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Does Microcredit Matter for Women Empowerment? A Household Level Study in Khulna District

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Abstract

Objective: *The aim of this study is to explore the nexus between microcredit and women empowerment from the dimensions of participation in household decision making, involvement in income generating activities and wealth accumulation; participation in household economic activities; consciousness and mobility; and women rights.*

Sampling Technique: *A total of 80 women including 40 from microcredit takers and 40 from non-takers women were selected randomly to collect the data from two separate villages under Phultala Upazila of Khulna District.*

Methods: *For data analysis, econometric models such as Principal Component Analysis (PCA) and multiple regression model were applied.*

Results: *The result of multiple regression model shows that the microcredit taker women are better off regarding women empowerment related to household decision making, and income and wealth accumulation. Whereas, the women from non-taker households are in a better position in case of women empowerment related to participation in household economic activities, and consciousness and mobility. In addition to the role of microcredit on women empowerment, the study found that education of the women plays a significantly positive role in women empowerment while social restriction faced by the women negatively affect their empowerment.*

Recommendation: *Better monitoring system, training and awareness building programs arranged by the microcredit providing organizations may play a significant role in strengthening women empowerment.*

Keywords: Microcredit, Women empowerment, Household decision, Consciousness and mobility, Social restriction

Introduction

The balance economic development of any nation is impossible without the participation of women in productive activities (Rehman et al., 2015). However, the women have to face limited access in any productive activities because of inadequate financial support, decision-making capability and unavailability of resources access (Banerjee et al., 2015; Rehman et al.,2015; Rankin, 2001). Bangladesh is an agricultural country where most of the people living in the rural area. However, there remains a limited opportunity for rural women to participate in any productive work. To improve the living standard of women, it is necessary to uplift their income (Abbink et al., 2016). In these circumstances, different NGOs including BRAC, Grameen Bank, ASA, and Jagoroni Chakra Foundation, etc is working in Bangladesh for ensuring women empowerment through microcredit program. Women can increase their income by doing busing, fishing, poultry farming, cattle rearing, etc. using microcredit. In fact, microcredit may be a blessing when it will use properly (Loro, 2013). Microcredit could be used as a tool to develop the economic condition of the households as well as the living standard of the households. Hence, these programs are often seen as a tool for poverty reduction and to ensure well-being of the households.

The target people of the microcredit are the poor women. To improve the economic condition of households, microcredit is seen as a crucial way to empower poor women. However, the empowerment of women depends on several dimensions including improving their social status, economic power, increase participation in decision making and so on (Banerjee et al., 2015; Graflund, 2013; Alkire et al., 2013). All this may possible when they can independently move and participate in any productive activities. Decision-making capacity of women is the dominant factor behind this. In Bangladesh, most of the women depend on their male partners in taking any decision. Wealth accumulation through microcredit is another dimension of women empowerment (Morduch and

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Haley, 2002). However, in reality, it is closest to impossible to accumulate wealth using microcredit because the credit money is used in daily consumption expenses in many of the cases (Kumar et al., 2015; Leach and Sitaram, 2002). Improved living standard using microcredit provides scope for enjoying modern amenities (Demirgüç-Kunt et al., 2013; Bogale et al., 2010). To ensure proper development, it needs to empower women economically, politically, and socially (Loro, 2013).

Microfinance provided by the NGOs mainly fails to achieve the goal of empowering women because of external and internal barriers including education of the women, gender discriminations within and outside the households, opportunity to participate in productive work, religious regulations, and social and community restriction (Loro, 2013; Bogale et al., 2010; Leach and Sitaram, 2002; Rankin, 2001; Schuler et al., 1996). The role of microcredit on women empowerment is not as straightforward as the NGOs focus. The role of microcredit in empowering rural women is a questionable matter (Kabeer, 2001). In this backdrop, the present study tries to explore whether microcredit empowers woman regarding several dimensions which include household decision making, involvement in income generating activates, participate in economic activities, conscious and mobility, and women rights.

Literature Review

In Bangladesh, nearly 40% population lives below the poverty line in which, rural women are poorer (Abbink et al., 2016; Akotey and Adjasi, 2016; Islam, 2015; Othman, 2015; Tripathi, 2015). To improve the living standard of the rural poor women, an increase in income is the necessary condition (Abbink et al., 2016). Using microcredit, some women start a small business or rearing cattle and fishing that can improve their standard of living (Banerjee et al., 2015; Rahman, 1999). Conversely, use of microcredit in consumption purposes leads to a poor standard of living because they need to repay credit (Islam, 2015; Islam et al., 2015; Morduch and Haley, 2002). The misuse of microcredit forces them to sell their assets hence, they become poorer instead of being well off (Ganle et al., 2015; Demirgüç-Kunt et al., 2013; Rahman, 2007; Rankin, 2001; Rahman, 1999). The purpose of spending microcredit is another dominating factor in the effectiveness of microcredit (Nader, 2008). Expenditure of microcredit in self-employment activities ensures women's economic empowerment (Graflund, 2013). Sometimes microcredit is used to consumption expenditure, shopping, etc. (Ganle et al., 2015; Graflund, 2013). Consequently, during the repayment of microcredit, the borrower becomes economically vulnerable (Banerjee et al., 2015; Graflund, 2013; Hilson and Ackah-Baidoo, 2011).

