Grant vs. Credit Plus Approach to Poverty Reduction: An Evaluation of BRAC's Experience with Ultra Poor

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LIST OF ACRONYMS

ATT	Average effect of Treatment on the Treated
BBS	Bangladesh Bureau of Statistics
CFPR-TUP	Challenging the Frontiers of Poverty Reduction-Targeting the Ultra Poor
DiD	Difference-in-Difference
HH	Household
HIES	Household Income and Expenditure Survey
ITT	Intention-to Treat Effect
NGO	Non-Government Organization
OTUP	Other Targeted Ultra Poor
PWR	Participatory Wealth Ranking
STUP	Specially Targeted Ultra Poor
WFP	World Food Programme

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ABSTRACT

Challenging the Frontiers of Poverty Reduction- Targeting the Ultra Poor (CFPR-TUP) programme of BRAC implements two interventions for the ultra-poor: a grant-based support package for specially targeted ultra poor (henceforth STUP support package), and a credit plus grant support package for other targeted ultra poor (henceforth OTUP support package). The target group of the OTUP support package is drawn from relatively well-off households than the STUP ones. Further, the STUP support package is more expensive compared to the OTUP. An attempt has been made in this paper to evaluate these alternative approaches to poverty alleviation - OTUP and STUP support packages. Using non-experimental evaluation design, it was observed that both the STUP and OTUP support packages increase self-employment, total labour supply, per capita income, consumption of high value food products, and productive asset-base of the ultra poor. There is also evidence that these supports lead to some additional non-food improvements such as increased clothing and reduction in domestic violence against women.

1. INTRODUCTION

Recent studies on anti-poverty programmes provide two important lessons. First, transfers for generating self-employment in both farming and non-farming sectors have long-lasting effects on the livelihoods of the very poor (Banerjee *et al.* 2015a; Bandiera *et al.* 2013; Blattman *et al.* 2016).[1] Similarly, cash transfer programme has been found to be an effective tool for poverty reduction (Blattman *et al.* 2014). Second, although access to microfinance has been considered as an anti-poverty tool, the evidence of its effectiveness on poverty reduction is unequivocal. For example, Pitt and Khandker (1998) found positive effects of microfinance on consumption but, using the same data, Morduch (1998) finds no significant impacts. Recently, reviewing six articles on randomised evaluations of microfinance, Banerjee *et al.* (2015b) conclude that, while microfinance sometimes leads to an increase in business activity, the effect on average business profit is much more limited; there is no effect on consumption over a one- to three-year time period. Moreover, several studies claim that microfinance impacts are largely heterogeneous with less effect on the bottom layer of the poor clients (Hulme and Mosley, 1996; Mosley and Rock, 2004; Chowdhury, Mosley and Simanowitz, 2004); hence, poorer clients of microfinance need some additional support such as training to effectively use the credit (Karlan and Valdivia, 2006).

Given the evidences that microfinance is less effective for poorer clients and transfer programmes have large positive effects, we are left with the question: would a combined policy perform better than a mono-policy? In other words, whether an intervention that combines elements of microfinance and grant can be an effective tool for extreme poverty reduction, rather than only grant or only credit. With this hypothesis, we evaluate BRAC's anti-poverty programme titled "Challenging the Frontiers of Poverty Reduction-Targeting the Ultra Poor (CFPR-TUP).

The CFPR-TUP programme implements two intervention packages: (1) asset transfers as grants, consumption subsidy and training for specially targeted ultra poor (STUP) and (2) credit plus grants in the form of consumption subsidy, training and some inputs to maintain the income generating activities subsumed under 'credit plus' approach for other targeted ultra poor (OTUP).[2] We estimate the effects of both these support packages with a sole contribution that, while studies on impact assessments of the grant-based asset transfer support package run galore (Raza *et al.* 2012, Krishna *et al.* 2012, Bandiera et al., 2013), there seems to be no study on the evaluation of the credit plus grant component (i.e. OTUP support package) of the CFPR-TUP programme.[3]

To the best of our knowledge, study on the effectiveness of credit plus approach in general, is largely lacking; however, several studies document the effects of flexible repayment system in microfinance. For example, a recent study by Shonchoy and Kuroshaki (2014) shows that seasonality adjusted repayment increases consumption, although this has no effect on repayment and overdue. Again, Field *et al.* (2012) show that clients repaying on a monthly basis, as compared to those paying on a weekly one, are less likely to report feeling of being "worried, tense, or anxious', and more likely to report a feeling of confidence in repaying. However, it is not quite clear whether these flexibilities help the very poor.[4]

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[1] Banerjee *et al*. (2015a) and Bandiera *et al.* (2013) studied transfer programme, also known as graduation programme, originally developed by BRAC, the largest NGO headquartered in Bangladesh.

[2] The consumption subsidy and other inputs are also provided under the grant-based package.

[3] Das *et al.* (2009) reports some descriptive evidences on the effectiveness of this support package. Their study uses data collected after one year of intervention. We estimate the impact of this support package after two years of intervention.

[4] Morduch (1999), for instance, shows that the poorest are less likely to be served by microfinance.

2. AN OVERVIEW OF BRAC's CFPR-TUP PROGRAMME

BRAC has been implementing the CFPR-TUP programme since 2002. The programme was piloted in few northern districts of Bangladesh, subsequently scaled up across the country, and later replicated in 20 poorest countries around the globe. In the first phase of its implementation (2002-2006), the programme covered 1,00,000 ultra poor households from rural Bangladesh. The targeted households were provided with single-shot grants (mostly in the form of livestock and poultry), weekly allowance, training and some supervisory support. Based on programmatic and in-house research learning, BRAC later introduced diversity in support packages. Thus, two different support packages emerged in 2007: (a) a grant-based support package for specially targeted ultra poor (referred to as STUP package) and (b) a credit plus grant-based support package for other targeted ultra poor (referred to as OTUP package). Notably, the OTUP package generally targets relatively less vulnerable ultra poor than the STUP package (which goes to the most vulnerable ones). In 2012, BRAC started the third phase of the CFPR-TUP programme for a period of five years (2012-2016) covering ultra poor through both the STUP and OTUP support packages.

The STUP support package comprises of: (1) enterprise development and life skill training; (2) asset transfer - mostly livestock and poultry; (3) weekly subsistence allowance (BDT 210 for 2012 cohort); (3) health subsidy, and (4) community mobilisation support. The OTUP support package, on the other hand, includes: (1) enterprise development training (mostly on livestock and poultry rearing) and life skill training; (2) soft loans[5] from BRAC microfinance; (3) weekly subsistence allowance (BDT 210 for 2012 cohort); (4) input supplies (such as vaccine and medicine for livestock and poultry rearing, and fertiliser and seeds for vegetable cultivation) and (5) health subsidy (BRAC bears health expenses and provides micronutrient sachet). Given the *modus operandi*, it is thus no wonder that the OTUP support package effectively stands out to be a credit plus approach.

