

Asset Transfer Programme for the Ultra Poor: A Randomized Control Trial Evaluation

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ABSTRACT

Challenging the Frontiers of Poverty Reduction (CFPR), an innovative approach to address extreme poverty, was launched in 2002 in rural Bangladesh. Evaluation of the first phase of the programme revealed that livelihoods of the participant households improved remarkably due to the intervention. But a number of shortcomings were identified regarding the evaluation method of the first phase, particularly due to adopting non-experimental evaluation design. This paper provides further evidence on the effectiveness of CFPR using randomized control trial design, which efficiently addressed much of the data limitation of earlier studies. Using 2007-09 panel data, this paper shows that the programme reduced the vulnerability of the participant households by raising their food expenditure and preparing livelihood pathways for them by generating self-employment and productive asset base including financial, physical and human capital. Remarkable effect on per capita income was observed. Positive impacts on natural assets like land acquisition through mortgaged-in, physical assets like livestock, financial assets like borrowing from NGOs, accumulation of savings and lending out in terms of cash or in kind have also been observed. However, evaluation shows that the programme did not have visible impact on education, a finding which is almost similar to the short-run evaluation of the CFPR phase I. This is probably not surprising because the programme does not provide any direct support on education. However, given that income of the participant household is increasing over time at an impressive rate, this may translate into human capital development through increase in education expenditure in the long-run.

INTRODUCTION

There has been tremendous thrive in the rural financial markets in Bangladesh—mainly because of the advent of microfinance institutions and their fostering. They have tremendously increased intensity and coverage in providing microfinance services to rural poor, which is often considered as an anti-poverty tool, through promotion of self-employment among clients. On the other hand, through various safety net and employment guarantee programmes, Bangladesh government spends a substantial amount of resources for the poor. Furthermore, Bangladesh has achieved stable and high economic growth (around 5-6%) over the last few years. Despite all these initiatives and achievements, extreme poverty is still widespread in Bangladesh. More than one-third of the population in Bangladesh lives below poverty line and about one-fifth of the population are ultra or extreme poor (BBS 2007, Hossain and Bayes 2009). Empirical studies identified a number of causes for inadequately addressing the extreme poverty in Bangladesh. Although microfinance plays a role for improving livelihoods of the poor, its success towards the extreme poor is limited mainly because of exclusion of this group in many cases (Morduch 1998, Rahman and Razzaque 2000). Economic growth, on the other hand, was largely service oriented which does not provide enough employment opportunities to the poor. The public expenditure for the poor is also not enough considering the huge number of extreme poor in the country. According to World Bank (2006), poverty eradication in Bangladesh only through investment in social assistance would require about 35% of the total public expenditure. However, the actual rate of investment in social protection was about 5% of public expenditure in 2004. It is thus apparent that the extreme poor would need differential treatment, and this led BRAC to initiate a large scale grant-based approach for addressing extreme poverty. BRAC's three decades of learning and experience in working with the poor and

marginalized guided the designing of this innovative programme.

The BRAC programme, known as Challenging the Frontiers of Poverty Reduction (CFPR) showed remarkable success in reducing extreme poverty, and drew attention of the policy-makers, academics, and policy implementation agencies. The evaluation studies on the first phase of the programme (2002-06) indicated that the vulnerability of the participant households had decreased to a great extent (Das and Misha 2010, Ahmed *et al.* 2009, Haseen 2007). The second phase of the CFPR programme was initiated in 2007 with diversity in support packages and increase in coverage. The diversity in support packages was introduced firstly based on heterogeneity among the ultra poor and then based on their geographical locations.

Nonetheless, a number of limitations were identified with regard to the evaluation design of the first phase. The impact assessment was conducted using a non-randomized design. The comparison households used for impact assessment were those households who were identified as extreme poor in the community wealth ranking¹ but failed to meet the inclusion and exclusion criteria for CFPR support (Rabbani *et al.* 2006). This study also revealed that the comparison group was relatively better off than the intervened households in terms of most of the baseline socioeconomic characteristics. Therefore, it was quite strong an assumption while assessing the impact of the programme that both the groups would have been on the same growth trajectory if the intervention did not take place, which is the key to difference-in-difference that was used for assessing effects of CFPR phase I. Although Ahmed *et al.* (2009)

¹ For selecting CFPR participants, a community wealth ranking exercise is carried out and households are divided into several clusters.

used propensity score matching to address the data limitation concerns, problems still remained because the programme assessment might have been biased due to the possibility of spillover effects on the comparison group as they were from the same community of the treatment group. This motivated the Research and Evaluation Division (RED) of BRAC to adopt a randomized control trial (RCT) design for evaluation of CFPR II. It should be noted here that although CFPR II delivers different support packages², RCT evaluation was designed only for the STUP 1 package. This is the one with the most intensive support and greater coverage compared to the other two packages.

This study analyzes the effects of the most intensive and large-scale package (STUP 1) of CFPR II using RCT design and overcomes much of the data limitations of the earlier evaluation studies of CFPR I. It addresses the following specific objectives: (i) impact of the programme on physical, financial and human assets; (ii) impact on income and employment; (iii) impact on crisis and incidences and their coping mechanisms; (iv) impact on awareness on social/legal law related issues of the participant women; and (v) impact on food security.

² CFPR phase II delivers three different packages: package for Specially targeted ultra poor (STUP) which was further disaggregated into STUP1 and STUP2, and other targeted ultra poor (OTUP). STUP1 package is being implemented in the poorest 20 districts of Bangladesh whereas STUP2 and OTUP packages are being implemented in the next 21 poorest districts. STUP packages employ the grant-based approach— training on income generating activities followed by productive asset transfers, weekly stipend, close supervision, health supports, social development initiatives etc. The OTUP package is mainly credit based approach where money for the asset is given in the form of credit that is designed with flexible terms and conditions such as smaller size loan, grace period for repaying the loans. OTUP participants are also eligible for weekly stipends, health supports, close supervision etc.

METHODS

Data collection

This study is based on primary data collected by RED. Second phase of the CFPR programme was initiated in 2007. To evaluate the programme, a baseline survey was carried out in 2007 using RCT design. Initially, the CFPR programme decided which branch offices in the targeted districts would be included in the programme in 2007. Then after selecting 20 sub-districts (*upazila*)³ randomly, the evaluation team randomly chose one treatment and one control branch office from each of the 20 sub-districts. It should be noted here that CFPR programme operates at the branch office level (within a distance of five km radius of the office location). Once the selection of the households was completed through the PRA (Participatory Rural Appraisal) followed by household visit by the programme staff, RED conducted the baseline survey in the selected branch offices. From each branch office all the PRAs conducted in 2007 were included in the survey, and from each PRA all the finally selected households and all the households who were selected primarily but failed to arrive at final selection were surveyed. Additionally, from rest of the households listed in the PRAs 10% households were selected randomly for the survey. In addition, one more household randomly chosen from the richest cluster of each PRA was also surveyed; the purpose was to represent at least one rich household from the community. The purpose of surveying non-participant households both from the treatment and control areas was to track spillover effects that may take place in addition to gauging the targeting effectiveness of the programme. However, assessment of spill over effects is beyond the scope of this study. The baseline survey was conducted during May-December 2007. The follow-up survey was conducted during July-December 2009. Table 1

³ *Upazilas* were selected with the condition that there has to be at least 2 branch offices so that 1 can be assigned as a treatment branch and 1 as control.

summarizes the total number of households surveyed in the baseline and the follow-up by type of households. This study is based on the panel data on 3,975 treatment households and 2,801 control households.

Table 1. Households surveyed in the baseline and follow up for STUP 1 evaluation

	Baseline		Follow-up		Attrition	
	Treat- ment area	Control area	Treat- ment area	Control area	Treat- ment area	Control area
Finally selected HHs	4260	3085	3975	2801	6.7	9.2
Other HHs	9457	10089	8844	9380	6.5	7.0

Analytical technique

Since RCT design was used, difference-in-difference (DiD) technique can be considered as the appropriate technique to analyze the effects of the programme. However, in RCT designed survey, it is expected that difference between treatment and control in the baseline would be unlikely (i.e. statistically insignificant), and thus comparison of endline data between treatment and control would provide impact of the programme. In other words, difference between treatment and control in the endline survey may be attributable to effect of programme intervention. However, a number of issues should be considered. Firstly, it is seen that there is in fact significant difference between treatment and control at the baseline although the differences are random, i.e. for some indicators treatment group is better off than the control while for other cases control is better off (Annex 1). Therefore, to consider this difference in the baseline in assessing effect of the programme, we have used DiD technique. DiD estimates the change in difference between the treatment and control groups from the pre-programme period to the follow-up period. The DiD for an outcome

variable, say Y_i , can be estimated using the following regression equation:

$$Y_{it} = \alpha + \beta_1 T_i + \beta_2 A_i + \beta_3 T_i A_i + \epsilon_{it} \quad (1)$$

Here, Y_{it} = the outcome variable of interest for household i at year t

$A_i = 1$ if household is from treatment branch, 0 if from the control branch

$T_i = 1$ if after intervention (i.e. 2009) and 0 if before intervention (i.e. 2007)

The constant term (α) is the mean value of the outcome variable for the control households in the baseline; β_1 measures change in outcome variable from baseline to follow up survey for the control households; β_2 measures the difference in outcome variable between treatment and control at the baseline; the key parameter of interest, β_3 , measures DiD of the outcome variable (i.e. average treatment effect).

As cluster randomization was followed in the survey design, we estimated robust standard errors allowing intra-cluster correlation. The cluster we considered here is the spot or PRA for which each wealth ranking was conducted.

As mentioned earlier, there were some random differences between treatment and control in the baseline; DiD was thus considered as the appropriate technique to estimate effect of the programme. But, in order to see the robustness of the impact assessment we have conducted a cross-sectional comparison using the following equation, where we have controlled the baseline value of the outcome variable:

$$Y_{i2009} = \alpha + \beta_1 A_i + \beta_2 Y_{i2007} + \epsilon_i \quad (2)$$

Y_{i2009} is the value of the outcome variable of individual i in the follow up (2009), and Y_{i2007} is the value of the outcome variable of household i at the baseline (2007). In equation (2), β_1 is the average treatment effect; β_2 measures effect of the baseline value of the outcome variable on that of the end line. Likewise equation (1), we estimated robust standard errors for equation (2) allowing intra-cluster correlation.