Evidence shows that after receiving microcredit, the women became more empowered and they took part in decision-making (Ngo and Wahhaj, 2012; Li et al., 2011; Nessa, 2011; Nader, 2008; Schuler et al., 1996). It helps women to proliferate their earnings (Ganle et al., 2015; Graflund, 2013; Khan and Noreen, 2012; Hilson and Ackah-Baidoo, 2011; Nessa, 2011; Bogale et al., 2010). Nonetheless, real empowerment happens when they can take decisions independently (Loro, 2013; Li et al., 2011; Nader, 2008). When they take microcredit and get involved in independent business, it indicates that microcredit is really a weapon for women empowerment. Evidence shows that the use of credit by a female ensures better effects on empowerment compared to the loans utilized by other members of the household (Kumar et al., 2015; Morduch and Haley, 2002). However, gender bias exists in intra-household decision making in investing and generating income that hinders women empowerment (Abbink et al., 2016; Khan and Noreen, 2012; Ngo and Wahhaj, 2012; Nader, 2008). When the women invest the credit taken from microcredit provider in income generating activities, they can contribute to improving their socio-economic conditions (Nader, 2008; Morduch and Haley, 2002).

Women can increase their income by engaging in different professions where a little amount of capital is needed (Loro, 2013; Bogale et al., 2010; Nader, 2008). It helps to improve their living standard (Imoisi, 2014; Khan and Noreen, 2012;Hilson and Ackah-Baidoo, 2011; Hoque, 2004). After being financially solvent, women can get the opportunity to take part in decision making in family affairs. Economic empowerment ensures their strong position in a society (Imoisi, 2014; Loro, 2013; Alhassan and Akudugu, 2012; Nader, 2008). NGOs are providing microcredit to empower women through wealth accumulation (Khan and Noreen, 2012; Nessa, 2011). However, a little amount of credit is unable to create the condition of wealth accumulation in a right way (Banerjee et al., 2015; Islam et al., 2015; Imoisi, 2014). For women empowerment, different factors including income, years of education, the capability of decision-making, etc. influence a lot (Nessa, 2011; Nader, 2008). The process of empowerment is

directly linked to asset ownership (Banerjee et al., 2015; Schuler et al., 1996). Microcredit mainly provides women with the group system hence; women get the opportunity to control the group that leads to enhancing leadership quality (Kumar et al., 2015; Alhassan and Akudugu, 2012). Women involved in earning activities are more capable to influence the household decision (Poussin et al., 2014; Rahman, 1999). Similarly, women who are enjoying economic security, the opportunity of mobility, freedom in family decision-making, involvement in politics are considered as empowered (Alkire et al., 2013; Alhassan and Akudugu, 2012; Ngo and Wahhaj, 2012). Women who are earners can uphold their dominant power in society. They gain this power when they are able to earn independently.

Many studies focused on the linkage between microcredit and women empowerment from different angles. The study of Abbink et al. (2016) conducted an experimental study in Bangladesh to find the role of microfinance in women empowerment. They used the transfer of decision-making power by the women to their husbands as an indicator of women empowerment. If the women transfer the decision making power of use of loan amount to their husband are less empowered. In a study on rural Bangladesh, Kabeer (2001) used several indicators of empowerment in explaining the role of microcredit on women empowerment. The study is mostly qualitative in nature. In India, Banerjee et al. (2015) constructed an empowerment index using 6 social outcomes including women decision-making capacity on several consumption expenditures, other household level expenditures, and investment. Li et al. (2011) used 24 different indicators including control over financial resources, ability to make independent purchases, and mobility of women in explain the impact of microcredit on women empowerment in the context of China. They run 24 logistic regressions to find the role of microcredit on these 24 empowerment indicators. However, literature based on five broad dimensions of women empowerment such as household decision, income and wealth, economic activities, consciousness and mobility as well as women right covering 30 different empowerment indicators is rarely explored from the context of rural Bangladesh. Hence, this study tries to investigate these indicators to identify the role of microcredit on women empowerment. In addition, the study used a principal component analysis (PCA) to construct five different empowerment indices coving the five different dimensions of women empowerment. Here, the weight of each indicator is assigned from the scoring factor taken from first principal component which is normalized by its mean and standard deviation to avoid the personal judgment in assigning weight to calculate empowerment index.

