



Microcredit & Women Empowerment: A Study

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Abstract

The paper examines the role played by microcredit in empowering women. The study has been conducted in the Silchar town of Cachar, Assam. The objective of the study is to examine whether there has been any significant increase in empowerment level of the women borrowers after joining the microcredit programme. To measure the impact of the programme the study has collected 400 samples from among those women micro credit holders of Silchar town, who have taken the loans for at least five times.

Keywords: *Microcredit, Women Empowerment.*

Introduction: Microcredit programmes for the poor people have come to occupy a major place in poverty removal as well as women empowerment programmes in different countries. This has earned the attention of many researchers to find empirical evidence of the impact of microcredit on the programme participants. By reviewing the different research studies made on the role played by microcredit in empowering women it has been found that no concrete conclusion has yet been reached. Some of the studies found positive impact of microcredit on women empowerment and others found negative impact or no impact. In this particular paper an attempt has been made to empirically find whether microcredit plays any positive role in empowering the women borrowers. The findings are deduced by using two methods: first, by using some selected aspects of empowerment and second, by using the women borrowers own understanding about their empowerment level.

Area of the Study: The area chosen for the study is Silchar, the major town of Cachar district in the state of Assam. It is located in the southern part of Assam. It is the second largest town in the state in terms of population and municipal area. As of Census 2011, Silchar has a population of 1,72,830. The area of the town is 15.75 km². The town is divided into 28 municipal wards and is governed by a Municipal Board.

Objective of the Study: To examine whether there has been any significant increment in social empowerment of the female borrowers after joining the microcredit programme.

Hypothesis of the Study: There is no significant increment in social empowerment of the female borrowers after availing microcredit.

Methodology: The study is based on the primary data collected from the sample of borrowers using a structured schedule. The sample has been selected from such women borrowers in Silchar town

who have taken at least five microcredit consecutively. The sample has been selected using a combination of random and purposive sampling method. The size of the selected sample is 400.

Different authors have defined empowerment differently. Kabeer (1999) offers a definition of empowerment which well represents what is common to all the different definitions of empowerment given by different authors. According to Kabeer (1999), empowerment is an expansion in people’s ability to make strategic life choices in a context where this ability was previously denied to them. Malhotra et. al (2002) offer a list of the most commonly used dimensions of women’s empowerment, drawing from the frameworks developed by various authors. Hashemi et. al (1996) chose eight indicators of empowerment in their study. The indicators of empowerment chosen for this particular study, as shown below, are drawn from Malhotra et. al (2002) and Hashemi et.al (1996):

Day to day matters of the household; involvement in decisions regarding large expenditures; opinion in matters of savings; utilization of personal income; political participation; involvement in matters of asset acquisition; domestic violence; physical mobility; respect; and confidence in meeting official people.

Altogether ten indicators of empowerment have been selected for the study as shown above and scores have been assigned to the different responses of the borrowers for the selected ten indicators of empowerment.

Table 1: Scores assigned to the different responses for different indicators of empowerment

Indicators	Scores for different responses				
	1	2	3	4	Max _m
1.Opinion in day to day matters	Not at all	Very little	Much more	To a great extent	4
2.Opinion in matters of large expenditure	-do-	-do-	-do-	-do-	4
3.Opinion in matters of savings	-do-	-do-	-do-	-do-	4
4.Utilization of personal income	-do-	-do-	-do-	-do-	4
5.Political participation	-do-	-do-	-do-	-do-	4
6.Opinion in matters of asset acquisition	-do-	-do-	-do-	-do-	4
7.Domestic violence	Much more	Somewhat	Very little	Not at all	4
8.Physical mobility	Restricted	Occasional	More often	Free and always	4
9.Respect in the family	Not at all	Very little	Much more	To a great extent	4
10.Confidence of meeting official people	-do-	-do-	-do-	-do-	4

To assess the empowerment level of the women microcredit programme participants in the study area of Silchar town and also to assess whether there has been any significant change in their empowerment level due to their involvement in the microcredit programme, the empowerment index of the women borrowers has been calculated by using dimension index as follows:

$$\text{Dimension Index} = \frac{\text{Actual value of } j^{\text{th}} \text{ indicator for } i^{\text{th}} \text{ borrower} - \text{Minimum value of } j^{\text{th}} \text{ indicator}}{\text{Maximum value of } j^{\text{th}} \text{ indicator} - \text{Minimum value of } j^{\text{th}} \text{ indicator}} \dots\dots\dots (1)$$

Unobserved Component Model (OECD, 2008; Kaufmann et. al, 1999) has been used to determine the weights that are associated with the indicators. Using this method, the weight of each indicator has been calculated as follows:

$$W_j = \frac{\text{Var}_j^{-1}}{1 + \sum_{j=1}^{10} \text{Var}_j^{-1}} \dots\dots\dots (2)$$

Where $j=1, 2, \dots, 10$ are the empowerment indices of the borrowers for the ten indicators, obtained by using dimension index formula as shown before.

