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Article

Empowering Women through Microcredit in Bangladesh: An Empirical Study

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Abstract: The present study was carried out to identify the determinants of microcredit accessibility by rural women households and its impact on rural women empowerment in Bangladesh. A face-to-face survey was conducted during 2018, interviewing 300 women households in two locations in Bangladesh. Descriptive statistics and econometric modeling were used to achieve the objectives. The results of the study showed that the higher annual income inversely related with the accessibility to the microcredit program, whereas family size ($P < 0.05$) was positive and significantly influenced the accessibility to the microcredit program. The empirical results indicate that borrowers of microcredit have greater control over their own savings. The regression outcome also exposes that microcredit has a positive and significant impact on enhancing participation in household decision making process and women's legal awareness. The study suggested that microcredit providers in Bangladesh should be encouraged to review their program planning and redesign loan products by putting more emphasis on higher income group women.

Keywords: microcredit; accessibility; women's empowerment; logit regression; Bangladesh

1. Introduction

Women empowerment has been one of the top priorities of development agencies and governments around the world and it has been recognized that, even in the developed countries, women continue to experience various forms of discrimination in one way or another. In developing countries, gender disparity or low status of women has been recognized as a sheer obstacle to equality and development. However, women's empowerment has been considered one of the vital achievements in the development process for women, with the responsiveness essentially on women's well-being (Sen 2001). According to the gender gap index of the world economic forum in 2013, Bangladesh has been ranked 75th out of 144 countries. Bangladesh rose more than 10 places from 86th place in 2012 and was one of two countries that upgraded the most (WEF 2013).

Microcredit provides an influential tool for income generation, safe keeping of food, human resource development, poverty lessening, and women empowerment (Kessey 2005). It is very difficult to find any society without poverty, even in developed countries. The facility of credit may be an important instrument for the poor to safeguard their food security and poverty. Traditional banks and other financial institutions fail to meet the difficulties in general of poor and of women in particular. The microcredit institutes change by building a set of comprehensive financial institutions, which has elevated the expectation that plentiful poverty can be alleviated. Consequently, economic and social structures can be renovated at the root level by supporting financial services to low-income households

(Morduch 1999). Morduch (1998) recognized that potential impact of microcredit is allied with lessening of household weakness by offering ways of easy consumption and income to rural households. In addition, Pitt and Khandker (1998) assessed that microcredit programs have considerably influenced the welfare of rural borrowers including household expenditure, non-land assets, labor supply, and children schooling in Bangladesh. Furthermore, Mizanur Rahman and Ahmad (2010) observed that microcredit provided to the agricultural and rural sectors significantly improved household income, crop production, livestock raising, expenditure, and employment.

Women are considered as better clients of microcredit providers, compared to men, because women's access to microcredit has more appropriate improvement outcomes, since women have a tendency to spend more money on fundamental needs compared to men (Pitt and Khandker 1998; Leach and Sitaram 2002; Pitt et al. 2006). A study conducted by Goetz and Gupta (1996) stated that the "success" of reaching women with microcredit was "highly impressive". Only a small number of cases displayed that there was a rise domestic violence for women who did not get the loan or had to wait a long time to get the loan. Moreover, the study also displayed that women are more likely to retain control over their loans in traditional women's work, like livestock rearing. Another study found that women frequently act as collection agents only for their husbands and sons, so that the men spend the money themselves while women are saddled with the credit risk (Cons and Paprocki 2008). In addition, women tended to lose their control over their loan when the size of the loan was bigger. Montgomery et al. (1996) observed that women have full control over smaller amounts of loans compared to bigger amounts.

Despite the controversial documentation, the microcredit program has the highest coverage in Bangladesh, but it still does not reach up to the satisfactory level for all rural women. In addition, women's empowerment is theoretically complex and operationally challenging to scrutinize. Determining empowerment is not only a difficult task, but also a recent phenomenon in the field of social sciences. The implication, consequences, and aims of empowerment differ according to cultural, regional, social, and political context. Most of the empirical studies do not observe the process element of empowerment, making it challenging for the international development community to be assured that its efforts to empower women are successful (Malhotra et al. 2002; Osmani 2007). Additionally, the macro-level studies are particularly weak on determining agency and often do not work a relevant conceptual framework (Kurey 2005; Haymanot 2007).

