmers' sex, literacy status, household income level, saving level, purpose of loan taking and perception about loan repayment period were found to be the factors significantly influencing loan amount received by farmers. The study results show that there was inadequate flow of credit to smallholder farmers in the study area.

Based on the result of this study, the following policy implications are suggested for the future intervention strategies aimed at improving farmers' microfinance loan utilization and loan amount in Lemo District in particular and in southern Ethiopia where OMFIs are working in general.

1. To improve microfinance loan utilization and loan amount received by farmers, the concerned bodies should make an effort to educate and train farmers by giving special emphasis to illiterate and female-headed farmers.
2. OMFIs have to adjust the loan repayment schedule in accordance with farmers' preferences that is suitable for farmers to make the loan repayment from the returns of their activities. They should give due focus to counseling and educating farmers to utilize the loan in profitable enterprises that enable smallholder farmers to make the repayment on time.
3. In the study, saving level has positively affected loan amount received by farmers. Therefore, OMFIs and other concerned bodies should motivate and educate farmers to save in formal financial institutions like OMFIs.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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