The participants of the OTUP support package are initially provided with hands-on training on income generating activities such as cattle rearing and cow fattening, after which they receive BRAC loans, conditioned upon investing in the kind of enterprise on which they are trained. In general, the main difference between the STUP and OTUP support packages is that while the participants of the STUP package receive assets (e.g. livestock, poultry) as grants, participants of the OTUP package receive soft loan conditional on using the loan for buying almost similar type of productive assets. Hence, the STUP support package is costlier than the OTUP one.

Selection Criteria

While both the STUP and OTUP support packages intend to support ultra poor households, the subtle difference lies in the intensity of ultra poverty addressed by the packages. For example, the participants of the STUP support package are likely to be drawn from more vulnerable segments than those targeted by the OTUP support package. BRAC has set out specific targeting criteria for selecting participants for the STUP and OTUP support packages.

The criteria for selecting eligible households (HH) for the STUP support package are as follows.

1.   Has ≤10 decimals of land;

2.   Children of school-going age (5-14 years) are engaged in Income Generating Activities (IGA);

3.   Has no productive asset;

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[5]   Interest rate is 25% and repayment starts after two months of taking the loan. The size of the loans ranges from BDT 10,000 to BDT 20,000.

4. Mainly dependent on irregular earning (from working as housemaid, day labourer, begging, etc.) of female member, and

5. Has no male member capable of working for livelihood.

On the other hand, the targeting criteria for selecting households for the OTUP support package are as follows.

1. Has ≤30 decimals of land;

2. Unable to bear children's education expenses beyond the primary level;

3. Mainly dependent on irregular labour income;

4. (If any), history of failure to use NGO support in the past

5. Failure to avail either fish or meat or eggs in the last three consecutive days

In addition to these inclusion criteria, the programme also uses two exclusion criteria. Households with no adult women capable of working are excluded as the programme provides support only to women. Participants of microfinance and/or recipients of Govt./NGO supports are excluded to avoid duplications.

A household has to meet at least three out of the five respective inclusion criteria and none of the exclusion criteria to be eligible for the STUP/OTUP support package.

The targeting criteria indicate that the participants of the OTUP support package have some experience of participating in microfinance; but they could not effectively utilise it. Further, the participants of the STUP support package are less likely to have working age male members in their households compared to those targeted by the OTUP support package.

Selection Process

To select ultra poor households, a targeting methodology is followed which combines geographical, participatory, and proxy means test. The selection process relies heavily on working closely with communities to identify the poorest areas and the poorest within areas. Initially, based on the poverty mapping of World Food Programme (WFP), BRAC selects the poorest sub-districts from rural areas of Bangladesh with the advantage that the organisation has local offices almost all over the country. In the selected sub-districts, communities that have a high concentration of poverty are identified based on own knowledge of programme staff or discussion with other BRAC programme managers engaged in microfinance, health, education, etc. As we show in the descriptive analysis section of this report, areas that are selected for programme support are indeed poorer than those not selected. In the selected villages, a participatory wealth ranking (PWR) exercise is carried out at the beginning. In the PWR, households of the community are ranked into several wealth groups, such as very poor, poor, middle-class, non-poor. Afterwards, the households from bottom three wealth ranks are visited by programme staff to verify the specific eligibility criteria, as mentioned earlier.

Household visit by programme staff to check the eligibility criteria proceeds as follows: (a) households from bottom two wealth ranks of the PWR are first checked to see if they are eligible for the STUP support package, (b) if not, then they are checked for eligibility for the OTUP support package, and (c) households from bottom 3rd rank are also checked with eligibility criteria for the OTUP support package.

3. EVALUATION DESIGN AND DATA COLLECTION

Evaluation Design

As already mentioned, BRAC started the third phase of the CFPR-TUP programme in 2012. The focus of this study is on this 2012 cohort of the programme. For evaluation purpose, in the first stage, 30 branch offices were randomly selected from the total list of branches planned for intervention in the year 2012. For each of these 30 branch offices, a mapping of all nearby branch offices which were not covered by the programme was conducted. Then, considering the geographical proximity, 30 branch offices were purposively selected where the CFPR-TUP has never been implemented.[6] In the second stage, 10 communities/villages were randomly selected from each of the treated and non-treated branch offices, comprising a total of 600 villages (10*(30+30)).[7]

It is to be noted that, in the intervention branch offices, BRAC programme staff carried out selection of ultra poor households for programme support using the PWR exercise and proxy means of verification, as discussed earlier. Such rigorous selection, however, was not conducted in the non-treated branch offices. In lieu of that the research team carried out a small census both in the treated and non-treated branch offices. The census collected information on targeting criteria (mentioned earlier). Based on the census information, the research team identified eligible households from each village. Sampling of households for household survey was done based on eligibility of the households for programme support. The idea behind using the process of sampling just discussed was to use the same process in determining eligible households from intervention and non-intervention branch offices. To reiterate, the selection process of ultra poor for programme support based on the census information collected by the research team is not so rigorous as the one used by the programme (PWR followed by a household visit and a final round of verification); but it allowed us to have same selection process in both areas so that we could have a suitable comparison group for assessing the programme effects.

After identifying potential participants for the STUP and OTUP support packages, from each community/village, nine (9) eligible households for the STUP support package and another nine (9) for the OTUP support package were randomly selected for the survey. Additionally, four (4) non-eligible households from each community were also surveyed to allow estimating spillover effects of the programme (if any), such as translating knowledge of entrepreneur skills to non-participants in the same community, labour market effects on non-participants through general equilibrium effects.[8]

Data Collection

A baseline survey was conducted in May-July, 2012, covering 3,957 households eligible for the STUP support package and 4,840 households eligible for the OTUP support package. Among the eligible households for the STUP, 2,197 were from intervention areas and the remaining 1,760 belonged to non-intervention areas. On the other hand, out of the 4,842 households eligible for the OTUP support package, 2,484 were from intervention areas and the rest 2,356 were from non-intervention areas. A follow-up survey was conducted in May-July, 2014 when 3,600 eligible households for the STUP support package

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[6] Research team also requested CFPR-TUP programme mangers not to implement in these areas until 2015. BRAC did not implement CFPR-TUP programme in these areas until 2012 because these areas have less concentration of poverty compared to those already covered by the programme. It seems that these areas are likely to have less concentration of poverty. Indeed, as shown in descriptive analysis, we find this.

[7] From the treated brances, we selected 10 communities because programme selection is carried out at the community level covering about 80-120 households. If a village contained more than 120 households, the programme usually divided it into several communities, and carried out selection in each community. From the non-treated branches, we randomly selected 10 villages and then took one community from each with around 120 households.

[8] However, measuring spillover effect is beyond the scope of this study. Spillover effects, if any, are unlikely to bias our results as comparison group is from different communities.

were successfully revisited (1,981 households from intervention areas and 1,619 households from non-intervention areas). In case of the OTUP support package, 4,542 households were successfully revisited during the follow-up survey (2,310 from intervention areas and 2,232 from non-intervention areas). Overall, the attrition rates are 9% and 6% for STUP and OTUP, respectively (Annex Table A1).