Therefore, household-level studies have made significant progress in conceptualizing broader and context-specific frameworks, but extensively, more works are required in this area. It is assumed that microcredit can subsidize to the sustainable empowerment of rural women in Bangladesh by facilitating them to be financially independent. But still, there is not sufficient information about the impact of microcredit on women empowerment in rural Bangladesh. Against this backdrop, studies on the outcome of microcredit program to rural women empowerment in Bangladesh could increase the understanding of the relationship between microcredit program and women empowerment. This study aims to examine the factors affecting the accessibility of microcredit in rural households and its impact on women empowerment in Bangladesh. This study is expected to help the government, microcredit providers, and the independent researcher to set priorities to formulate alternative programs for rural women development in Bangladesh, as well as other developing countries.

2. Materials and Methods

2.1. Data Sources

The present study was conducted in two locations: Jamalpur and Mymensingh of Bangladesh, due to availability of women development programs of different non-government microcredit institutions. After the selection of study areas, a list of credit receiving rural women was collected from different microcredit institutions who provide microcredit targeting rural women. From that list, a total of 180 women borrowers were selected, randomly taking 90 women borrowers from each location. To select

the non-borrowers, the enumerators did a random walk in the areas and identified 4/5 non-borrowers from each location. Later, the identified non-borrowers helped us to prepare a list of non-borrowers for each location who did not received microcredit but have similar socio-economic characteristics like borrowers, and from that list, a total of 120 non-borrowers were selected randomly, taking 60 women respondents from each location. Thus, a total of 300 women respondents were selected for face-to-face interview during July–October 2018.

2.2. Analytical Techniques

Both descriptive and econometric models were used to achieve the objectives of the study.

2.2.1. Access to Microcredit

To identify the factors affecting the access to microcredit, the present study employed a binary logistic regression model. Binary logistic regression is useful when the dependent variable is dichotomous (Santoso 2016). The general parametric functional expression of this model can be given as follows:

$$Y_{in} = \ln \left(\frac{P_{in}}{1 - P_{in}} \right) = f(X_1, X_2, X_3, X_4, X_5, X_6) + \epsilon_{in}$$

where Y_{in} is microcredit borrowers (1 = microcredit receiver; 0 = otherwise).

The dependent variable for the present study is rural women's access to microcredit. As there is no direct measurement of microcredit accessibility, the 'accessibility' is measured by using observations on household borrowings such as 'obtained microcredit' and 'did not obtain microcredit'. This is in accordance with previous studies which adopted observable formal or informal borrowings as indicators of credit accessibility (Hermes and Lensink 2011). Specifically, the dependent variable takes a value of '1' for rural women who have secured microcredit from microcredit institutes and '0' for rural women who have not secured microcredit from microcredit institutes in recent years. The explanation of the independent variables (X_i) used in the model are given in Table 1.

Table 1. Explanatory variables for binary logistic model to assess microcredit accessibility.

Variables Name	Variable Label	Coding	Expected Sign
(X_1) = Age of borrowers	AGE	Age of the surveyed women (in years) 1 = 20–40 years old; 2 = 41–60 years old; 3 = >60 years old	(+/-)
(X_2) = Educational attainment	EDU	0 = illiterate 1 = Primary education 2 = Secondary education (SSC) and above	(+)
(X_3) = Family size	FSIZE	Total number of members in the family	(+)
(X_4) = Occupation (Dummy)	OCCUP	1 indicates housewife, otherwise 0	(+)
(X_5) = Annual income	INCOME	Women annual income (in 1000 Taka); 1 = ≤ 100 = Low income; 2 = >100 to 200 = Middle income; 3 = >200 = High income	(+/-)
(X_6) = Cultivated area (decimal)	CULAREA	Total amount of land under crop cultivation	(+/-)

