

Impact Of Revolving Credit Fund On The Rural Poor Economy In Western Hararghe Zone: In Case Of Some Rural Woreda

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Abstract: The study was conducted in West Hararghe zone; in case of some rural woreda to analyze impact of revolving credit fund on rural poor economy. To source of data primary data were collected from 120 members and 60 nonmembers of multipurpose cooperative. The secondary data were collected from institutions. The descriptive statistics were used to describe institutional and socio-economic characteristics of respondents. Multiple logistic models were used to analyze factors influencing average annual income and repayment performance. The amount of loan authorized to beneficiaries is not disbursed on time which may discourage farmers to demand revolving fund. About 54.00 percent of the sample respondents utilized loan fully for the purpose initially intended. Further, respondents revealed that lack of awareness; expenditure for consumption purpose and ceremonial expenditure were the main reasons for miss utilization of the revolving credit fund. It was identified out of respondent's 80 percent were non-defaulters and 20 percent were defaulters.

Key words: Loan, revolving, West Hararghe

1. Background of the Study

Ethiopia is an agrarian economy country where agricultural sector plays an important role in economy. However, agriculture is characterized by very low productivity. As agriculture is the major sector of the economy and the peasant sub-sector is dominant within agriculture, strengthening and developing peasant sub-sector is bound to stimulate sector, which will on rest of economy, effect of which will be a net increase in GDP (AIDB, 2001) The development of agricultural sector calls for, among others, the introduction of modern technologies. However, with introduction of new production technologies, financial needs of farmers increase. Steady agricultural development depends on increase in farm. Most of the time, heavy investment cannot be made by the farmers out of their own funds because of low level of incomes. Thus, here comes the importance and significance of the availability of rural credits to bridge the gap between owned and required capital (Singh et al.,1985). It is important, however, that these borrowed funds are invested for productive purposes and generated additional incomes be used to repay to the lending institutions to have sustainable viable production process. Delivering productive credit to rural poor problem. Providing low-cost, efficient credit services and recovering a high percentage of loans granted are the ideal aims in rural finance (Winner, 1995). The Commercial Bank of Ethiopia is largest source of agricultural credit in country. During 2005, 2.5 million farmers, accounting 25 percent of total smallholder agriculture, obtain credit annually for purchase of inputs, mainly fertilizer. The bulk of this credit was provided by commercial banks with the intervention of the state governments to underwrite the loans. (FAO, 2005) Therefore, it is believed that provision of credit helps farmers to solve their economic problems. One of this revolving credit fund given to farmers through cooperatives and non-government institutions like World Bank Food Security Coordination Bureau. Hence this study is undertaken to analyze the impact of revolving

credit fund in West Hararge zone, the eastern part of Ethiopia.

2. Research Methodology

For study purpose, primary and secondary sources were used to collect quantitative and qualitative data. Information to farmer's socio-economic characteristics like family level such land size, experience/awareness in credit use, marketing infrastructure, access to extension service, access to credit service, education status, sources of credit, access to off farm activities, calamities of nature, investment opportunities, cultural factors, response to loan repayment and individual characteristics like age, family size, personal behavior were obtained directly through structured interview. To conducting individual interview with beneficiaries, multipurpose cooperatives were interviewed using interview schedule prepared for this purpose. It was developed in English and later translated into Oromic the local language of region. The interview schedule was further pre-tested before final administration. The secondary data were collected from records of different institutions cooperatives in woreda, West Hararghe Food Security Coordination office, websites, and other related dissertations. They were used for analyzing different data which are relevant to the study. Moreover, these data helped to appreciate the experience of other countries and try to apply to our research work. According to West Hararghe some rural woreda cooperatives bureau there are 16 Multipurpose Cooperative Societies operating in each tabia. These cooperative societies undertake different activities, one of which is distributing revolving credit fund. Out of 16 MPCs five were randomly selected for study taking in consideration number of beneficiaries the cooperatives. The following table provides information on population and sample size of selected MPCs. The total sample sizes of member respondents were 120. From mathematical point of view the multiple regression model is used due to its simplicity and flexibility in the analysis of dichotomous outcome variable. (Montgomery, 1998)

Therefore, multiple regression model is specified as follows:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \dots + B_kx_k + \epsilon \dots \dots \dots (1)$$

Where: Y = represents the dependent variable
 β_0 = denotes the intercept of the regression which is constant.