A semi-structured[9] questionnaire was used to collect information and the respondent was the main female member of the household. The questions were related to demographics, human capital, employment and income generation, crisis coping mechanism, borrowing and lending, savings, food and non-food expenditures, food consumption, endowments of the productive and non-productive asset, etc.

BRAC started providing the programme support after completion of baseline survey. The non-intervention branch offices did not receive any support from the programme until 2014. Among the surveyed 1,981 households eligible for the STUP support package, 1,044 got the programme support. On the other hand, out of the surveyed 2,310 households eligible for the OTUP support package, 490 were covered by the programme. The rest remained untreated perhaps because they were not eligible as per selection carried out by programme staff or were not interested in the programme.

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[9] Few questions were open-ended.

4. DESCRIPTIVE STATISTICS

This section presents descriptive statistics of all the outcome variables of interest. We present the statistics separately for the eligible households of the STUP and OTUP support packages. Standard errors of the differences are clustered at the branch office level. Table 1 shows the means of savings, outstanding loans, and key physical assets. It appears that at baseline, eligible households of both the STUP and OTUP support packages from intervention areas, as compared to non-intervention or control areas, had lower amount of savings, outstanding loan, land, livestock, poultry, key durable asset items, clothing, etc. It is worth mentioning that some of the differences in means of those variables between intervention and non-intervention areas are also statistically significant.

In general, the findings from Table 1 indicate that at baseline, households from non-intervention areas were better-off than their counterparts from intervention areas. This is possibly because the CFPR-TUP programme usually selects the poorest geographical areas.

In the follow-up survey conducted in 2014, it could be observed that households from both intervention and non-intervention areas increased most of the asset items. Not surprisingly perhaps, the magnitude of increase was higher for the intervention areas compared to non-intervention ones. In the intervention areas, the amount of savings of the eligible households for the STUP support package increased by BDT 1096 between 2012 and 2014, while for the same period- an increase of BDT 755 was found for eligible households in non-intervention areas. Similar trend is observed for eligible households for OTUP support package. Again, eligible households for the STUP support package from intervention and non- intervention areas both posited more land endowment – tentatively amounting to a 56% increase for the intervention areas against 34% increase for non-intervention areas. For the amount of land holding of the households eligible for the OTUP package, a similar trend is observed. Looking at other assets, it could be observed that, in the base period, the households from non-intervention areas of both the STUP and OTUP were ahead of those from intervention areas in the possession of key assets. In fact, some of the differences between households from the two areas are statistically significant. In the follow-up survey, however, the differences seems to have dissipated to some extent – indicating that the increase in the amount of these assets during 2012-2014 was larger for households from intervention areas.

Table 2 reports the total time devoted to different economic pursuits by working age members (15-65 years), and per capita annual income[10] pertaining to eligible households for the STUP and the OTUP support packages. The following pertinent observations need mention. First, compared to intervention areas, the working age males and females from non-intervention areas devoted more time to agricultural self-employment[11], and the difference in the mean of this variable between them is found be statistically significant for both the STUP and OTUP. In the follow-up survey conducted in 2014, the corresponding differences have increased (even positive for STUP). However, the results are found to be statistically insignificant. This findings indicate that males and females from intervention areas were more likely to increase time devoted to agricultural self-employment during the comparable periods (2012 to 2014). Second, information contained in Table 2 also shows, as far as baseline is concerned, intervention areas lagged behind non-intervention areas in per capita annual incomes but, in follow-up period in 2014, almost equalized. This possibly indicates that the per capita income increase in the intervention areas was higher during the comparable periods.

According to HIES 2010, per capita annual income of the extreme poor households in Bangladesh (at the national level using lower poverty line) was BDT 13,224 in 2010. At 2010 constant price, baseline per capita incomes of the sample eligible households for the STUP and OTUP support packages from

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[10] Per capita income is converted to 2012 prices using rural consumer price index.
[11] Note that agricultural self-employment includes livestock rearing.

intervention areas were BDT 9,702 and BDT 10,713, respectively,[12] indicating that, on average, the sample eligible households are positioned below the national ultra poverty line.

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[12] Deflating per capita incomes of 11,676 and 12,893 by general price index

Table 1. Asset holding of the surveyed households

Indicators	STUP -2012			STUP -2014			OTUP -2012			OTUP- 2014		
	Intervention	Non-intervention	Difference	Intervention	Non-intervention	Difference	Intervention	Non-intervention	Difference	Intervention	Non-intervention	Difference
	(1)	(2)	(3=1-2)	(4)	(5)	(6=4-5)	(7)	(8)	(9=7-8)	(10)	(11)	(12=10-11)
Financial assets and land												
Savings (BDT)	212	681	-469***	1308	1436	-128	608	1491	-883***	1718.50	2332	-613***
Outstanding loan (BDT)	5,426	8,844	-3,418**	8,235	12,195	-3,960***	9,428	11,754	-2,326**	13,441	15,407	-1,966
Total land owned (decimal)	1.82	2.39	-0.57***	2.85	3.21	-0.36	4.66	4.99	-0.33	5.78	5.59	0.19
Cultivable land owned (decimal)	0.03	0.13	-0.09	0.41	0.51	-0.1	1.16	1.5	-0.34	1.45	1.69	-0.24
Homestead land owned (decimal)	1.76	2.21	-0.45***	2.2	2.61	-0.41**	3.27	3.22	0.06	3.8	3.61	0.2
Rented-in land (decimal)	1.06	2.85	-1.78***	5.49	5.32	0.18	8.03	9.66	-1.63	14.63	14.69	-.06
Other productive asset												
No. of cow	0.03	0.08	-0.05	0.45	0.24	0.22***	0.29	0.49	-0.20***	0.46	0.55	-0.09
No. of goat/sheep	0.15	0.23	-0.08	0.49	0.31	0.17**	0.30	0.48	-0.17**	0.36	0.42	-0.06
No. of poultry birds	1.12	1.63	-0.51***	3.69	2.72	0.98**	2.24	2.76	-0.52**	3.88	3.80	0.08
Value of all productive assets (BDT)	1,171.50	2,053	-881.50***	9,128	5,551	3,577***	5,765	9,192	-3,427***	11,126.40	11,976	-849.60
Non-productive asset												
No. of television	0.01	0.04	-0.03	0.03	0.07	-0.03	0.06	0.12	-0.06	0.11	0.15	-0.05
No. of mobile phones	0.22	0.33	-0.11**	0.49	0.53	-0.05	0.58	0.70	-0.13***	0.90	0.93	-0.02
No. of chair	0.33	0.43	-0.10*	0.62	0.60	0.02	0.85	0.99	-0.14*	1.19	1.20	-0.02
No. of table	0.21	0.23	-0.02	0.37	0.36	0.01	0.50	0.55	-0.06	0.65	0.67	-0.02
No. of choki[13]	0.97	1.05	-0.08	1.23	1.28	-0.06	1.32	1.39	-0.08	1.598	1.55	0.04
No. of mosquito net	1.05	1.15	-0.10	1.31	1.33	-0.02	1.33	1.40	-0.07	1.60	1.56	0.04
No. of sharee[14]	0.74	0.93	-0.19*	1.27	1.10	0.17	1.23	1.59	-0.36***	1.66	1.64	0.02
No. of lungi[15]	0.71	0.72	-0.02	0.87	0.88	-0.01	1.66	1.75	-0.09	1.93	1.83	0.09
Value of non-productive asset (BDT)	**2,301**	**3,028**	**-726.90*****	**4,135**	**4,633**	**-498**	**6,054**	**6,912**	**-858.10***	**8,255**	**8,654**	**-399**

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively.

