

Socio-Economic Determinants of Loan Repayment Capacity of Somali Microfinance Clients in Kebridahar Town, Somali Regional State, Ethiopia

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Abstract

Somali microfinance finance institute (SMFI) was established to provide inclusive financial services to rural and urban poor households with the ultimate goal of poverty alleviation in the Somali regional state. Even though SMFI is working better to upgrade itself to a licensed bank-Shabelle Bank and is showing livelihood improvement for poor households in the Somali region so far, loan repayment problems are currently the major challenge facing the institute, which can discourage it from promoting and extending credit to poor people in the future. Therefore, this study intended to assess the determinants of the loan repayment capacity of borrowers in the Kebridahar District of Koraheey Zone. Out of the total 4330 borrowers received from the SMFI Kebridahar branch, 188 representatives were selected by dividing the borrowers into two strata, in terms of loan payment status defaulters and non-defaulters. Data were collected from both primary and secondary sources. The primary data was collected from a sample of 188 borrowers using a two-stage sampling method. Descriptive statistics and an econometric model were used to analyze the data. The result of descriptive statistics revealed that Education level, household head experience in credit, family size, marital status, loan diversion, occupation type, and getting trained were shown significant differences between defaulters and non-defaulters. According to the logistic regression model result out of nine variables included in the model, Age, education level, and access to training of household head positively and significantly affected the loan repayment capacity of the borrowers while marital status (get-married) and loan size were found to be negative and significantly affecting the repayment capacity of the borrowers. Therefore, this study recommends that the microfinance and other regional concerning offices should give attention to these significantly affecting variables for further

strategic and policy decisions.

Keywords

Microfinance, Loan Repayment, Client, Determinant, Logistic Regression

1. Introduction

Microfinance is a type of financial operation that provides small loans to small businesses enterprise. This is an effort in line with the “Millennium development goals” which seeks to reduce poverty and promote livelihoods of poor people (Keredin et al., 2013; Solomon & Addisu, 2013). Globally, Microfinance has emerged to encourage small businesses to develop saving habits and provides loans, insurance, and money transfer services to low income clients which already bring positive impacts on raising poor households’ income (Kibrom, 2010). It focuses on poor people who were excluded by conventional commercial banks due to lack of collateral requirements (Tolosa & Pasha, 2014). In African countries it was widely recognized that Microfinance institutions strongly support women’s economic participation which is critical in promoting gender equity (Asiama & Osei, 2007).

In Ethiopia, many microfinance institutions have been introduced and have been working in order to solve the credit access problems of the poor those participating in the small business. Nowadays, the government had planned to provide credit establishing microfinance institutions in different geographical location (Melese, 2013). Moreover, the microfinance services are considered as an intervention instrument that government and non-government sectors are using to enable low-income groups of both rural and urban communities to improve their lives through increasing income, increasing their productivity levels, enhancing the ability to provide quality inputs to the market, reducing poverty and ensuring food security (Alemayehu, 2008; Kinde, 2012).

Microfinance institutions found to decisive way outs from the vicious circle of poverty, particularly for the rural and urban poor, particularly in a country like Ethiopia where many people live barely below the absolute poverty line (Kabeta, 2017). The microfinancing industry of Ethiopia is escalating in the face of the growing deep concerns for inflation and low-interest rate in the microfinance industry affecting the financial health and viability of MFIs. Even though microfinance was used as the major tool for poverty reeducation and raising the income of poor households for a better life, currently these institutions are facing different problems (Muthoni et al., 2017; Girma, 2018; Welderufael et al., 2015).

The repayment problem is one of the critical issues in microfinance institutions to attain better financial performance which threatens their continuity. The loan default problem has been a tragedy as it leads to a system failure to implement appropriate lending strategies and credible credit policies. In addition, it

discourages the financial institutions from refinancing the defaulting members, which put the defaulters once again into the vicious circle of low productivity (Million et al., 2012).

Default problems destroy lending capacity as the flow of repayment declines, transforming lenders into welfare agencies, instead of viable financial institutions. Loan default may also deny new applicants access to credit as the micro-finance institution's management problems enhance indirectly proportional to the increasing default problem. Researchers conducted different studies on the determinants of micro finances performance in Ethiopia (Kebu, 2017). But, all those studies researched in highland parts of the country those the accessibility of financial services is high as related to pastoralist areas like the Somali regional state. Therefore, this study focused on the assessment of factors determining loan repayment capacity of Somali Microfinance institution in Kebri Dehar town of Somali Regional State, Eastern Ethiopia.

2. Literature Review/Over View of Microfinance

Though finance has been ignored in the economic development literature and policy debate for many decades, following Joan Robinson's verdict that "where the real economy leads, finance follows", the past two decades have seen an increasing focus on financial sector issues in developing countries (World Bank, 2015). This has been accompanied by an increasingly expansive literature on financial development and its link to real sector outcome¹. The financial sector agenda, however, is a multifaceted one, with access to financial services by the poor only recently gaining more attention². The discussion on the merit and determinants of financial inclusion has worked with an array of different definition that vary according to the type of financial services, the degree of formality of the financial service provider and the depth of access. Therefore, in this article the author focuses on the determinants of loan repayment capacity of Somali microfinance institution in Kebridahar town of Somali regional state.

