

Impact of Microcredit on Income Inequality among Rural Women: The Case of Panchagarh District in Bangladesh

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ABSTRACT

This article aims to examine the role of microcredit programme on measuring income inequality between two groups of rural women in Bangladesh namely ‘with credit’ and ‘without credit’. ‘With credit’ rural women were members of Grameen Bank’s microcredit programme while ‘without credit’ rural women who were not members of any microcredit programme. This empirical study was based on primary data collected through face to face interview from rural women in Panchagarh District of Bangladesh.

By applying Lorenz Curve approach and Gini Coefficient analysis, the study findings revealed that ‘with credit’ households had less income inequality compared to ‘without credit’ households with the values of Gini coefficient at 0.354 and 0.429 respectively. It is evidenced that Grameen Bank’s microcredit programme provides an opportunity to reduce income inequality which ultimately contributes to improve rural family income and their livelihood. Study findings revealed that microcredit

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programme played a key role to alleviate poverty, reduced income inequality and helped the rural women to be economically independent and financially solvent in their society. The policy implication is that more provision of credits or loans by the microfinance institutions like Grameen Bank for the very poor or ultra-poor women in Bangladesh or any other least developed countries would help to get them involved in income generation activities and come out of poverty. Further research can be conducted on measuring income inequality perception i.e. how rural people perceive their income gaps and what are their thoughts for improving rural income inequality.

Keywords: Bangladesh, Grameen Bank, income inequality, microcredit, rural women

INTRODUCTION

Bangladesh is a rural based country and majority of the rural people are poor with meager level of income (Momen & Begum, 2006) and the country achieved remarkable progress in poverty alleviation during the last few decades. In Bangladesh, poverty rate dropped from 82% in 1972 to 18.5% in 2010, 13.8% in 2016, and 8.5% in 2018 according to the percentage of people living below extreme poverty line (World Bank, 2018a). About 35% of its rural population and 21% of urban population live below the poverty line (International Fund for Agricultural Development [IFAD], 2016). Unemployment rate in Bangladesh followed a rising trend during the last decade. It

was reported that unemployment rate in the country increased from 3.38% in 2010 to 4.37% in 2017. However, it dropped to 4.31% in 2018 (World Bank, 2018b). Half of the population in Bangladesh is women and their participation in economic activities and labor force has increased rapidly. The number of working women augmented from 16.2 million in 2010 to 18.6 million in 2016-17 (Asian Development Bank [ADB], 2018). However, majority of the women (85% of total female work force) are employed in low-income jobs in informal sector.

In the past few decades, Bangladesh gained exemplary achievement in many sides for example in reducing infant and child mortality, poverty alleviation, increase in women entrepreneurship, education, and health. Women in Bangladesh have made progress in various aspects of health, education, and work, but still facing sizable gender gaps (ADB, 2018). Over the years, education policies in Bangladesh have been improved while access of girl's education especially girls' enrolment in primary school has increased rapidly. However, female literacy rate is still lower (55.1%) than that of males (62.5%) (UNICEF, 2016). However, rural women in Bangladesh are still facing inadequate access in economic and social activities even though over the last few decades, women participation in economic activities have increased. Women especially in rural areas or agricultural sectors are getting some discriminations at work place for instance, less payment than men, losing social dignity, lack of respect,

limited opportunities to participate in income generating activities and limited allowance in trades such as buy or sell goods in the rural markets. Although women participation in any kind of income generation do not only contribute to their family income, it also serves to increase their household status and earn the respect of their husbands and family (Jennifer, 2003). In this circumstance, microcredit becomes an attractive tool for producing better outcomes in terms of income and assets and is more effective for relatively wealthier borrowers compared to non-wealthy borrowers (Rahman et al., 2009). Similarly, when women receive credit, they become economic actors with power, they help to improve not only their own lives but also contribute to a larger impact of their families, communities and nations (Bakhtiari, 2006). Over the last three decades, microfinancing institutions have gained popularity as an effective tool for reducing poverty in developing countries by which the needy and poor people (usually who denied accessing institutional credit from other sources) can get financial assistance without any security (Nanayakkara, 2012).

