

Full Length Research Paper

Effect of microcredit program on rural poverty alleviation: An empirical study of four major microcredit organizations at Monirampur Upazila in Bangladesh

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Numerous microcredit organizations conduct microcredit programs in Bangladesh and provide small loans to rural poor people with the purpose of eradicating poverty. This study attempts to elucidate the extent to which these microcredit programs are effective in reducing poverty and to examine the impact of microcredit in income generation and upliftment of borrowers' living standard. All the respondents of Monirampur Upazila in Jessore district were the population of the study. The estimated results show that borrowers of microcredit programs are better off in terms of food consumption and household income generation. It is recommended that the NGO should consider some important points such as a repayment system, interest rate and proper training program to generate borrowers' household income.

Key words: Poverty alleviation, microcredit program, major microcredit organizations, Bangladesh.

INTRODUCTION

Bangladesh is the pioneer of the micro-finance movement and the home of the largest micro-finance operation in the world and microcredit has now outreached well over one-third of all rural households in Bangladesh (Wahiduddin, 2004). But there have been some arguments that access to credit has the potential to significantly reduce poverty (Khandker, 1998) whereas; there is also research which argues that micro-credit has minimal impact on poverty reduction (Morduch, 1998). From other research evidence, it explores that microfinance programs are generally found to be effective in reducing poverty and improving nutritional status (Morduch and Haley, 2002; Kabeer, 2008; Khandker, 2005). In their review of evidence from a number of microfinance programs across the developing world, Morduch and Haley (2002) concluded that microfinance programs reduce vulnerability and have a positive impact on poverty reduction. Khandker (2005) applies panel methods using a 1999 resurvey; he concurs and extrapolates to conclude that microcredit helps the extremely poor more than the moderately poor.

Assessments also show that microcredit programs contribute to poverty reduction and reduce household

vulnerability (Zaman, 1999; Khandker, 2005). Pitt and Khandker (1998) and Khandker (2005) prominently reinforced three broad ideas about microcredit; that it is effective in reducing poverty generally, that this is especially so when women do the borrowing and that the extremely poor benefit the most (Roodman et al., 2009). Therefore, this article explores how microcredit affects, to reduce poverty in rural households of the study area. The analysis in our paper is based on data which is from the field survey in 2008. We analyze data on 200 respondents from four organization's members and used multiple linear regression analysis to examine the effect of microcredit on family income and food consumption in household. The contribution of this paper is to explore the effect of microcredit on poverty alleviation at Monirampur Upazila (its very poorest area in the southeast coastal region because every year natural disasters occur) in Bangladesh through the study of four major organizations, Association for Social Advancement (ASA), Bangladesh Rural Advancement Committee (BRAC), Bangladesh Rural Development Board (BRDB) and Grammen Bank (GB).

The objectives of this paper are to measure the effect of Microcredit program on poverty reduction in the selected areas, asses the impact of Microcredit on increase households income as well as upliftment of their living standard above poverty line.

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Table 1. Identification features of the respondent.

Organization name	Age					Sex		Profession		
	Age (Year)					Percentage (%)		Percentage (%)		
	<20	21-30	31-40	41-50	>50	Male	Female	House wife	Farmer	Others
ASA	1	31	18	8	2	-	100	100	-	-
BRAC	1	23	15	8	3	14	86	86	12	2
BRDB	3	22	14	9	2	66	34	34	30	36
GB	4	20	17	5	3	-	100	100	-	-

Source: Field survey (2008).

Table 2. Involvement with another NGO.

Organization name	None (%)	One organization (%)	Two organizations (%)	Three organizations (%)
ASA	44	42	10	4
BRAC	20	68	8	4
BRDB	92	6	2	-
GB	90	8	2	-

Source: Field survey (2008).

Table 3. Area of investment.

Organization name	Agriculture (%)	Small business (%)	Others (%)
ASA	90	10	-
BRAC	82	18	-
BRDB	56	28	16
GB	66	34	-

Source: Field survey (2008).

