

Micro-credit and Poverty Reduction in Bangladesh

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Abstract

The main objective of the study is to assess the impact of micro-credit on poverty reduction . The study was conducted among recipients of microcredit provided by both Grameen Bank and the BRDB in Manikganj Sadar Upazila of Manikganj district and Sagalnaiya Upazila of Feni district. The study reveals that Grameen Bank and BRDB covered higher proportion of landless households compared to control area. On an average each member in programme area received credit 5.35 times with an average of Tk. 44,000 from the date of their joining. A significant number of members used their credit in unplanned areas. The respondents opined that due to involvement in micro-credit programme, average food provisioning of Grameen Bank and BRDB members increased about 10 and 20 percent respectively. The calorie intake method reveals that 6-percentage points poverty reduced due to micro-credit. Percentages of hardcore and ultra poor in programme area were significantly lower compared to control area. Ninety three percent of the respondents under Grameen Bank and 94 percent under BRDB mentioned that their economic condition improved to some extent due to the involvement in micro-credit programme. Micro-credit had also positive impact on changing the housing condition. The relationship between access to micro-credit and incidence of poverty was not statistically significant at 5 percent level of significance. Improvement of economic condition assessed through self-assessment was positively related with the duration of membership in micro-credit programme, number of times received credit and amount of credit received and these were statistically significant. Impact of micro-credit on human poverty related indicators was relatively less compared to the income poverty related indicators. For accelerating poverty reduction through micro-credit the study recommended establishing the effective monitoring and evaluation systems on utilization of micro-credit by the beneficiaries, appropriate training to the beneficiaries, increase credit size and increase full time employment opportunity.

Keywords: Microcredit , Poverty Reduction, Grameen Bank.

Introduction

Bangladesh is one of the poorest countries in the world. According to Bangladesh Bureau of Statistics (BBS), the percentage of population living below the absolute poverty line in Bangladesh was about 26 percent in 2012. The growth of poor people is much higher than that of non-poor people that added more poor people to the total population. Poor people have lack of access to credit to initiate income-generating activities. It is very difficult for the poor people to get working capital from the formal banking system. A collateral free loan is needed for the poor

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people to start income generating activities. Based on this requirement, micro-credit programme has been evolved as one of the most important approaches to poverty alleviation.

The Grameen Bank, one of the Bangladesh's best-known providers of micro-credit, initiated the micro-credit movement in Bangladesh in 1976. The initial movement of micro-credit in Bangladesh was started by Small Farmers Development Programme (SFDP) of Bangladesh Academy for Rural Development (BARD), Comilla, which was emerged on the basis of the analysis of problems in the sixteen rural areas in eight Asian countries at which problem identification and solution seeking field workshops were held under the "Asian Survey of Agrarian Reforms and Rural Development (ASARRD)" a project of Food and Agriculture Organisation (FAO) of the United Nations in 1972 (Roy, 2004). Now, in addition to the Grameen Bank, there are a lot of Government and Non-government organizations which are implementing micro-credit programmes to alleviate rural poverty.

Micro-credit programmes helped expansion of public service, creation of employment opportunities, acceleration of agricultural production and infrastructural development. As regards disbursement and recovery, it appears that the rate of recovery is more than 85 per cent on an average in the government programme. The success stories of few projects in the government sector indicate remarkable achievements in income earning, empowerment of women and creation of employment opportunities. But in respect of poverty alleviation target of the Millennium Development Goals, the British Finance Minister Gordon Brown stated that with the present nature of global initiative to reduce the level of 50 per cent poverty by the year 2015 would be a challenging issue. He emphasized a revised outlook of action plans for global poverty alleviation (Chowdhury, 20012:6). It was found that the incidence of income poverty decreased from 59 percent in 1991 to 26 percent in 2012, giving an annual rate of decline of 1.7 percent, which is however lower than the required rate of 2 percent per annum. The past trend of plateauing of TFR was a cause of concern as it might not only hamper the progress of income poverty reduction but might also have a deleterious impact on the attainment of other MDGs, indicating programme coverage variations. Very recent data reveal that TFR has started falling again, albeit slowly (GoB, 2010:7).