Methodology

Study Area, Sampling Strategy and Data Collection Method: A field survey was conducted based on the random sampling technique from two villages namely *Jamira* and *Piprail* in *Jamira Union* of *Phultala Upazila* of *Khulna* District of Bangladesh. For the convenience of surveying the microcredit takers as well as non-takers, purposively *Khulna* District among the Districts of the South-west region of Bangladesh then *Phultala Upazila* among the nine *Upazila*s was selected as the study *Upazila.* After that, two villages namely *Jamira* and *Piprail* among the villages from *Jamira Union* of *Phultala Upazila* were chosen purposively. The reason for choosing these two villages from *Phultala Upazila*is that these two villages were known to the authors and one of the authors is living in this region.

As the objective of this study is to explore the role of microcredit on women empowerment, both the credit taker women and non-taker women were taken for this study to find out their empowerment difference. How does empowerment varies regarding their credit taking status? At that time of the survey, several lists of microcredit takers were collected from several NGOs including Grameen Bank, BRAC, and Jagoroni Chakra Foundation those are providing microcredit to the women. A total of 40 microcredit takers (women) were selected by using a random sampling technique taking 20 from 380 microcredit takers of *Jamira* village and 20 from 270 microcredit takers of *Piprail* village. This random sampling technique used computer-generated random numbers from the list of microcredit takers of each village. Two separate lists of respondents taking 20 from each village were prepared from the computer-generated and nonmembers of microcredit takers. To make a balance with the credit takers, a total of 40 non-takers were selected by using a random sampling method taking 20 from each village. Before selecting the non-takers women, a listing of women from the non-taker household's was prepared for each of the villages. As the credit takers are mostly rural poor households, the authors tried to prepare the list of non-takers considering the households economic status in the villages to make a balance with the microcredit takers. The authors make a list of

270 households from *Jamira* village and 330 households from *Piprail* villages with poor economic status. After making two separate lists of the non-takers from each village, two computer-generated random sample household lists were prepared by following the same procedure of microcredit takers selection for a final survey to find the study objectives.

A household survey was conducted using a semi-structured questionnaire to collect the data from 80 samples of these two villages. The questionnaire covers four different sections including data on basic information of the households, data on microcredit, women empowerment, and other socio-economic information. The section women empowerment covers five different dimensions which includethe household decision, income generating activities, economic activities, consciousness and mobility, and women rights. The targeted women were either the head or the wife of the household head and she answered all the questions. For the questions related to the household decision were asked how the decisions were taken, if the decision were taken by the wife or both husband and wife then the decision was considered as a positive indicator of women empowerment. While decisions taken by the husband or other member of the households were considered as a negative indicator for women empowerment at the household level. For the dimensions related to income generating activities and economic activities, a woman was asked whether she was involved in income generating activities and any economic activities or not. For the dimension related to mobility and consciousness, the woman needed to take permission to go outside either from her husband or other member of the household or she was capable to move other places by her own decisions. If the women were able to go outside by their own decision then that was considered as a positive sign of women empowerment and vice-versa.

Before going to the final survey, a draft questionnaire was prepared and pre-tested through a pilot survey. The pilot survey was conducted during the last week of August 2017. After a careful examination based on the observations from the pilot survey, the final version of the questionnaire was prepared for the survey that was conducted from September 15 to 25, 2017.

Analytical Framework

To determine the empowerment differentials between the microcredit takers and non-takers, the multiple regression estimation is conducted for each of the five dimensions concerning women empowerment including decision making at the household level, participation in income generating activities and wealth accumulation, involvement in economic and financial activities of the households, ability to move outside their house, and women rights.

Constructing Women Empowerment by using Principal Component Analysis (PCA): To explore the microcredit-women empowerment nexus, this study used five broad dimensions of women empowerment. As the main objective of the study is to find the role of the microcredit on women empowerment, several indicators under the five broad dimensions of women empowerment have been compiled into five variables by constructing a separate index for each dimension to measure the level of empowerment. The principal component analysis (PCA) technique is used to extract the weight from the first principal component of those indicators, following Filmer and Pritchett (2001). A total of 30 indicators under these five dimensions (Table 4) are used to construct five composite indices for measuring women empowerment by using PCA (Equation 1). Each indicator takes the value 1 if the statement in Table 4 is true concerning women empowerment, 0 otherwise. The PCA needs to specify the variables normalized by its mean and standard deviation. Each index is based on the following linear combination:

$$Empowerment\ Index = \alpha_1\left(\frac{x_1 - x_1^*}{S_1}\right) + \alpha_2\left(\frac{x_2 - x_2^*}{S_2}\right) + \cdots + \alpha_N\left(\frac{x_N - x_N^*}{S_N}\right) \ldots\ldots\ldots (1)$$

Here, x_N^* and S_N are the mean and standard deviation of indicator x_N, and α_N represents the weight of each indicator *x* of the women empowerment index. The symbol $a = (\alpha_1 \alpha_2 \ldots\ldots \alpha_N)$ is the vector of coefficients [scoring factor taken from the first principal component]. Scoring factor is the 'weight' assigned to each variable (normalized by its mean and standard deviation) in the linear combination of the variables that constitute the first principal component.