The concept of microcredit has emerged in Bangladesh by Professor Muhammad Yunus who promoted a microcredit program under the name of 'Grameen Bank' in 1976. The Grameen Bank project was transformed to operate as an independent and formal bank by government legislation in October 1983. It provides small loans (known as micro credit or "grameen credit") to the poor, women, illiterate,

and unemployed people without any collateral. Microcredit programmes in Bangladesh mainly operated by government and non-government organisations which aimed to enhance income-earning potentials of female members of rural families and empower them socially and economically (Afrin et al., 2008). However, Grameen Bank is the biggest microcredit institution in Bangladesh which targets the poorest of the poor, with a particular emphasis on women, who receive 95% of the bank's loans. As of 2017, nearly 2,600 branches of the Bank have been active in 97% of the villages of Bangladesh (Grameen Bank Annual Report, 2017). Therefore, this study motivates to conduct research on how Grameen Bank's microcredit programme operates to improve socio-economic status of women especially in rural and comparatively underdeveloped areas in Bangladesh. The microcredit programme basically disperses small collateral free loans to groups of jointly liable borrowers in order to foster income generation and poverty reduction through enhancing self-employment (Chowdhury et al., 2005). Rural women are involved in various income generation activities including livestock and poultry rearing, fish culture, operating small and profitable businesses such as grocery shops, bamboo works and tailoring that contribute to the rural development in Bangladesh. Thus, this article attempts to examine the role of microcredit programme on measuring income inequality of rural women by applying Lorenz Curve and Gini Coefficient analysis. The comparison between 'with

credit' and 'without credit' rural women was also made.

LITERATURE REVIEW

According to the World Bank (2007), microcredit refers to financial services that target low-income clients, particularly rural customers. In other words, microcredit is the provision of financial services to the very poor and low-income people who has a lack of access to traditional banking services (Bakhtiari, 2006). Commercial banks usually do not serve the needs of poor people because of perceived high risk and high transaction costs associated with small loans and savings deposits (Coleman, 2006). Generally, the people who are unemployed, poor or living in poverty, and marginalized are not considered bankable as they have a lack of collateral, steady employment and a verifiable credit history and therefore unable to meet minimal qualifications to gain access to traditional credits offered by the commercial banks. Therefore, microfinance is an alternative avenue of financing the people for self-employment to generate income for facilitating them and their families (Ngehnevu & Nembo, 2010). A microcredit institution or organization provides very small or small amount of loans to poor and low-income populations. This kind of institution can be NGOs, credit unions, cooperatives, private commercial banks and non-bank financial institutions and parts of state-owned banks.

Microcredit enables extremely impoverished people to engage in productive activities that allow them to generate

income and depart from poverty in many countries around the world. Microcredit has launched a challenge to the formal financial system which virtually denies the scope of economic participation of the poor (Alam & Molla, 2012). In fact, microcredit has opened a scope for promoting poverty alleviation and reducing income inequality in the society. Consequently, microcredit has received substantial attention from economists and politicians as a tool to alleviate poverty and stimulate economic growth by providing small loans to under privileged and poor people, groups and organizations (Naphatrada & Wannoo, 2014). Because, the poorest, especially the women, when receive credit, they become economic actors with power, thus, they can improve not only their own lives, but also their families, communities and ultimately their nations (Bakhtiari, 2006). The provision of microcredit becomes vital for the poor people particularly in rural areas of the developing countries to create and run a tiny business called micro enterprise. Furthermore, microcredit programme and activities can help the country through solving unemployment problems, empowering the women and maintaining a balance between men and women (Ali, 2008).

A study by Basher (2009) investigated the role of Grameen Bank's microcredit program in enhancing household income of the borrower. Another study by Zeller and Meyer (2002) in Bangladesh found a positive impact of microcredit on household expenditure where monthly total

expenditure of borrower households was found to be increasing as compared to non-borrower households. This gives a picture that participation in microcredit programs benefits poor people and improves their expenditure patterns. Islam and Maitra (2008) demonstrated that microcredit program contributed to increase household income and consequently consumption of the family members and also found that households with access to microcredit coped better against health shocks. Therefore, the results suggest that microcredit program plays like insurance for poor households. More recently, Islam (2014) examined the impacts of microcredit program of Grameen Bank (GB) on living standard of rural women in Bangladesh. The findings showed that Grameen Bank had significant positive effect on generating income and increasing consumption of borrowers. It contributed greatly to improve the quality and sources of drinking water, nature of medical treatment, housing and lighting conditions of the borrower families. However, microcredit program of GB has a little impact in changing the educational qualification of borrowers. Hence, the review of literatures shows a lack of research on assessing the role of microcredit programme on income inequality of 'with credit' and 'without credit' rural women. Therefore, application of Lorenz Curve and Gini Coefficient analysis is crucial to measure the income inequality.