Microfinance is a bridge to financial services for both those small entrepreneurs and small business that have limited access to banking and related services. It provides loan and other financial services in high quality and affordable way to low income households for productive activities, build assets, stabilize consumption, and protect them against risk. To start with, very small business' loan to groups of poor people to invest in micro-business was started as experimental programs in Bangladesh, Brazil, and a few other countries to alleviate poverty (Aggarwal & Pahuja, 2019).

African countries are undertaking economic reforms, including the establishments of sound macroeconomic conditions, market-based economic policies and implements of the business environment which support growth of micro-enterprises in which clients of Microfinance are involved (UN-OSAA, 2021). As a result, the continent's microfinance industry is diverse and geographically

¹Resent academic survey on finance and literatues (Beck, 2015).

²small- and Medium-Sized Enterprise Finance In Africa (Beck & Cull, n.d.).

dispersed. An array of approaches has been used ranging from the use of agent and village community banks and traditional group based-system to specialised lending by various institutions.

However, microfinance in Africa still faces challenges, which conceal the strengths and opportunities at various levels. These challenges have inhibited its capacity to unleash its potential to better contribute to the fight against poverty (UN-OSAA, 2021). At the micro level, African MFISs have a structural weakness at several levels: governance, portfolio management, internal control, human resources, and financial sustainability. At the meso level, microfinance support services are rare and of unequal quality. At the macro level, the supervisory and coordinating bodies have limited resources, while more effort is needed to strengthen the legal framework. This is especially so for many low-income African countries, where the legal system is too overstretched and is not sufficiently reliable to help develop the financial sector further (OSAA & NEPAD, n.d.).

Microfinance is not a panacea for poverty and related development challenges in Africa, but rather an important tool in the mission of poverty eradication (Chomen, 2021). It is aimed at lifting the poor out of poverty and is a predominant poverty alleviation strategy. Having spread rapidly and widely over the last few decades, it is currently operational across several developing countries in Africa, Asia, and Latin America (Banerjee & Jackson, 2017).

Many researchers and policy-makers believe that access to micro-finance in developing countries empowers the poor (especially women) while supporting income-generating activities, encouraging the entrepreneurial spirit, and reducing vulnerability (Das & Bhowal, 2013). For micro-finance to be more effective, services like skill development training, technological support, and strategies related to better education, health, and sanitation, including livelihood enhancement measures need to be included (Nawaz, 2010). Economic growth and micro-finance for the poor might throw some light on the financial aspects of poverty, yet they do not reflect its cultural, social, and psychological dimensions. Although economic growth is vital for enhancing the living conditions of the poor, it does not necessarily help the poor exclusively tilting in favor of the non-poor and privileged sections of society (Arora & Romijn, 2012).

According to the existing literature, in Ethiopia microfinance started in 1994/5 as an existing financial institution. In Particular, the licensing and supervision of Institution proclamation of the government encouraged the Spread of Institutions (MFIs) in both rural and Urban areas as it authorized them among other things, to legally Accept deposits from the general public (hence diversify sources of funds), to draw and accept drafts, and to manage funds for the Micro-financing business. The emergence and growth of microfinance intuitions in Ethiopia, as well as impact analysis on their performance and their clients, has given rise to the idea that financial services could be an effective instrument to reduce poverty in the country.

Although intensive and well-educated youths have existed in the economy of the country, the lack of financial services for the needy target poor people

through conventional commercial banks was found as a bottleneck for the poor or low-income group peoples to finance their projects. Moreover, the collateral requirements and information asymmetries made by those commercial banks to a large number of poor people in the world have lacked access to formal banking services at all (Litenah, 2009).

According to Chomen (2021) micro-financing in Ethiopia was started in 1994/95 to reduce poverty, and since then developing microfinance in Ethiopia has encouraged the further spread of modern financial services in the country. The program believes to reduce the poverty by giving loans to the poor. Licensing and supervision of the microfinance institution proclamation No.40/1996 encouraged an extension of formal MFIs in Ethiopia sustainably. Besides banks and insurance companies, Microfinance institutions have continued to play a significant role in giving credit and saving facilities to the micro sectors of the economy.

The microfinance institutions operating in Ethiopia are governed and supervised by the National Bank of Ethiopia. They were established legally under proclamations and provide their financial services to farmers and entrepreneurs who are supposed to engage in micro and small-scale businesses at urban and rural areas of the country (Shiferaw, 2020). As a result, a rapid growth in Microfinance industry plays an indispensable role in addressing the millennium developmental goals of the Government through delivering massive financial service schemes to empower women, youths and other community groups. In achieving such developmental goals of the country, the governments of Ethiopia have designed some strategies on initiating job opportunities creation as core pillar to enhance youth's developmental programmes and other community groups by organizing those individuals in the form of Micro and Small Enterprises at urban and semi-urban areas of the country. It arranges the required initial capitals through micro credit services which undertaken by those microfinance institutions to eradicate the level of unemployment and enhancing economic welfares of those community groups (Gebremeskel, 2018).

Research Gap

The study exploits cross-sectional survey and no one be able to address the determinant factors affecting clients of Somali microfinance loan repayment problems in the area. In fact, various studies reviewed provided varying empirical evidence on the relationship between the various socio-economic aspects and loan repayment in micro finance institutions. Some studies found an inverse relationship between educational level and loan repayment performance. This did not conform to the theoretical expectations in general and contradict with stated under literature.