To further see the sensitivity of the impact assessment we have used the DiD technique controlling for the baseline characteristics. This has been done considering the fact that despite the randomization, there were some random differences for various socioeconomic charac-

teristics in the baseline; so the two groups of households may not have experienced the same growth trajectory overtime without the intervention. Therefore, we control the baseline characteristics in equation (1). Equation (1) thus becomes as follows:

$$Y_{it} = \alpha + \beta_1 T_i + \beta_2 A_i + \beta_3 T_i A_i + \beta_{4k} X_{2007,i,k} + \epsilon_{it} \quad (3)$$

$X_{2007,i,k}$ is the baseline value of variable k , for household i . We have considered 12 variables for controlling baseline characteristics, which are related to sex, age, literacy and occupation of the household head, and asset holding of the households. Looking into the heterogeneity of impact assessment is a key objective of this study. Although the surveyed households were extreme poor and were selected based on specific selection criteria, they were not similar in terms of their economic and demographic characteristics. For example six percent of the treatment households owned cultivable land. It may thus not be unlikely that those who owned cultivable land would experience more effect by joining the programme than those participants who had no land. To see the heterogeneity of the impact we have extended equation 3:

$$Y_{it} = \alpha + \beta_1 T_i + \beta_2 A_i + \beta_3 T_i A_i + \beta_{4,k} X_{2007,i,k} + \beta_{5,k} T_i X_{2007,i,k} + \beta_{6,k} A_i X_{2007,i,k} + \beta_{7,k} T_i A_i X_{2007,i,k} + \epsilon_{it} \quad (4)$$

In equation 4, β_{7k} measures heterogeneity of the impact due to variable k . Use of equation 4 is a standard way to see the heterogeneity of impact. It should be noted that we did not include the interaction terms $\beta_{5,k} T_i X_{2007,i,k}$; $\beta_{6,k} A_i X_{2007,i,k}$ and $\beta_{7,k} T_i A_i X_{2007,i,k}$ for all k variables. We only included these terms for four key variables of interest (for which we want to see the heterogeneity of impacts) in our analysis which means that there are not 'k' numbers of the parameter β_7 in our analysis. Aside from this, we have also used an alternative method to see the heterogeneity of impact. We have categorized both the treatment and control households into quartiles based on per capita income at the baseline and then estimated effect of the programme for each group.

We have used equation 1 for all outcome variables of interests. However, for analyzing sensitivity and heterogeneity of impact we have used only per capita income, assuming that this is the key outcome variable of interest.

PROGRAMME IMPACT

Impact on income

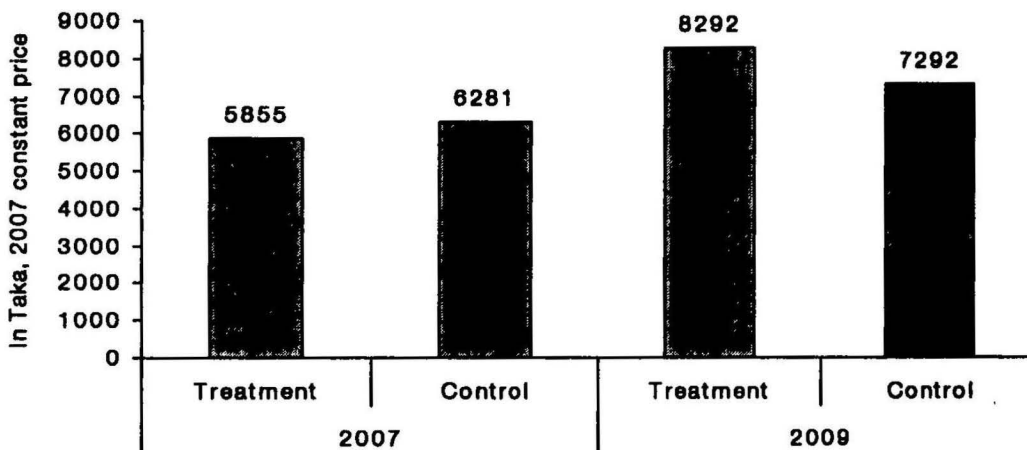
In the survey, household income has been recorded for the last one year, based on both individual earning (where it was possible such as day labouring) and collective earning of two or more members engaged in the same activity (such as for land cultivation). Per capita income of 2009 has been deflated to 2007 prices, using rural consumer price index. Analyzing trends in per capita income, it has been found that per capita real income of the treatment households increased from Tk. 5,855 to Tk. 8,292 (42% increase) during 2007-09 while that of the control households increased from Tk. 6,281 to Tk. 7,292 (16% increase) (Fig. 1).

Table 2 presents impact estimates of per capita income using simple difference-in-difference technique i.e. using equation (1).⁴ It has been found that the DiD was significant at 1% level which indicates that as a result of programme participation per capita income increased (by Tk. 1,426). When we estimate the effect on per capita income using cross section specification controlling for the baseline per

capita income (i.e. equation 2) we have found that the magnitude of impact is Tk. 1,121 (lower than that obtained using DiD technique) (Table 3). In fact, in the baseline the control group had higher per capita income; disregarding this might have biased the effect on per capita income.

An alternative specification we have used to see the robustness of impact estimate of per capita income is DiD technique after controlling for baseline characteristics (Table 4). The coefficient of the interaction variable *Treatment*Year2009* measures the difference-in-difference for per capita income. The coefficient of this variable was found to be 1425 which is almost similar to that estimated using simple DiD (1,426). Expectedly, it appears that households with higher earner-member ratio in the baseline had higher per capita income. On the other hand, female-headed households had lower per capita income compared to a male-headed household. We also observed that those who had cash savings and outstanding loans in the baseline had higher per capita income implying that access to financial market is one of the important ways to raise per capita income of the poor.

Figure 1. Per capita real income of the treatment and control households



⁴ Coefficient of the interaction term of equation (1) was reported in the last column of Table 2.

Table 2. Impact on per capita income using DiD (at 2007 constant price)

	2007			2009			Impact (DiD)
	Treatment	Control	Difference	Treatment	Control	Difference	
Per capita annual income (Tk.)	5855	6281	-426***	8292	7292	1000***	1426***

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

Table 3. Assessing effect on per capita income using cross-sectional specification

Regressors	Coefficient (t-ratio)
Treatment (1 if treatment, 0 if control)	1121*** (7.24)
Per capita real income in 2007	0.28*** (11.97)
Constant	5519*** (32.47)

Note. *** denote significant at 1% level

Table 4. Impact estimate of per capita income using DiD after controlling for baseline characteristics

Regressors	Coefficient (t-ratio)
Year 2009 (1 if 2009, 0 if 2007)	1011.6*** (6.89)
Treatment (1 if treatment, 0 if control)	-502.3*** (-3.54)
Treatment*Year2009	1425.2*** (7.30)
Age of the household head (years)	-4.0 (-0.24)
Square of age of the household head	0.2 (0.99)
Ratio of earner to member	4669.5*** (24.07)
Household head is literate (Yes=1, No=0)	217.2 (1.42)
Female headed household (Yes=1, No=0)	-442.6*** (-4.37)
Owned cultivable land (Yes=1, No=0)	477.6** (2.06)
Main occupation of the household head was day labor (Yes=1, No=0)	395.4*** (4.17)
Had cash savings (Yes=1, No=0)	335.9*** (3.38)
Had outstanding credit (Yes=1, No=0)	221.5** (2.14)
Owned cow/bull (Yes=1, No=0)	442.8* (1.89)
Owned goat/sheep (Yes=1, No=0)	229.9 (1.44)
Owned poultry (Yes=1, No=0)	-27.9 (-0.31)
Constant	2965.2*** (7.51)
Adjusted R-squared	0.12
No. of observations	13550

Note: ***, ** and * denote significant at 1%, 5% and 10% level respectively. Figures in the parenthesis are the t-ratios.

Heterogeneity in income effect

Conceptually, STUP1 package of CFPR targets bottom 10% households from the poorest 20 districts out of 64 districts of the country. Although targeted households are all ultra poor, it is not unlikely that there would be heterogeneity among the ultra poor in terms of their social, economic and demographic status. Consequently, the effect of the programme might vary between the households. It would be interesting to analyze whether heterogeneity in the baseline within the ultra poor households would produce any heterogeneity in the effectiveness of the programme. To do this, we have disaggregated the households into quartiles based on the per capita income in the baseline. We see that value of DiD of per capita income is highest for the richest quartile followed by second richest quartile (Annex 2). However, in terms of DiD as percentage of baseline income of the treated households the effect is highest for the poorest quartile followed by second poorest quartile (Figure 2). This indicates that when compared with per capita income in the baseline, the poorest group of the targeted households is benefiting more compared to the better off households. Thus, the CFPR programme demands its credibility in not only addressing the extreme poverty effectively but also by affecting the more marginalized among the extreme poor itself.

To see the heterogeneity of impacts based on specific factors such as female headship in the household or the ownership of livelihood assets such as cultivable land, cows, goats, etc., we also conducted a regression analysis using equation 4. In the regression results presented in Table 5, the variable *Year2009*Treatment*Female-headed households* measures the heterogeneity of income effect for female headship. Similarly the variables *Year2009*Treatment*Owns cultivable land*, *Year2009*Treatment*Owns cows/bulls* and *Year2009*Treatment*Owns goats/sheep* measure the heterogeneity of income effects for cultivable land, cow/bull and goat/sheep holding. It was seen that coefficient of variable *Year2009*Treatment*Female-headed households* bears negative sign and is statistically significant at the 5% level. However when the regression was estimated using log of per capita income as the dependent variable, the coefficient of this variable turns out to be insignificant. This indicates that in absolute terms the effect on per capita income was lower for female-headed households than the male-headed ones, but in terms of percentage increase in income arising due to intervention is same for both female and male headed households. Other than this, we do not observe any heterogeneity in income effect due to ownership of assets like cultivable land and livestock.