Estimating the Role of Microcredit on Women Empowerment: In order to assess the role of microcredit on women empowerment a multiple regression model estimation is conducted (Equation 2). The empowerment of the women is used as a dependent variable along with several other explanatory variables such as microcredit taking status, age,

year of education, earning status, resource/asset ownership of the respondent woman as well as several household-level characteristics including household size, employment ratio, per capita yearly income (BDT), religion, average education level of the household (Table 1). In addition, a variable concerning social restriction faced by the woman has used as an explanatory variable. This variable is constructed based on the PCA method covering three indicators related to restriction for a woman within the household to engage in a work/earning activity, restriction faced by the woman within the community by religious barriers, and restriction within the households to participate in any social activities. These restrictions impede their mobility and engagement in earning activities, and thus, make a limit to empower them where they reside. The following equation (Equation 2) is used to estimate the role of microcredit on women empowerment.

$$Y = \beta_0 + \beta_i \sum_{i=1}^{11} x_i + \varepsilon_i \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

Here, Y indicates the women empowerment is an index value constructed by using the PCA. This Equation 2 is used for five different dependent variables, which are constructed based on five different dimensions related to women empowerment. Here, x_i represents the independent variables (Table 1) and β_i are the coefficients. It is expected that if a woman is a microcredit taker then the women empowerment will also increase by β_1 unit. Similarly, if the education level of the respondent woman increases by x_3 amount then women empowerment will raise by β_3 units and vice versa.

Table 1: List of the Variables

Name of the variables	Description	Unit of measurement
Dependent variable: Women empowerment in five different dimensions		
Y_1	Women empowerment in participating household decision making	Index value
Y_2	Women empowerment in participating income activities and wealth accumulation	
Y_3	Women empowerment in involving economic and financial activities in the households	
Y_4	Women empowerment in consciousness and mobility	
Y_5	Women empowerment in their rights	
List of Explanatory variables		
Variable related to the respondent woman		
X_1	Microcredit taking status	1= credit taker, 0=non-taker
X_2	Age of the respondent	Years
X_3	Education (schooling) the respondent	Years
X_4	Earning status of the respondent	1= earner, 0=non-earner
X_5	Resource/assets ownership	1= own asset/resource, 0=no
Household level characteristics		
X_6	Household size	Number
X_7	Employment ratio in a family	Ratio
X_8	Per capita yearly income	BDT
X_9	Religion of the household	Muslim =1; Others = 0
X_{10}	Average education of the household	Years
X_{11}	Social restriction	Index value

Source: Author's Compilation, 2017

Results and Discussion

Descriptive Analysis: Before analyzing the role of microcredit on women empowerment at the household level, the descriptive statistics of the respondent woman as well as the overall household based on the household's characteristics, and the features of the respondent women are shown in Table 2. The characteristics of the respondent woman show that non-taker women are better off regarding their years of education and participation in social activities. While the taker women are better off than the non-taker regarding earning status and resource/asset ownership status.

Table 02: Descriptive Statistics of the Variables

Variables	**Overall Household**			**Non-taker** [n=40]		**Taker** [n=40]		**Mean Difference** [(d) – (f)]
	Mean	(%)	Std. Dev.					
				Mean	(%)	Mean	(%)	
	(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**	**(g)**	**(h)**
Individual level Information of the respondent								
Age	34.66		8.28	36.22		33.10		3.12*
Education (years)	6.98		3.60	7.70		6.25		1.45*
Respondent is an earner (%) [Yes = 1]		48.75			32.50		65.00	
Have own resources (%) [Yes = 1]		45.00			37.50		52.50	
Participate in social activities (%) [Yes = 1]		53.75			65.00		42.50	
Household level information								
Household size	3.91		0.78	3.95		3.88		0.08
Average education (Years)	6.03		2.35	6.16		5.89		0.26
Maximum education (years)	10.16		3.19	10.78		9.55		1.23*
Employment ratio	0.46		0.19	0.41		0.51		-0.09**
Dependency ratio	0.28		0.19	0.29		0.27		0.03
Year per capita income ('000 BDT)	49.67		23.02	54.56		44.78		9.78***
Social/community restriction [index value]	0.62		0.44	0.60		0.63		-0.03
Household is Muslim (%)		68.75		65.00			72.50	
Note: *** $p<0.01$, ** $p<0.05$, * $p<0.10$.								

Source: Author's Estimation Based on Field Survey, 2017

The findings of Table 2 indicate that a significantly higher percentage of microcredit taker women are involved in earning activities than non-taker households. It is found that 65% of the taker women are involved in earning activities which is 32.5% higher by the non-taker households. The reason could be that the taker women are taking microcredit to participate in any earning activities. While the non-taker women are more educated than the taker women. It is found that for the year of education the non-taker women are significantly higher by 1.45 years. In addition, regarding the participation in social activities, the non-taker women are significantly higher by 22.5%.

It is observed that regarding the average years of schooling at the house hold level, the non-takers are better off. Regarding the maximum educated people at the household level, it is found that the non-taker households are

significantly higher by 1.23 years (Table 2). In addition, the per capita yearly income (BDT) of the non-taker households is significantly higher by 9.78 thousand than the taker households. However, a higher percentage of the household member in the taker household is employed. It is observed that regarding the employment ratio the taker households are significantly higher by 9.6%.