On the other hand, most of the literature has been conducted in developed and developing countries other than Ethiopia pacifically the pastoral areas of the country like Somali regional state were financial service for poor households is very weak. There was limited empirical evidence on how socio-economic factors affect loan repayment in microfinance institutions in Somali regional state par-

ticularly Kebridahar town. A review of the existing local studies did not identify the appropriate sampling design regarding to factors affecting repayment performance; most of the previous investigation was based on the same sampling design without identifying the appropriate sampling design based on the characteristics of the study population. It is against this research gaps that this study sought to fill the gaps by conducting a study to analyze socio-economic factors that affect loan repayment in MFIs in Kebridahar district.

3. Materials and Methods

3.1. Background of the Organization

Somali microfinance institution was founded in January 31, 2011 under proclamation No. 626/2009 and licensed by National Bank of Ethiopia. Having different branches and agents in the country it made a total amount of disbursement of near to two billion birr by 2021 provided for 41,601 clients. Somali microfinance established with the main objectives of improving the economic situation of low income and poor households, providing cost effective services, local money transfer for pastoral communities who are far away from formal financial services. Somali microfinance focusing on financial and non-financial services providing for marginalized and neglected poor peoples and business types; its services also directed to mobilize resources towards achieving food security and poverty alleviation in the Somali regional state. Somali Microfinance operates in Somali regional state of Ethiopia, with a vision to become an efficient, reliable and inclusive financial service provider at both regional national levels. It has 16 branches, 1 sub branch and 4 satellites in the region and increased its coverage through Mobile and Agent Banking Services using the Hello Cash Brand name. Currently, Somali Microfinance upgraded to licensed bank with name of Shabelle Bank. The main goal of Shabelle Bank is to address the problem of low financial inclusion in the Somali region as well as other parts of the country and to provide full financial services which in line with Muslim Sharia law.

3.2. Data, Description of Variables and Sampling Techniques

Cross-sectional data were used for this study and analyzed by using both descriptive statistics and econometric model. This study employed both simple random and stratified sampling techniques in order to select the sample of respondent households. To identify the sample size, lists of borrowers were acquired from the microfinance institution borrowers profile list. Representative sample was selected from the total borrowers by using stratified sampling technique dividing the borrowers in to two strata, in terms of loan payment status as defaulters and non-defaulters. And then simple random sampling was used to select a sample from the total clients based on the probability proportional to sample size.

Finally, from the total clients (4330) by using the following formula 188 clients were selected. Out of the 188 clients 48 were defaulters and 140 were non defaulters, respectively.

The sample size of the respondents was determined by using (Kothari, 2004) sampling design formula:

$$n = \frac{Z^2 pqN}{e^2 (N-1) + Z^2 pq} \quad (1)$$

where n = sample size; N = total population (4330); Z = 95% confidence interval (1.96); e = acceptable error term (0.05) and P and q are estimates of the proportion of population to be sampled ($P = 0.5$ and $p + q = 1$). 7% of error term ($e = 0.07$) was used to take representative for this study. So, the sample size for the study was determined as follows:

$$n = \frac{(1.96)^2 * 0.5 * 0.5 * 4330}{(0.07)^2 (4330 - 1) + (1.96)^2 * 0.5 * 0.5} \approx 188.$$

3.3. Method of Data Analysis

3.3.1. Descriptive Statistics

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

3.3.2. Econometric Model Specification

This study was intended to analyze which and how much the hypothesized explanatory variables will be related to the loan repayment performance of borrowers. As already noted, the dependent variable is a dummy variable, which will take a value zero or one depending on whether or not a borrower defaulted. Probit and logit models are similar and yield essentially identical results. Aldrich and Nelson (1984) indicated that in practice these models yield estimated choice probabilities that differ by less than 0.02 and which can be distinguished, in the sense of statistical significance, only with very large samples. The choice between them therefore, revolves around practical concerns such as the availability and flexibility of computer programs, personal preference, experience and other facilities. The probit and the logit models are commonly used in studies involving qualitative choices. The probit probability model is associated with the cumulative normal probability function, whereas, the logit model assumes cumulative logistic probability distribution.

The advantage of these models over the Linear Probability Model is that the probabilities are bound between 0 and 1. Niyimbanira (2013) and Maddala (1983) have recommended probit model for functional forms with limited dependent variables that are continuous between 0 and 1, and logit models for discrete dependent variables. Hence, the logistic model was selected for this study.