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[13] A basic wooden cot.
[14] *Sharee* is a typical traditional attire of rural Bangladeshi women.
[15] *Lungi* is a typical traditional attire of rural Bangladeshi men.

Table 2. Employment and income of the surveyed households

Indicators	STUP- 2012			STUP- 2014			OTUP -2012			OTUP- 2014		
	Intervention	Non-intervention	Difference	Intervention	Non-intervention	Difference	Intervention	Non-intervention	Difference	Intervention	Non-intervention	Difference
	(1)	(2)	(3=1-2)	(4)	(5)	(6=4-5)	(7)	(8)	(9=7-8)	(10)	(11)	(12=10-11)
Working hours (male)												
Self-employment in agriculture (hours)	52.34	146.90	-94.56***	200.41	180.40	20.01	179.62	249.70	-70.08**	271.81	279.40	-7.60
Self-employment in non-agriculture (hours)	139.81	128.50	11.31	259.96	192.80	67.16	163.85	157.80	6.05	227.20	182.10	45.10
Wage employment in agriculture (hours)	583.83	574.20	9.63	420.24	466.50	-46.26	721.17	696.10	25.07	491.20	538.40	-47.20
Wage employment in non-agriculture (hours)	562.15	558.80	3.35	647.30	652.70	-5.40	675.50	758.50	-83	705	747.80	-42.80
Salaried employment[#] (hours)	102.44	105.20	-2.76	99.91	113	-13.09	108.66	72.36	36.30	111.97	91.19	20.78
Working hours (female)												
Self-employment in agriculture (hours)	182.16	242.90	-60.74**	186.98	176.10	10.88	377.61	445.10	-67.49*	150.43	168.20	-17.77
Self-employment in non-agriculture (hours)	30.08	28.40	1.68	14.53	5.48	9.05	10.34	9.58	0.76	11.44	5.91	5.53
Wage employment in agriculture (hours)	227.80	250.20	-22.40	30.08	51.46	-21.38	74.20	39.06	35.14	16.49	17.32	-0.83
Wage employment in non-agriculture (hours)	115.73	126.70	-10.97	75.15	73.21	1.94	35.46	21.35	14.11	14.85	15.43	-0.58
Salaried employment[#] (hours)	39.52	52.53	-13.01	161.45	137.80	23.65	20.75	26.83	-6.08	95.07	99.84	-4.78
Per capita annual income (BDT, at 2012 constant price)	11,676	13,165	-1,489**	14,354	14,235	119	12,893	14,770	-1877***	14,512	15,733	-1,221**

Note: ***, ** and * denote statistical significance at 1%, 5% and 10% respectively.

Time in total hours worked in the last one year.

[#] Salaried employment refers to non-casual wage employment.

Table 3 reports changes accruing to non-income sides such as per capita daily food expenditure, and amounts of key food items consumed.

During baseline and follow-up surveys respectively in 2012 and 2014, the per capita daily food expenditure (at 2012 constant price) of the eligible households for both the STUP and OTUP support packages from intervention areas grew faster than non-intervention areas (29% against 21%). With regard to specific food items, for example in 2012, it appears that eligible households from intervention areas used to consume relatively less of fish, meat and leafy vegetables than their counterparts. But the follow-up survey in 2014 shows that the pendulum has swung with households from intervention areas reporting higher level of consumption of these items than their counterparts from non-intervention areas.

Away from income and non-income gains, Table 4 reports the proportion of women (respondent women)[16] that faced different types of violence within the households. The survey asked seven specific questions related to facing domestic violence (with answer choices being Yes/No). The statistics show that the proportion of women facing violence was very low at the beginning, and is statistically insignificant. But at follow-up, some of the differences appeared statistically significant. For instance, for the indicator "prevented from going outside for work", mean difference between intervention and non-intervention areas (for both STUP and OTUP) is negative and statistically significant although baseline difference was statistically insignificant. The descriptive statistics thus indicates that the programme is likely to reduce domestic violence against women.

As already mentioned, not all the households determined eligible by the research team based on the census information from treated areas got the programme support. It may be that these non-participants were found to be ineligible as per selection carried out by the programme staff. This is evident from the fact that the participants are indeed poorer than non-participants as shown in Annex Table A2. Information in this table shows that, at baseline, the participants of the STUP support package were poorer than that of the OTUP. For example, at baseline, only 0.71% and 1.19% of the STUP participants owned cultivable lands and cow, key productive assets in rural Bangladesh, respectively while the corresponding proportions among the participants of the OTUP support package are 8.66% and 12.14%.

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[16] Respondent of the survey was the main female member of the household, who is basically household head or main decision maker after head if the household is male-headed. For households that received programme support, the main female (respondent) was the female that received programme support because in the CFPR-TUP programme, all supports are channelled through the main female member of the selected household.

Table 3. Per capita food expenditure and consumption

Indicators	STUP 2012			STUP 2014			OTUP 2012			OTUP 2014		
	Intervention	Non-intervention	Difference	Intervention	Non-intervention	Difference	Intervention	Non-intervention	Difference	Intervention	Non-intervention	Difference
	(1)	(2)	(3=1-2)	(4)	(5)	(6=4-5)	(7)	(8)	(9=7-8)	(10)	(11)	(12=10-11)
Per capita daily food expenditure (BDT, at 2012 constant price)	28.23	28.14	0.09	35.52	34.26	1.26	28.14	29.27	-1.13	33.51	33.73	-0.22
Per capita consumption of food items (in gram)												
Rice	523.92	534.80	-10.88	506.06	495.20	10.86	543.08	562.80	-19.72	519.96	512.50	7.46
Pulse & Legumes	10.28	8.65	1.62	12.59	10.56	2.03	8.96	10.74	-1.78	11.42	11.11	0.31
Potato	78.63	77.90	0.73	77.50	78.74	-1.24	80.91	75.18	5.73	68.27	72.90	-4.63
Leafy Vegetables	28.06	46.79	-18.73***	42.46	42.10	0.36	18.98	38.76	-19.78***	37.01	30.71	6.30
Fish	24.54	39.70	-15.16***	51.54	51.04	0.50	37.73	56.65	-18.92***	55.33	58.53	-3.20
Meat	3.88	9.03	-5.15**	11.70	11.54	0.16	10.60	11.01	-0.41	15.56	15.56	0.00
Egg	1.94	1.65	0.28	3.08	2.53	0.55	1.85	2.76	-0.91*	3.19	3.25	-0.07
Milk & Milk Products	4.91	3.92	0.98	9.50	6.65	2.84	12.11	12.53	-0.42	12.71	13.22	-0.51

Note: ***, ** and * denote statistical significance at 1%, 5% and 10% respectively.