FIELD SURVEY AND STATISTICAL DESCRIPTION

Sample and data collection

The required primary data for the study were collected from 200 members being only 50 members from each of the four major microcredit organizations selected at random from Monirampur Upazila under Jessore district in 2008. The study area is located in the south part of Bangladesh. The people are poor due to frequent natural calamities damaging agricultural and other commodities. The empirical data were collected through personal interviewing of the respondent. Collected raw data were coded appropriately and later analyzed by multiple linear regressions. Here, empirical results are provided with the interpretation of the estimates.

Identification features of the respondent

From Table 1, it is found that in all the four organizations, majority of member's fall between 21 to 30 years age groups indicating that young members are interested in participating in microcredit program. Except the case of

BRDB (34%), female members were most dominant in ASA (100%), GB (100%) and in BRAC (86%).

Involvement with other NGOs

Among the randomly selected 50 microcredit recipients of each of the four organizations, in BRDB 92%, in GB 90%, in ASA 44% and 20% of BRAC were not involved with any other microcredit organization. But along the main organization recipients which received microcredit from another organization were 65% of BRAC, 42% of ASA, 8% of GB and 6% of BRDB recipients. Percent of recipients which took microcredit from two and three other organizations along with the main organizations were very small indeed (Table 2). So, it is thus evident that most of the members are satisfied to get microcredit from one or two organizations.

Area of investment

Table 3 shows that the recipients of microcredit mainly used it in agriculture related venture, the number being

Table 4. Use sanitary latrine and new agriculture technology.

Organization name	Use sanitary latrine (%)				Use new agriculture technology (%)			
	Before credit		After credit		Before credit		After credit	
	Yes	No	Yes	No	Yes	No	Yes	No
ASA	90	10	92	8	2	98	96	4
BRAC	84	16	100	-	6	94	88	12
BRDB	84	16	96	6	19	81	92	8
GB	86.8	13.2	90	10	12.5	87.5	100	-

Source: Field Survey (2008).

90% in ASA, 82% in BRAC, 66% in GB and 56% in BRDB. While the remaining percentage were mainly used in small business for income generation. It is thus evident that the agriculture sector is the most prominent area for investment of borrowed money.

Use of sanitary latrine and innovation agriculture technology

From Table 4 it is found that in ASA 90%, in GB 87%, in BRAC and BRDB 84% members did not use a sanitary latrine before participating in the microcredit program but after use of the microcredit, 100% participants of BRAC, 96% of BRDB, 92% of ASA and 90% of GB have been able to use sanitary latrine. This reveals that participation in microcredit program has uplifted the use of sanitary latrine slightly of the participants. But use of agricultural technology among the microcredit users increased significantly ($P=0.001$) after the use of microcredit as compared to that of before use of microcredit drastically. This is definitely an impact of the availability of fund for agricultural development.

IMPACT OF MICROCREDIT ON FAMILY INCOME AND FOOD CONSUMPTION: AN EMPIRICAL ANALYSIS

This study uses data from the borrowers of four major microcredit institutions in Bangladesh; the GB, BRAC, ASA and the BRDB, to find out the impact of microcredit on borrowers household's income increase. The parameters in consideration were the respondent's average age, average education, total number of family members, total food consumption, male share, credit amount, and interest amount and investment sector.

Impact on household total income multiple regression analysis

The linear regression analysis examines the relationship between a dependent variable; total income of the family (using total income of the family in the unit of 10,000 Tk.)

and independent variable; average age and education of the family, total number of family members, food consumption, male share, credit amount, interest rate and investment sector of the four organizations; ASA, BRAC, BRDB and GB. Thus, the multiple linear regression Equation (1) predicts family total income from all the above independents variables:

$$Y = \text{Constant} + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 \quad (1)$$

Where Y = Total family income, β = coefficient of independents variables, Constant = Analogous to the intercept and four coefficients (β_1 through β_8), X_1 = Average age, X_2 = Average education of the family, X_3 = Total family member, X_4 = Total food consumption, X_5 = Male Share, X_6 = Total credit amount, X_7 = Interest rate, and X_8 = Investment sector.