2.2.2. Women Empowerment Indicators

The development of reliable and effective indicators of women empowerment is a very difficult task for evaluating the empowerment impression of policy interventions (Hashemi et al. 1996). Two methods, process based and outcome based, are frequently employed to assess women's empowerment impact (Malhotra et al. 2002). However, the process-based method has been criticized for using invalid proxy indicators of women's empowerment. The current study followed an outcome-based method to measure the impact of microcredit accessibility on rural women empowerment which was constructed based on survey questions related to very specific and concrete behaviors of women, and thus effectively represents the empowerment process within a particular social context. The working methods of women empowerment were measured directly through the responses of the rural women households to the survey questionnaire. The questionnaire includes a series of questions to cover five dimensions related to the current status of rural women. The present study did not construct any empowerment indices due to the problem of allocating weight to different responses. In this study, fourteen empowerment indicators were established from rural women's responses and assessed all empowerment indicators separately. All the indicators are in the form of binary variables (1,0) (Table 2).

Table 2. Women empowerment indicators.

E_i ($i = 1, 2, \dots, 14$)	Indicators	Description of Indicators
Control over financial assets/resources		
E_1	CINC	Control over own income
E_2	CSAV	Control over own cash savings
Control over mobility		
E_3	CITY	Can visit bank/market without husband's permission
E_4	PARNT	Can visit parent home without husband's permission
Ability to make purchase independently		
E_5	FURNT	Independently purchase furniture
E_6	CLOTHCH	Independently purchases cloths for child
E_7	CLOTHOW	Independently purchases cloths for own
Participation in decision making		
E_8	DECCROP	Involvement in deciding crop production
E_9	DECEXP	Involvement in deciding family expenditure
E_{10}	DESPLAN	Involvement in deciding family planning
E_{11}	DESEDU	Involvement in deciding children education
E_{12}	DESLVSK	Involvement in deciding livestock sale/purchase
E_{13}	INVSDA	Involvement in social development activities
Legal Awareness		
E_{14}	DABUSE	Can seek legal protection against domestic abuse

2.2.3. Model Specification to Assess Women Empowerment

The logistic regression model has been widely used in the literature for examining women's empowerment impact of microcredit (Hashemi et al. 1996; Garikipati 2008; Li et al. 2011). The following empirical model was used to analyze the impact microcredit on the empowerment of rural women:

$$Y_i^* = \beta_0 + \beta_1 C_1 + \sum \beta_i X_i + u_i, \text{ where } u_i \sim N(0, 1), i = 1, \dots, n$$

$$Y = 1_{\{Y^* > 0\}} = 1 \text{ if } Y^* > 0, 0 \text{ Otherwise}$$

where, Y_i = Indicators of women empowerment, as described in Table 2. All the indicators are in binary form with a value of one for empowered and zero for otherwise. Decisions made by a woman alone or jointly with men scored one (empowered), and by a man alone scored zero. The empirical model was regressed 14 times with different indicators as the dependent variable to capture the effect

of access to microcredit on women empowerment. $C_1 = 1$ if borrower, 0 otherwise. X_i = Independent variables described in Table 1.

3. Results and Discussion

3.1. Socio-Economic Characteristics of the Respondents

The findings indicate that most of the respondents (70.33%) were young (Table 3). Educational status was divided into 3 categories: illiterate, up to primary, secondary school and above. Among different education attainment groups, the highest number of respondents were illiterate (58%), followed by up to a primary level of education (21.67%) which indicates that the majority of microcredit holders are illiterate or less educated women.

Table 3. Socio-economic characteristics of the respondents.