Table 4. Violence against women

Indicators	STUP 2012			STUP 2014			OTUP 2012			OTUP 2014		
	Intervention	Non-intervention	Difference	Intervention	Non-intervention	Difference	Intervention	Non-intervention	Difference	Intervention	Non-intervention	Difference
	(1)	(2)	(3=1-2)	(4)	(5)	(6=4-5)	(7)	(8)	(9=7-8)	(10)	(11)	(12=10-11)
Husband:												
Takes away money forcibly (Yes=1, No=0)	0.02	0.02	0.01	0.04	0.03	0.00	0.03	0.02	0.01	0.07	0.09	-0.02
Takes away personal asset forcibly (Yes=1, No=0)	0.01	0.00	0.00	0.00	0.01	-0.01	0.01	0.01	-0.00	0.01	0.04	-0.03**
Prevents from visiting parental home (Yes=1, No=0)	0.02	0.03	-0.00	0.02	0.02	-0.01	0.06	0.05	0.01	0.05	0.08	-0.03
Prevents from going outside for work (Yes=1, No=0)	0.02	0.02	0.01	0.01	0.04	-0.03**	0.13	0.14	-0.00	0.04	0.10	-0.06**
Assaults physically (Yes=1, No=0)	0.05	0.06	-0.01	0.07	0.10	-0.04	0.09	0.11	-0.02	0.18	0.21	-0.04
Threats to divorce (Yes=1, No=0)	0.02	0.01	0.01	0.01	0.02	-0.01	0.03	0.03	0.00	0.05	0.05	-0.00
Threats to second marriage (Yes=1, No=0)	0.02	0.01	0.01	0.01	0.02	-0.01	0.03	0.03	-0.00	0.03	0.05	-0.02

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

5. ANALYTICAL TECHNIQUE

As we have already shown, at baseline, there is large and statistically significant difference in some of the outcome variables between intervention and non-intervention areas. Taking the advantage of panel data, we use difference-in-difference (DiD) method to identify the causal effect of the intervention. If the common trend assumption - that is, participant and non-participant households have a common trend in the outcome variables in the absence of intervention- holds, then DiD method identifies the causal effects of the intervention. We estimate the following equation:

$$y_{ibt} = a_1 + a_2 INTV_b + a_3 YEAR_t + a_4 INTV_b * YEAR_t + \epsilon_{ibt} \ldots \ldots \ldots (1)$$

Where y_{ibt} is the outcome variable of interest for household i in branch office b and year t where t=baseline and follow up. $INTV_b$ is a binary variable taking the value of 1 if branch b is under intervention, 0 if not. $YEAR_t$ is a dummy variable taking the value of 1 if t=follow up, and 0 if t=baseline. a_4 is the key parameter of interest. It identifies the causal effect of the programme assuming that the error term is uncorrelated with $INTV_b$. Since sampling was clustered at the branch office level, we estimate standard errors at the branch office level.

a_4 in equation (1) is biased if the common trend assumption violates. As we do not have panel data for the pre-programme period, we cannot verify whether this assumption does hold.[17] A possible avenue for making the violation of common trend assumption is through correlation of time invariant characteristics with the intervention. Hence, we also estimate difference-in-difference technique controlling for household level fixed effects:

$$y_{ibt} = \beta_1 + \beta_2 INTV_b + \beta_3 YEAR_t + \beta_4 INTV_b * YEAR_t + f_i + e_{ibt} \ldots \ldots \ldots (2)$$

Where f_i is household level fixed effects. β_4 identifies the causal effect of the intervention assuming that after controlling for time-invariant household level characteristics, the error term is uncorrelated with $INTV_b$. If time-invariant individual characteristics are not correlated with $INTV_b$, it is likely that point estimate of β_4 is very close to that of a_4.

As mentioned earlier, not all the eligible households (as per the selection carried out by research team) participated in the programme. The participation rate is 21% for OTUP and 53% for STUP. Hence the a_4 and β_4 estimate are something similar to ITT (Intention to Treat effect); but they are not exactly ITT because it may be that not all the eligible households as determined by research team (based on census information) were offered the intervention. However, we do not have detailed information to verify this possibility.

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[17] Violation of common trend assumption indicates that- without intervention- either the growth in outcomes for eligible households from non-treated areas is higher than that from treated areas, or the opposite. We speculate that the former may be the case because as descriptive statistics show, eligible households from non-treated areas were well-off at baseline. If so, then a_4 underestimates the programme effects. That is, a_4 is the lower bound of true effect.

6. RESULTS AND DISCUSSION

Impact on asset accumulation

Columns 1 and 2 of Table 5 report the effects (Intention-to-Treat or ITT effects) of the OTUP support package on the values of productive and non-productive assets, and the physical units of key asset items. Considering both the impact estimates using DiD with and without fixed effects, we find that the OTUP support package increases productive assets. Specifically, the values of productive assets as well as the number of cows, goats and poultry birds each increased due to the intervention (OTUP support package). The ITT point estimate of the effect on the value of productive assets is BDT 2,646 (column 1 of Table 5). As programme participation rate of the sample eligible households for the OTUP support package (as per selection conducted by the research team) is 21%, the average treatment effect (ATT) of this support package on productive asset is likely to be four times the ITT (i.e. ATT is around BDT 10,500), indicating that programme increased asset value by about BDT 10,500.

As mentioned earlier, the participants of the OTUP support package receive loans from BRAC for buying productive assets – predominantly livestock and poultry. Hence, the increase in livestock and poultry ownership of these households may be associated with an increase in their debt (outstanding loans). But, we do not observe statistically significant effect of the OTUP support package on outstanding loans although the point estimate is positive. Hence, the increased asset value of the participants of the OTUP support package as documented in Table 5 can be attributed to programme effect. We also document positive effect of the credit plus intervention on savings; however, it is not statistically significant.

Table 5. Impact on asset accumulation

	Impact of OTUP support package			Impact of STUP support package		
	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Baseline mean of outcome variable of eligible households from intervention areas	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Baseline mean of outcome variable of eligible households from intervention areas
	(1)	(2)	(3)	(4)	(5)	(6)
Value of productive asset (BDT)	2,646*** (821.4)	2,577*** (804)	5765	4,447*** (412.5)	4,458*** (695)	1171.5
Value of non-productive asset (BDT)	414.4 (636)	459.2 (619.4)	6054	196.1 (193.9)	228.8 (403.5)	2301
Savings (BDT)	269.5 (167)	269.5 (169)	608	326.5*** (90.3)	341.6*** (126)	212
Outstanding loans (BDT)	1,611 (1,367)	360.1 (1,172)	9428	-901.7 (1,386)	-542.2 (1,549)	5426
Physical units of key productive assets						
Cow	0.116** (0.0498)	0.116** (0.0498)	0.287	0.263*** (0.025)	0.263*** (0.0473)	0.032
Goat	0.114*** (0.0388)	0.114*** (0.0388)	0.304	0.252*** (0.0391)	0.252*** (0.0635)	0.152
Poultry birds	0.603** (0.266)	0.603** (0.266)	2.235	1.484*** (0.339)	1.484*** (0.383)	1.124

Note: ***, ** and * denote statistical significance at 1%, 5% and 10% levels, respectively. Figures in the parenthesis are standard errors clustered at the branch office level. ITT effects are reported.