METHOD

Survey Design and Data Collection

The data for this study was obtained to reflect its aim where primary data was collected through 'face to face' survey experiment followed by interviewed with the two groups of rural women namely 'with credit' and 'without credit' in Panchagarh district of Bangladesh. The Panchagarh district and its villages were selected as the study area of this research because: they are located in the extreme northern part of the country; rural remote areas; comparatively underdeveloped areas and far away from the capital city; literacy rate is very low as compared to other parts of the country; majority of the people in these villages are poor that is why Grameen Bank's microcredit programme is working; and no research conducted with the rural women in these areas particularly assessing their income and inequality. Purposive random sampling method was used for survey design. Firstly, the samples/respondents of two groups were purposively selected. 'With credit' respondents were members of Grameen Bank's microcredit programme from the villages of Pokhi Laga, Vetur Gor, Chand para, and Madhuban Guchchho gram while 'without credit' respondents who were not members of any microcredit programme from the villages of Goual para and Jamader para. Study areas for two groups' respondents had similar characteristics in terms of topography such as soil and climate conditions, demography, economic and cultural conditions. Secondly,

200 respondents for 'with credit' group were randomly chosen from 700 listed members of Grameen Bank in the study area.

As of January 2008, total number of Grameen Bank members in these villages were 700 in which 156 from Pokhi Laga, 212 from Vitor Gor, 184 from Chand Para and 148 from Madhuban Guchchho Gram. The sample size of this group was 30% of the total population size. On the other hand, 100 respondents for 'without credit' group were randomly chosen from a total of 900 rural women. This group was the control group for the study. The sample size (100) of the control group was 50% of the sample size of experiment group i.e. 'with credit' group (200). The selected samples were reasonably representative of the rural women in the study areas. It can be noted that this study did not consider the entire district of Panchagarh which might be a limitation of this study. However, a pre-test was applied by the draft questionnaire by interviewing four respondents from each group to test the reliability of the survey questionnaire. The questionnaire was finalised after making necessary correction, modification and adjustments based on the pretest results. The final survey and data collection were conducted from 2008, April 1 to June 30.

Data Analysis

Based on the collected primary data, descriptive statistics and cross-tabulation analysis were performed to show the variation of different socio-economic variables among the respondents. Furthermore, Lorenz curve

approach and Gini coefficient analysis were employed for measuring income inequality of the two groups of rural women described below. Statistical Package for Social Science (SPSS) was used as data analytical tool.

Construction of Lorenz Curve Approach

The Lorenz Curve is an approach or tool used to represent inequality in income distribution of a given population. It measures the cumulative proportion of income to the cumulative proportion of individuals to show income inequality distributions. The present study employed Lorenz curve analysis to examine the inequality in income distributions between 'with credit' and 'without credit' households. The technique of Lorenz curve analysis has been widely used in inequality measurement of income distribution. Constructing the Lorenz Curve involves several steps to build a Lorenz curve as proposed by Bellu and Liberati (2005). Figure 1 illustrates the step by step procedures to construct the Lorenz curve of this study. Basically, it shows how to construct the Lorenz curve which is represented by Figure 2.

Figure 2 shows a constructed Lorenz curve where diagonal line of 45° represents the perfect equality of the income distribution. It is also known as equidistributional line which can be defined on the basis of the most equalitarian income distribution that means each individual owns the same income. Hence, income is perfectly distributed among a given population. However, for the usual income distribution, all incomes are not equal, in