A rapid impact assessment of micro-credit programme created by International Development Association (IDA) of the World Bank shows that the poor have benefited from the programme of Palli Karma Sahayak Foundation (PKSF) in several ways. It was found that borrowers income increased by 97.93 per cent, quantity and quality of food intake improved by 88.59 per cent, clothing made a reported improvement by 87.85 per cent, housing condition improved by 75.26 per cent, children's education improved by 75.41 per cent, sanitation condition improved by 68.74 per cent and overall quality of life improved by 94.96 per cent. A large number of studies have been conducted on the impact of micro-credit banking at the household level during last fifteen years. Most of the studies (e.g., Hashemi et al., 1996; Pitt and Khandher; 1998; Christen,R.E.,1994; Dale.W & Jerry R.Ladman,1979 ;) used quasi-experimental design (programme group and control group) to estimate the effect of micro-credit banking (cited Khalily 2000). Quasi-experiments seek to compare the outcomes of an intervention with a simulation of what the outcomes would have been, had there been no intervention (Hulme 2000). First method is multiple regression, but this has rarely been used in impact assessment because of its enormous demands for data on other possible casual factors and its assumptions (Mckernan S.;

1995). A second method is the control group approach which has been widely used. This requires a 'before and after' comparison of a population that received a specific treatment (i.e. MFP participants) and an identical population (or as near as possible) that did not receive the treatment (non-participants of MFP). There is another non-experimental method, which is known as 'with and without method'. According to this method an ideal application of the impact assessment technique require to fulfill: (i) a large number of randomly selected areas should be chosen for implementation of the project; (ii) there be no other development interventions in the study area; (iii) information be collected before and after the project. Under control group approach (i.e. 'before and after'), it is very important for researchers to collect base line data (before data) as well as data after implementation of the development program. However, collection of base line data as well as data after implementation of the project are very expensive as well as time consuming (cited Chowdhury, 1997). Some times 'before and after' method is also applied on the basis of 'memory recall', when the base line data is not available. Development program participants or beneficiaries are asked about their status before the intervention on the basis of memory recall. The shortcoming of this approach is that the information provided by the respondents has less creditability. The extent of reliability of the information provided by the respondents depends on the time difference between before and after the intervention, the greater is the reliability of the information and the longer the time span between before and after the intervention the lesser is the reliability of information. During the period between before and after intervention data collection, socio-economic conditions in the study area may have been influenced by developments other than one whose impact is being assessed. In a situation like this, it may be difficult, if not possible, to single out the impact of one specific intervention. For these reasons, researchers very seldom adopt the 'before and after' method to assess the impact of development interventions. It has been found that researchers have extensively used the 'with and without method', for example, Mustafa et al. (1996); Khandaker and Chowdhury (1996); Hussain & Piaz (1997). Under the 'with and without' method a control group is selected from the area where the specific development intervention has not been implemented. The control group and the area from where the control group is selected should possess the same characteristics of the program group and the area where the development program is implemented. The impact of development intervention are assessed through a comparison of socio-economic conditions between the control group and the program group after the intervention has been given a period of time to make its impact felt. The major advantage of the 'with and without method' is that this method can be implemented easily and is less time consuming and less expensive. But the 'with and without method' has one major disadvantage, unlike the 'before and after method', this method is not able to diagnose the observed differences, which prevailed between the program group and the control group prior to the program intervention. Since in reality, it is always difficult, if not almost impossible, to find two identical group to begin with. The difference between the program group and the control group under the 'with and without method' may not reflect the net impact of the program intervention but rather the effects of (a) systematic differences between the program and the control group before implementing of the program, and (b) different event other than the program happening at the same time in the program area. Some important factors should be given careful attention in impact assessment studies to identify the real impact of a specific development intervention which are selection bias, choosing and defining appropriate variables, time frame, short-term and long-term effects and interpreting and generalizing the results. Khandker (1998) examines the impact of three group based credit