The credit takers were asked some credit specific questions to assess the role of credit on their livelihood and economic condition at the household level. It is found that 80% of the respondent thinks sufficiency of microcredit in their area where they reside (Table 3). Similarly, 95% of the respondents think that microcredit brought changes in their economic conditions hence; microcredit is a helpful instrument for changing their life.

Table 03: Characteristics of the Microcredit Takers

Particulars	**Percentage (%)**
Credit facility is sufficient in your area	80.00
Credit provider is giving training to use credit	15.00
Income of the household increased after getting loan	75.00
Microcredit changes the economic conditions of the household	95.00
Helps in changing social power dynamics	47.50
Credit amount used for household consumption	20.00

Note: All the variables take the values of 0 (if no) and 1 (if yes).

Source: Author's Estimation Based on Field Survey, 2017

The study finding shows that 75% of the respondent women think that microcredit has given them a chance to engage in income generating activities, and thus, the income of the households increased after taking microcredit (Table 3). In the same way, around 47.5% of the respondent thinks that microcredit changes the power dynamics within the society where they reside. Though most of them are using credit for productive purposes or in any earning related activities, it is reported that 20% of the household used these credit for household level consumption. It is a matter of regret that only 15% of the microcredit takers are getting training facility to use microcredit from the providing agency. Training of using microcredit and awareness building programs could be effective tools for raising family income and use the microcredit in a more effective way.

A Comparative Analysis Using Women Empowerment Index: The scoring factors extracted from the principal components analysis of the 30 empowerment related variables are reported in Table 4. The empowerment related variable is dummy variables. A move from 0 to 1 in those dummy variables changes the index value by the difference factor a_N / S_N. For instance, a woman who takes own decision in spending child's cloth and education has an empowerment index value (related to household decision) higher by 0.945 than the woman does not take that decision, and a woman taking decision on spending for household agricultural activities has an index value higher by 0. 431 [see column (d) of Table 4]. The index value related to income, profession and wealth represents that a woman working outside their home has a higher index value by 0.427 than a woman not working outside their home. The higher index value for each of the separate dimension related to women empowerment represents a higher level of women empowerment. An interesting finding observed that having household asset by a woman lowers the empowerment index value related to income generating activities and wealth by 0.511 than the woman does not have any asset (such as ornaments) in a household.

Table 4 represents the result of the principal component analysis that shows the index value of the most influential indicators related to the empowerment index. The results show that around 67.5% of the non-taker respondent has control over the spending of their own income, while 77.5% of the taker women have control over the spending of own money. Conversely, around 35% of the microcredit non-taker women participate in decision making about the expenditure for their child's cloth and education, where as 60% of the taker women have the opportunity. The result shows that a significantly higher percentage of women take the decision regarding expenditure on child education and cloth. However, in terms of the opportunity of taking a decision on the expenditure in the agricultural sector, around 47.5% of the taker women are taking this decision while only 27.5% of the non-taker take this decision.

In terms of involvement in work outside the home, around 2.5% women from the non-taker group have access to work outside the home whereas, around 37.5% of the women from taker group have access to work outside their house (Table 4). Similarly, in terms of involvement in earning activities in the house, the microcredit taker women are in the better position and they are engaged more in income generating activities (higher by 22.5% than the non-taker women) which is one of the indicators of empowerment related to income generating activities. A significantly higher percentage of microcredit taker women involved in earning activities and earned last year. It is observed that regarding the earning status in the last year (in 2016), the taker women are significantly higher by 27.5% [taker (75%) – non-taker (47.5%)] than the non-taker women. As they are taking credit hence, they are using that credit money in income generating activities. While regarding household assets of the women such as ornaments, the non-taker women are in a superior position than the taker women. As microcredit is given to the poorer women who have no asset hence, this result is expected.

It is observed that nearly 50% women of the non-taker group have their own bank account whereas, around 17.5% of the taker group have their own account in a bank or any financial institution (Table 4). In addition, regarding a joint account with her husband in a bank or any financial institution, the non-taker women are significantly higher by 50% than the microcredit taker women [non-taker (62.5%) – taker (12.5%)]. It is found that nearly 95% of the non-taker women have their own savings while 70% of the taker women have their own savings. In addition, 65% of the non-taker women have their own cash for their expenditure while only 40% of the taker women have their own cash.

Regarding the empowerment related to consciousness and mobility, the microcredit taker women are far away than the non-taker women. It is observed that compared to the microcredit taker women, a larger percentage of non-taker women are enjoying independence in traveling alone such as more independence to go outside their home, etc. Around 15% of the non-taker women do not need any permission from their husband or another member of the family to go to their parent's house or to visit in any public place of the village. In addition, a significantly larger percentage of non-taker women do not need any permission from their husband or another family member to spend their own savings. The women were asked how they are conscious about using their own cash. To assess their financial consciousness a woman was asked if they get BDT 1,000, does it requires permission from her husband to use that money. In against of this response, it is observed that the non-taker taker women are significantly higher by 20% in this respect [non-taker (30%) – taker (10%)].