Results presented in columns 1 and 4 have been estimated using equation 2 presented in Section 5; and results presented in columns 2 and 5 have been estimated using equation 1 presented in Section 5.

Columns 4 and 5 of Table 5 report the estimated effects of the STUP support package on the values of productive and non-productive assets, and physical units of key asset items. Column 4 presents the results using DiD with fixed effects while column 5 presents that using DiD without fixed effects. Like the OTUP support package, we document positive effects of the STUP support package on the value of productive assets. The STUP support package has been also found to have positive effects on the number of cows, goat and poultry birds. Further, the grant-based support package also increases savings of its participants. The ITT point estimate of the effect on the value of productive assets is BDT 4,447 (column 4 of Table 5). As programme participation rate of the sample eligible households for the STUP support package (as per selection conducted by the research team) is 53%, the average treatment effect (ATT) of this support package on productive asset is likely to be twice the ITT (i.e. ATT is around BDT 10,000). Survey information shows that the amount of transfer towards productive assets to the participants of the STUP support package averaged BDT 10,452. This information together with the impact estimates on productive asset values and savings is likely to indicate that the participants of the STUP support package did not eat away the assets provided by the programme.

Table 6 presents the effects on durable asset holding. We see that the number of mobile phones, tables, and chairs each increased due to programme intervention with most of the impact estimates being statistically significant. Since income effect on luxurious goods (like the ones presented here) is generally positive, the positive effects on these household durables and communication technologies are expected.

Table 6. Impact on durable assets

Household durable assets (numbers)	Impact of OTUP support package			Impact of STUP support package		
	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Baseline mean of outcome variable of eligible households from intervention areas	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Baseline mean of outcome variable of eligible households from intervention areas
	(1)	(2)	(3)	(4)	(5)	(6)
Television	0.0144 (0.011)	0.015 (0.011)	0.058	0.00102 (0.00672)	0.000445 (0.00985)	0.008
Mobile phone	0.103*** (0.032)	0.103*** (0.032)	0.576	0.0666*** (0.0216)	0.0663** (0.0309)	0.223
Chair	0.123** (0.050)	0.123** (0.050)	0.851	0.120*** (0.0317	0.119*** (0.0346)	0.326
Table	0.0419 (0.036)	0.042 (0.036)	0.497	0.0298 (0.0183)	0.0294 (0.0266)	0.212
Choki	0.119*** (0.040)	0.119*** (0.040)	1.317	0.0283 (0.0247)	0.0279 (0.0404)	0.969

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. Figures in the parenthesis are standard errors clustered at the branch office level. ITT effects are reported.

Results presented in column 1 and 4 have been estimated using equation 2 presented in Section 5; and results presented in column 2 and 5 have been estimated using equation 1 presented in Section 5.

The productive asset items shown in Table 5 do not include land holding. Hence, a separate analysis is conducted for land holding (Table 7). Since land is very expensive in Bangladesh, it is beyond the ability of the ultra poor households to purchase land. Nonetheless, since tenure system is very widespread in Bangladesh, they may get access to land through tenure system.[18] Our findings show that the effects of the interventions on almost all kinds of land holdings are positive; but statistically significant effect using both methodologies (DiD with/without fixed effects) is documented only for rented-in-land for the STUP

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[18] Hossain *et al.* (2014), for example, show that almost 40% of the operated lands in Bangladesh is cultivated under the tenure system.

support package. In rural Bangladesh land cultivation is the predominant source of income and access to land is likely to decrease poverty (Chirwa 2004, Adhikari and Bjørndal 2009, IFAD 2015), indicating that the CFPR-TUP programme helps participants create sustainable graduation pathways out of ultra poverty through access to land.

Table 7. Impact on land holding

Land type (decimal):	Impact of OTUP support package			Impact of STUP support package		
	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Baseline mean of outcome variable of eligible households from intervention areas	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Baseline mean of outcome variable of eligible households from intervention areas
	(1)	(2)	(3)	(4)	(5)	(6)
Total land owned	0.506 (0.312)	0.521* (0.311)	4.66	0.209 (0.154)	0.215 (0.216)	1.82
Cultivable land owned	0.128 (0.18)	0.101 (0.191)	1.16	-0.00408 (0.0916)	-0.00471 (0.119)	0.03
Homestead land owned	0.169 (0.183)	0.142 (0.185)	3.27	0.0374 (0.0878)	0.0478 (0.127)	1.76
Rented-in land	1.44 (1.525)	1.567 (1.565)	8.033	1.952** (0.832)	1.965** (0.833)	1.062

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. Figures in the parentheses are standard errors clustered at the branch office level. ITT effects are reported.

Results presented in columns 1 and 4 have been estimated using equation 2 presented in Section 5; and results presented in columns 2 and 5 have been estimated using equation 1 presented in Section 5.

Impact on employment and income

Capital market imperfection decreases self-employment and increases wage employment (Banerjee and Newman 1993). There is substantial empirical evidence that the very poor in Bangladesh are capital constrained. Hossain and Bayes (2009), for instance, show that only about 2% of households owning less than 0.2 hectares of land had access to bank loans in 2008, while the corresponding proportion among those owning 2.0 hectare of land was 20%. There is also evidence that representation of the ultra poor in microfinance is less (Morduch 1999). It is thus likely that the ultra poor in Bangladesh would devote less time to self-employment due to their capital constraints. The single shot asset transfer to the participants of the STUP support package significantly affected their productive asset-base, as we have documented in Table 5. The participants of the OTUP support package received loans towards buying productive assets, and results show that the programme increased their productive asset-base. It is thus likely that the interventions would increase self-employment and decrease wage employment.

Table 8 presents the estimated effects on time devoted to various activities of the working age male and female members. The analysis is done at the individual level. Since the same individual may not appear in both baseline and follow up, the panel is unbalanced at the individual level. Hence, it is not possible to estimate the effects controlling for individual-level fixed effects. We have thus estimated the effects using DiD without fixed effects (i.e. using equation (1))[19]. From Table 8 we can see that the OTUP support package increased time devoted to agricultural self-employment of both working age male and female members. Since the participants of the OTUP support package usually invest the loans taken from BRAC to livestock rearing activities (because training is provided on those activities), an increase in time devoted to these activities is expected. They also increased time devoted to non-agricultural self-employment. These effects are statistically significant at the 10% level for males only. The findings also show that the OTUP support package is likely to increase the total labour supply of both males and females.