According to Table 5 average age is insignificant, this implies that there is no significant difference among all borrowers of middle age group. In case of average education, the borrowers of GB showed significant difference at 5% level and BRDB at 10% level and their positive coefficient value is acceptable in respect of Bangladesh. Total number of family members is found highly significant at 1% level for members of all the four organizations, which implies that all family size is properly maintained to generate household income using the borrowed money. In respect of total food consumption, members of both ASA and BRDB showed significant difference at 1% level, while BRAC members at 5% level. In BRAC and ASA, male share is significant at 1%. In case of credit and interest amount, members of GB showed significant difference at 5 and 1% levels respectively, while in case of members of BRDB, credit amount showed a 10% level of significance.

Impact on household total food consumption multiple regression analysis

Linear regression analysis examines the relationship between a dependent variable, total food consumption of

Table 5. Total family income multiple regression analysis.

Independents variable	GB	BRAC	ASA	BRDB
Average age	0.000 (0.973)	-0.015 (0.063)	-0.007 (0.152)	-0.005 (0.549)
Average education	0.110 (0.022**)	0.014 (0.594)	0.060 (0.201)	0.136 (0.079*)
Total family member	0.228 (0.001***)	0.348 (0.000***)	0.341 (0.000***)	0.444 (0.001***)
Total food consumption	-0.012 (0.369)	0.264 (0.015**)	0.168 (0.000***)	0.376 (0.003***)
Male share (%)	0.067 (0.804)	3.181 (0.001***)	3.203 (0.000***)	1.038 (0.232)
Credit amount	0.205 (0.022**)	-0.152 (0.167)	0.435 (0.122)	-0.163 (0.061*)
Interest amount	3.693 (0.006***)	1.067 (0.353)	-2.006 (0.111)	
Investment sector	0.019 (0.602)	0.137 (0.391)	-0.203 (0.303)	-0.107 (0.265)
R ²	0.980	0.965	0.963	0.965
Adjusted R ²	0.976	0.958	0.956	0.959
F	249.807	139.774	133.424	164.328

***- Significant at P=0.001; **- significant at P=0.01; *- significant at P=0.05 and the R² are shown in the parentheses.

Table 6. Total family food consumption multiple regression analysis.

Independents variable	GB	BRAC	ASA	BRDB
Average age	0.011 (0.794)	-0.006 (0.625)	0.020 (0.255)	-0.011 (0.191)
Average education	-0.083 (0.888)	0.025 (0.483)	0.323 (0.063)	0.019 (0.832)
Total family member	-1.426 (0.097*)	0.287 (0.048**)	-0.693 (0.006***)	0.227(0.151)
Total income	-1.662 (0.369)	0.512 (0.015**)	2.377 (0.000***)	0.498 (0.003***)
Male share (%)	3.180 (0.318)	2.589 (0.061*)	-7.150 (0.015**)	2.828 (0.003***)
Credit amount	1.820 (0.090*)	0.316 (0.036**)	-1.963 (0.061*)	0.184 (0.065*)
Interest amount	42.343 (0.008***)	3.936 (0.011**)	10.223 (0.028**)	
Investment sector	0.087 (0.842)	0.128 (0.567)	-0.069 (0.926)	0.039 (0.727)
R ²	0.290	0.962	0.840	0.955
Adjusted R ²	0.152	0.954	0.809	0.947
F-Value	2.096	128.575	26.949	126.343

***- Significant at P=0.001; **- significant at P=0.01; *- significant at P=0.05 and the R² are shown in the parentheses.

the family and independent variable; average age and education of the family, total family member, total family income (using total income of the family in the unit of 10,000 Tk.), male share, credit amount, interest rate and investment sector of the four organizations; ASA, BRAC, BRDB and GB. Thus, we can write the multiple linear regression Equation (2) that predicts family total food consumption from all the above independents variables:

$$Y = \text{Constant} + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 \quad (2)$$

Where Y = Total food consumption of the family, β = coefficient of independents variables, Constant = Analogous to the intercept and four coefficients (β_1 through β_8), X_1 = Average age, X_2 = Average education of the family, X_3 = Total family member, X_4 = Total family income, X_5 = Male share, X_6 = Total credit amount, X_7 = Interest rate, and X_8 = Investment sector.