The empowerment index of the borrowers obtained separately for the ten indicators, by using dimension index, have been multiplied by the respective weights of the indicators.

After that all the ten final values for each individual borrower has been added to get the composite empowerment index of each borrower, separately for the two periods, i.e., pre and post-microcredit.

Then the values of the two composite index of empowerment for the two periods have been compared using paired samples t-test (Sureshrajana and Priyadarshini, 2013).

Logit regression has been used to examine the statistical relationship between microcredit and empowerment of the borrowers. The impact of microcredit in empowering the female borrowers has been analysed by taking opinion of the borrowers (Kabeer, 1998) about their own status within the family and society, whether they feel more empowered or not, whether their status has improved in the family and society, after at least five times of bringing the microcredit in the family.

Here empowerment of the female borrowers has been taken as dependent variable and per capita income and proportion of earners having microcredit out of the total number of earners in the household has been taken as independent variables to assess whether microcredit is helpful in increasing the empowerment of the female borrowers. The Logit model specified in this study is expressed as follows:

$$L_i = \ln \left(\frac{P_i}{1-P_i} \right) = \alpha_i + \beta_1 X_{1i} + \beta_2 X_{2i} + \varepsilon_i \dots\dots\dots (3)$$

$i=1, 2, 3, \dots, 400$

Where, L is the Logit, the log of the odds ratio $\left(\frac{P_i}{1-P_i} \right)$ for empowerment; P_i is the probability of empowerment that $Y=1$; X_1 is the per capita income; X_2 is the proportion of earners having microcredit out of the total number of earners in the household; β_1 and β_2 are slope coefficients; α is the intercept term and ε_i is the random error term.

Results and Findings

Table 2: Composite empowerment index of the borrowers (pre and post-microcredit) Paired Samples Statistics

	Mean	N
Composite empowerment index of the borrowers (pre-microcredit)	0.82	400
Composite empowerment index of the borrowers (post-microcredit)	0.37	400

Source: Field survey

From the above table of paired sample statistics if we compare the mean values of the composite empowerment index of the borrowers for two periods, pre-microcredit (0.37) and post-microcredit (0.82), it can be seen that the mean value of the composite empowerment scores of the borrowers is higher in post-microcredit period.

Table 3: Difference in the composite empowerment index of the borrowers (pre and post-microcredit) Paired Samples Test

	Mean	t	df	Sig. (2-tailed)
Change in composite empowerment index of the borrowers	0.45	91.135	399	.000

Source: Field survey

From the results of the paired samples t-test as shown in the above table it can be seen that the mean value of the difference between composite empowerment index of the borrowers of the two periods, i.e., pre and post-microcredit, is 0.45. The number of observation is 400 and the degrees of freedom are 399. The t value is found to be 91.135 and significant at 1% level. So it can be said that the composite empowerment index of the borrowers, after five cycles of taking microcredit, is significantly more than that before taking microcredit.

The above results shows enhancement of borrower's empowerment explained in terms of aspects of empowerment chosen for this study in the form of ten indicators as explained in methodology section. The increment in empowerment has been found to be 121.62% over a period of five years. So it can be said that the opportunity to avail credit by the women borrowers have contributed towards enhancing their empowerment in terms of the ten indicators of empowerment chosen for this study.

The impact of microcredit in empowering the female borrowers has also been analysed in terms of the borrowers' own opinion about their status within the family, after joining the microcredit programme.

The results of the survey are shown in the following table.

Table 4: Borrower's opinion about their own status (post-microcredit)

Survey question	Opinion of the female borrowers	Number of borrowers
Has your position in the family and society improved after you have taken microcredit?	"Yes"	257 (64.25%)
	"No"	143 (35.75%)
		Total = 400 (100%)

Source: Field survey

According to the opinion collected as shown in the above table, out of the sample of 400 borrowers, 257, i.e., 64.25% borrowers revealed that their status in the family and society has improved after they have joined the microcredit programme. The above tabular picture reveals that microcredit, according to the borrowers' own opinion, has led to their improved status, thereby indicating social empowerment of the women borrowers in this study area of Silchar.

Logit regression and its analysis

Table 5: Logit Regression of Empowerment: Coefficient
Dependent variable: Empowerment of the female borrowers

Variables	Coefficients	z values	p values	Pseudo R ²	Log likelihood Ratio	N
Constant	$\alpha^{\wedge} = -5.764$	-3.23	.001	0.0263	13.72* (.0011)	4
X ₁ (PCI)	$\beta^{\wedge}_1 = 0.007^*$	3.60	.000			0
X ₂ (PEMCTE)	$\beta^{\wedge}_2 = 1.120$	0.83	.408			0

Source: Field survey

*significant at 1% (p<0.01), ** significant at 5% (p<0.05) *** significant at 10% (p<0.1)

The above table shows the coefficients of logistic regression of empowerment. Based on the logistic coefficients of empowerment, the following regression equation has been fitted:

$$L_i = -5.764 + 0.007 X_{1i} + 1.120 X_{2i} \dots \dots \dots (4)$$

$i = 1,2,3, \dots \dots \dots, 400$

In the equation, L_i stands for estimated log of the odd ratio for empowerment, X₁ is the per capita income (PCI) and X₂ is the proportion of earners having microcredit out of the total number of earners in the household (PEMCTE).