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[19] A similar analysis is conducted at the household level controlling for household level fixed effects. Please see Table A3 in Annex for the results.

As can be seen from the results presented in columns 5-8 of Table 8, the STUP support package increased the working age male and female members' time devoted to agricultural self-employment, such as livestock and poultry rearing. These effects are statistically significant. Non-agricultural self-employment has also increased but the effect is not statistically significant. Findings also indicate that the total labour supply of the males and females of the households receiving the STUP support package has increased.

Table 8. Impact on employment of working age males and females (using DiD without fixed effects)

	Impact of OTUP support package				Impact of STUP support package			
	Effects on males	Baseline mean of outcome variable of eligible households from intervention areas	Effects on females	Baseline mean of outcome variable of eligible households from intervention areas	Effects on males	Baseline mean of outcome variable of eligible households from intervention areas p	Effects on females	Baseline mean of outcome variable of eligible households from intervention areas
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Self-employment in agriculture	62.49* (35.99)	179.62	49.72 (36.39)	377.61	114.6*** (26.16)	52.34	71.63** (32.37)	182.16
Self-employment in non-agriculture	39.05* (22.26)	163.85	4.771 (8.73)	10.338	55.84 (43.5)	139.81	7.373 (11.88)	30.08
Wage employment in agriculture	-72.27 (48.77)	721.17	-35.98 (22.26)	74.2	-55.9 (53.92)	583.83	1.022 (55.39)	227.8
Wage employment in non-agriculture	40.19 (57.17)	675.5	-14.69 (14.22)	35.46	-8.75 (67)	562.1	12.9 (35.5)	115.73
Salaried employment#	-15.52 (18.81)	108.66	1.3 (33.91)	20.75	-10.32 (35.86)	102.44	36.65 (47.26)	39.52

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. Figures in the parenthesis are standard errors clustered at the branch office level. ITT effects are reported. Time in total hours worked in the last one year.

Salaried employment refers to non-casual wage employment.

Table 9 reports the estimated effect of the interventions on per capita income. The survey collected income information for the last one year prior to the survey. For each of the activities the household member(s) were involved in, yearly income was recorded. Per capita income was obtained dividing the total household income by household size. It is expressed at 2012 constant price using rural consumer price index. As we have already shown, programme participants increased savings, asset accumulation, and labor supply. A priori reasoning suggests that programme participation would increase per capita income. Consistent with the intuition, we find that the effects both of the OTUP and STUP support packages on per capita income are positive. The effects are statistically significant at 1% level for STUP and 5% level for OTUP. The point estimates of the effects using DiD with fixed effects are almost close to those using DiD without fixed effects. The ITT point estimates of the effects of the OTUP support package (using fixed effects) on per capita income is equivalent to 13% of baseline per capita income. The corresponding proportion for the STUP support package is 22%. But these findings do not necessarily indicate that the effect is larger for STUP because these estimates are ITT effects, and programme participation rates among analytical sample households are different for STUP and OTUP (53% for STUP and 21% for OTUP). Although we are unable to estimate ATT, the information on ITT point estimates of the effects on income and programme participation rates indicate that the effects of the OTUP support package is perhaps not less than that of the STUP.

Table 9. Impact on per capita income

	Impact of OTUP support package		Impact of STUP support package	
	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects
	(1)	(2)	(3)	(4)
Per capita annual income (BDT, at 2012 constant price)	1,709*** (357.4)	1,668*** (349)	2,666*** (406.5)	2,560*** (418.3)
Baseline mean of outcome variable of eligible households from intervention areas	12,893	12,893	11,676	11,676

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. Figures in the parenthesis are standard errors clustered at the branch office level. ITT effects are reported. Per capita income was converted to constant price using consumer price index.

Results presented in column 1 and 3 have been estimated using equation 2 presented in Section 5; and results presented in column 2 and 4 have been estimated using equation 1 presented in Section 5.

Impact on household welfare

Nutrition-based poverty trap literature points out that people are poor because they consume less food than required, and hence suffer from under-nutrition. In fact, under-nutrition is both a cause and a consequence of poverty as well as low productivity (UNICEF 2009, Chong *et al.* 2013). The CFPR-TUP programme provides ultra poor with consumption subsidy. A priori, this subsidy should lead to an increase in food consumption. Further, as already shown, the intervention increases income, which may be translated into an increase in food consumption of the participant households.

Table 10 reports the impacts on food consumption using DiD with/without fixed effects. We report the impacts on the quantities of the key food items and the total per capita food expenditure (at 2012 constant price). Results show that the interventions increased per capita food expenditures but the effects are not statistically significant. Evaluating the STUP support package, Bandiera *et al.* (2013) also find that the effect on food expenditure is low in the short-run (after two years); but it becomes larger in the long-run. Nevertheless, our findings show that programme participation increased the consumption of fish and vegetables substantially, and these effects are statistically significant. Literature on nutrition shows that under-nutrition is a consequence of low level of vitamin A and iron intake (WHO 2002, IFPRI 2014). Fish, meat and leafy vegetables are rich in vitamin A and iron. Since the interventions increased fish and leafy vegetable consumption, it is likely that this would ultimately improve the nutritional status of the members of the participant households. Findings also show that the interventions increased rice consumption substantially.

Table 10. Impact on food consumption

Indicators	Impact of OTUP support package			Impact of STUP support package		
	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Baseline mean of outcome variable of eligible households from intervention areas	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Baseline mean of outcome variable of eligible households from intervention areas
	(1)	(2)	(3)	(4)	(5)	(6)
Per capita daily food expenditure (BDT, 2012 constant price)	0.69 (1.242)	0.91 (1.234)	28.14	0.582 (1.328)	1.174 (1.301)	28.23
Per capita daily consumption of key food items (in gram)						
Rice	26.71** (11.16)	27.18** (11.32)	543.1	16.27 (12.2)	21.74* (12.44)	523.9
Pulses and Legumes	1.76 (1.318)	2.095 (1.295)	9.0	-0.362 (1.674)	0.406 (1.683)	10.3
Potato	-8.813 (7.855)	-10.36 (8.078)	80.9	-2.082 (9.848)	-1.971 (9.646)	78.6
Leafy vegetables	25.44*** (5.646)	26.09*** (5.668)	19.0	17.89** (8.228)	19.09** (8.251)	28.1
Fish	15.71*** (4.769)	15.72*** (4.819)	37.7	13.12*** (4.779)	15.65*** (4.915)	24.5
Meat	-0.434 (3.387)	0.408 (3.367)	10.6	4.386 (3.606)	5.305 (3.524)	3.9
Egg	1.007 (0.648)	0.84 (0.62)	2.8	0.0201 (0.903)	0.268 (0.852)	1.9
Milk and Milk Products	0.657 (3.183)	-0.0909 (3.111)	12.1	1.941 (2.442)	1.861 (2.324)	4.9

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. Figures in the parenthesis are standard errors clustered at the branch office level. ITT effects are reported.