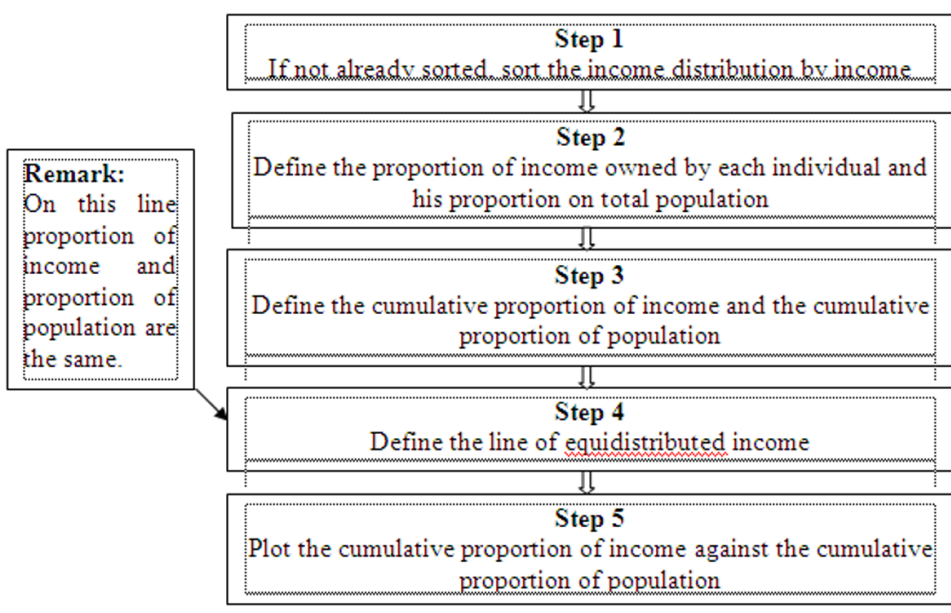


Figure 1. A step-by-step method to construct Lorenz Curve

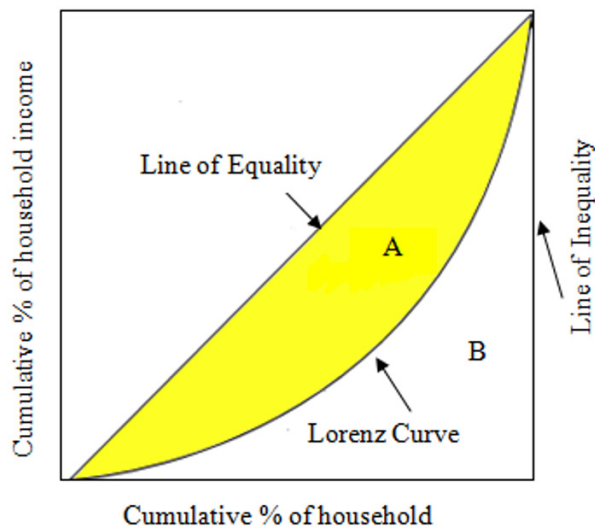


Figure 2. Graphical representation of the Lorenz Curve and Gini Coefficient

that case, the Lorenz Curve supposed to be lain below the equidistributional line. As the Lorenz curve approaches to 45° line, the distribution of income approaches

to perfect equality. On the other hand, as the Lorenz curve approaches to the axes, the distribution of income approaches to perfect inequality. This indicates that the

greater is the curvature of Lorenz curve, the greater is the degree of inequality as shown in Figure 2.

Gini Coefficient Analysis

This study also employed Gini coefficient to measure the inequality in income distribution between 'with credit' and 'without credit' households. Usually, Gini coefficient denotes quantification and a summary measure of the Lorenz curve. The Gini coefficient defined as a ratio of the area between equality line and the Lorenz curve, and the total area under equality line. Graphically, it is the area 'A' expressed as a proportion of the area 'A+B' as shown in Figure 2.

The formula for calculating Gini coefficient was based on Zheng et al. (2008). If the area between equality line and the Lorenz curve is 'A', and the area under the Lorenz curve is 'B', then the Gini coefficient (G) can be expressed as follows:

$$G = A / (A+B)$$

The value of Gini coefficient ranges from 0 to 1, where '0' denotes to perfect equality i.e. everyone has same income distribution and '1' denotes to perfect inequality i.e. no pattern of income distribution that means one person owns all the income whereas others has zero income. Nevertheless, large Gini coefficients imply greater degrees of income inequality.

RESULTS AND DISCUSSION

Socio-economic features

Respondents' socio-economic features

consist of information related to the demographic for instance age group, marital status, level of education and their occupational background. Table 1 summarises respondents' socio-economic features. The dominant ages of 'with credit' respondents were between 26 to 35 years old and 36 to 45 years old, representing 47% and 30% of the total respondents respectively. Instead, for 'without credit' group, the dominant ages were between 18-25 years, 26 to 35 years and 36 to 45 years old, representing 33%, 31% and 28% of the total respondents respectively. Most of the respondents for 'with credit' (95%) and 'without credit' (88%) were married where divorced and widow respondents found to be more in 'with credit' compared to the 'without credit' group.