Figure 2. Per capita income effect by income quartile at the baseline

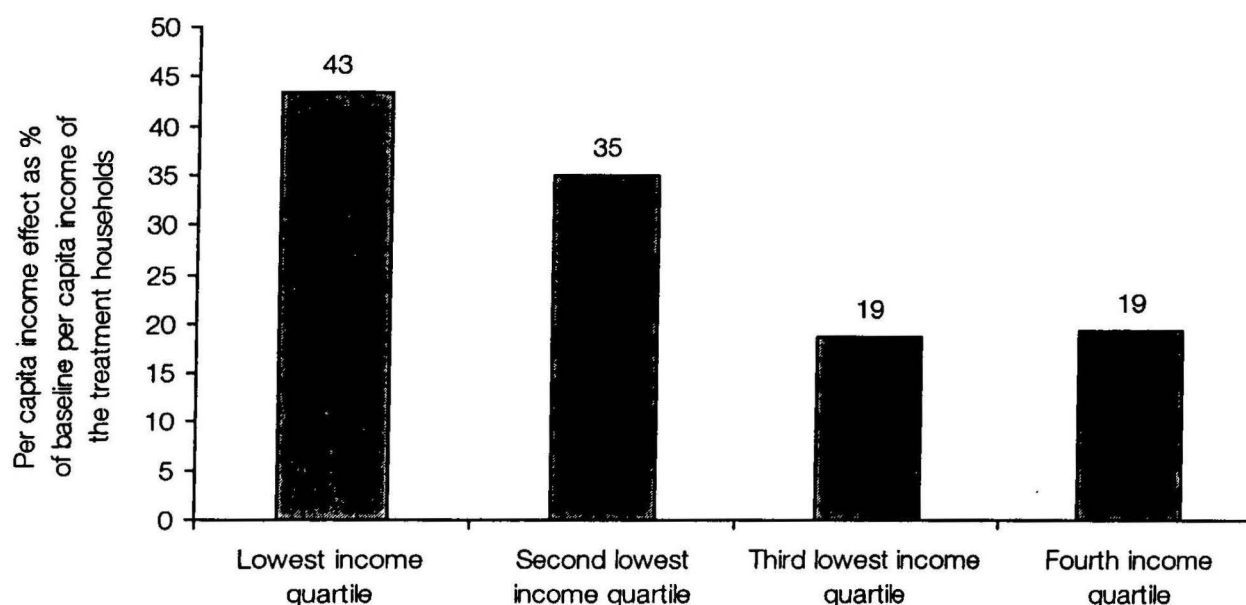


Table 5. Heterogeneity in income effect

	Dependent value : Per capita Income	Dependent Value: Log of Per capita income
	Coefficient (t-ratio)	Coefficient(t-ratio)
Year 2009 (1 if year 2009, 0 if 2007)	1002.47*** (5.87)	0.18*** (5.77)
Treatment (1 if treatment, 0 if control)	-371.93** (-2.29)	-0.07** (-1.96)
Year 2009*Treatment	1651.21*** (7.4)	0.23*** (5.78)
Age of the household head (years)	-2.49 (-0.15)	0.01** (2.5)
Square of age of the household head	0.16 (0.91)	0.00*** (-3.48)
Ratio of earner to member	4670.65*** (24.17)	0.87*** (13.59)
Household head is literate (Yes=1, No=0)	230.84 (1.52)	0.00 (-0.04)
Female- headed households (Yes=1, No=0)	-260.34 (-1.42)	-0.29*** (-5.2)
Year 2009*Treatment*Female- headed households	-685.31** (-2.19)	-0.05 (-0.61)
Owens cultivable land (Yes=1, No=0)	1385.85** (2.56)	0.16 (1.52)
Year 2009*Treatment* Owens cultivable land	1206.56 (1.48)	0.04 (0.28)
Household head's main occupation is day labour (Yes=1, No=0)	399.41*** (4.23)	0.22*** (10.67)
Has cash savings (Yes=1, No=0)	324.99*** (3.29)	0.10*** (4.42)
Has outstanding loans (Yes=1, No=0)	221.99** (2.16)	0.05** (2.01)
Owens cow/bull (Yes=1, No=0)	1044.59** (2.32)	0.09 (0.84)
Year 2009*Treatment*owens cow bull	131.09 (0.18)	0.10 (0.61)
Owens goat/sheep (Yes=1, No=0)	-43.62 (-0.16)	-0.04 (-0.42)
Year 2009*Treatment* Owens goat/sheep	-513.20 (-0.98)	-0.22* (-1.89)
Owens poultry (Yes=1, No=0)	-22.24 (-0.25)	0.01 (0.61)
Treatment*female-headed households	0.09 (0)	0.03 (0.4)
Treatment*Owens cow/bull	-976.55* (-1.77)	-0.14 (-1.06)
Treatment*Owens goat/sheep	392.95 (1.16)	0.19** (1.98)
Treatment*owens cultivable land	-1615.05*** (-2.73)	-0.16 (-1.36)
Year2009*female-headed households	24.46 (0.1)	-0.02 (-0.31)
Year2009*Owens cow/bull	-40.24 (-0.07)	-0.04 (-0.3)
Year2009*Owens goat/sheep	414.27 (1.11)	0.05 (0.51)
Year2009*Owens cultivable land	-685.69 (-0.99)	-0.02 (-0.16)
Constant	2777.96*** (6.9)	7.71*** (74.92)
No of observations	13550	13550
R-squared	0.1195	0.0888

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

Distribution of income by sources

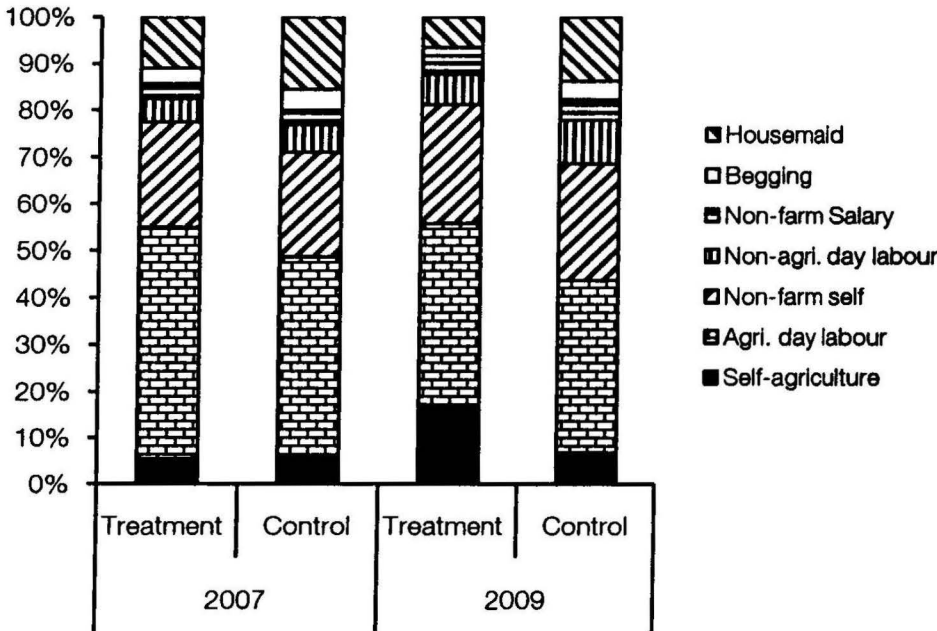
As the programme promotes self-employment among the participant households, it is expected that income share of self-employment activities would increase after programme intervention. Analyzing distribution of income by major sources

of income, it has been observed that income share of farm self-employment (land cultivation, livestock, poultry, etc) has increased significantly for treatment households during 2007-09 (Fig. 3). On the other hand, income share of distress occupation like begging and housemaid declined remarkably for the treatment households during

the same period. For control households the share of income from distress occupation remained almost unchanged. This is an indication of programme's success towards making the households less dependent on such distress occupation. There is also evidence of falling share of income from day-labouring. After the participants were transferred productive assets,

they were likely to have diverted some of their time to taking care of those newly acquired assets, but it is unlikely that the participant households would completely give up day labouring. This is why the income share from day labouring of the treatment households was still dominant in 2009 but it was lower than the pre-intervention period.

Figure 3. Income distribution by sources



Employment

One of the major objectives of the programme is to improve livelihoods of the participant households by transferring livelihood assets. Participation in the programme would thus expect to have an impact on the pursuit of various means of livelihoods. There is a strong hypothesis that intervention would bring significant changes in self-employment, particularly of the females as all the productive assets are channeled through the female members of the selected households. To detect the changes in this respect, we analyzed the mean number of hours devoted to a particular livelihood activity in the past one year for the working aged male and female members of the households. All the activities have been clumped into the eight broad categories as shown in Table 6 and 7. It is apparent that in the baseline females from both treatment and control groups devoted most of their time to agricultural day labouring. This is expected because empirical evidence on to poverty determinants reveals that poor

households do heavily rely on their unskilled labours such as agricultural day labouring (Umar *et al.* 2007).

As expected, there was a surge in the mean hours devoted to self-agricultural activities in 2009 among the treatment households and the DiD was found to be positive and highly significant. The treatment households received some assets from the programme, mainly in the form of some livestock, poultry, vegetable gardening, and nursery. Therefore, these assets are mostly agriculture-related, and naturally the participants were required to devote a significant portion of their time to take care of these new assets. This also means that they had to divert their time away from other activities like agricultural day labouring, doing household chores, being engaged in distress activities like begging and working as housemaid.

This is apparent through the larger decline in the mean hours devoted to these activities among the treatment compared to the control

ones (Table 6). There was also significant impact on reduction of hours devoted to doing household chores among the women in the treatment households. However, looking more closely, the mean number of hours devoted to household chores remained more or less the same among the treatment group but that of the control group rose significantly which thus resulted in the negative DiD. There has been some shifting in the work hours devoted among the various earning activities but the time devoted to non-earning activities like household chores has remained the same. Therefore, the assets transferred by the programme might not have naturally increased the workload of the female members as the extra time required for that activity might have been obtained by reducing the time devoted to other earning activities.

It is also expected that there should be significant changes in the livelihood activities pursued by the male members of the household because the income generating asset, although transferred to a woman of the family, is expected to increase the welfare of all the household members. It has been found that male members of the treatment group experienced almost similar impacts like that of female members (Table 7). The number of hours devoted to self-agriculture increased significantly during 2007-09 especially among the treatment group and this caused the members to reduce the amount of hours devoted to activities like agricultural day labouring and begging. Interestingly, the programme has had impact on engaging the male members in doing household chores.

Table 6. Impact on working aged females' (15-60 years) mean hours devoted to various activities in the last one year

	2007			2009			Impact (DiD)
	Treatment	Control	Difference	Treatment	Control	Difference	
Self-agriculture	256	250	6	891	314	577***	570***
Agricultural day labour	270	240	30**	188	202	-14	-44**
Non-farm self	76	77	0	78	92	-13	-13
Non-agricultural day labour	31	80	-49***	47	88	-41***	8
Non-farm salary	14	21	-7*	25	31	-7	1
Begging	61	85	-24***	25	57	-32***	-8
Household chores	1278	1237	41**	1274	1343	-69***	-111***
House maid	336	470	-134***	169	394	-225***	-91***

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

Table 7. Impact on working aged males' (15-60 years) mean hours devoted to various activities in the last one year

	2007			2009			Impact (DiD)
	Treatment	Control	Difference	Treatment	Control	Difference	
Self-agriculture	155	136	19	424	197	227***	208***
Agricultural day labour	1099	1041	57*	867	831	36	-21
Non-farm self	522	601	-79***	640	685	-44	35
Non-agricultural day labour	86	98	-12	114	165	-51***	-39*
Non-farm salary	55	68	-12	69	76	-8	5
Begging	33	49	-16*	16	29	-13**	3
Household chores	3	8	-5	26	17	8	14*
Work in other's house	27	58	-30***	28	47	-19**	12

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

Impact on assets

Natural asset (land)

Natural asset holding is very important for livelihoods in rural Bangladesh. This is not only the source of income but also a means of collateral. When need arises to collect some money immediately, they can use it as collateral. Empirical evidence shows that those who own land are less likely to be poor than those who do not (World Bank 2002). Homestead land provides not only shelter but also the opportunity to cultivate various types of vegetables and plant trees that is expected to generate income in the longer-term. We observed that due to programme intervention there was some impact on homestead land holding (Table 8). Although the magnitude of impact is not remarkable, it is

still impressive in the sense that price of land is very high in Bangladesh and is often beyond the ability of the extreme poor to purchase it. On the other hand, we observed that there were some impacts on access to land through tenancy markets. According to 1996 agricultural census, about 24% of all rural households were owner-cum tenant land holders and 10% were tenants with no own land (BBS 1999). However, access to such land by the ultra poor is very unlikely, as they do not have adequate capital. Table 8 shows that in the baseline 5% of the targeted households had access to land through tenancy markets, an indication that the ultra poor almost do not have access to such land. But after the intervention proportion of treated households with rented in or mortgaged in land climbed up to 17%. DiD for proportion of households with such land was found to be statistically significant.