The indicator of women rights covering five issues related to women awareness about their rights and responsibility within the households. When the women report that they agree with respect to the following issues such as only the male should not take important family decision, only the male should not take important decision in the society and only male are not more expert than female in calculation then the answer is consider as a positive sign for ensuring women empowerment. Rather women have the same rights as a male in the mentioned issues. In addition to that, they were asked that the wife have debating right on husband's decisions and female have the same right to do anything like a male. If the women report agree with respect to the mentioned two questions, then it is considered a positive sign of their empowerment.In many cases, it is found that most of the women are aware of their rights and responsibility. However, only a few percentages of women agreed that only the male is not more expert than female in calculation. It is observed that around 27.5% of the taker women and 20% of the non-taker women agree that only the male is not more expert than female in economic calculation.

Table 4: Indicators wise Empowerment Analysis Using PCA

Variables	Overall Women (n=80)				Non-taker (n=40)	Taker (n=40)
	Scoring factor (α_N)	Mean	Std. Dev. (S_N)	Difference Factor (α_N / S_N)	Mean	Mean
	(a)	(b)	(c)	(d)	(e)	(f)
Indicators of household decision (empowered if the decision is taken by a woman or by both husband and wife)						
Spending own money	0.005	0.725	0.449	0.012	0.675	0.775
Spending husband income	0.020	0.363	0.484	0.041	0.375	0.350
Main Purchases of the family	0.199	0.613	0.490	0.405	0.575	0.650
Take decision on family savings	0.169	0.538	0.502	0.336	0.425	0.650
Take decision on food cost	0.502	0.300	0.461	1.088	0.325	0.275
Take decision on buying own cloth	0.382	0.563	0.499	0.765	0.600	0.525
Take decision on children's cloth and education cost	0.475	0.475	0.503	0.945	0.350	0.600
Take decision about taking children	0.226	0.913	0.284	0.793	0.875	0.950
Take decision on expenditure on son/daughter marriage	0.463	0.350	0.480	0.964	0.225	0.475
Taking decision on agricultural expenditure	0.210	0.375	0.487	0.431	0.275	0.475
Indicators of income, profession and wealth						
Involvement in work outside the home	0.172	0.200	0.403	0.427	0.025	0.375
Involvement in earning activities in the house	0.616	0.613	0.490	1.256	0.500	0.725
Involvement in earning activities in the house with other members	0.385	0.150	0.359	1.070	0.075	0.225
Earned in the last year	0.614	0.613	0.490	1.253	0.475	0.750
Having own asset (such as ornaments)	-0.257	0.475	0.503	-0.511	0.600	0.350
Indicators of economic activities						
Having an own account in a bank/financial institution	0.552	0.338	0.476	1.160	0.500	0.175
Having an account in a bank or financial institution with her husband (Joint account)	0.530	0.375	0.487	1.088	0.625	0.125
Taking loan from any intuition except micro credit providing NGO	-0.209	0.200	0.403	-0.519	0.050	0.350
Having any own savings	0.445	0.825	0.382	1.164	0.950	0.700
Have an influence on your income to spend for your family	-0.184	0.650	0.480	-0.383	0.600	0.700
Have your own cash	0.373	0.525	0.503	0.741	0.650	0.400
Indicators of consciousness and mobility						
Independence in travelling alone	0.447	0.100	0.302	1.480	0.150	0.050
Independence in spending own savings	0.758	0.300	0.461	1.643	0.400	0.200
Independence in spending money get from lottery	0.476	0.200	0.403	1.183	0.300	0.100
Indicators of women rights						
Only male should not take important family decision	0.579	0.813	0.393	1.473	0.850	0.775
Wife have debating right on husband's decisions	0.440	0.863	0.347	1.268	0.950	0.775
Female have the same rights to do anything like male	0.331	0.463	0.502	0.659	0.500	0.425
Only male should not take important decision in the society	0.553	0.788	0.412	1.341	0.775	0.800
Only male are not more expert than female in calculation	0.239	0.238	0.428	0.557	0.200	0.275

N.B: *Difference factor=Scoring factor (α_N) /standard deviation (S_N). Each variable takes the value 1 if true, 0 otherwise. Scoring factor is the "weight" assigned to each variable (normalized by its mean and standard deviation) in the linear combination of the variables that constitute the first principal component. For* ***women empowerment related to the household decision****, the percentage of the covariance explained by the first principal component is 31%. The first eigenvalue is 3.11; the second eigenvalue is 2.12. For* ***women empowerment related to income, profession and wealth****, the percentage of the covariance explained by the first principal component is 46%. The first eigenvalue is 2.30; the second eigenvalue is 1.15. For* ***women empowerment related to economic activities,*** *the percentage of the covariance explained by the first principal component is 31%. The first eigenvalue is 1.86; the second eigenvalue is 1.67. For* ***women empowerment related to consciousness and mobility,*** *the percentage of the covariance explained by the first principal component is 50%. The first eigenvalue is 1.50; the second eigenvalue is 0.82. For* ***women empowerment related to women rights,*** *the percentage of the covariance explained by the first principal component is 50%. The first eigenvalue is 2.49; the second eigenvalue is 0.95.*