	Borrower (N = 180)		Non-Borrower (N = 120)		All Respondents (N = 300)	
	No.	%	No.	%	No.	%
Age group (Year)						
20–40	132	73.33	79	65.83	211	70.33
>40–60	46	25.56	41	34.17	87	29.00
>60 & above	02	1.11	0	0.00	2	0.67
Total	180	100.00	120	100.00	300	100.00
Literacy level						
Illiterate	99	55.00	75	62.50	174	58.00
Up to primary	39	21.67	26	21.67	65	21.67
SSC and above	42	23.33	19	15.83	61	20.33
Total	180	100.00	120	100.00	300	100.00
Occupation						
House wife	144	80.00	88	73.33	232	77.33
Agriculture	18	10.00	4	3.33	22	7.33
Non-agriculture	18	10.00	28	23.33	46	15.33
Total	180	100.00	120	100.00	300	100.00
Family size (Number)						
1–3	60	33.33	26	21.67	86	28.67
4–6	89	49.44	91	75.83	180	60.00
>6	31	17.22	3	2.50	34	11.33
Total	180	100.00	120	100.00	300	100.00
Average annual household income (Tk.)						
≤100,000	31	17.22	5	4.17	36	12.00
100,001–200,000	96	53.33	31	25.83	127	42.33
>200,000	53	29.44	84	70.00	137	45.67
Total	180	100.00	120	100.00	300	100.00

Note: Tk. is Bangladeshi currency; One USD equivalent to Tk. 84.03 at October 2018.

The occupation of the respondents was divided into 3 groups: housewife, agriculture, and non-agriculture. The results indicate that the maximum number of rural women were involved in household work. Among the respondents, 80% of the borrower and 73.33% of the non-borrower rural women's occupation was housewife. The findings also indicate that among borrowers, the highest number of respondents belongs to the middle-income (Tk. 100,001–200,000) group (53.33%) while 70% of the non-borrowers belong to the high income (>200,000) group (Table 3).

3.2. Average Amount of Microcredit Received by the Respondents

It is evident from Table 4 that, on average, the highest 42.22% of the borrowers received Tk. 20,001–40,000 as microcredit, followed by 33.33% of the borrowers who received less than Tk. 20,000. The average loan amount of the borrower was Tk. 30,694, which is equivalent to US \$365.27.

Table 4. The amount of microcredit received by borrowers.

Loan Amount (Tk.)	Respondents	
	No.	%
≤20,000	60	33.33
20,001–40,000	76	42.22
>40,000	44	24.44
Total	180	100.00
Average loan amount (Tk.)	30,694	

3.3. Microcredit Accessibility for Rural Women

The highly significant chi square statistics rejects the null hypothesis that the parameter evaluations for the model are equal to zero. The results indicate that higher income negatively influenced rural women's microcredit accessibility, while family size had a significant and positive effect on microcredit accessibility (Table 5). Positive and significant value of family size ($P < 0.05$) indicates that poor rural households, who have larger families, struggle to fulfil their daily cash requirements which may encourage them to obtain microcredit, confirms the findings of (Okurut 2006). Negative and significant coefficient of middle and higher income indicates an inverse relationship with credit accessibility, which is consistent with the findings of Mohamed (2003). One possible reason is that microcredit programs are aimed at targeting to the lower income borrowers. As the income of the rural women goes higher, the probability of obtaining microcredit goes down. Higher-income women may demand less microcredit because they are less dependent upon credit for their income-generating activities or because they have better access to other sources of finance.

Table 5. Factors affecting the accessibility of microcredit: logit estimates.

Variables	Coefficients	SE	z-Value
Age	−0.022	0.016	−1.32
Educational level			
Primary	−0.094	0.333	−0.28
Secondary and above	−0.059	0.330	−0.18
Family size	0.179 *	0.996	1.80
Occupation	0.218	0.305	0.72
Annual income			
Middle income	−0.657 *	0.365	−1.80
High income	−2.121 ***	0.409	−5.18
Cultivated area	0.0006	0.004	0.14
Constant	1.21	0.784	1.55
Log likelihood	−179.94		
Chi square	43.92 ***		
Pseudo R ²	0.11		
Number of observations	300		

Note: ***, and * indicates significant at 1%, and 10% level; Dependent variable: borrower = 1, Non-borrower = 0.