programmes (Grameen Bank, Bangladesh Rural Advancement Committee (BRAC), and Bangladesh Rural Development Board (BRDB). The outcome parameters considered in the household level analysis were consumption, savings, income, education, nutrition, and wealth accumulation. At the individual level, the major indicator was female empowerment. The village level outcome parameters were wage and employment. The institutional outcome parameters were outreach, cost-efficiency and sustainability. A set of comprehensive questionnaires were designed, pre-tested and administered for data collection. One of the strength of this study is the application of sound econometric techniques in solving the problems of endogeneity and determining efficiently impact outcomes. Khandker (1995) found First, microfinance contributes to poverty alleviation (household level, 5% of GB and 3% of BRAC). At village level, there were significant decline in moderate poverty and extreme poverty. Second, there has been an increase in average household income (30% for GB and 33% for BRAC). Several factors like increase self-employment and increase in wages because of shrinkage in labor supply, contribute it, which further enhances wages and self-employment in off-farm activities in program villages (cited in Khalilly, 2000). Using the same data Pitt and Khandker (1998) found that program credit has significant impact on the well-being of poor households and that this impact is greater when credit targeted to women. This paper provides separate estimates based on WESML-LIML-FE (Weighted Exogenous Sampling Maximum Likelihood-Limited Information Maximum Likelihood Fixed Effects) of the influence of borrowing by both men and women for each of three credit programmes (the GB, BRAC, BRDB) on household expenditure, financial assets held by women, male and female labor supply, and boy's and girls' schooling.

But different micro studies showed that there have not been any significant declines in the overall levels of poverty. This apparent condition may be particularly due to the fact that the micro-credit programmes have been very successful for hardcore poor, who contribute about half of the poor in Bangladesh. The poorest may have been left out because quite often the destitute themselves feel they are not worthy and the micro-credit programme also do not judge them to have the entrepreneurial ability necessary to invest the credit properly. Perhaps micro-credit especially in the form that is currently in practice is not the answer to the need of the hardcore poor (Ahmed, 2006:5). Abed (2004) mentioned that the ultra poorest 10 per cent of the Bangladesh population could not take advantage of BRAC's micro finance loans. They were so desperate that the risk of taking out a loan and the requirement of a savings account kept them out of mainstream development efforts. These people initially needed wage employment rather than credit for self-employment BRAC is now trying to bring them into its system (Abed, 2004: 5).

The evaluation reports of different programmes revealed that most of the programmes had important contribution to poverty reduction and population control. But there is a lack of specific studies on how many people crossed the poverty line through micro- credit programme and how much time required for graduation from below poverty line to above poverty line. This information is necessary for the policy maker to formulate appropriate policy for poverty reduction. Moreover, most of the studies did very much qualitative assessment. Specific contribution of the programmes to poverty reduction and the contribution of different factors were not analysed. This limits formulation of appropriate plan for poverty reduction. This study will be able to solve these problems, which will be very much useful for the policy planners to formulate appropriate policies for poverty reduction and also this study will add new knowledge for the researchers and academicians.

Objectives of the Study

The main objectives of this study are to assess the impact of micro-credit on poverty reduction and their related factors. The specific objectives are to: (i) assess the access to micro-credit and existing poverty situation in the study areas; (ii) assess the impact of micro-credit on poverty reduction; (iii) identify the factors related to poverty reduction; and (iv) formulate some recommendations to develop action plan for poverty reduction.

Hypothesis of the study

Access to micro-credit is inversely related with the incidence of poverty.

Scope and Limitations of the Study

The study covered two major micro-credit delivery organisations- Grameen Bank representing Non-Government Organisations (NGOs) and Bangladesh Rural Development Board (BRDB) representing Government Organisation (GO). The study covered two different geographic locations- Manikganj representing relatively less conservative areas in terms of women's participation and Feni representing relatively more conservative areas.