Source*: Author's compilation based on field survey, 2017*

Estimating the Role of Microcredit on Women Empowerment: In order to test the linkage between microcredit and women empowerment, the multiple regression models are conducted (Equation 2). The women-specific characteristics and other explanatory variables related to household level characteristics of this regression estimation show the determinants responsible for women empowerment in the rural areas of Bangladesh. The mean difference between the microcredit taker and non-taker regarding the five dimensions, which includes 30 indicators, shows that for women empowerment related to household decision and income generation activities the taker women are more empowered compared to non-takers (Table 4). However, with respect to the issues of household's economic activities, and consciousness and mobility, the non-taker women are in a better position compared to the taker women. The reason might be that the microcredit gives them a chance to involve in income generating activities and to take household decision, while the credit providers do not give them (women) proper training to make them more aware about their role within the households.

The results of the regression models show that microcredit taker women are better off compared to the non-taker women in household decision making (Model 1 of Table 5). In estimating the linkage between microcredit and women empowerment, in the multiple regression model, a dichotomous explanatory variable taking 1 for microcredit taker and 0 for non-taker shows that if a woman is a microcredit taker then the empowerment related to household decision is higher by an index value of 0.0997 than the non-taker woman. It is evident from the table that if the respondent is a credit taker then she enjoys empowerment in household decision making and vice versa. This implies that as an external factor, microcredit may have a positive and influential role in women empowerment. In the context of Bangladesh, women are less empowered in decision making and in the study area, this evidence shows that more empowerment in decision making is attained by the microcredit taker women compared to the non-taker women group. They can influence the expenditure for their adult son's/daughter's marriage and so on. In order to avoid the multicollinearity from the regression model, a variance-inflating factor (VIF) test was conducted after regression estimation to detect the collinearity among the explanatory and fund no collinearity in the models. The study found a mean VIF of 1.87, which indicate no multicollinearity in the regression models.

Similarly, microcredit shows a positive and influential role in empowering women regarding income and wealth at the household level. The empowerment related to income and wealth is constructed using PCA that includes the variables listed in Table 4. As a microcredit taker, the women get a better opportunity to exercise their income and wealth empowerment compared to the non-taker women group. A significantly larger percentage of microcredit taker women are engaged in working outside their home. These results may indicate that the women who take microcredit used for the productive purpose and generating income for their household. Thus, a significantly larger percentage of microcredit taker women are taking a household decision either by themselves or jointly with their husband.

Table 05: Estimation of Role of Microcredit on Women Empowerment

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Variables	Household Decision	Income and Wealth	Economic Empowerment	Consciousness and Mobility	Women Right
Respondent is credit taker	0.0997***	0.132**	-0.0894*	-0.143**	-0.0680
	(0.0297)	(0.0577)	(0.0528)	(0.0599)	(0.0597)
Age of the respondent	0.00215	-0.00223	-0.000176	0.00184	-0.00332
	(0.00197)	(0.00383)	(0.00350)	(0.00397)	(0.00395)
Year of schooling	0.0157***	0.00794	0.00237	0.0225**	0.0164*
	(0.00478)	(0.00931)	(0.00852)	(0.00966)	(0.00962)
Respondent is earners (Yes=1, No=0)	-0.0437	0.143**	-0.0846	-0.00280	0.0211
	(0.0326)	(0.0635)	(0.0581)	(0.0659)	(0.0656)
Own resource/asset	0.0799***	0.0333	0.152***	-0.0455	-0.00382
	(0.0301)	(0.0585)	(0.0535)	(0.0607)	(0.0605)
Household size	0.0159	-0.0154	0.0707**	-0.0415	-0.0553
	(0.0181)	(0.0352)	(0.0322)	(0.0365)	(0.0364)

Ratio of employment	0.0466	0.440**	-0.187	0.334*	0.0703
	(0.0963)	(0.188)	(0.172)	(0.195)	(0.194)
Log per capita income	0.0205	-0.0517	0.218***	-0.105	-0.0447
	(0.0360)	(0.0700)	(0.0640)	(0.0726)	(0.0723)
Religion (Muslim = 1, 0 = others)	0.0322	0.0246	-0.133**	-0.141**	0.0443
	(0.0296)	(0.0576)	(0.0527)	(0.0598)	(0.0595)
Average Education (years)	-0.0112	-0.0218	0.0260**	-0.0149	-0.0101
	(0.00700)	(0.0136)	(0.0125)	(0.0141)	(0.0141)
Social restriction	-0.172***	-0.219***	0.142	-0.262***	-0.121*
	(0.0360)	(0.0700)	(0.0641)	(0.0727)	(0.0724)
Constant	0.297	0.522	-0.760**	0.849**	1.221***
	(0.184)	(0.358)	(0.327)	(0.371)	(0.370)
Observations	80	80	80	80	80
R-squared	0.599	0.556	0.489	0.357	0.204