$\beta_j, j = 0, 1, \dots, k$, are called the regression coefficients

x_1, x_2, \dots, x_k = refers to the regressor variables

ϵ = is the error or deviation between y value and the expected value of y given by $\beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \dots + B_kx_k + \epsilon$

It is multiple linear regression model with k regressors. The parameters $\beta_j, j = 0, 1, \dots, k$, are called the regression coefficient. This model describes a hyper plane in the k-dimensional space of the regressor variables x_j . The parameter β_j represents the expected change in the response y per unit change in x_j when all the remaining regressor variables $x_i (i \neq j)$ are held constant. For this reason, the parameters $\beta_j, j = 1, 2, \dots, k$, are often called partial regression coefficients. Multiple linear regression models are often used as approximating function. That is, true functional relationship between y and x_1, x_2, \dots, x_k is unknown, but over certain ranges of the regressor variables the linear regression model is an adequate approximation.

The coefficient of multiple determinations R^2 is defined as

$$R^2 = SSR/Syy \dots \dots \dots (2)$$

The multiple coefficients of determination represent percentage of variability in y that is explained by estimated regression equation. We have $0 < R^2 < 1$ in simple regression case. However, large value of R^2 does not imply regression model is good. Adding regressor to model will increase R^2 regardless of whether or not the additional regressor contributes to the model. Thus, it is possible for models that have large values of R^2 to perform poorly in prediction or estimation. The positive square root of R^2 is multiple correlation coefficient between y set of regressor variables x_1, x_2, \dots, x_k . It is R as measure of the linear association between y and x_1, x_2, \dots, x_k . The functional relationship between the probability of improvement in income and explanatory variables is specified as follows:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \dots + B_kx_k + \epsilon \dots \dots \dots (3)$$

Where: Y is average yearly income of respondents
 β_0 is Constant or intercept

$\beta_1, \beta_2, \dots, \beta_k$ refers regression coefficients

x_1, x_2, \dots, x_k refers vector of explanatory variables

Hosmer and Lemeshew (1989) pointed out that a logistic distribution (logit) has got advantage over others in analysis of dichotomous outcome variable in that it is extremely flexible model from mathematical point and meaningful interpretation. Hence, the logistic model is selected for studies were as follows.

Therefore, the cumulative logistic probability model is econometrically specified as

$$P_i = F(Z_i) = F(\alpha + \beta_i X_i) = 1 / (1 + e^{-Z_i}) \dots \dots \dots (4)$$

Where, P_i is the probability that an individual will make a certain choice (defaults or does not default) given X_i ; denotes the base of natural logarithms, which is approximately equal to 2.718; X_i represents the i^{th} explanatory variables; and α and β_i are parameters to be estimated. Hosmer and Lemeshew (1989) 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.

$$(1 - p_i) = \frac{1}{1 + e^{Z_i}} \dots \dots \dots (5)$$

Therefore,

$$\frac{p_i}{1 - p_i} = \frac{1 + e^{Z_i}}{1 - e^{Z_i}} = e^{Z_i}$$

Taking the natural logarithm of equation..... (6)

$$Z_i \ln \left[\frac{P_i}{1 - P_i} \right] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \dots + \beta_m x_m \dots \dots \dots (7)$$

If the disturbance term (u_i) is taken into account, the logit model becomes

$$Z_i = \alpha + \sum_{i=1}^n \beta_{xi} + \mu_i$$

3. Results and Discussion

Age is important factor in utilization of revolving credit through individuals develop experience in credit use. The table below depicts that 46 percent of the sample respondents incorporated in the study are found in the age of 41 and above years of old. But only 1.7 percent is in the range of 18-25 years of age.