The major areas covered by the study were credit disbursement, utilization, interest rate pattern, recovery rate, income, expenditure, consumption, food security, calorie intake, poverty line, incidence of both income and human poverty, etc. Finally, the study developed a set of recommendations for poverty reduction based on study findings.

To assess the impact of the development interventions baseline data are required, which were not available for the study area. As a result, it was not possible to use before and after with control design. The study used after with control design and also before and after with recall method for assessing the impact of micro-credit on poverty reduction and family planning. But in some cases especially for quantitative nature of data, respondents faced difficulty to remember exact figures at the time of their involvement in micro-credit programme. Therefore, before and after with recall method was used mainly to collect information on qualitative changes that happened due to micro-credit intervention.

It was also very difficult to select the control village for micro-credit programme, because the micro-credit programmes covered most of villages in the study areas. Therefore, though the attempt was taken to select the households that were not involved in any micro-credit programme as control households, in reality after collecting detailed information it was found that a small number of control households also received micro-credit from other than Grameen Bank and BRDB. To tackle this issue and to assess the real impact of micro-credit, respondents' self-assessment procedure was also used.

Brief Description on the Study Programmes

In this chapter, attempt has been made to briefly describe the two micro-credit programmes that were considered under this study. These are Grameen Bank and Palli Daridra Bimochan Karmachuchi (PADABIC) of Bangladesh Rural Development Board (BRDB).

Grameen Bank

Professor Muhammad Yunus, Head of the Department of Economics at Chittagong University, started Grameen Bank in 1976 as an experimental project at Jobra village of Chittagong, Bangladesh. This project became a pilot project in 1979 with the financial support of the Bangladesh Bank. In October 1983, it was established as an independent financial institution. In course of time, it has been converted into a private specialized bank, with 94 percent of the stocks owned by the poor borrowers themselves and remaining 6 percent is owned by the government. The Grameen Bank is managed by 13 members Board of Directors out of which 9 from Grameen Bank beneficiaries, 3 from the government nominees and Managing Director as *ex-officio* member of the Board. The 9 directors of GB were elected from 9 electoral zones, which were individually represented by 245 area representatives. The scaling up with GB Structure reveals that there is one head office, 39 Zonal Office (ZO), 245 Area office, 2381 branch office, 123732 centers, 1,107,515 Groups and 8.4 million members of whom 97% are Women (Source: Bangladesh Economic Review, 2013).

Grameen Bank began with unusual traits for a lending institution; it required borrowers to fall below a certain income level, did not require collateral and forced clients to join five-member groups that meet once a week and cross-guaranteed one another's loans; if one member defaulted, it damaged the entire group's access to credit. Responsibility for the loans of all the group members is crucial, because it is the group – not the bank – that initially evaluates loan proposals. Defaulters spoil things for everybody else, so group members choose their partners wisely. If all five repay their loans promptly, each is guaranteed access to credit for the rest of her life- or as long as elected to remain a customer (www.infochangeindia.org/microc_article2.jsp).

The main objectives of the Grameen Bank are to: (a) provide credit to bottom poor men and women without any collateral; (b) eliminate the exploitation of the poor by money lenders; (c) create new opportunities for self-employment for the huge number of unemployed in rural Bangladesh; (d) empower the poor through mutual support and self-sustained socio-economic development, and to reverse the age old vicious circle of poverty.

The essential features of Grameen's micro-credit system are: (i) exclusive focus on bottom poor; (ii) borrowers organized into small homogeneous groups; (iii) loan conditional ties especially suitable for the poor; (iv) social development programme; (v) capable organization and management system; and finally (vi) loan portfolios to meet diverse development needs. Over three decades of experience it has proved that (a) micro-credit is a very effective instrument to empower the poor, especially women; (b) it is cost effective and sustainable; (c) it creates

opportunities for the poor to move out of poverty; (d) it is a system based on mutual trust and co-operation; (e) it creates self-employment for the poorest, particularly poor women; (f) the poor do not have to come to the Bank, the Bank goes to the poor; (g) it is dedicated to establishing credit as a human right; (h) the staff member up to February, 2012 stands to 25,626(ibid).