N.B.: Standard errors in parenthesis; ***p<0.01, ** p<0.05, p<0.1

Source: *Author's Estimation Based on Field Survey, 2017*

However, microcredit taking status plays a negative role in case of women empowerment related to economic activities, and consciousness and mobility (Table 5). The reason may be that as they took credit from microcredit organizations hence, they do not have their own monetary assets as much as the non-takers of microcredit. Therefore, the result shows a negative relationship between microcredit taker and the economic empowerment of women. Similarly the negative relationship between consciousness and mobility with the microcredit taking status. The reason may be that the microcredit taker women are mostly dependent on their family member to move anywhere and they do not get freedom in spending their own savings that hinder their empowerment.

The results of multiple regression estimation represent that the year of education of the women positively and significantly influences the women empowerment related to household decision making, consciousness and mobility, and women right (Table 5). This finding depicts that increase in 1 year of schooling leads to an increase in the women empowerment in household decision making by an index value of 0.0157, consciousness and mobility empowerment by an index value of 0.0225 and empowerment related to women rights by an index value of 0.0164. The higher the education of the women indicates the more voice of women over their family matters because it is treated that they become more capable to understand and take any decision regarding their family matters. Similarly, if the woman is an earner then it plays a positive role in the income and wealth empowerment by an index value of 0.143, which is statistically significant at 1 percent level of significance. The result implies that earning status of women increases their motivation to earn more and generate more wealth than women who are not earning anything. Likewise, if the women have resource ownership or have household assets including land or cash then the women enjoy more empowerment in household decision making by an index value of 0.0799 compared to those women who have no resource ownership and this result is statistically significant at 1 percent level of significance (Table 5). In the same manner, resource ownership also matters positively for the economic empowerment of the women because it indicates that they have better access to banking and other economic aspects compared to the women having no assets/resources. Resource ownership by women increases the economic empowerment by an index value of 0.152. Likewise, if per capita yearly income of the household increases by 1% then economic empowerment increases almost by an index value of 0.218 and this result is statistically significant at 1 percent level of significance.

The religion of the household shows that if the household is Muslim then the economic empowerment of women and empowerment related to consciousness and mobility are negatively influenced. In the context of Bangladesh, the Muslim women have limited scope to involve any of the economic activities and the Muslim women have some limitations to go outside without the permission of their husband or other family members. Religion is not solely responsible for that circumstance of women. The social customs in rural areas create some barriers on women for their mobility and consciousness as well as participation in economic activities outside their house. In addition, the

linkage between social restrictions and women empowerment shows that social restrictions have a significantly negative influence on household decision, income and wealth, consciousness and mobility, and women's right. In the social settings of Bangladesh, the women have to face many limitations within their households as well as within the community where they reside. This variable restricts women to attain more schooling, to engage in economic activities, to go out without their husband's permission and to enjoy more rights in different aspects.

Conclusions and Policy Recommendations

This paper aims to examine the role of microcredit taking status on women empowerment concerning five different dimensions including household decision, income and wealth, economic activities of the household, consciousness and mobility, and women rights. The authors found that microcredit is an important indicator for women empowerment in term of participating in household decision making and empowerment of women related to involvement in income generating activities and wealth accumulation. If the woman is a microcredit taker then she can participate in several aspects of a household decision. Similarly, women empowerment related to the issue of income, profession and wealth, microcredit plays a significantly positive role. The findings indicate that the microcredit takers are more empowered than the microcredit non-takers. Compared to the non-taker women, a larger percentage of the microcredit taker women involved in a job outside their home as well as they engage in earning activity inside their house. However, concerning the other dimensions of empowerment i.e. participating in household economic activities, and consciousness and mobility, microcredit could not significantly play a positive role.

In addition to microcredit, some other factors have an influence on the women empowerment. The years of schooling, earning status of the women, ownership of resource/asset, household size, religion of the households, and social restrictions that they face have also influence on their empowerment. However, the study has found that the women are less aware of using their loan amount effectively because the microcredit providing organization have no program to train them and guide them with proper direction. This initiative can increase their empowerment by increasing their efficiency in using credit money. Social restriction is another vital factor for restricting women from being empowered in almost every dimension of empowerment. This requires the change in social attitude of the household member and community people where they reside, education of the women and positive behavior towards the women within their household as well as within their society need to ensure. It is difficult to bring this change overnight but gradual initiatives from individual, government as well as non-government organizations can be effective. Sometimes microcredit becomes a burden to the women if they fail to repay the credit money. A strong monitoring system should be introduced by the microfinance organization to ensure the proper utilization of the credit money to make the women more empowered and to achieve their goals.

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