From Table 6, it is found that average age and average education are not statistically significant in respect of

borrowers of any of the four organizations, suggesting that these are able to meet the goal of microcredit. Total family members are significant at 5% in BRAC, 10% in GB and 1% in ASA with negative coefficient value; it is revealed that their food consumption is not sufficient, so they should maintain their family size. In terms of total family income, significant level at 5% in BRAC and 1% in ASA and BRDB that means borrowers are better off in terms of food consumption compared to GB borrowers. In points of male share in family, its showing that significant level at 10% in BRAC, 5% in ASA and 1% in BRDB but in GB not significant due to more women based family are prior to get credit from GB than other organizations. Credit amount is statistically significant at 5% in BRAC and at 10% in GB, ASA and BRDB; it implies that borrowers are better off in terms of credit money. Interest rate is the most prominent factor now in microcredit program, our result shows that GB is significant at 1% level and BRAC and ASA at 5% level, but in BRDB, value is excluded due to fixed interest rate. So, from the aforementioned finding, it is clear that all borrowers are in better condition in terms of food consumption because

their income increased after participating in microcredit program and investment sectors are not in significant level because most of the borrowers used borrowed money in the agricultural sector.

DISCUSSION

From the aforesaid findings, it has been observed that borrowers of microcredit are better off in terms of household income and food consumption compared to before involvement with microcredit, also their living standard was improved. A study by Khandker (1998) of the World Bank reported that 5% of Grammen Bank families move out of poverty each year. According to Grameen Bank's own internal survey, 42% of its borrower families have crossed the poverty line by 2001 by Muhammad (2004). A recent World Bank study by Khandker (2003) shows that microcredit programs have a greater impact on extreme poverty than on moderate poverty. The results of this study strongly support that microcredit can reduce rural poverty if interest rate reduced to a flexible level, usually it varies between 30 to 40% and this is higher than commercial bank's lending rate. Also repayment systems should be considered because of the system of loan repayment in weekly installments, such repayment has to be often made out of family income other than that generated by the use of borrowed funds; therefore, this can sometimes be a burden on the borrowers and it limits their ability to borrow larger amounts, also one-year repayment period is also not enough time for borrowers. From this discussion, it may be concluded that microcredit can help the poor families to break out of the poverty cycle but the impact of microcredit is mainly assessed in terms of the income gains for the borrowing households, the less perceptible beneficial impact on various aspects of human development is no less important. The positive impact of microcredit on healthcare practices, family planning and schooling behavior is now well recorded; therefore, it would be a good research question to pursue in future study.

CONCLUSION

In our study area, a lot of NGOs are working to alleviate poverty but most of the respondents are not involved with another NGO. All members are enjoying their personal demand due to being an NGO member. Most of the respondents want to enhance the effectiveness of microcredit in income generation and aspire to receive proper training to increase income. They consider agriculture sector as the most suitable to generate income. It was found that most of the respondents get to know about microcredit programs through NGO workers and neighbors. Improvement of food consumption in the household is a positive indicator to microcredit program.

It was found from the study that family food consumption increased after using microcredit. Similarly, their expenditure for sickness and medication also and increasingly higher number of members started using sanitary latrine after income generation through microcredit.

The study found that most of the members invest borrowed money in the agriculture sector to generate income through the use of new agriculture technology. The overall findings showed that among those members, there have been gradual improvements in the indicators such as family income, food consumption, health, living standard and total household expenditure. It may conclude that all the organizations which are related with microcredit are better off in terms of poverty alleviation. These results suggest that microcredit programs are successful in bringing better position for borrowers. Our results further suggest that microcredit programs are doing well enough to bring better quality of life for borrowers by increasing their income, food consumption and living standard. Regarding interest rate, the study found that interest rate is higher in NGOs (GB, BRAC and ASA) than government led BRDB. It is suggested that softer consideration is needed for repayment system and fixing interest rate. The borrowers are likely to benefit from proper training programs, for finding out appropriate and newer areas of investment and thus to generate income to improve their living standard above poverty line.

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