Today Grameen Bank is owned by the rural poor whom it serves. Borrowers of the bank own 97 percent of its share, while the government owns the remaining 3 percent. Rural women today constitute about 97 percent of the bank's borrowers. The different loan portfolio are basic loan, micro enterprise loan (special investment), village phone, house loan, higher education loan for member's children, scholarship program for member's children, beggars member programme, computerized MIS and Accounting System Loan disbursed and repayment shows an unique features

This financial management of GB reveals that savings products have brought financial self-reliance. Grameen Bank stopped accepting new foreign grant and loan since 1995. Presently, the outstanding and deposit ratio is 100:136 and 58% of total branches having savings more than its portfolio outstanding. The total deposit up to February 2012 stands to members US\$ 457.12 million (61%) and non-members US\$ 278.13 million (39%)(Ibid.)

Palli Daridra Bimochan Karmachuchi (PADABIK) of BRDB

Palli Daridra Bimochan Karmachuchi (PADABIK) is a programme of Bangladesh Rural Development Board (BRDB) funded by the Government of Bangladesh. The main objective of this programme is to create self-employment of rural poor people (male and female) and their overall standard of living through organising them in informal groups, forming capital, imparting training and providing micro-credit. The main activities of the programme are:

- a. informal group formation for male and female;
- b. training on skill, human resource and social development;
- c. formation of own capital through savings;
- d. disbursement of micro-credit for initiating income generating activities;
- e. providing marketing facilities; and
- f. achieving self-reliance through sustainability fund.

The first phase of PADABIK was started in 1993 in 145 upazilas of Bangladesh and continued up to June 1998. Then the second phase continued from July 1998 to June 2003. Now the programme has been running by BRDB based on revolving fund through informal groups in 152 Upazilas. Out of the total number of groups and members, 60 percent are women. This programme has made significant contribution to health and nutrition, family planning, awareness development, adult education, use of improved burner, tree plantation and women's empowerment (BRDB, 2007: 43; BRDB, 2008:29).

Methodology of the Study

The methodology of this study consist of literature review and analysis of primary and secondary data. Two different locations – Manikganj representing the general characteristics of Bangladesh and Feni representing a bit conservative area of the country- were selected. Two leading micro-credit organisations – Grameen Bank representing NGOs and Bangladesh Rural Development Board representing Government organizations were selected. Manikganj Sadar Upazila from Manikganj district and Sagalnaiya Upazila from Feni district were selected by using simple random sampling among the micro-credit programme Upazilas under the two selected districts.

In order to assess the impact of the micro-credit programmes, after with control design was followed. Moreover, information on suitable indicators was collected in before and after situation through recall method. Values of the indicators in programme area were compared with the control area. Besides, respondents' opinions regarding the changes due to micro-credit programme were assessed in before and after situation through recall method. For further verification results obtained through these two methods were also compared.

The sample size of the study was estimated by using the standard statistical formula (Kotheri, 1996:218). The estimated sample size at 95 percent confidence level with 5 percent error was 384. To make it round figure, it was considered as 400. Therefore, a total of 400 beneficiaries–100 from each of Manikganj Sadar Upazila of Manikganj district and Sagalnaiya Upazila of Feni district from Grameen Bank and BRDB centers were selected by using simple random sampling. A total of 200 households were also selected from the neighbouring villages as control area following the same procedure of programme area. Thus the total sample size of the study was 600 and they were the respondents of this study.

Data were collected from both primary and secondary sources. Primary data were collected through direct interview of selected respondents by pre-tested structured questionnaire. The researchers supervised the data collection and edit the questionnaire in the field. In addition to the questionnaire survey, some qualitative information was also collected during the data collection period by the researchers to support the quantitative analysis. Primary data were collected at the end of 2005 and processed through mainly SPSS computer software. Secondary data were collected from different statistical reports, relevant research papers, books and journals.