Loan repayment is a dependent variable, while different socio-economic and

lender related factors are considered as independent variables. The dependent variables value is equal to 0 and 1, which is 0 if the borrower is a defaulter and 1 if the borrower is non-defaulter. The researchers were used binary logistic regression model because it has got advantage over the others in the analysis of dichotomous outcome variable in that it is extremely flexible and easily used model from mathematical point of view and results in a meaningful interpretation interpretation (Cole, 1991). Hence, the binary logistic model was designated for this study to test proposed hypothesis and to reveal the impact of different variables on credit use and loan repayment performance. Therefore, the cumulative logistic probability model is econometrically specified as follows:

$$P_i = F(Z_i) = F\left(\alpha + \sum \beta_i X_i\right) = \frac{1}{1 + e^{-z_i}} \quad (2)$$

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

Therefore,

$$\frac{p_i}{1 - p_i} = \frac{1 + e^{z_i}}{1 + e^{-z_i}} \quad (3)$$

By taking natural logarithm ln

$$\left(\frac{p_i}{1 - p_i}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_m X_m + \mu_i \quad (4)$$

where,

P_i is the probability that an individual was make a certain choice (defaults or does not default) given X_i ;

e denotes the base of natural logarithms, which is approximately equal to 2.718;

$\beta_0, \beta_1, \beta_2,$ and β_m are coefficients of explanatory variables;

X_1, X_2 and X_m are predictor variables;

m = number of explanatory variables;

μ_i = error/stochastic term.

3.4. Hypothesis and Definition of Variables

3.4.1. Dependent Variables

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

3.4.2. Independent Variables

Definition and brief explanation of the explanatory variables selected for this study and their likely influence on loan repayment performance are presented in **Table 1**. And this shows summary of hypothesized explanatory variables in Logit Model.

Table 1. Description and hypothesis of the variables.

Variables	Description	Variable type	Measurement	Expected sign
SEXHH	Sex of the household	Dummy	1 = Male, 0 = Female	±
AGEHH	Age of the household	Continuous	Number of years	+
EDUCHH	Education level of borrower	Categorical	Level of education	+
FAMSIZE	Family size	Continuous	Man equivalent	+
LVSTOCK	Livestock holding	Continuous	TLU	+
DCREDIT	Distance from credit source	Continuous	Walking hours	-
MARITALS	Marital status	Categorical	1 = Single, 2 = Married, 3 = Divorced, 4 = Widowed	-
LSIZE	Loan size	Continuous	Birr	±
TRAINING	Training on credit use	Dummy	1 = Yes, 0 = No	+

Source: Authors construction.

4. Results and Discussion

4.1. Descriptive Statistics Results

Education level of the household head: As depicted in **Table 2**, the average years of schooling for all borrowers was 5.44 while the mean years of schooling for defaulters and non-defaulters was 0.58 and 7.10, respectively. The t-value result indicated that, the mean difference in the number of years of schooling between the defaulters and non-defaulters was statistically significant at one percent significance level. This shows that the educated households were more capable in repaying the loan than the illiterate.

Livestock holding: The average livestock population held by the sample

Table 2. Descriptive statistics for continuous variables.

Variable	Defaulters		Non-defaulters		Total (188)		Mean Difference	t-value
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.		
Education level	0.58	1.94	7.10	4.11	5.44	4.651	-6.52	-10.572***
Experience in credit	1.23	0.47	2.54	1.06	2.21	1.106	-1.31	-8.283***
Family size	12.46	6.14	9.59	5.43	10.33	5.74	2.87	3.051***
Livestock holding	6.33	3.91	6.81	3.35	6.69	3.5	-0.48	-0.818
Distance from institution	2.41	1.04	0.97	0.78	1.34	1.054	1.43	10.083***

***Significant at 1% probability level. Source: Computed from Survey Data (2021).

household was 6.69 in TLU. The mean number of livestock owned by defaulter and non-defaulter households was 6.33 and 6.81 TLU, respectively. The mean difference between the defaulter and non-defaulter groups regarding the size of livestock was negative and statistically insignificant (**Table 2**).

Experience in loan use: As shown in **Table 2**, on average, the formal credit experience of the household heads for all the respondents was 2.21 years, while independently average years of credit experience; were 1.23 and 2.54 years for defaulter and non-defaulter, respectively. The results indicate that, a significant difference between the average credit experiences of the two groups at 1 percent significance level.

This indicates that the borrowers who had more experience with credit were more likely to repay their loans than, those with less credit experience.

Family size: The average family size of the whole sample households was 10.33. The average family size of defaulter's borrowers was 12.46 while that of non-defaulter's borrowers is 9.59 with significant difference between the mean of two groups on loan repayment capacity of the borrowers. The mean difference between the family size by defaulters and non-defaulters was statistically significant at one percent significance level. The significance mean difference of the computed man-equivalent between the two groups implies that the defaulter's borrowers have more dependent family members than the non-defaulters borrowers.

Distance to microfinance institution: The result of the finding showed that the mean for the sample households was 1.34. The average time required to reach lending institutions were 2.41 for the defaulters and 0.97 for non-defaulters. The mean difference between the distances covered by defaulters and non-defaulters was statistically significant at one percent significance level. This implies that, borrowers living near lending institution have a location advantage and can contact the lender more easily and frequently than those who live in more distant locations.

Sex of the household head: As shown in **Table 3**, among the overall sampled households, 119 (63.30%) were male-headed while 69 (36.70%) were female. The result also indicates that from the defaulter households, 34 (70.83%) were male-headed households and 14 (29.17.5%) were female households. On the other hand, 85 (60.71%) of non-defaulter households were male headed households, whereas 55 (39.29%) of non-defaulter households were female. The chi-square value indicated that there was no statistically significant difference in the sex of the sample household head between defaulter and non-defaulter groups.