Table 1: Distribution of respondents by age group

	No of Respondents	Percentage (%)
18-25	2	1.7
26-33	20	16.7
34-42	43	35.8
43+	55	45.8
Total	120	100.0

Source: Field survey – October 2007

The table below reveals about the marital status of respondents. It indicates that 76.00 percent of sample respondents are married while 10.00 and 13.00 percent for divorced and widowed respectively and only 2.00 percent of the household in sample are not married.

Table 2: Distribution of Marital Status of Respondents

	No of Respondents	Percent
Married	91	75.8
Unmarried	2	1.7
Divorced	12	10.5
Widowed	15	12.5
Total	120	100.00

Source: Field survey – October 2007

Education is contributed towards the improvement livelihood of individuals. The ability of rural poor to transform their life through access to financial resources depends on many factors of which education is one of most important. Better education helps farmers in the identification of better business opportunities. The survey results revealed that 74.00 percent of the sample borrowers are illiterate, only 21.00 percent of them attended primary school. This result calls for the necessity of basic education for rural people in the area.

Table3: Education and Gender Distribution

Educational Status	Gender		Total
	Men	Women	
No formal education	61(88.54%)	28 (31.46%)	89 (74.17%)
Below six Grade	25 (100%)	0 (0.00%)	25 (20.83%)
7-12	1 (100. %)	0 (0.00%)	1 (0.83%)
Certificate	5 (100. %)	0 (0.00%)	5 (4.17%)
Total	92	28(100.00%)	120

Source: Field survey – October 2007

But only 4.00 percent have certificate. In addition to this it also shows that 24.00 percent of the households in the sample are headed by women. Analyzing gender of respondents helps to show the participation of women in credit activities. Household profile means amount of family. The household size of a family indicates the level of dependency in the household. The average family size of the sample borrowers is found to be 4.7 persons. Most of the family members except the parents are not of working age 25.00 percent and 27.00 percent of the household in the sample have a family size of four and five respectively, while the percentage of borrowers having only one is 2.00 percent. Large family size could be a burden when there are many dependents and could be favorable if people are employed to serve in farm and off-farm activities in the household, especially after the loan.

Table4: Distribution of Family size of Respondents

	No of Respondents	Percent
1	2	1.70
2	6	5.00
3	14	11.70
4	30	25.00
5	32	26.70
6	22	18.30
7	6	5.00
8	8	6.70
Total	120	100.00

Source: Field survey – October 2007

The more borrowers used to take credit; the better potential investment. This is because as borrowers take credit very often, they experience proper handling to it. With reference to the type of clients in the sample households; 71.00 percent of the clients were taking credit for at least two years, which indicated farmers took credit to get access more food and necessities are increasing from time. Only 6.00 percent clients were joined in the year 2007 G.C.

Table5: Client Credit Experience

	No of respondents	Percentage
1 year	7	5.8
2 years	85	70.8
3 years	16	13.3
4years	12	10.0
Total	120	100.0

Source: Field survey – October 2007

Occupation is an important factor as it provides income to households. The type of occupation a household head engages determines living condition of household itself. Off-farm activities such as petty trading, selling homemade drinks, firewood provide additional income and help borrowers settle their debt if any. Farming dominates as the first occupation of most household heads with 95.00 percent. This is true for both male heads and female ones with 62.00 percent and 57.00 percent, respectively. However, male household heads are more likely than male heads to list trader as their first occupation (10.00 percent compared with 0.00 percent). The opposite is true for wage laborer (40.00 percent of female household heads versus 31.50 percent of male heads)

Type of Occupation	No of Respondents		Percentage (%)	
	Men	Women	Men	Women
Farming	90	24	61.70	57.10
Wage laborer	46	13	31.50	41.00
Trader	10	0	6.80	00.00
Household work	0	5	0.00	11.90
Total	146	42	100.00	100.00

Source: Field survey – October 2007

Farm income is the crucial factor in determining the wellbeing of the borrowers. Moreover, higher farm income better is loan repayment performed. Livestock, crops and off-farm activities are important income sources for the sample borrowers. The average revenue earned by a borrower from all crops, vegetable production and livestock in 2006/2007 was 3,137.93 Birr per annum. The minimum and maximum amount is 580 and 10,500 Birr respectively.