In addition, majority of the 'with credit' rural women (35%) only went to primary school whereas majority of the 'without credit' women (59%) had no schooling at all. About 27% of 'with credit' women had secondary school certificate that was double of 'without credit' respondents. For 'with credit' respondents, 9.5% of them had a higher secondary certificate/HSC whereas none from 'without credit' respondents. It can be noticed that a larger number of 'with credit' rural women had performed school education. This might be possible because of the governmental and non-governmental intervention including Grameen Bank. Nevertheless, as an institutional requirement, the members of GB should able to write their names or be able to put signature. Sometimes, GB staffs

also help their members to gain this kind of educational quality. Similarly, Panda (2009) found that the credit receiver households had 12.16% higher literate members compared to that of the non-credit households. Other studies also showed that credit programmes contribute to increase girl's schooling (Kabeer, 2001; Pitt & Khandoker, 1996). As a result, microcredit programme also contributed in improving educational status of the rural woman. However, none of the respondents from both groups had graduate and postgraduate degree.

The main occupations of the 'with credit' respondents were farmers (67%) and small businessmen (27%) such as grocery shop, tea stall, tailoring shop, door to door selling items e.g. bread, biscuit, chocolate, clothes and cheap ornaments (curi, feta, dul), while main occupation of the 'without credit' respondents was farmer (46%) and housewife (31%). Housewife was considered as an occupation although they did not work on any job for income generation, but they played an important role of managing family and took care their

Table 1
Respondents' socio-economic features

Variable	With Credit Percentage (%)	Without Credit Percentage (%)
<i>Age Group</i>		
18-25	16	33.0
26-35	46.5	31.0
36-45	29.5	28.0
46-55	7.5	8.0
>=56	0.5	0
<i>Marital Status</i>		
Married	94.5	88.0
Divorced	-	4.0
Widow	5.5	8.0
<i>Highest Completed level of Education</i>		
No schooling	29.5	59.0
Primary school	34.5	28.0
Secondary school certificate	26.5	13.0
Higher secondary certificate	9.5	-
Graduate/university	-	-
Post graduate/masters	-	-
<i>Occupation</i>		
Private servant	2.0	1.0
Farmer	67.0	46.0
Housewife	2.0	31.0
Small business	27.0	7.0
Daily labourer	2.0	15.0

children and other family members of their husbands.

However, Table 2 shows the income status between two groups of respondents which contributed to the total family income generation. This is considered active income including wages, active participation in business or self-employment income (retail shop). Average monthly family income for ‘with credit’ and ‘without credit’ respondents was Taka 9851.75 and Taka 5278.00 respectively. The detailed family income and sources of income generation activities can be found author’s previous article in Ahmed et al. (2011). Noteworthy that ‘with credit’ rural women contributed larger proportion (19%) to their family income than the ‘without credit’ (10%). One can be assumed that rural women who joined Grameen Bank’s microcredit programme were guided and inspired to

be involved in various income generation activities and sources. This also provides an important fact on the monetary benefits and outcome of rural women who were involved or received loan from microcredit programme like Grameen Bank.

Findings of Gini Ratio and Lorenz Curve Analysis

This study examines the income inequality scenario of rural women by the analysis of Gini coefficient and Lorenz curve. It shows the income inequality comparison between two groups of respondents such as ‘with credit’ and ‘without credit’. The estimated values of the Gini coefficient are presented in Table 3 and Figures 3, 4 and 5. The concentration ratio is estimated ‘with credit’ households at 0.354 and ‘without credit’ households at 0.429. So, ‘without credit’ household’s income inequality is

Table 2

Monthly average income of ‘with credit’ and ‘without credit’ households (Average Taka)

Respondents	Self/Own	Husband	Others (son, daughter, father, mother etc)	Total family income
‘with credit’	1870.00	6387.50	1594.25	9851.75
‘without credit’	540.00	3988.00	750.00	5278.00