Marital status of the household head: The survey results also revealed that 158 (84.04%) of the sample household heads were married, 23 (12.23%) were single, 1 (0.53%) were divorced and 6 (3.20%) was widowed. Whereas the marital status of households of single, married, divorced and widowed of the household's heads of defaulters were 4 (8.33%), 39 (81.25%), 1 (2.08%), 4 (8.34%) and non-defaulters were 19 (13.57%), 119 (85%), and 2 (1.43%) respectively.

Table 3. Summary statistics fro both dummy and categorical variables.

Variable	Defaulters		Non-defaulters		Total		χ^2 -value
	Frequency	%	Frequency	%	Frequency	%	
Sex of borrowers							
Male	34	70.83	85	60.71	119	63.30	1.58
Female	14	29.17	55	39.29	69	36.70	
Total	48	100	140	100	188	100	
Marital status							
Single	4	8.33	19	13.57	23	12.23	
Married	39	81.25	119	85	158	84.04	9.11**
Divorced	1	2.08	0	0	1	0.53	
Widowed	4	8.34	2	1.43	6	3.20	
Total	48	100	140	100	188	100	
Occupation							
Pastoral farmers	28	58.33	12	8.57	40	21.28	
Petty trader	13	27.08	80	57.14	93	49.47	62.55***
Casual laborer	5	10.43	5	3.57	10	5.32	
Employed	1	2.08	32	22.86	33	17.55	
Hand crafter	1	2.08	4	2.86	5	2.66	
Grocery	0	0	7	5	7	3.72	
Total	48	100	140	100	188	100	
Loan diversion							
Yes	40	83.33	20	14.29	60	31.91	
No	8	16.67	120	85.71	128	68.09	78.43***
Total	48	100	140	100	188	100	
Access to training							
Trained	5	10.42	120	85.71	125	66.49	90.96***
Not trained	43	89.58	20	14.29	63	33.51	
Total	48	100	140	100	188	100	

*** Significant at the 1% significance level. Source: Computed from Survey Data (2021).

The chi-square result also indicated that, the marital status of the household heads has significant influence on the utilization of loan received from micro-finance institution and it was statistically significant at 1% level of significance. This implies that, it is the married that have a heavier financial burden and therefore in need to have credit to engage in economic activities from which they can earn a living. And this enables them to engage in high income generating activities.

Occupation type of the household head: From the selected household heads

for the study, 17.55% were employed while 82.45% were not employed. As shown in **Table 3**, out of the total sample households, 58.33% of the defaulters and 8.57% of non-defaulters were pastoralists. And, 27.08% of defaulters and 57.14% of non-defaulters were petty traders. Similarly, 10.43% of the defaulters and 3.57% of the non-defaulters were casual laborers. Besides, 2.08% of the defaulters and 22.86% of the non-defaulters were employed. The chi-square result indicated that, the occupation of the household heads was statistically significant at 1% significance level. This shows that the petty traders have more capacity in repaying credit than others.

Loan diversion: The successful loan repayment capacity of the borrowers in relation with loan diversion as expressed on **Table 3** shows that, out of the sampled respondents, 60 (31.91%) had used the loan for unintended purpose which mostly related with the technical and marketing problems related with their pre-intended activities, while 128 (68.09) stated that they had used the entire loan only for the pre-intended purpose. Similarly, 40 (83.33%) of the defaulters had used the loan for unintended purpose and 8 (16.67%) of the defaulters had used the loan for an intended purpose. Moreover, only 20 (14.29%) of the non-defaulter borrowers were utilized the loan for unintended purpose and the rest 120 (85.71%) of the non-defaulter borrowers invest their loan on the intended purpose as shown on **Table 3**. The chi-square result indicated that, loan diversion had significant relationship with loan repayment capacity of the borrowers at 1% significance level.

Access to get training: As depicted in **Table 3**, among the overall borrowers, 125 (66.49%) were taken training while 63 (33.51%) were not taken training and counseling from credit lenders. The result also indicates that from the defaulter households, 5 (10.42%) were taken training and 43 (89.58%) were not taken training regarding the utilization and use of money borrowed. On the other hand, 120 (85.71%) of non-defaulter borrowers were taken training, whereas 20 (14.29%) of non-defaulter borrowers were not taken training. The chi-square result indicated that, access to training was statistically significant at 1% significance level. This implies that, there exists the presence of giving training and technical advice by the lenders regarding on how to manage and utilize the borrowed loan for the intended purpose.

4.2. Determinants of Loan Repayment Capacity of Borrowers'

The econometric analysis was carried out in order to identify factors that affect the loan repayment capacity of borrowers in the study area. Accordingly, the binary logit model was used to estimate the effects of the hypothesized independent variables on the loan repayment capacity of the borrowers in the Somali microfinance institution.

Before running the logistic regression model, both the continuous and discrete variables were checked for the presence of multicollinearity and high degree of associations using Variance Inflation Factor (VIF) and contingency coefficients, respectively. The VIF values for continuous variables were found to be

less than ten (**Table 4**), indicating absence of multicollinearity between these mentioned variables. Similarly, the results of the computation of contingency coefficients indicate that there was no serious problem of association among discrete variables.