3.4. Impact of Microcredit on Rural Women Empowerment Indicators

The present study measured women empowerment by using 14 indicators that were grouped into five dimensions: control over financial assets, control over mobility, ability to make purchase independently, participation in family decision making, and legal awareness. The chi square values reject the null hypothesis at the 1% significance level for the 14 models. It implies that the logistic regression model employed in this study is useful in predicting the probability of women's empowerment related indicators (Table 6).

Table 6. Goodness-of-fit statistics for the logit model for different women empowerment indicators.

Dependent Variables (Empowerment Indicators)	Chi Square	Pseudo R ²
Control over financial assets/resources		
CINC	53.51 ***	0.14
CSAV	60.15 ***	0.16
Control over mobility		
CITY	75.25 ***	0.21
PARNT	29.60 ***	0.08
Ability to make purchase independently		
FURNT	44.49 ***	0.11
CLOTHCHL	24.09 ***	0.07
CLOTHOWN	56.15 ***	0.15
Participation in decision making		
DECCROP	23.27 ***	0.09
DECEXP	17.60 **	0.07
DESFPLAN	29.18 ***	0.07
DESEDU	24.99 ***	0.07
DESLVSK	40.95 ***	0.12
INVSDA	28.70 ***	0.07
Legal Awareness		
DABUSE	42.73 ***	0.12

Note: *** indicates significant at 1% level.

3.4.1. Impact of Microcredit on Control over Financial Assets/Resources

The results indicate that the access to microcredit did not significantly affect the control over the own income of rural women (Table 7). In addition, holding other elements constant, the likelihood of controlling own income (CINC) is equal for the borrower (0.64) and non-borrower (0.64) (Table 8). Ertel and Rao (2006) also indicated that some female microfinance clients did not have control over the loans contracted or the income generated by their micro enterprises, in spite of having access to credit. The results also showed that the access to microcredit positively and significantly ($P < 0.01$) affected the control over savings by rural women (Table 7). The results indicate that the rural women respondents who obtained microcredit have more control over savings, which is consistent with the findings of Li et al. (2011) and Rahman et al. (2015). The probability of controlling their savings (CSAV) was higher for borrowers (0.78) than non-borrowers (0.48) (Table 8). Therefore, our findings indicate that access to microcredit has a mixed type of impact on control over financial assets or resources in the study areas.

Table 7. Impact of microcredit on different empowerment indicator.

Dependent Variables (Empowerment Indicators)	Coefficient	SE	z-Value
Control over financial assets/resources			
CINC	−0.0042	0.008	−0.550
CSAV	0.0420 ***	0.009	4.680
Control over mobility			
CITY	−0.0165 **	0.008	−1.980
PARNT	−0.0077	0.007	−1.070
Ability to make purchase independently			
FURNT	0.0115	0.007	1.560
CLOTHCHL	0.0088	0.008	1.130
CLOTHOWN	−0.0018	0.008	−0.230
Participation in decision making			
DECCROP	−0.0099	0.011	−0.940
DECEXP	0.0183 *	0.010	1.870
DESFPLAN	0.0227 ***	0.007	3.150
DESEDU	0.0226 ***	0.008	2.910
DESLVSK	−0.0420 ***	0.010	−4.160
INVSDA	0.0198 ***	0.007	2.670
Legal Awareness			
DABUSE	0.0362 ***	0.009	3.830

Note: ***, ** and * indicates significant at 1%, 5%, and 10% level, respectively.

Table 8. Predicted probabilities of rural women empowerment in borrower and non-borrower groups.

Dependent Variables (Empowerment Indicators)	Borrower	Non-Borrower
Control over financial assets/resources		
CINC	0.64	0.64
CSAV	0.78	0.48
Control over mobility		
CITY	0.69	0.74
PARNT	0.54	0.60
Ability to make purchase independently		
FURNT	0.60	0.53
CLOTHCHL	0.76	0.69
CLOTHOWN	0.70	0.69
Participation in decision making		
DECCROP	0.14	0.17
DECEXP	0.86	0.77
DESFPLAN	0.56	0.35
DESEDU	0.70	0.54
DESLVSK	0.21	0.35
INVSDA	0.54	0.47
Legal Awareness		
DABUSE	0.80	0.60

Note: Predicted probabilities are calculated at the mean value for all the control variables.