Research Findings

Socio-economic Characteristics

General literacy rate of the household members in programme and control areas were 59 and 49 per cent respectively. Higher adult literacy rate (about 10%) was also observed in programme area. Male literacy rate was significantly higher in both the cases. Percentages of households having land up to 0.50 acres were 86 for Grameen Bank, 85 for BRDB and 71 for the control area. This implies that both Grameen Bank and BRDB covered higher proportion of landless households compared to control area. About 66 percent of the total respondents' main occupation was housewife in programme area and the same was about 83 percent in control area indicating housewives were able to generate income-generating activities as their main occupation.

Access to Micro-Credit

Due to selection criteria 100 percent respondents in programme area received credit, while the same was about 23 percent in control area. Average number and amount of credit received by the respondents after joining in the credit programmes under study are presented in the following Tables.

Table-1: Average Number and Amount of Credit Received by the Respondents under Micro-credit Programmes of Grameen Bank and BRDB

| Intervention | Total number of respondents | Number of respondents received credit | Average number of credit received (times) | Average amount of credit received by each respondent |
|-------------------------|-----------------------------|---------------------------------------|---|--|
| A. Grameen Bank | 200 | 200 | 6.54 | 55,465 |
| B. BRDB | 200 | 200 | 4.16 | 32,600 |
| C. Programme Area (A+B) | 400 | 400 | 5.35 | 44,032 |
| D. Control Area | 200 | 45 | 2.67 | 18,866 |

Source: Field Survey

On an average each member in programme area received credit 5.35 times with an average of Tk. 44,000 from the date of their joining. Grameen Bank members received about Tk. 20,000 more compared to BRDB as their duration of membership was higher. Grameen Bank members utilized credit as per planned activities in 10 areas out of 19 areas of disbursement, whereas BRDB members utilized credit as per planned activities in eight areas out of 16 disbursement areas. This implies that a significant number of members used their credit in unplanned areas like dowry for daughter's marriage, construction of or repairing old house, food consumption and some cases invested in more profitable activities compared to planned activities. About 31 percent respondents in programme area and only 2 percent in control area received training on credit utilization.

Impact of Micro-credit on Income Poverty Related Indicators

In this section attempt has been made to assess the impact of micro-credit on changes in food provisioning, asset formation, capital formation and improvement of poverty situation of the poor people.

Changes in Food Provisioning: In this study food provisioning means affordability of food in terms of quantity, quality, safety and culturally acceptable from own production and all other sources of income of the household members. In case of before and after with recall method, average food provisioning of Grameen Bank and BRDB members increased about 10 and 20 percent respectively with an average of about 15 percent. In comparison with the control area food provisioning in programme area increased about 10 percent. In order to verify the real impact of micro-credit on food provisioning of the participating households, they were asked

whether their food provisioning increased due to the involvement only in micro-credit programme. The responses of the respondents are presented in the Table-5.2.

Table-2: Number and Percentage of Households Increased Food Provisioning due to Involvement in Micro-Credit Programme in 2005.

| Intervention | Total number of households | Number of households increased food provisioning | Percentage of households increased food provisioning |
|-----------------|----------------------------|--|--|
| Grameen Bank | 200 | 86 | 43 |
| BRDB | 200 | 105 | 52 |
| Both GB&BRDB | 400 | 191 | 48 |
| Control village | 200 | 21 | 11 |

Source: Field Survey

About 48 percent of the respondents expressed their opinion in favour of increased food provisioning due to the involvement in micro-credit programme. The income generated through investing micro-credit was used to buy food and to purchase households necessities; by that they were able to increase their food security(See Table:2).

Asset and Capital Formation: Through utilization of micro-credit the members formed assets like cattle, rickshaw, sewing machine, shop, tractor, fishing net, household furniture, television, CD player, hygienic toilet, etc. On an average each of the participating households of Grameen Bank and BRDB formed capital of Tk. 2716 and Tk.2680 respectively with an average of Tk. 2714 from the date of their joining in the micro-credit programme and saved their capital in the concerned NGOs.