From above table it can be seen that the estimated logistic regression coefficient on per capita income post-microcredit ($\beta^{\wedge}_1 = 0.007$) is statistically significant at 1% level and positive. The positive sign of the coefficient on per capita income implies that for a unit increase in per capita income the log odds of empowerment increases by 0.007 or 0.7%. The estimated logistic regression coefficient on proportion of earners having microcredit out of the total number of earners in the household ($\beta^{\wedge}_2 = 1.120$) is positive implying that for a unit increase in proportion of earners having microcredit out of the total number of earners in the household, the log odds of empowerment increases by 1.120 or by 112%.

Table 6: Logit Regression of Empowerment: Odd Ratios
Dependent variable: Empowerment of the female borrowers

Variables	Odd Ratios	95% Confidence Interval		Pseudo R ²	Log likelihood Ratio	N
		Upper	Lower			
				0.0263	13.72* (0.0011)	400
PCI	1.007	1.003	1.011			
PEMCTE	3.067	0.216	43.614			

Source: Field survey

The above table shows the odd ratios of logistic regression of empowerment. The odd ratio for per capita income with 95% confidence interval (1.003, 1.011) is 1.007 and that for proportion of earners having microcredit out of the total number of earners in the household with 95% confidence interval (0.216, 43.614) is 3.067. Both the odd ratios are more than 1.

Odds ratios greater than 1 indicate positive relationship between the dependent and the independent variables. This implies that the odds of empowerment increases for an unit increment in per capita income keeping proportion of earners having microcredit out of the total number of earners in the household unchanged and the odds of empowerment increases for a unit increase in proportion of earners having microcredit out of the total number of earners in the household keeping per capita income unchanged. Such relationship between empowerment and per capita income and between empowerment and proportion of earners having microcredit out of the total number of earners in the household are theoretically correct, indicating that, the more the increment in per capita income of a household, the higher is the odd in favour of empowerment or similarly the higher the proportion of earners having microcredit out of the total number of earners in a household, the higher is the odds in favour of empowerment.

Apart from this, the log likelihood χ^2 statistic of 13.72 with 2 degrees of freedom is significant as the p value = 0.0011. This implies that the model is statistically significant- the per capita income and proportion of earners having microcredit out of the total number of earners in the household have significant impact on empowerment.

In order to find whether the estimated logistic regression model fits good, the Hosmer-Lemeshow goodness of fit test¹ has been applied. The results of the Hosmer-Lemeshow goodness of fit test are shown in the following table:

Table 7: Logit regression of empowerment: Hosmer-Lemeshow Goodness of Fit test

Number of observations	400
Number of groups	10
Hosmer-Lemeshow χ^2	5.56
Degrees of freedom	8
p value	0.6965

Source: Field survey

The Hosmer-Lemeshow χ^2 value of 5.56 with 8 degrees of freedom with p value of 0.6965 reveals that the estimated logistic regression of empowerment fits good.

The above analysis of logistic regression of empowerment reveals that per capita income and proportion of earners having microcredit out of the total number of earners in the household have significant positive impact on the odds of empowerment.

Thus the results of paired samples t-test and logistic regression suggest that microcredit leads to social empowerment of the female borrowers. So our null hypothesis there is no significant increment in social empowerment of the female borrowers after availing microcredit. , is rejected.

¹ The Hosmer-Lemeshow test is a statistical test for goodness of fit for the logistic regression model. The data are divided into approximately ten groups defined by increasing order of estimated risk. The test statistic follows a chi-squared distribution with n-2 degrees of freedom. A large value of chi-squared (with small p-value < 0.05) indicates poor fit and small chi-squared values (with larger p-value closer to 1) indicate a good logistic regression model fit. (Source: Hosmer-Lemeshow Test, Logistic Regression, MedCalc, , Easy-to-use Statistical Software.

https://www.medcalc.org/manual/logistic_regression.php)

Conclusion: Based on the above results and observations it can be said that participating in microcredit programme is beneficial for the female borrowers. The female borrowers have been found to be significantly more empowered than they were before joining the microcredit programme and it has been supported by the estimation of the scoring on the composite empowerment index, as the borrowers scored less when they did not have access to microcredit. The additional support from the borrower's side in the family income by way of availing credit has significantly strengthened women's position in the family in terms of the different indicators chosen for this study. The women borrowers, after they have joined microcredit programme have gained better position in the family. So it could be said that economic empowerment of the household members brought about by microcredit has led to the social empowerment of the women borrowers, suggesting that one of the important routes by which women's access to microcredit transformed into their empowerment was via their increased contribution to family income.

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