3.4.2. Impact of Microcredit on Control over Mobility

The results indicate that access to microcredit negatively affected the frequency of visits at the bank/market without the husband's permission (Table 7). In addition, the probability of going to the city

alone to visit the bank/market without the husband's permission was higher for non-borrowers (0.74) compared to borrowers (0.69) (Table 8). This may be due to the fact that after obtaining microcredit, women are involved in various income generating activities for weekly repayment of the loan, which may generate a double work load for women, resulting less time to visit the bank/market.

3.4.3. Impact of Microcredit on Ability to Make Purchase Independently

Table 8 shows a higher likelihood for borrowers to purchase independently, but the coefficients of the logistic regression model are not statistically significant (Table 7). The likelihood of buying furniture alone was 60% for borrowers, whereas it was 53% for non-borrowers. Similarly, the likelihood of purchasing children's as well as own cloth was higher for borrowers than that of non-borrowers. Other studies (Banerjee et al. 2015; Li et al. 2011) also emphasized that microcredit for rural women has no impact on the ability to purchase cloth and furniture.

3.4.4. Impact of Microcredit on Participation in Decision Making

The findings indicate that access to microcredit negatively affected the decision to raise livestock (Table 7). On the other hand, access to microcredit positively and significantly affected other indicators of participation in family decision making (Table 7). The probabilities of rural women involvement in deciding family expenditure, family planning, child education, and social development activities were higher for borrowers than non-borrowers (Table 8). The results of our study imply that the women who have access to microcredit have more involvement in the family decision making process compared to non-borrowers. Similarly, Li et al. (2011) found a positive and significant influence of microcredit in deciding child education and necessary durable family expenditure compared to non-borrowers in China. In another study, Rahman et al. (2015) indicated that microcredit has a positive impact on purchasing daily necessities, taking care of children, child education, and participating in social activities.

3.4.5. Impact of Microcredit on Legal Awareness

Access to a microcredit program has a positive and significant impact on legal awareness in terms of seeking legal protection against domestic abuse (Table 7). The likelihood of legal awareness is much higher for borrowers (80%) compared to non-borrowers (60%) (Table 8). Strong legal awareness plays a significant role in raising women's realization of fighting for their privileges within the household territory or even at a higher level, such as community and society (Zaman 1999; Annim and Alnaa 2013). Our results are also consistent with Li et al. (2011) which indicated that the microcredit positively affected the legal awareness of rural women.

4. Conclusions

The present study examined the determinants of microcredit accessibility and the impacts of access to microcredit on women empowerment in Bangladesh. The findings indicate that income is inversely related with microcredit accessibility. The impact of microcredit was assessed in terms of five dimensions: financial assets, mobility, ability to purchase independently, participation in household decision making, and legal awareness. The findings indicate that microcredit in Bangladesh mostly helps rural women in establishing their decision-making rights and increasing legal awareness-related issues. For the other three dimensions, we obtained mixed results, which may indicate that microcredit does not necessarily empower women in terms of these three dimensions. It is suggested that microcredit providers in Bangladesh should be fortified to review their program planning and redesign loan products by putting more importance on women who have income generating sources, since a higher income negatively influenced access to microcredit. Moreover, credit delivery should be combined with non-financial services within the programs such as training on microcredit management, proper monitoring, and building up social networks, which seem to be absent in microcredit programs of many institutions in Bangladesh but are crucial for women's integration in the social development.

Author Contributions: D.D. designed, conducted the experiment and prepared the manuscript. M.S.R. helped in analyze the data and revised the manuscript. D.C.A. helped in data collection. W.U.L. helped in preparation of the manuscript. L.W. conceived and designed the experiment, revised and finalized the manuscript.

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