Table 8. Impact on land holding

	2007			2009			Impact (DiD)
	Treatment	Control	Difference	Treatment	Control	Difference	
% of HHs own cultivable land	6.0	6.3	-0.4	7.9	6.9	1.1*	1.4
% of HHs have mortgage-in/rented-in land	5.4	5.9	-0.5	17.1	9.5	7.6***	8.1***
% of HHs own homestead land	47.2	47.0	0.3	52.9	49.4	3.5***	3.2*
Mean amount of own land (decimal)#	23.0	26.9	-3.8	21.3	23.4	-2.1	1.7
Mean amount of mortgage-in/rented-in land (decimal)#	48.0	37.0	11.0	64.5	38.4	26.1	15.1
Mean amount of homestead (decimal)#	4.3	4.5	-0.2	14.2	5.3	8.9	9.1

Note: *** and * denote significant at 1% and 10%, level.
mean amount for those who owned it.

Physical assets

Among the physical assets used for productive purposes livestock is most important in rural Bangladesh. Rural households try to accumulate and rear this type of assets as it is very cost effective to rear them because inputs like fodder is often collected from various unpaid sources (such as roadside, fallow land, *khash* land, etc.) and residues produced within the households are often used to feed the animals. Ownership of livestock and poultry is also significantly

correlated with incidence of poverty.⁵ CFPR mainly transfers livestock and poultry to the targeted households. It was found that 94% of the treatment households possessed livestock in the follow-up survey against 13% in the baseline (Fig. 4). However, this increase in livestock holding may be mainly because of transfer by the programme. Table 9 disaggregates livestock and other productive asset holding.

It is not possible to determine simply by looking at the ownership of productive assets

⁵ Kotikula (2010) showed that ownership of poultry is positively associated with food expenditure.

whether the stock of asset has been increased beyond the initial amount of assets transferred by the programme or not. This is why the current value of the owned livestock also needs to be evaluated. Analyzing the real value of productive asset it was found that it increased from Tk. 1,280 to Tk. 13,882 (about 10 times increase) for the treatment while for control it increased from Tk. 1,263 to Tk. 2,036 (63% increase) (Fig. 5). Given that physical asset was transferred by the programme, an effort has been made to analyze the value of productive assets after deducting the amount transferred by the programme. We found that treatment households' net increase in real asset value was 203% (from TK. 1,280 to Tk. 3,882) against control households' increase of 63% (from Tk. 1,263 to Tk. 2,036) (Fig. 6). This indicates that the participant households multiplied the physical assets they received from the programme.

Value of non-business assets which was not part of programme transfers was also affected positively (Table 10 and Fig. 7). Income increase probably was translated into the non-productive (often luxurious) assets, which is an indication of improving overall standard of living. From Table 10, it is seen that due to the programme intervention, participant households were able to buy non-business assets like chairs and tables. Programme also had some impact on the number of bed nets or mosquito nets owned. It indicates that participant households might have chosen to obtain this because they are health concerned and it also allows them to rest more comfortably. Overall the value of the non-business assets increased from Tk. 654 to Tk. 1,245 (90.4% increase) for the treatment group during 2007-2009 while for the control households this increased from Tk. 680 to Tk. 1,095 (61.2% increase).

Figure 4. Proportion of households who owned livestock

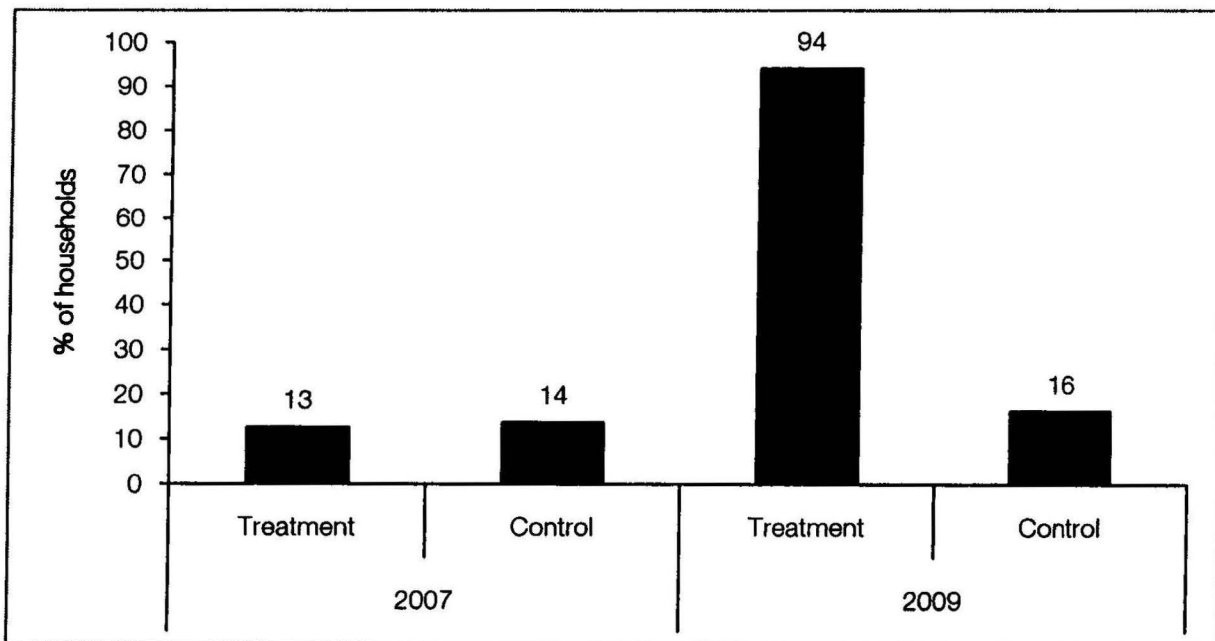


Table 9. Impact on productive assets

	2007			2009			Impact (DiD)
	Treatment	Control	Difference	Treatment	Control	Difference	
% of HHs own the asset							
Cow/bull	5.7	4.7	1.0*	90.5	7.9	82.6***	81.6***
Goat/sheep	8.5	10.3	-1.8**	41.7	10.4	31.2***	33.1***
Duck/hen	43.9	40.6	3.3***	68.9	45.1	23.8***	20.5***
Power pump	0.0	0.1	0.0	0.1	0.0	0.0	0.1
Threshing machine	0.1	0.1	0.0	0.2	0.0	0.2*	0.2*
Shop	0.6	0.5	0.1	1.1	0.6	0.5**	0.4
Rickshaw/van	1.9	1.4	0.5	4.4	3.6	0.8*	0.3
Amount of asset#							
No. of cow	1.3	1.4	0.0	1.5	1.5	0.0	0.0
No. of goat/sheep	1.7	1.7	0.0	2.2	1.8	0.4***	0.4***
No. of duck/hen	4.0	4.3	-0.3**	6.4	4.3	2.1***	2.4***
No. of power pump	1.0	1.0	0	1.0	1.0	0.0	0.0
No. of threshing machine	1.0	1.0	0	1.0	1.0	0.0	0.0
No. of shop	1.0	1.0	0	1.4	1.0	0.4	0.4
No. of rickshaw/van	1.0	1.0	0	1.2	1.3	-0.1	-0.1

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

Mean amount for those that own the assets

Table 10. Impact on non-business assets

	2007			2009			Impact (DiD)
	Treatment	Control	Difference	Treatment	Control	Difference	
% of HHs own the asset							
Radio/cassette player	1.5	2.0	-0.5	2.7	2.5	0.2	0.7
Television	0.3	0.2	0.1	1.0	0.5	0.5**	0.4
Electric fan	0.7	0.8	-0.1	1.5	0.9	0.6**	0.7
Mobile phone	0.1	0.2	-0.1	3.4	3.2	0.1	0.2
Bicycle	2.0	2.7	-0.7*	4.4	4.5	-0.1	0.6
Chair	14.9	15.3	-0.4	28.8	22.6	6.2***	6.5***
Table	13.7	14.9	-1.2	27.1	23.1	4.0***	5.2***
Bed nets	76.1	70.4	5.7***	88.2	81.6	6.6***	0.9
Amount of asset#							
No. of radio/cassette player	1.0	1.2	-0.2	1.1	1.1	0.0	0.2
No. of television	1.0	1.0	0.0	1.0	1.0	0.0	0.0
No. of electric fan	1.1	1.3	-0.2	1.1	1.2	-0.1	0.1
No. of mobile phone	1.0	1.0	0.0	1.0	1.0	0.0	0.0
No. of bicycle	1.0	1.0	0.0	1.0	1.0	0.0	0.0
No. of chair	1.4	1.4	0.0	1.5	1.4	0.0	0.1
No. of tables	1.0	1.0	0.0	1.1	1.1	0.0	0.0
No. of bed nets	1.2	1.2	0.0*	1.3	1.2	0.1***	0.0*

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

Mean amount for those that own the asset.

Figure 5. Value of productive assets (excluding land)