Improvement of Economic Condition: Ninety three percent of the respondents under Grameen Bank and 94 percent under BRDB mentioned that their economic condition improved to some extent due to the involvement in micro-credit programme. The important types of improved economic conditions were increased income, increased capital in business, increased share and savings in the society, constructed new house, got electricity connection, constructed sanitary toilet , increased food consumption, etc.

Changes in Incidence of Poverty through Self-Assessment: Under this approach, 38 percent of the households in programme area as compared to 54 percent in control area were living below the poverty line indicating that 16-percentage points poverty reduced due to micro-credit. Less proportion of households of BRDB compared to Grameen bank was living below the poverty line. One of the reasons may be that the BRDB members were relatively in a better off position.

Changes in Incidence of Poverty through Calorie Intake Method: A household with per capita calorie intake of less than 2,122 kcal per day is considered as absolute poor, while a household with less than 1805 kcal per capita per day is considered as hard-core poor. Recently, a third category of poverty named ultra poor is defined as the households having per capita per day calorie consumption less than 1600 kcal. Poverty situations in programme and control areas are presented in the following Table:

Table-3: Incidence of Poverty in Programme and Control Areas Measured Through Head Count Ratio

| Category of poverty | Percentage of households living below the poverty line in programme area | | | Percentage of households living below the poverty line in control area | Proportion test (normal test) |
|-------------------------------|--|------|-------|--|-------------------------------|
| | Grameen Bank | BRDB | All | | |
| 1. Absolute poor (<2122 kcal) | 45.5 | 46.5 | 46.0 | 51.00 | 1.236 |
| 2. Hardcore poor (<1805 Kcal) | 18.5 | 17.0 | 17.75 | 34.00 | 4.458** |
| 3. Ultra poor (<1600 Kcal) | 8.0 | 7.5 | 7.75 | 15.5 | 2.789** |

Source: Field Survey

Note: ** indicates significant at 1 percent level of significance

Forty six percent of the total households in programme area were living below the absolute poverty line as compared to 51 percent in control area indicating that poverty reduced at 6 percent due to the involvement in micro-credit programme. Percentages of hardcore and ultra poor in programme area were nearly half of the control area. This difference was statistically significant at I percent level of significance.

Changes in Housing Condition: In programme area before involving in micro-credit programme, 27 percent households' main dwelling house was *Jhupri* and after involving in micro-credit programme it was significantly reduced to about 8 percent. Similarly, percentage of households having semi-pucca dwelling house increased nearly three times in programme area. Percentages of households having semi-pucca and tin sheet houses were more in programme area compared to the control area. On the other hand, percentages of households with kancha and *Jhupri* house were lower in programme area compared to the control area, which indicates the positive impact of micro-credit in creating assets in the study areas.

Relationship between Micro-credit and Incidence of Poverty

To assess the association between the access to micro-credit and improvement of economic condition, all the respondents under study including control group were considered. The reason was that all the respondents in programme area had access to micro-credit, but not in control area.

Table-4: Factors Related to the Improvement of the Economic Condition of the Participating Households

| Indicators | Improvement Level of Economic Condition | | Total | Chi-square value |
|----------------------------------|---|--------------|-----------|------------------|
| | Improved | Not improved | | |
| 1. Access to Micro-Credit | | | | |
| Have access | 410(92.8) | 32(7.2) | 442(100) | 450.09** |
| Don't have access | 7(4.4) | 151(95.6) | 158(100) | |
| Total: | 417(69.5) | 183 (30.5) | 600(100) | |
| 2. Duration of Membership | | | | |
| Up to 3 years | 121(90.3) | 13 (9.7) | 134 (100) | 4.898* |
| Above 3 years | 255(95.9) | 11 (4.1) | 266 (100) | |
| Total | 376 (94.0) | 24 (6.0) | 400 (100) | |