The logistic regression model result presented in **Table 5** shows that out of the hypothesized nine explanatory variables five variables were found to be significant and influence the loan repayment capacity of the borrowers in the study area. The value of the log likelihood ratio statistics was significant at 1 percent significance level which indicates the fitness of the model. Another measure of goodness of fit used in logistic regression analysis is the Count R^2 which indicates the number of observations correctly predicted by the model. The Count R^2 is based on the principle that if the estimated probability of the event is less than 0.5, the event will not occur and if it is greater than 0.5 the event will occur (Maddala, 1983).

Age: The variable age was positively and significantly influencing loan repayment at 10% significant level. The marginal effect of age was 0.005. The value of marginal effect indicates that an increase in the borrowers' age by one year increases the probability of being non-defaulter by 0.5%, keeping other variables in the model constant. This implies that as the number of year's increase, the borrowers work experience also increases and the aged borrowers were more responsible for their activities. This is in line with the finding of (Biruk et al., 2017) who found that, age was positively associated with loan repayment capacity rate of the respondents at 5% significance level.

Marital status: the married house hold heads may have good performance of the access of credit, than single, divorced, and widowed. It's obvious that married households are more matured and responsible for social values and their occupational performance is highly consequential as far as making a god family. It's assumed that married households have better chance to utilize the loan received from microfinance institution.

Education level: Similar to the prior expectation, education level of the borrowers positively and significantly influences the loan repayment capacity of

Table 4. Multicollinearity test.

Variables	VIF	1/VIF
AGEHH	1.47	0.680
EDUC	1.50	0.666
FSIZE	1.60	0.625
LOAN SIZE	1.45	0.689
LIVESTOCK	1.23	0.813
DISTANCE	1.54	0.649
Mean VIF	1.465	-

Source: Computed from Survey Data (2021).

Table 5. Factors determining loan repayment capacity (Model results).

Variables	Logit model result	Marginal Effect
	Coef (Std. Err)	dy/dx (Std. Err)
AGEHH	0.111 (0.051)	0.0050236* (0.00298)
MARITALS Unmarried	0.316 (0.337)	0.009 (0.015)
Married	-1.382 (0.517)	-0.0623253* (0.03241)
LEDUCA	0.334 (0.111)	0.0150573** (0.00658)
FSIZE	-0.077 (0.066)	-0.0034902 (0.0033)
SEXHH	-0.769 (0.667)	-0.0321508 (0.03035)
SIZELOAN	-1.373 (0.521)	-0.073572* (0.03218)
LVSTOK	0.049 (0.083)	0.0022279 (0.00379)
DSTANCE	-0.492 (0.279)	-0.0221845 (0.0165)
TRAINING	3.321 (0.777)	0.2951598** (0.12017)
_cons		-0.357 (1.661)
Number of obs		188
LR chi ² (9)		139.26
Prob > chi ²		0.000
Pseudo R ²		0.65
Log likelihood		-37.18

Note: standard errors in parenthesis; * & ** denotes statistical significance at 10% & 5% respectively. Source: Computed from Survey Data (2021).

borrower's at 5% probability level. The result of marginal effect implies that also confirms that, a one year increase in the formal years of schooling of the borrowers increases the loan repayment capacity by 1.50 percent, keeping other variables constant. This indicates that with more education borrowers can use the loan efficiently and invest on more productive and income generating activities enabling them to settle their loan obligation on time. This is in line with the finding of (Girma, 2018) who found that, the higher the literacy level of the clients, the higher will likely be non-default. This result inconsistent with the findings of (Fikadu et al., 2017) who found that, the borrowers whose educa-

tional level increased by attending one more year at school have the probability of decreasing the loan repayment performance by 0.008 times less than the borrowers who have lesser education level.

Loan size: This variable unlike to others negatively affecting the loan repayment capacity of the borrowers'. The marginal effect of the variable was 0.073572 which indicates as loan size increase by one unit the repayment capacity of the borrowers' decrease by 7.36 percent, keeping other factors constant.

Training on loan use: As it was hypothesized, this variable was found to influence the loan repayment capacity of the borrowers positively and significantly at a 5% significance level. The marginal effect of the training was 0.295. The computed marginal effect result shows that having training over the utilization of loan increases the repayment capacity of borrowers by 29.50 percent, keeping the effects of other variables constant. The implication of the result was that if the lenders provide appropriate training to borrowers about loan utilization, loan terms and obligations, the clients will able to understand the rule and regulations and become repay the borrowed loans on time. The result of this study agree with that of (Firafis, 2015) who found that other things being kept constant, the odds ratio favoring loan repayment capacity increase by a factor 9.546 for borrowers who were trained.

5. Conclusion

The provision of financial services for poor and low-income people is very useful to enhance people's livelihoods and ensure food security in the study area. The poor loan repayment capacity undermines the financial position of microfinance which further hinders the flow of funds between institutions and borrowers. With this in mind, the study focused on determining the determinants of clients' loan repayment capacity in a Somali microfinance institution in Kebri Dahar District, Korahey Zone of Somalia Regional State. To this end, the study carried out a series of informal and formal surveys, and the data was collected from a total sample of 188 households that were borrowers through a two-stage sampling technique.

Data analysis implies both descriptive statistics and an econometric model (Logit regression). The descriptive statistics used in this method of data analysis included mean, standard deviations, frequency, percentages, and inferential statistics such as t-tests for continuous variables and Chi-square tests for discrete variables to indicate the significance of different variables on loan repayment capacity. The descriptive statistics results showed that out of 188 households, 140 (75%) were non-defaulters and 48 (42.6%) were defaulters.