Table7: Annual Incomes

	No of Respondents	Percent
Br 500 -1999	7	5.8
2000-3499	30	25.0
3500-4999	31	25.8
5000-6499	19	15.8
6100+	33	27.5
Total	120	100.

Source: Field survey – October 2007

Farmers in the study area undertake both crop and livestock production activities. In area, livestock are kept for economic reasons. The major economic reasons include provision generation of cash income. The total livestock owned by sample respondents were 1356 in number and 295 in TLU.

Table 8: Average Size of Livestock (TLU/household) for Sample Respondents

	Head	TLU	Mean	Average/ H.H
Goat	91	9.1	0.76	3.37 (27)*
Sheep	798	79.8	6.65	7.60 (105)
Cattle	262	183.4	1.02	2.98 (88)
Donkey	43	21.5	0.36	1.43 (30)
Poultry	169	0.845	1.35	4.57 (37)
Total	1356	294.645		

Source: Field survey – October 2007

Women have vulnerable to poverty due to different social and cultural believes in country and so their access to credit is limited. Therefore, having women decide on the borrowing is significant for family. The sample respondents were asked whether or not women had equal or more right to decide on the borrowed fund. The table below shows that about 68.00 percent of the respondents reported that they made decision together with their partners on how borrowed fund should be used. But 18.00 percent of women respondents reported that they made decisions by themselves.

Table 9: Decision on Credit usage as Perceived by Borrower Group

	Frequency	Percent (%)
Men	18	15.00
Women	21	17.50
Both	81	67.50
Total	120	100.00

Source: Field survey – October 2007

Celebrating social ceremonies could affect the proper utilization of credits. Borrowers celebrate social ceremonies the probability of mis-utilization is very high and the possibility of utilizing the revolving credit for such purpose is definitely high. Concerning social ceremonies in the study area, of the total respondent's 35 percent reported that they had celebrated one or more of these occasional ceremonies and 65.00 percent stated that they not celebrated during 2007 G.C.

Table10: Social Ceremonies as Reported by Respondents

	Frequency	Percent (%)
Yes	42	35.00
No	78	65.00
Total	120	100.00

Source: Field survey – October 2007

Adequate credit is essential for rural poor to expand their investment. Inadequate credit was reported as one reason for borrowers not to repay their loan on time (focus group discussion). Inadequate revolving credit retards potential expansion of investments by borrowers as it is limited to a certain level and matured within a year. The survey results reveal that 58 percent of the borrowers stated that the disbursed loan are inadequate while 42 percent reported that the opposite.

Table 11: Adequacy of Credit as Perceived by Respondents

	Frequency	Percent (%)
Adequate	50	41.67
Inadequate	70	58.33
Total	120	100.00

Source: Field survey – October 2007

Supervisory visit by extension agents is the other important input for the proper usage of credit. Extension contacts help the borrowers how to utilize the amount properly. It is also believed that the more the extension contact the better is the outcome. The results of the survey indicate that 79.20 percent of respondents had extension contact, while 20.8 percent not.

Table 12: Visited by Extension Workers

	Frequency	Percent (%)
No visit	25	20.8
1 times	24	20.0
2 times	38	31.7
3 times	29	24.2
4 + times	4	3.3
Total	120	100.0

Source: Field survey – October 2007

The sources of credit for most of the sample respondents in the study area are the formal and non-formal financial institutions. For about 90.00 percent of the total respondent's cooperative credit was their main source during the year 2007 G.C. Debit Credit and Saving Institution (DECSI) was reported as second choice (40.00 percent) of credit source.