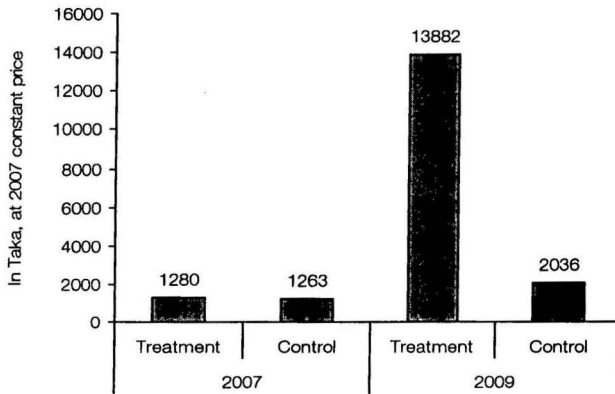
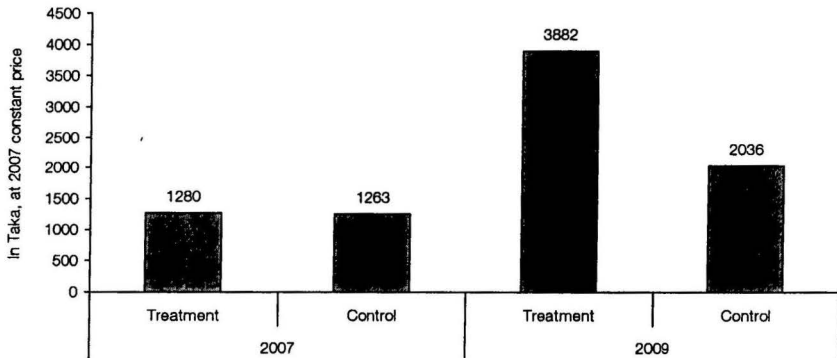
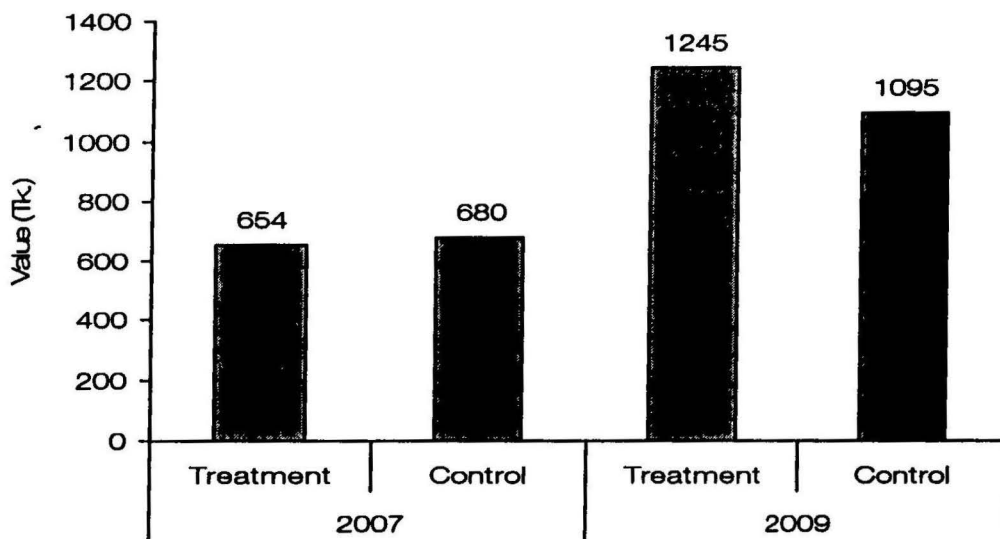


Figure 6. Value of productive assets net of programme transfer (excluding land)



Note: programme transfer that we deducted include: (i) value of asset transfer and (ii) value input transfer to maintain the IGA.

Figure 7. Value of non-business assets (at 2007 constant prices)

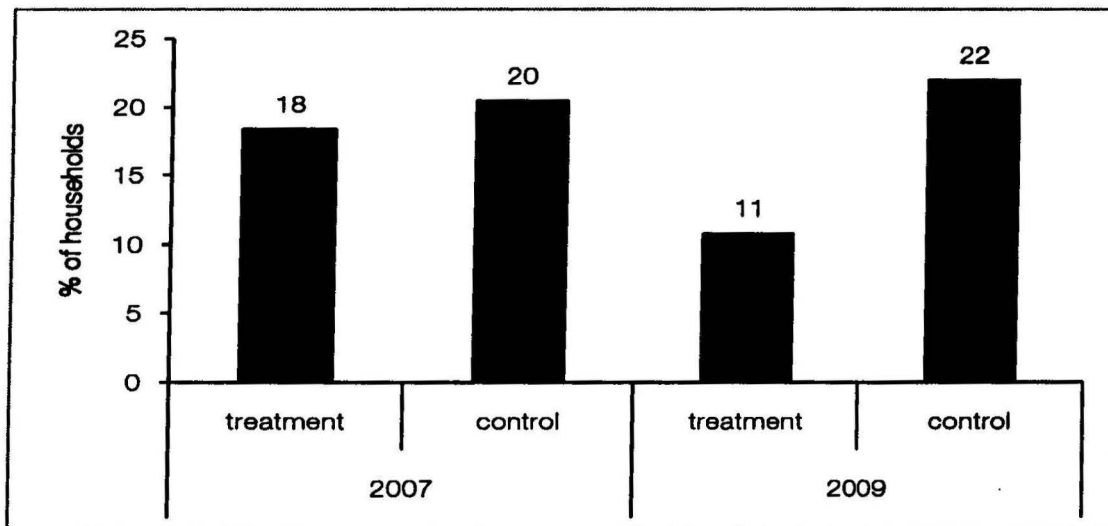


Animal mortgaged-in

Before participating in the CFPR programme, some ultra poor households (18%) in the treatment area earned through mortgaging-in livestock and poultry from others in the village as most of them did not own any such asset of their own (Fig. 8). As mentioned earlier, participation in the programme increased the incidence of ownership of such assets among the treatment households. Naturally this affected their practice of mortgaging-in livestock from others in the village and ultimately the proportion of households with mortgage-in livestock and

poultry decreased significantly. But this trend continued among the ultra poor in the control group and in fact the proportion of households mortgaging-in livestock and poultry increased among this group by the endline. The decrease in livestock and poultry mortgaging-in among the ultra poor households in the treatment areas has important implications; one can speculate that other households in the treatment community would now have more access/opportunity to mortgage-in such assets and this can be attributed as the spillover effect of the programme.⁶

Figure 8. Proportion of households with mortgaged-in livestock/poultry



⁶ Assessing the spillover effect is beyond the scope of this paper. Further study is underway to assess the spillover effect of the programme.

Financial assets

Credit

The underlined logic of initiating CFPR approach is mainly based on the understanding that the ultra poor are not being adequately addressed by the conventional poverty reduction programmes such as microfinance. In selecting CFPR participants, microfinance participation is used as one of the exclusion criteria; but ultra poor household with very inactive participation in microfinance programme (such as facing problem in loan repayment, cannot find any productive use of loan) with minimum amount of outstanding loans is often carefully considered for selection. Analyzing the credit market participation it was found that around one-fifth of both the treatment and control households (18 and 21%) had outstanding loans in the baseline (Fig. 9). But the proportion increased significantly in 2009 for both groups although at a higher rate for the treatment households. The main reason for augmented credit market participatory behaviour of the treatment households is because of automatic acceptance into BRAC microfinance as the participant women are eligible for BRAC microfinance after two years of extensive support of the CFPR programme. Also this could be attributed to the fact that the participants have some means now to use the loan productively, hold substantial productive assets, and have gained adequate entrepreneurial skills. It is observed that NGO loans, especially from BRAC, have tremendously increased among treatment

households (Fig. 10). However, the question is if there is automatic acceptance in microfinance, then why did more than half of the women not have outstanding loans in 2009? The fact is that the microfinance participation is not instantaneous. Shams *et al.* (2010) examined the microfinance engagement of the graduated members of CFPR Phase I and found that many of the women took time to consider themselves for taking loans from BRAC. Specifically this study found that while half of the graduates participated in the BRAC microfinance within one year after completing the grant phase, around 20% of the graduates started to participate in BRAC microfinance much later like after two years of their graduation from grant phase.

Significant increase in credit market participation of the control households was observed during 2007-09 but they were heavily dependent on informal sources such as from shops, friends and relatives (Fig. 10). This indicates that there is demand for loans among the ultra poor but that is not being met by the formal institutions. Probably, due to a mismatch of both demand side and supply side factors from the part of the microfinance institutions, the ultra poor tend to meet most of their credit demands by relying on the informal loan sources. For the treatment households on the other hand, the easy access to BRAC microfinance increased their borrowing from this source. This, to some extent, replaced their borrowings from informal sources such as shops, relatives and friends.

Figure 9. Proportion of households with outstanding loans

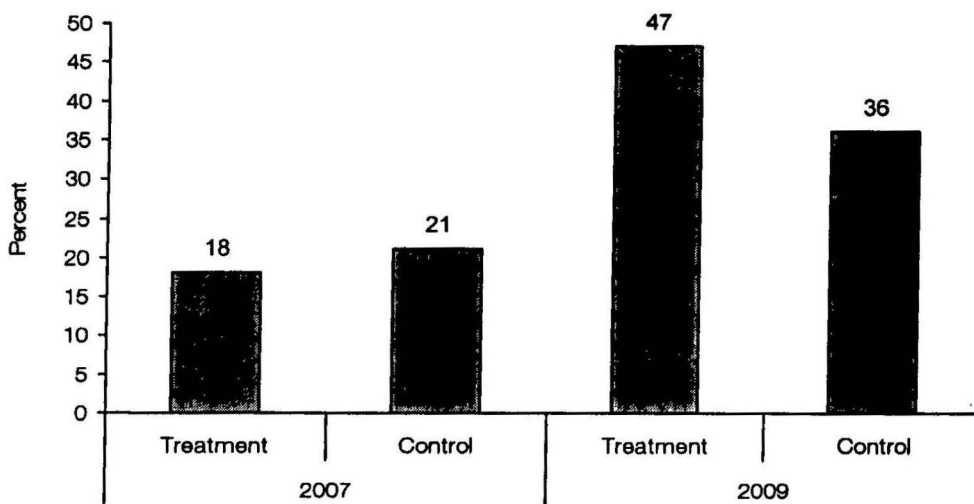
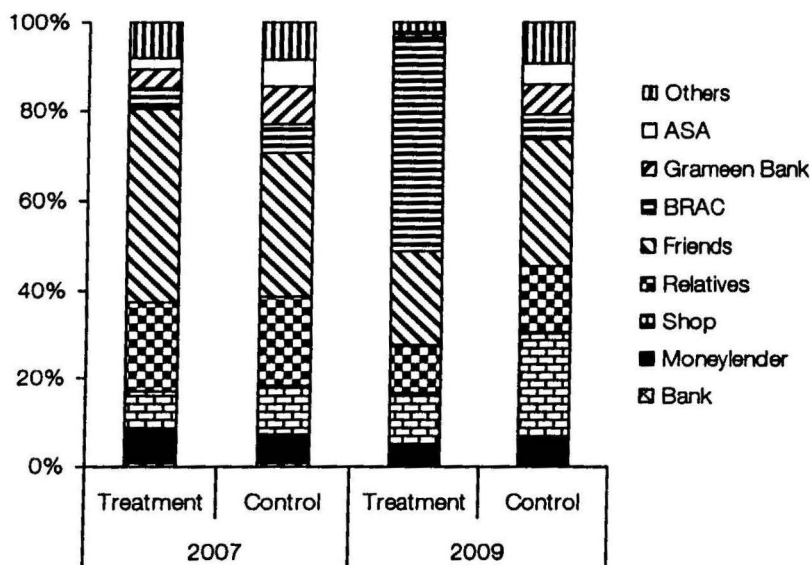