The descriptive analysis result showed that the mean difference between the two groups regarding the education level, experience, family size, distance from microfinance institutions, marital status, occupation, loan diversion and training were statistically significant. However, the two groups have shown a statistically insignificant mean difference regarding sex of household head and livestock

holding. The study assumed nine explanatory variables were to explain the determinants of the loan repayment capacity of borrowers and estimation result of the marginal effect of the logit model indicated that among nine explanatory variables, which were hypothesized to influence the loan repayment capacity of the borrowers. In this regard the study's five variables were statistically significant while the remaining four variables were statistically insignificant. According to the study results variables like age, education, and access to training of the household head were positively affecting the loan repayment capacity of the borrowers whereas marital status and loan size were found to be negatively affecting the repayment capacity. These positively affecting variables imply that one unit increase in age, year of schooling, access to training will increase the payment capacity of the borrowers. Therefore, more experienced people, people with high level of education have access to training were more responsible to repay their loan on time to the Microfinance institution. In general, to improve the use of microfinance services for the borrowers, this study recommends that microfinance institution should make an effort to educate and train borrowers by giving special emphasis. A microfinance institution has to find a way by which uneducated members of the community can better benefit from the services rendered by the institution. Stakeholders in the microfinance sector have to ensure that borrowers have relevant training in entrepreneurial skills and practices to alleviate loan repayment problems in the Somali region. Microfinance institutions should adopt client protection principles and translate them into practices throughout their institutions. Investors should consider client protection in their investment agreements with retail institutions and in their own practices.

6. Future Researches

There are many bedside factors that are mentioned in this study that hinder the capacity of borrowers to fulfill their loan repayment obligations per the scheduled repayment on time. Thus, the elements that need further investigation include firm characteristics, project characteristics, general increases in the price level of inputs, and the effects of droughts on loan repayments.

Author Contributions

All the authors contributed towards this research article: A.A. and M.L.; methodology, M.L.; software and formal analysis, A.A.; validation, A.K. and M.L.; investigation and resources, A.A.; data correction and writing—original draft preparation, A.A., A.K. and M.L.; writing—review and editing, visualization, M.L.; project administration, A.A.; funding acquisition. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- Aggarwal, S., & Pahuja, A. (2019). Status of Microfinance in the World Level. *Paramana Research Journal*, 8, 21-43. <https://doi.org/10.2139/ssrn.3430180>
- Aldrich, J. H., & Nelson, F. D. (1984). *Estimation of Probit and Logit Models for Dichotomous Dependent Variables*, in *Linear Probability, Logit, and Probit Models: Quantitative Applications in the Social Science*. Sage Pub. Inc. <https://doi.org/10.4135/9781412984744>
- Alemayehu, Y. (2008). *The Performance of Micro Finance Institutions in Ethiopia: A Case of Six Microfinance Institutions*. Master's Thesis, Addis Ababa University.
- Arora, S., & Romijn, H. (2012). The Empty Rhetoric of Poverty Reduction at the Base of the Pyramid. *Organization*, 19, 481-505. <https://doi.org/10.1177/1350508411414294>
- Asiama, J., & Osei, V. (2007). *A Note on Microfinance in Ghana* (p. 2015).
- Banerjee, S. B., & Jackson, L. (2017). Microfinance and the Business of Poverty Reduction: Critical Perspectives from Rural Bangladesh. *Human Relations*, 70, 63-91. <https://doi.org/10.1177/0018726716640865>
- Beck, T. (2015). *Microfinance A Critical Literature Survey*. Independent Evaluation Group.
- Beck, T., & Cull, R. (n.d.). *Small- and Medium-Sized Enterprise Finance in Africa. Africa Growth Initiative Working Paper 16*. Africa Growth Initiative, 36.
- Biruk, K., Mesfin, Y., & Seid, S. (2017). Determinants of Smallholder Farmer's Loan Repayment Performance: The Case of Assosa District, Benishangul-Gumuz Regional State, Western Ethiopia. *Research Journal of Finance and Accounting*, 8, 22-30.
- Chomen, D. A. (2021). The Role of Microfinance Institutions on Poverty Reduction in Ethiopia: The Case of Oromia Credit and Saving Share Company at Welmera District. *Future Business Journal*, 7, Article No. 44. <https://fbj.springeropen.com/articles/10.1186/s43093-021-00082-9>
- Cole, T. J. (1991). Applied Logistic Regression. D. W. Hosmer and S. Lemeshow, Wiley, New York, 1989. No. of Pages: Xiii + 307. Price: £36.00. *Statistics in Medicine*, 10, 1162-1163. <https://doi.org/10.1002/sim.4780100718>
- Das, S. K., & Bhowal, A. (2013). *Impact of Self Help Group on Members and Its Involvement in Social Issues: Core vs. Peripheral Issues* (p. 25).
- Fikadu, G., Wondaferahu, M., & Belay, B. (2017). Determinant Factors Affecting Loan Repayment Performance of Women Borrowers from Micro Finance Institutions in Southwest Ethiopia: Evidence from Four Woredas around Gilgel Gibe Hydroelectric Power Dam. *Global Journal of Management and Business Research: C Finance*, 17, 43-52.
- Firafis, H. (2015). Determinants of Loan Repayment Performance: Case Study of Harari