Table 3

Gini ratio for ‘with credit’ and ‘without credit’ households

Group	Gini ratio
‘with credit’ households	0.354
‘without credit’ households	0.429

slightly bigger compared to ‘with credit’ households. Likewise, the Gini coefficient of ‘with credit’ and ‘without credit’ households were 0.354 and 0.429 respectively, however, both of these were higher than the 2000 national Gini coefficient of 0.318 (World Bank, 2004). This means that inequality in income is higher for ‘without credit’ households. The findings are in line with studies by Chowdhury (2006) and Khandker (2002) where they found that after joining Grameen Bank, the borrowers’ income, education and employment increased greatly. Another study by Bernasek (2003) found participation in Grameen Bank microcredit programme contributed to increase women’s income which ultimately enhanced their family income. Similarly, Akita and Szeto (2000) also found Indonesia’s antipoverty programme, Inpres Desa Tertinggal (IDT) had been successful for improving poorer households’ economic conditions and

decreasing the overall inequality level. In regard to a study in Malaysia, Noor et al. (2013) assessed the impact of microcredit on income distribution amongst the ‘Sahabat Amanah Ikhtiar’ in Kedah and Kelantan. They found an increase in income share from microcredit activities, leading to decrease in total household income inequality which supports our study findings. Moreover, our study findings also supported by the other microcredit and poverty reduction programmes (Akita & Szeto, 2000; Jariah et al., 2001; Rokhim et al., 2016). Rokhim et al. (2016) evidenced in Indonesia that microcredit had a positive impact on the clients’ welfare although it was not linear.

On the other hand, Lorenz curve presents a graphical presentation of the pattern of income inequality among the ‘with credit’ and ‘without credit’ households. The results found that income inequality for ‘with credit’ households was lower compared to