| Indicators | Improvement Level of Economic Condition | | Total | Chi-square value |
|---|---|--------------|-----------|------------------|
| | Improved | Not improved | | |
| 3. Number of Micro-Credit Received (times) | | | | |
| Up to 3 times | 127(88.8) | 16(11.2) | 143(100) | 10.63** |
| More than 3 times | 249 (96.9) | 8 (3.1) | 257 (100) | |
| Total: | 376 (94.0) | 24 (6.0) | 400 (100) | |
| 4. Amount of Micro-Credit Received | | | | |
| Up to 25,000 | 135(89.4) | 16 (10.6) | 151 (100) | 9.085** |
| Above 25,000 | 241 (96.8) | 8 (3.2) | 249 (100) | |
| Total: | 376 (94.0) | 24 (6.0) | 400 (100) | |

Source: Field Survey,

The relationship between access to micro-credit and incidence of poverty was not statistically significant at 5 percent level of significance. This implies that the benefit derived from the micro-credit by the respondents under study was not able to make a significant contribution to graduate from the below poverty line to the above poverty line. But the association between the access to micro-credit and improvement of economic condition assessed through self-assessment was significantly related. Improvement of economic condition was also statistically significant and positively related with the duration of membership in micro-credit programme, number of times received credit and amount of credit received.

Impact of Micro-credit on Human Poverty Related Indicators

Both birth and death rates were lower in programme area compared to the control area. The gap between the birth and death rates in programme area was also lower than that of control area. It was found that only four out of 53 children in programme area and five out of 31 children in control area were borne in hospital and the rest of the children were born at home. This means that very few number of households have access to good health facilities for delivery cases. In this case, programme area is lagging behind the control area. The self assessment of the respondents implies that about 10 percent of the total under five children was malnourished. There was no significant difference between the percentage of malnourished children in programme and control areas.

The net enrolment rates of primary school going age children in both programme and control areas were about 95 percent in programme area as compared to 94 percent in control area indicating insignificant gap between programme and control areas. About 98 percent households in programme area and 99 percent households in control area used hand tube well as the main source of drinking water.

In programme area, before involving in micro-credit programme 7.5 percent households had hygienic latrine as compared to 8.25 percent households after involving in micro-credit programme indicating 0.75 percentage point increase. But the percentage of households having sanitary latrine was lower in programme area compared to the control area.

Before involving in micro-credit programme, only 45 percent households had electricity connection that increased to about 75 percent after involving in micro-credit programme indicating 30-percentage points improvement. Percentage of households having electricity connection was two percentage points higher in programme area compared to the control area. Coverage of immunization was very high with insignificant difference between programme and control areas.

Recommendations

1. Though the national level statistics reveal that Bangladesh made more progress to reduce human poverty compared to the income poverty, the study findings reveal that micro-credit made more contribution to reduce income poverty compared to the human poverty. Therefore, micro-credit programmes need to integrate human poverty related indicators like health, sanitation, population, nutrition, etc. with their credit programmes.
2. In order to generate effective income, proper utilisation of micro- credit as per approved plan by the beneficiaries should be ensured. In this regard, micro-credit organizations need to be established an effective monitoring and evaluation systems on utilization of micro-credit by the beneficiaries.
3. Appropriate training to the beneficiaries on concerned income generating activities should be the integral part of micro-credit disbursement. Some of the training areas suggested by the respondents are poultry rearing, cattle fattening, tailoring, cottage industries and fish cultivation, etc. But as the type of feasible income generating activities varies from place to place, training need on income generating activities also varies accordingly. Therefore, before imparting training to the beneficiaries, training need should be assessed for the concerned places and beneficiaries.
4. As the respondents opined that the amount of credit received by them were not enough to generate effective income, therefore, based on demand and credit utilization ability of the members, micro-credit size can be increased.
5. In most of the cases micro-credit helped in generating seasonal self-employment that has little contribution to poverty alleviation. Therefore, emphasis should be given to generate fulltime employment through micro-credit especially for women. Disbursement of micro-credit to the small-scale industries with increased size may be one of the options for this.

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