- Microfinance Institutions. *Journal of Agricultural Extension and Rural Development*, 7, 56-64. <https://doi.org/10.5897/JAERD2014.0622>
- Gebremeskel, S. (2018). *The Role of Entrepreneurship Development Center in Creating a Suitable Environment to Start-Up Women-Owned Micro and Small Enterprises in Addis Ababa*. <http://etd.aau.edu.et/handle/123456789/13260>
- Girma, G. (2018). Determinants of Loan Repayment: The Case of Microfinance Institutions in Gedeo Zone, SNNPRS, Ethiopia. *Universal Journal of Accounting and Finance*, 6, 108-122. <https://doi.org/10.13189/ujaf.2018.060303>
- Kabeta, T. (2017). Review of Microfinance and Women Empowerment in Ethiopia. *American Journal of Finance*, 2, 1-27. <https://doi.org/10.47672/ajf.267>
- Kebu, C. (2017). *Assessment of Result Oriented Performance of Microfinance Institutions: The Case of Cheliya District West Shoa Zone*. MA Unpublished Thesis, Rift Valley University.
- Keredin, T., Annissa, M., Surendra, B., & Solomon, A. (2013). Long Years Comparative Climate Change Trend Analysis in Terms of Temperature, Coastal Andhra Pradesh, India. Abhinav National Monthly Refereed. *Journal of Research in Science and Technology*, 2, 1-13.
- Kibrom, T. (2010). *Determinants of Successful Loan Repayment Performance of Private Borrowers in Development Bank of Ethiopia North Region*. Master's Thesis, School of Graduate Studies, Mekelle University.
- Kinde, B. A. (2012). Financial Sustainability of Microfinance Institutions (MFIs) in Ethiopia. *European Journal of Business and Management*, 4, 1-10.
- Kothari, C. R. (2004). *Research Methodology, Methods and Techniques* (2nd Revised ed.). New Age International Private Limited Publisher.
- Litenah, E. (2009). Performance Analysis of a Sample Microfinance Institutions of Ethiopia. *International NGO Journal*, 4, 287-298.
- Maddala, G. S. (1983). *Limited-Dependent and Qualitative Variables in Econometrics* (p. 401). Cambridge University Press. <https://doi.org/10.1017/CBO9780511810176>
- Melese, M. (2013). *Impacts of Microfinance Institution on the Living Condition of Rural Women: A Case Study on the Oromia Credit and Save Share Company in Shirka Woreda, Oromia Region*. Master's Thesis, The School of Graduate Studies of Indra Gandhi National Open University.
- Million, S., Nyikal, R., & Wangia, S. (2012). Factors Affecting Loan Repayment Performance of Smallholder Farmers in Eastern Hararghe, Ethiopia. *Journal of Developing Country Studies*, 11, 205-213.
- Muthoni, M. P. L., Mutuku, G. K., & Riro (2017). Influence of Loan Characteristics on Microcredit Default in Kenya: A Comparative Analysis of Microfinance Institutions and Financial Intermediaries. *IOSR Journal of Business and Management*, 19, 39-59. <https://doi.org/10.9790/487X-1905043959>
- Nawaz, S. (2010). Microfinance and Poverty Reduction: Evidence from a Village Study in Bangladesh. *Journal of Asian and African Studies*, 45, 670-683. <https://doi.org/10.1177/0021909610383812>
- Niyimbanira, F. (2013). An Overview of Methods for Testing Short- and Long-Run Equilibrium with Time Series Data: Cointegration and Error Correction Mechanism. *Mediterranean Journal of Social Sciences*, 4, 151. <https://doi.org/10.5901/mjss.2013.v4n4p151>
- OSAA, & NEPAD (n.d.). *Microfinance in Africa*. <https://www.un.org/africarenewal/sites/www.un.org.africarenewal/files/Microfinance.pdf>

- Shiferaw, A. (2020). *The Effects of Saving and Credit Cooperative's on Members' Socio-Economic Condition Improvement: Evidence from Entotto Saving and Credit Cooperatives*. Doctoral Dissertation, St. Mary's University.
- Solomon, A., & Addisu, B. (2013). Determinants of Rural Households Loan Repayment Performance. Oromia National Regional State: The Case of Dodota Woreda. *International Journal of Research in Computer Application and Management*, 3, 7-19.
- Tolosa, N., & Pasha, S. A. M. (2014). Performance of Loan Repayment Determinants in Ethiopian Micro Finance—An Analysis. *Eurasian Journal of Business and Economics*, 7, 29-49.
- United Nation—Office of Special Advisor on Africa (2021). *Microfinance Institutions in Africa*. Report Prepared for Transforming African UN-Program.
- Welderufael, L., Tesfatsion, S., & Gedifew, A. (2015). Factors Influencing MFIS Group Loan Repayment Performance: A Case of MSES' Service Sector in Mekelle City, Ethiopia. *Research Journal of Finance and Accounting*, 6, 154-170.
- World Bank (2015). MICROFINANCE: A Critical Literature Survey. IEG 2015 Report, Independent Evaluation Group, the World Bank Group. Washington, DC, 1-50.