Figure 10. Share of outstanding loans by sources

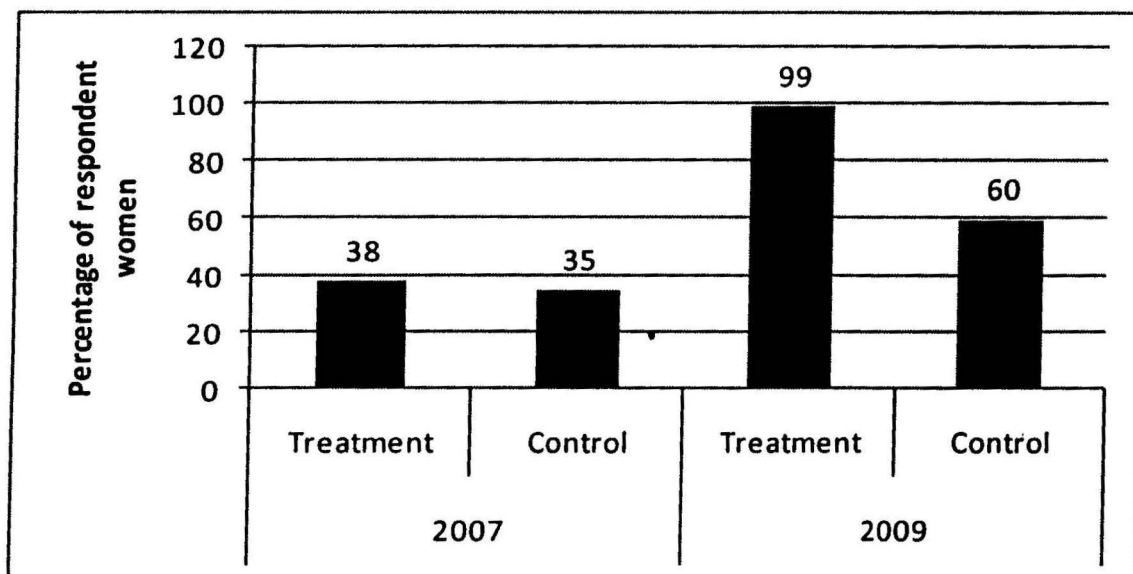


Savings

Savings is important to cope up with various shocks/incidences and to serve as a source of capital in new income generating activity. CFPR participants start to save in BRAC-TUP account immediately after joining the programme. Analyzing the saving behaviour, it was found that in 2009 almost all the surveyed women of the treatment group had cash savings against 38% in the baseline (Fig. 11). Savings behaviour also increased for the control group from 35% in 2007 to 60% in 2009. However, analysis of the amount of savings accumulated by the participants is more important as a household

with only Tk. 5 cash savings (participant women usually save Tk. 5 each week) at the end of the week might not be much different from a household managing to save nothing at the end of the week. Therefore, it is not enough to just know whether some cash savings are present or not within a household. It was found that the programme did have an impact on the amount of savings as well. The mean amount of savings (for those who had savings) among the treatment households increased to Tk. 1,541 in 2009 from Tk. 114 in 2007 (Annex 3). In contrast, among the control group the amount increased from Tk. 183 to Tk. 332 during the same time period.

Figure 11. Proportion of respondent women with cash savings

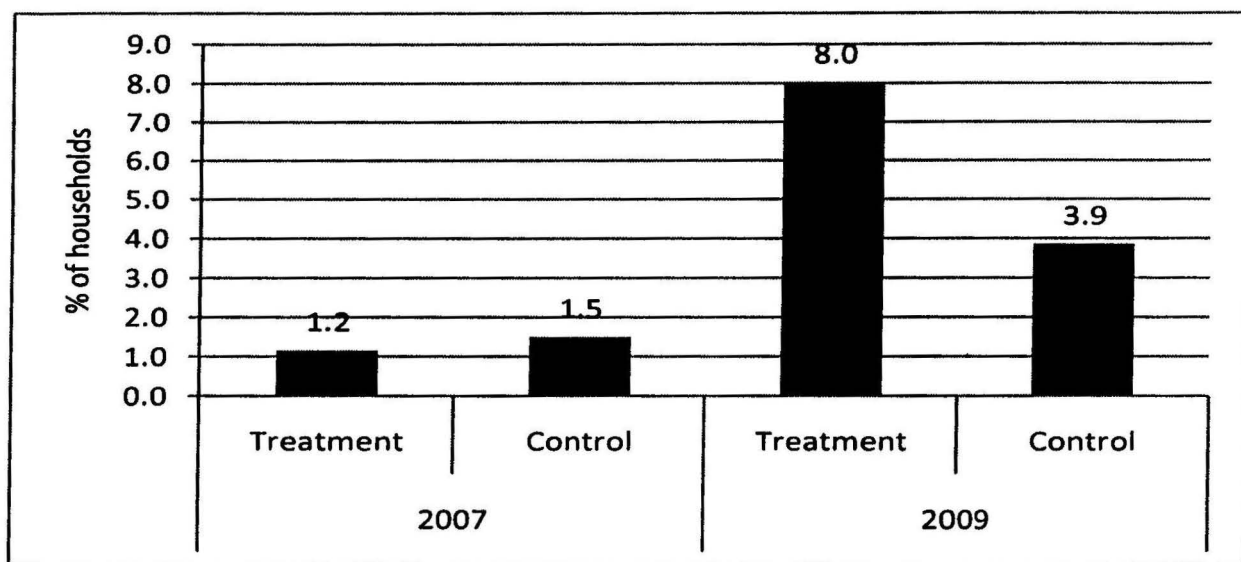


Lending

Participating in financial market does not involve only borrowing from the financial sectors but also lending in the formal/informal financial markets. In this section an effort has been made to investigate the programme's effect on lending behaviour of the participant households. Before programme participation, the ultra poor households could barely make ends meet and so

did not have any capital asset or any goods in kind to lend out (Fig. 12). However after participation in the programme, some accumulated enough financial capital to lend out to others. Figure 13 shows that at the endline 8% of the treatment households had outstanding lending against 3.9% of the control households. DiD for amount of outstanding lending was also found to be positive and statistically significant (Annex 4).

Figure 12. Percentage of households with outstanding lending



Human capital

Education

Education is the most important human capital and it is the key to reduce poverty in a sustainable manner, particularly to make a way out of intergenerational transmission of poverty. There are voluminous evidences that education is negatively associated with poverty (Kotikula *et al* 2010). CFPR does not provide any direct support to education but the programme facilitates and encourages school enrollment and admission through appropriate volunteers where possible. For instance programme forms a committee of local elites and educated members within each intervention area known as *Gram Doridro Bimochon Committee* (GDBC). The committee is formed to provide a means of social security and support to the programme participants during the programme implementation phase as well as long

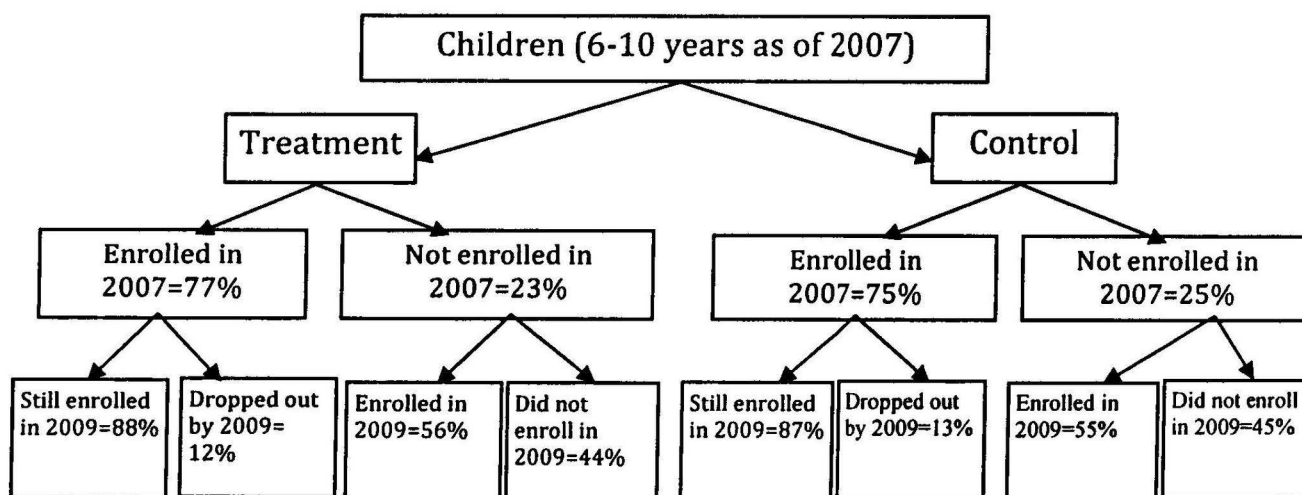
after the end of programme operations in the village. One of the tasks undertaken by this committee is to encourage and monitor the school participation of the children in the treated households and also assist these children in their school work by finding appropriate private tutors for them. It could be expected that these indirect initiatives by the programme, coupled with the livelihood improvements achieved through participation in the programme, could produce an effect on education. However, such an effect often requires longer-time to detect. Evaluation of first phase of CFPR revealed that in the short-run, programme did not have any visible impact on education; however, in the long-run it had some modest positive impacts (Das and Misha 2010). Analyzing the net enrollment rate at the primary and secondary level, it has been found that all the DiD are statistically insignificant, further evincing that programme has no visible impact on education in the short-run (Table 11).

Table 11. Impact on education

	2007			2009			DiD
	Treatment	Control	Difference	Treatment	Control	Difference	
Net secondary enrollment rate (%)							
Boys	9.0	8.9	0.1	12.6	11.8	0.8	0.8
Girls	19.3	21.5	-2.2	19.5	22.2	-2.7	-0.5
Net primary enrollment rate (%)							
Boys	75.1	72.7	2.4	74.0	76.1	-2.1	-4.5
Girls	77.5	73.6	3.9*	80.5	79.1	1.4	-2.5
Have house tutor (%)							
Boys	15.2	16.1	-1.0	15.6	12.9	2.6	3.6
Girls	10.1	12.9	-2.8*	14.3	14.1	0.2	3.0

CFPR follows livelihood promotional approach for ultra poverty reduction, i.e. the intervention intends to generate self-employment among the participant households, particularly livestock and poultry rearing. Because of such initiatives it is likely that intra-household demand for labor would increase. This may even lead to an increase in dropout rate of the school going-aged children of the participant households. Figure 13 shows the changes in the enrollment and dropout rate of children aged 6-10 years. It can be clearly seen that the programme did not have much effect on the dropout rates of children aged 6 to 10 years. Among the treatment households, 77% of the children of that age group were enrolled in schools before

programme participation. The rate in the control households was nearly the same (75%). However, by 2009, in the treatment households 88% of those previously enrolled students were still in school. Similarly within the control households the corresponding proportion was 87%. It thus appears that the 12% dropout rate among the treatment group was due to some factors common to ultra poor households and not because of programme intervention. Also analyzing the number of children who were not enrolled in school in 2007, it was found that within the treatment households 56% of those children enrolled in schools by 2009, while the corresponding proportion among the control group was 55%.