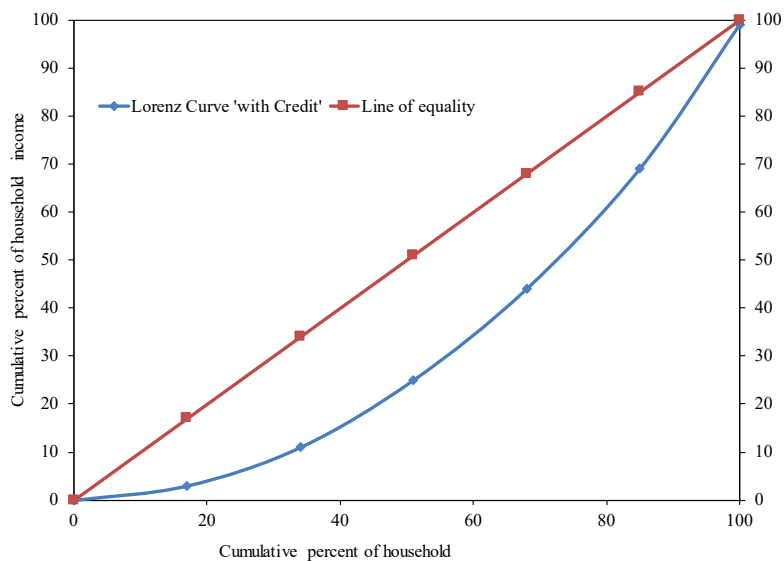


Figure 3. Income inequality of ‘with credit’ households

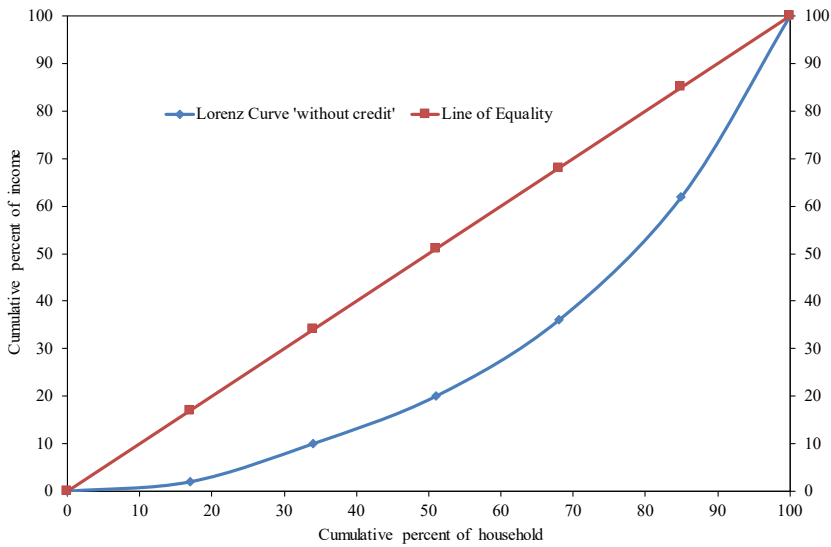


Figure 4. Income inequality of ‘without credit’ households

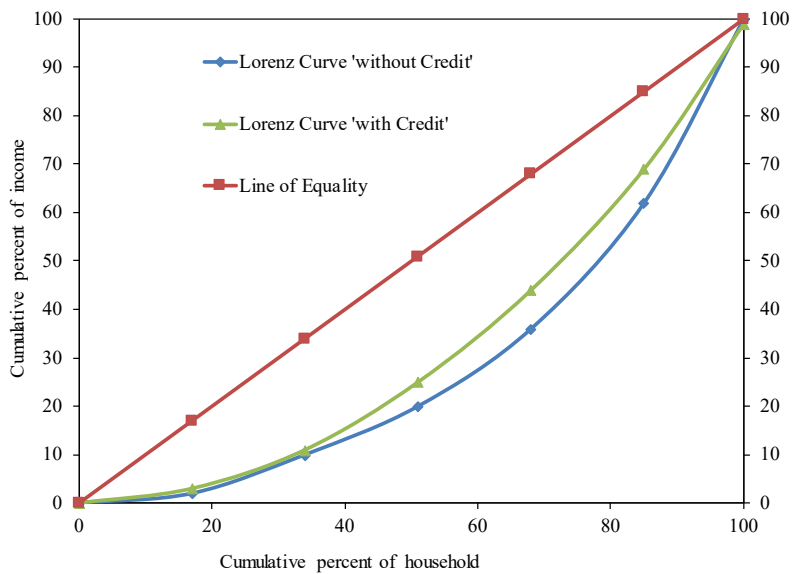


Figure 5. Income inequality comparison of both groups (‘with credit’ and ‘without credit’)

the ‘without credit’ as shown in Figure 4. The reasons which led to the inequality of income distribution between the two groups might be non or less involvement of income generation activities of ‘without credit’

women or might be not included in the microcredit programme as the borrowers of Grameen Bank were required to participate in weekly and monthly group meetings in which they shared and discussed their

family matters and other social issues. Moreover, Grameen Bank organised various training programmes and workshops on skill development, nutrition, health, sanitation and other issues for its members. These initiatives help to increase the awareness level of the women borrower about their rights, freedom and choices as well as their duties and responsibilities to the family and society.

CONCLUSION

After joining Grameen Bank's microcredit programme, it can be concluded that 'with credit' rural women have been able to engage themselves with various income generation activities and subsequently contribute to improve their family income and reduce significantly their income inequality situation. The differences of socio-economic features including education, occupation and income between 'with credit' (GB/Grameen Bank members) and 'without credit' (non-members of GB/microcredit programme) rural women have also been presented. It is noteworthy that total family income from 'without credit' respondents was almost half compared to the 'with credit' respondents. This provides an indication that Grameen Bank's microcredit programme has a significant impact on income generation and improve livelihoods of rural women. Thus, the microcredit helps to increase the income of rural poor women which also empowers them in decision making for the family matters and development.

The findings of the analyses indicate that 'with credit' households have lower

inequality in their income levels (value of Gini coefficient is 0.354) as compared to 'without credit' households (value of Gini coefficient is 0.429). This can be evidenced that Grameen Bank's microcredit programme provides an opportunity to reduce income inequality which ultimately contributes to improve rural family income and their livelihood. Thus, based on the study findings, it is imperative that microcredit programme plays a key role to alleviate poverty, reduce income inequality and help the rural women to be economically independent and financially solvent in their society. Finally, this study shows that rural women with microcredit programme contribute to improve income inequality which is essential of survival for rural poor families. The policy implication is that more provision of credits or loans by the microfinance institutions like Grameen Bank for the very poor or ultra-poor women in Bangladesh or any other least developed countries would help to get them involved in income generation activities so that they could contribute their families to come out of poverty. Although the findings can be justified by the selected samples which were reasonably representative of rural women in the study areas. However, it needs to be cautious about the generalisation of the country as a whole. Further research can be conducted on measuring income inequality perception i.e. how rural people perceive their income gaps and what are their thoughts for improving rural income inequality.

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