Table 13: Source of Credit as Reported by Respondents

	No of Respondents	Percentage
Cooperatives	108	90.00
DECSI	48	40.00
NGOs (World Bank)	14	11.70
Commercial Bank of Ethiopia	2	1.70
Relatives	18	15.00
Total	190	

Source: Field survey – October 2007

4. Analysis of Factors Influencing Loan Repayment Performance

Table 14: The Maximum Likelihood Estimates of the Logit Model

	Esp Coefficient	Odds ratio	Wald statistics	P Value
Constant	10.105	.250	5.593	.018
Age	-2.334	.097	11.365	.001***
Daily lab	2.451	11.596	5.790	.016*
Numoxen	.380	.684	.795	.373
Extvisit	1.443	.236	5.338	.000***
Cermospe	.000	1.000	.184	.668
Credexpe	-1.530	.217	2.315	.128
Farmsz	.093	1.097	.004	.952
Accred	-.180	.835	.190	.663
Diver	-1.220	.295	1.279	0.003**

Source: Field survey – October 2007

* Significant at 5.00 percent, ** significant at 10.00 percent and *** significant at 1.00percent

The test statistic exceeds the Chi-square critical value with 9 degrees of freedom. The result is significant at less 0.01 indicating hypothesis that all coefficients except intercept are equal to zero is not tenable. Age of Borrowers (Age): The result of logistic regression model says that this variable affects the loan repayment performance negatively. This is contrary to expectations made earlier that through time as clients experience in using credit their repayment performance would be better. This may be due to fact that as borrowers get old the tendency for diversification and investment decreases for fear of risk through time, may use the amount for other purpose. This variable is significant at 1.00 percent. The odds ratio in favor of non-defaulting increases by a factor of .097 as the age of borrowers increases by one year, ceteris paribus. Extension Visit (Visext): Supervisory visit by extension agents is hypothesized earlier to affect loan repayment performance positively. The result of the logistic regression is consistent with the previous assumption that the less extension contacts higher the tendency for nonrepayment. The significant test for this variable is less than or equal to 1percent. The odds ratio in favor of repayment performance, ceteris paribus, increase by a factor of 5.34 as the number of contacts with extension agent increase. Off Farm Income of the Borrowers (Dailylab): The result of logistic regression model reveals that income drawn from daily labour has positive effect on repayment performance of the borrowers. This is consistent with a prior expectation. The variable is significant at less than 5 percent. Other things kept constant, odds ratio favoring loan repayment performance increased by a factor of 5.790 for borrowers who get additional income from daily labor. Loan Diversion (Diver): logistic regression model shows consistent result to prior expectation. It is significant at less than 10.00

percent. The odds ratio in favor of loan repayment decreases by a factor of 0.295 as a borrower diverts the loan. This result is in complete agreement with the study made by Belay (2002).

5. Conclusion and Recommendation

The objective of this study was to investigate impact of revolving credit fund on livelihood farmers in some rural West Hararghe zone woreda, focusing on assessments of the credit needs of the borrowers, evaluating the utilization of the revolving credit fund, determining the socio-economic impact of revolving fund utilization and identifying the loan repayment performance of borrowers. For data gathering both primary and secondary sources were used to collect quantitative and qualitative data. During the study, primary data were collected from 120 members and 60 nonmembers of cooperative. In addition, secondary data were collected from the relevant institutions. For the data analysis, descriptive statistics such frequency distribution and percentages were used to describe institutional and socio-economic characteristics of the respondents. A Multiple and logistic regression model were used respectively to analyze factors influencing average annual income of respondents and their repayment performance. The amount of loan authorized to beneficiaries is not disbursed on time which may discourage farmers to demand revolving fund. About 54.00 percent of the sample respondents utilized the loan fully for the purpose initially intended. Further, respondents revealed that lack of awareness; expenditure for consumption purpose and ceremonial expenditure were the main reasons for misutilization of revolving credit fund. According to the estimates of the regression model variables which greatly affect repayment performance by clients include age, extension visit, off farm income of the borrowers and loan diversion.

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