Figure 13. Dynamics of children's enrollment and dropout from schools in ultra poor households

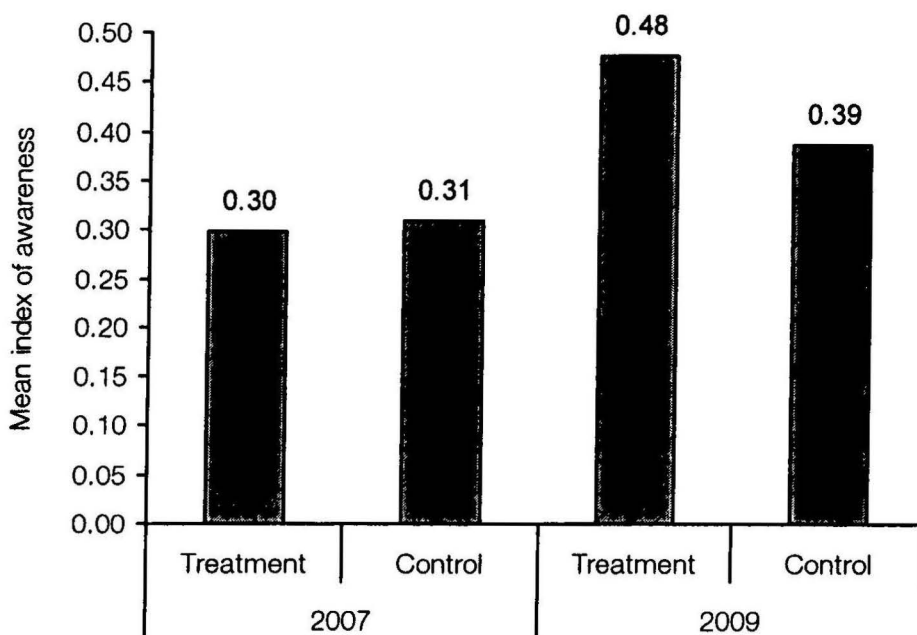
Awareness

The constitution of Bangladesh has guaranteed equal rights for men and women but due to social and religious factors women rights are often violated or become biased. To counter this, various laws have been enacted and amended such as Muslim Family Laws Ordinance of 1961, The Muslim Marriage and Divorce Registration Act of 1974, the Dowry Provision Act of 1980, The Family Court Ordinance of 1985 and the Child Marriage Registration Act of 1992 (ADP 2001). However, the women, particularly the poor women, are not conscious of their rights enacted through various acts and provisions. One of the components of CFPR is the awareness raising training. Awareness-related issues that are dealt with in the CFPR programme include legal age for marriages, legal procedure for divorce, punishment for giving/taking dowry, etc. For analyzing the effect on awareness, an index was constructed using 16 indicators. We also conducted indicator specific analysis (Annex 5). To construct the index we assigned '1' for correct answer and '0' for wrong answer. We then summed up the scores for each household and divided by the total number of indicators

used. The value of the index lies between 0 and 1. Figure 14 shows that in the baseline the treatment and control groups were almost similar in terms of level of awareness but the gap increased remarkably in the follow-up.

Indicator-specific analysis reveals that for all indicators, the programme had positive impact. For example, in the baseline 11% of the treatment women knew the legal age for girls to get married which increased to 31% in 2009. But for the control group the proportion remained fairly same. Early marriage for girls is very common in Bangladesh. Analyzing the marital status of girls in the selective regions of Bangladesh, Bhattacharjee and Das (2011) showed that more than two-third of the girls were married off before the age of 18 years. Early marriage has severe consequences such as low educational attainment, earning power and social mobility (Haberland 2005). Although various social and religious factors contribute to early marriage, it is expected that the awareness raising attempts of the ultra poor women through CFPR intervention would help reduce early marriage in the long-run.

Figure 14. Mean awareness index of the respondent women



Food security

One of the key objectives of the CFPR is to reduce the vulnerability of the ultra poor in terms of their food insecurity. Immediately after joining the programme, the participant households are provided with weekly stipend of Tk. 175 which is likely to increase food security of the household members. Length of this weekly stipend varies between households based on types of income generating activities (IGA) the participant received from programme. But in general it continues up to 8-10 months. In order to analyze food security among the participant households, several questions on self perception of the respondents were asked. Expectedly, vulnerability of the treatment households in terms of food insecurity

reduced remarkably (Table 12). Proportion of treatment households which mentioned that they can manage at least two-square meals regularly has increased from 46% to 82% during 2007-09 while the proportion in control increased from 36% to 56% during the same period. Some increase in food security among the control group was also observed. Maybe because food price was significantly high in 2007 and that slowed down to a large extent by 2009. Information in Table 12 also reveals that seasonality in food security has decreased to some extent due to the intervention taking place. However, for the treatment households, the incidence of not being able to manage adequate food more than 5 times in the last one month declined from 1.8% to 0.5% during 2007 to 2009.

Table 12. Self-perceived food security

	2007		2009		Difference	DiD (impact)
	Treatment	Control	Treatment	Control		
Can manage two-square meals a day (% of HHs)	46	36	10.0***	82	56	16***
Always faced food deficit (% of HHs)	32	38	-5.7***	15	32	-11***
Experience deterioration in food quality and quantity in Kartik/Chatra month (% of HHs)	63	72	-9.0***	45	63	-9***
No. of times it happened that households could not manage adequate food in the last one month (% of HHs)						
Never	16	13	2.7***	25	22	3***
1-3 times in the last one	44	37	7.2***	50	46	4***
1-2 times in the last week	32	37	-4.5***	21	26	-4***
3-4 times in the last week	5	11	-5.4***	3	5	-2***
More than 5 times in the last one week	1.8	1.8	0	1.7	0.5	-1.2***

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

Table 13 shows the impact of the programme on per capita food expenditure of the ultra poor households during 2007-2009. Food expenditures of 2009 have been deflated to 2007 prices using rural consumer price index (food). However, one drawback of using rural food price index is that this is based on consumption basket of all rural households ranging from ultra poor to non-poor households. It is quite understandable that food basket of the ultra poor is heavily weighted into cereal items compared to the non-poor households. Therefore, using food price index may not provide true picture of real food expenditure of the ultra poor households. As an alternative, we used rice (coarse) price index to deflate the 2009 food expenditure to 2007 prices. During 2007-09 food price inflation was 15.8% while on the other hand; coarse rice price inflation rate was 4.8% during the same period. This

indicates that during 2007-09 price of non-rice food items increase at a higher rate than the rice price. However, programme was found to have positive impacts on per capita food expenditure no matter what type of inflation rate is used. In the case of using rural consumer price index (food), the positive impact derives from a decrease in food expenditure by the control households. While using coarse rice price inflation rate, the positive impact derives from increase in per capita food expenditure for the treatment. During 2007-09, per capita food expenditure remained almost similar for the control group while that of the treatment group increased from Tk. 25.5 to Tk. 28.2.

Table 13. Impact on per capita food expenditure

	2007			2009			Impact (DiD)
	Treatment	Control	Difference	Treatment	Control	Difference	
Per capita food expenditure (at 2007 constant price, using Rural food CPI)	25.6	25.0	0.6**	25.5	22.9	2.7***	2.1***
Per capita food expenditure (at 2007 constant price using coarse rice price index)	25.6	25.0	0.6**	28.2	25.2	2.93***	2.34***

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

Housing condition

Analyzing the housing condition we found that the proportion of households having own house increased to some extent, as a result of programme intervention. However, looking at the main materials of the house, no significant effect was observed. The programme does not provide any direct support for housing except some small amount of housing materials to make a shed for the livestock and poultry, only if this type of asset is received by the participant. The housing materials we have analyzed here are that of the main living room which may not include those

transferred by the programme (Table 14). Effect on housing condition was, thus, expected only through increase in income of the households. Although income of the households increased remarkably due to programme participation as shown earlier, they did not probably devote the surplus into housing improvements. Actually for the ultra poor households, it is first the food security that they would like to ensure once income increases indicating that housing improvement was probably considered as the longer-term strategy by the households. It would be intriguing to know the longer-term impact on housing condition using further survey data.

Table 14. Impact on housing condition

	2007			2009			Impact (DiD)
	Treatment	Control	Difference	Treatment	Control	Difference	
Own house (% HHs)	91	90	1*	94	90	3***	2*
No of rooms	1.17	1.13	0.04***	1.19	1.17	0.02*	-0.02
Main materials of the wall							
Brick/cement (% of HHs)	1.01	0.5	0.51	0.98	1.36	-0.38	-0.89
Tin/wood (% of HHs)	6.97	10.64	-3.67	13.66	16.32	-2.66	1.01
Mud (% of HHs)	14.62	18.14	-3.52	14.19	16.92	-2.73	0.79
Straw/leaves (% of HHs)	76.93	65.68	11.25	65.64	60.09	5.55	-5.7
Others (% of HHs)	0.48	5.04	-4.56	5.53	5.32	0.21	4.77

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

Crisis and incidences

The ultra poor are generally a vulnerable group, barely making ends meet. Naturally this group is more prone to various covariate and idiosyncratic shocks such as sudden illness of family members or natural disasters as they rarely have any means of tackling let alone overcoming such situation on their own. Severity and extents of various covariate and idiosyncratic shocks have severe consequences on sustainable livelihood improvements. Even feelings of insecurity, uncertainty and defenselessness can aggressively diminish the current state of wellbeing (Calvo and Dercon 2007).

Table 15 shows the frequency of different crises and events faced by the treatment and control group during 2007-2009. The incidence of some crises and events intensified among the treatment group after the programme intervention. Nearly 43% of the treatment households experienced loss of livestock/poultry due to natural disaster in 2009 against 17% in the baseline (Table 15). But incidence of this event increased only marginally among the control households. Increased incidence of livestock/poultry death among the treatment households is not probably surprising as the ownership of this type of asset increased significantly among them as shown earlier. Impact assessment of phase I of the programme also

revealed similar findings (Rabbani *et al.* 2006). Ultra poor households usually have limited space in their homestead to shelter the livestock animals. Even though the programme initially provides small amount of housing materials to build a shed for the livestock, this might not provide necessary protection when their asset has been multiplied. Therefore, inadequate protection for the animals might be working as a factor to increase their susceptibility to death or diseases during natural disasters. There was also

an increase in the incidences of livestock poisoning by others in the community although the proportion is small. However, we do not have adequate information on this issue to further analyze the situation. The programme has managed to reduce the incidences of house damage experienced due to natural disasters. It implies that a lot of them must have been able to improve their housing conditions or they must have had better means of mitigating the effects of any such damage.

Table 15. Incidence of various crises and events

% of households faced	2007			2009			Impact (DiD)
	Treatment	Control	difference	Treatment	Control	Difference	
House damage due to natural disaster	4.5	3.3	-1.3	3.8	4.9	1.0	-2.31**
Illness of earning member	12.9	12.9	0.02	9.8	11.9	2.1	-2.03
Illness of other member	10.06	8.57	-1.49	10.21	9.96	-0.25	-1.24
Loss of crops due to natural disasters	0.63	0.57	-0.06	1.11	0.86	-0.25	0.19
Death of earning member of the HH	0.68	1.14	0.46	0.96	0.93	-0.03	0.49
Death of non-earning member of the HH	0.50	0.32	-0.18	0.58	0.43	-0.15	-0.03
Wedding of a household member	1.18	1.25	0.07	3.95	3.43	-0.52	0.59
Damage due to river erosion	0.05	0.11	0.06	0.23	0.11	-0.12	0.18
Loss of livestock/poultry due to natural disasters	17.18	16.39	-0.80	42.74	19.96	-22.78	21.99***
Poisoning of livestock by others	0.86	1.36	0.50	1.46	0.75	-0.71	1.21***
Divorce	0.15	0.25	0.10	0.13	0.00	-0.13	0.22*
Others	1.3	2.4	-1.1	1.8	1.4	0.4	1.5

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

Crises and events always entail some loss of household income, assets or increased expenditures to mitigate the loss. Figure 15 shows the loss/expenditure due to the crises and events as a percentage of total household income. Loss/expenditure as percentage of income increased by 4 percentage points for the treatment households during 2007-2009. This can be attributed to the increase in the incidences of livestock loss. But for the control group, the proportion was found to be alarmingly high in 2009. There was a four-fold increase in loss/expenditure for the crises/ incidences during 2007-09 although from Table 15, it can be seen that the incidences of any events did not increase

for the control group to a significant extent. This indicates that the increase in income, assets and savings within the treatment households countered the losses experienced through crises and incidences. However, the control group did not experience such remarkable income changes to counter these types of loss in a similar manner.

Analyzing the various coping strategies employed by the treatment and control households, it is found that in the baseline in almost 40% of the cases within both groups, nothing in particular was done to cope with the crises and incidences (Table 16). By 2009 the number of such cases increased for the

treatment group but that for the control group remained almost the same. Decreasing household expenditure, using previously accumulated savings, borrowing and taking help from relatives were the more popular strategies employed by the ultra poor households during the baseline. By 2009, within the treatment group there was a decrease in the percentage of cases who coped by decreasing household expen-

diture, borrowing and by taking help from relatives. On the other hand there was an increase in usage of own savings to tackle setbacks from the crises. There was also a decline in the number of cases where the households engaged in activities that compromised their future economic and social position like selling off assets and go out begging for alms.

Figure 15. Loss/expenditure due to crisis/incidence as share (%) of household income

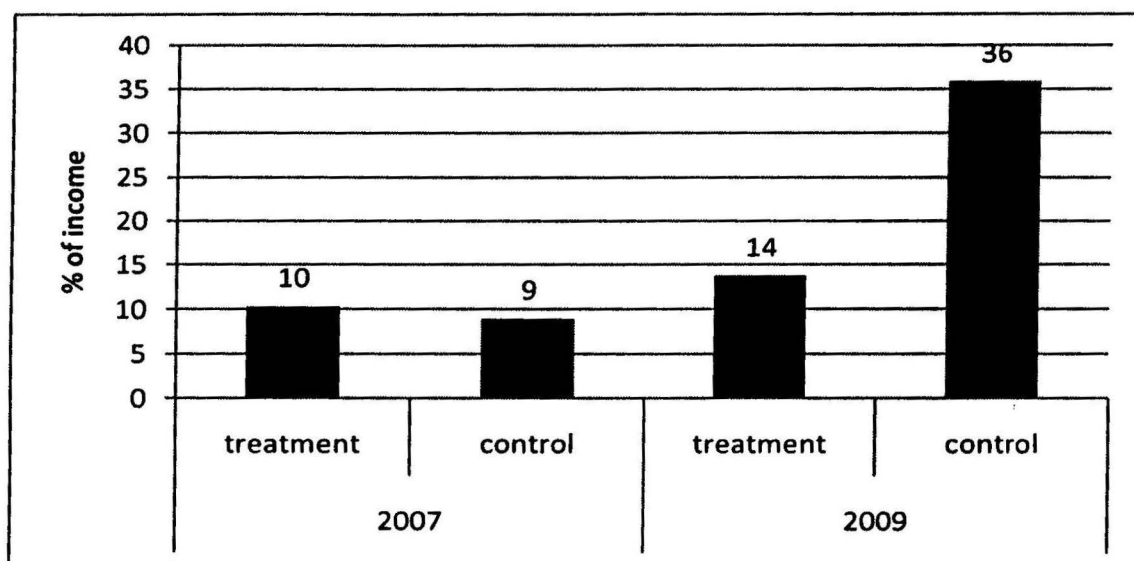


Table 16. Coping mechanisms of crises and incidences

	2007		2009	
	Treatment	Control	Treatment	Control
Did nothing (% of HHs)	40.1	40.9	53.1	41.5
Decreased household expenditure (% of HHs)	21.8	19.7	19.7	18.7
Used earlier savings (% of HHs)	18.0	15.1	22.7	27.3
Sold assets (% of HHs)	2.8	2.0	1.7	1.4
Sent children to work (% of HHs)	0.1	0.2	0.1	0.2
Engaged children in work in others' house (% of HHs)	0.2	0.2	0.1	0.3
Begged (% of HHs)	1.2	1.7	0.4	1.9
Borrowed (% of HHs)	15.0	14.9	9.0	10.7
Advance sale of labor (% of HHs)	2.2	2.3	0.2	0.6
Help from relatives/friends (% of HHs)	14.3	12.5	7.8	14.4
Others (% of HHs)	1.1	1.9	0.9	0.9

Note: Multiple responses were allowed, percentage of cases reported

CONCLUSION

CFPR programme was launched in 2002 in rural Bangladesh. The first phase of the programme was implemented during 2002-06. Based on the learning and experiences, the second phase of the programme was initiated with increased coverage and by bringing diversity in support packages to address the heterogeneity among the ultra poor. Evaluation of the first phase of the programme revealed that livelihoods of the participant households improved remarkably due to the intervention but a number of shortcomings were identified regarding the evaluation design, particularly due to adoption of non-experimental evaluation design. This paper provides further evidence regarding effectiveness of CFPR using RCT design, effectively addressing much of the limitations of the earlier studies. The experimental design was conducted for the most intensive support package (i.e. STUP1 package) of the second phase of CFPR.

Using 2007-09 panel data, programme effect was analyzed based on DiD technique. This paper shows that participant households multiplied their asset base from the ones initially transferred by the programme and consequently generated income from it and reduced their dependency on distress occupation like housemaid and begging. There is also strong evidence of positive impact on savings behaviour and participation in credit market of the participant households. We also found that due to the intervention, vulnerability of the households in terms of food security was reduced remarkably. Participant women's awareness on various social and legal issues was also found to be affected positively by the intervention, which is expected to enhance the practice of the basic laws and to use the knowledge to help resist

unequal treatment due to their economic and social backwardness.

Similar to earlier studies on the first phase of the CFPR programme, we did not find visible impact of the programme on education in the short-run. This was probably expected because the programme did not have any direct support on education. However, whether there would be any impact on education of children in the treated households in the long-run through livelihood changes, is an issue that would be looked at using third round survey data after four years of programme support. It needs to be noted that realizing that intervention does not directly affect education of household members, the programme has introduced a number of initiatives including involvement of the local elites to support the ultra poor children's education. We suggest that this type of initiatives can further be strengthened coupled with awareness raising through household visit. It would have impact on education that would help bring them out of poverty in a sustainable manner.

The findings of this study have important policy implications on addressing extreme poverty in developing countries. It is apparent that expenses for the poor through various transfer programmes such as cash and kind, employment guarantee programme is not insubstantial. For example, Bangladesh government spends about 5% of its public expenditure for the poor. But the key discourse is how to properly use the resources to address the poverty. The findings of this study suggest that CFPR is an innovative approach for a highly effective method of resource utilization dedicated for the extreme poor.

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ANNEX A

Annex 1. Baseline characteristics of the treatment and control households

	Treatment	Control	Difference
Per capita income (Tk.)	5855	6281	-426***
Age of the household head (years)	44.3	46.7	-2.4***
Female headed households (%)	37.0	47.7	-10.7***
Owns cultivable land (% of HHs)	5.9	6.3	-0.4
Main occupation of the household is			
day labour (% of HHs)	51.6	41.5	10.1***
Has cash savings (% of HHs)	38.2	35.5	2.7
Owns sanitary latrine (% of HHs)	29.8	22.2	7.6***
Owns cow/bull (% of HHs)	5.7	4.7	1.0
Own goat/sheep (% of HHs)	8.5	10.3	-1.8**
Owns duck/hen (% of HHs)	43.9	40.6	3.3**

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

Annex 2. Impact on per capita income by quartile

	Impact (DiD)	Baseline income of the treatment HHs	DiD as % of baseline income
Lowest income quartile	996	2295	43
Second lowest income quartile	1501	4282	35
Third lowest income quartile	1144	6135	19
Fourth income quartile	2077	10689	19

Annex 3. Impact on savings behaviour

	Treatment	Control	Difference	Treatment	Control	Difference	Impact (DiD)
% of women with cash savings	38	35	3	99	60	39	36***
Mean amount of cash savings#	114	183	-69	1541	332	1209	1278***

#For those who had savings

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

Annex 4. Lending behaviour

	2007			2009			Impact (DiD)
	Treatment	Control	Difference	Treatment	Control	Difference	
% of Households with outstanding lending	1.16	1.50	-0.34	8.03	3.86	4.169***	4.51***
Amount of lending (Tk.)#	1911	2933	-1022*	9786	8108	1678	2699*
Proportion of lending with interest	65.22	71.43	-6.21	55.54	63.89	-8.347	-2.14

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

#Mean amount for those who had lending

Annex 5. Indicator specific awareness analysis (% of respondent women)

	2007			2009			Impact (DiD)
	Treatment	Control	Difference	Treatment	Control	Difference	
Know legal age of marriage for a boy	10.8	11.2	-0.5	30.5	10.7	19.7***	20.2***
Know legal age of marriage for a girl	32.8	30.0	2.8**	65.1	44.0	21.1***	18.3***
Know the punishment in the law against dowry	4.5	1.4	3.1***	16.7	2.5	14.2***	11.1***
Know the legal system of divorce	3.6	3.7	-0.1	11.0	4.7	6.3***	6.4***
Know how many days after notice is the divorce effective	47.2	51.0	-3.8	70.0	43.5	26.4***	30.2***
Know lowest age for casting vote	17.4	16.6	0.8	51.2	35.4	15.8***	15.1***
Know how is the property divided between son and daughter	25.0	26.6	-1.6	43.9	42.5	1.5	3.1*
Know the name one ward member	88.2	90.1	-1.9**	95.6	92.9	2.7***	4.6***
Know name a member of parliament of your area	24.4	34.8	-10.4***	53.5	39.2	14.3***	24.7***
Know name the Prime Minister/Chief Advisor	25.5	28.7	-3.2***	67.6	64.7	3.0**	6.2***
Know name the President	0.7	1.5	-0.7***	2.6	1.9	0.6*	1.4***
Heard of BRAC Legal Aid	4.4	3.4	1.0**	25.0	6.1	18.9***	17.9***
Know services do BRAC legal aid provide	42.0	33.3	8.7	33.2	44.4	-11.2***	-20.0***
Know that beating a woman is a crime	88.0	85.4	2.5***	96.1	92.4	3.7***	1.2***
Know that beating a child is a crime	84.1	83.0	1.1	94.6	89.7	4.9***	3.9***
During the last year, taken any action to stop violence against women	8.4	15.7	-7.3***	18.2	14.9	3.3***	10.6***

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