Results presented in column 1 and 4 have been estimated using equation 2 presented in Section 5; and results presented in column 2 and 5 have been estimated using equation 1 presented in Section 5.

Table 11 reports the estimated effects of the STUP and OTUP support packages on clothing and mosquito net use. We find that the intervention has positive effects on clothing and mosquito net use. The ITT point estimates indicate that the number of mosquito nets used by the participants of the STUP and OTUP support packages increased by 0.07 and 0.11, respectively. These effects are statistically significant. The interventions also increased the number of *sharees and lungis.* But, the effect on *lungis* is not statistically significant. These findings indicate that the interventions have improved the welfare of ultra poor.

Table 11. Impact on clothing and mosquito-net use

Indicators	Impact of OTUP support package			Impact of STUP support package		
	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Baseline mean of outcome variable of eligible households from intervention areas	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Baseline mean of outcome variable of eligible households from intervention areas
	(1)	(2)	(3)	(4)	(5)	(6)
No. of mosquito-net	0.111*** (0.037)	0.111*** (0.037)	1.333	0.0798*** (0.0306)	0.0794* (0.047)	1.049
No. of *sharee*	0.379*** (0.113)	0.379*** (0.113)	1.229	0.361*** (0.0476)	0.361*** (0.106)	0.738
No. of *lungi*	0.179 (0.178)	0.178 (0.178)	1.662	0.00724 (0.0342)	0.00655 (0.113)	0.706

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. Figures in the parentheses are standard errors clustered at the branch office level. ITT effects are reported.

Results presented in column 1 and 4 have been estimated using equation 2 presented in Section 5; and results presented in column 2 and 5 have been estimated using equation 1 presented in Section 5.

Impact on domestic violence against women

In the CFPR-TUP programme, all supports are provided to female members of the selected households. So, it is likely that the participant women would become economically empowered. Banerjee *et al.* (2015a) show that asset transfer programme indeed empowers the participant women.[20] A natural consequence of the increased empowerment may be that domestic violence against programme participant woman would decrease. To test this hypothesis, the survey for the current study covered a module on violence against woman (main female member of the household) within the household. Information was collected on seven specific indicators related to physical and verbal assault of the females by their husbands.[21]

Table 12 reports the effects of the intervention on these indicators. For each of the indicators, the point estimate of the effect is negative, although not all are statistically significant. Specifically, the likelihood of taking away female's asset forcibly by her husband has declined as a result of the programme intervention. The effect is statistically significant for both the STUP and OTUP support packages. Similarly, threat to divorce and second marriage by the husband has also decreased as a result of the programme intervention, although this effect is statistically significant only for the STUP support package. In addition, the possibility of being prevented by the husband from going outside for work has also declined. Again this effect is statistically significant only for the STUP support package. One reason for this reduced violence against women might be that their husbands care for the assets owned by them and therefore has lessened inflicting harm/violence on them.

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[20] Banerjee *et al.* (2015a) measured empowerment using indicators related to women's influence over daily food and non-food expenditures.

[21] The respondent of the survey was the main female member of the household. The sample for this section was restricted to married (i.e. living with husband) respondent only.

Table 12. Impact on domestic violence against women

Indicators	Impact of OTUP support package			Impact of STUP support package		
	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Baseline mean of outcome variable of eligible households from intervention areas	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Baseline mean of outcome variable of eligible households from intervention areas
	(1)	(2)	(3)	(4)	(5)	(6)
Husband:						
takes away money forcibly (Yes=1, No=0)	-0.0318 (0.0218)	-0.0318 (0.0218)	0.029	-0.00125 (0.00743)	-0.00125 (0.014)	0.021
takes away personal asset forcibly (Yes=1, No=0)	-0.0274** (0.0118)	-0.0274** (0.0118)	0.005	-0.0123*** (0.00357)	-0.0123** (0.00612)	0.006
prevents from visiting parental home (Yes=1, No=0)	-0.0326 (0.0228)	-0.0326 (0.0228)	0.056	-0.00246 (0.00675)	-0.00246 (0.0125)	0.023
prevents from going outside for work (Yes=1, No=0)	-0.0589 (0.054)	-0.0589 (0.054)	0.133	-0.0354*** (0.00665)	-0.0354*** (0.0111)	0.023
assaults physically (Yes=1, No=0)	-0.0186 (0.0408)	-0.0186 (0.0408)	0.091	-0.0244** (0.0109)	-0.0244 (0.0258)	0.046
threats to divorce (Yes=1, No=0)	-0.00193 (0.0136)	-0.00193 (0.0136)	0.028	-0.0205*** (0.00628)	-0.0205** (0.00913)	0.024
threats to second marriage (Yes=1, No=0)	-0.0142 (0.015)	-0.0142 (0.013)	0.025	-0.0157*** (0.002)	-0.0157* (0.0089)	0.021

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. Figures in the parenthesis are standard errors clustered at the branch office level. ITT effects are reported.

Results presented in column 1 and 4 have been estimated using equation 2 presented in Section 5; and results presented in column 2 and 5 have been estimated using equation 1 presented in Section 5.

7. CONCLUSION

Since 2002, BRAC has been implementing an anti-poverty programme titled "Challenging the Frontiers of Poverty Reduction-Targeting the Ultra Poor" or CFPR-TUP. Originally, the programme was developed to transfer productive assets, skills and consumption subsidy to asset-less ultra poor in Bangladesh, whose livelihoods are heavily dependent on females' domestic work, begging, and casual wage employment (Das 2009). Considering heterogeneity among the ultra poor themselves, in 2007, the CFPR-TUP programme introduced two intervention packages: (1) a grant-based support package for specially targeted ultra poor or STUP support package, and (2) a credit plus grant support package for other targeted ultra poor or OTUP support package. While both the support packages target ultra poor households, the target group of the latter is relatively well-off than those of the former. Further, the STUP support package is costlier compared to the OTUP. This paper is an initiative to evaluate the OTUP and STUP support packages of the CFPR-TUP programme by using non-experimental evaluation design. Descriptive statistics shows that at baseline, the participants of both the STUP and OTUP support packages were asset-poor and heavily dependent on casual wage employments but the participants of the later were relatively well-off than that of the former. For example, at baseline, only a miniscule proportion of the participants of the STUP support package owned cultivable land and cow, while 8.66% and 12.14% of the participants of the OTUP support package owned these assets, respectively.

We find that the STUP support package increases self-employment, total labour supply, per capita income, consumption of meat, fish, etc., and productive asset-base of ultra poor. The findings on the effectiveness of the STUP support package seem to echo the positive results obtained by other studies that experimented similar intervention (Banerjee *et al.*, 2015a; Bandiera *et al.* 2013). The effect of the less-costly OTUP support package of the CFPR-TUP programme on the livelihoods of ultra poor has also been found to be positive. The magnitude of the effect of this support package on productive asset holding is large. We also find positive effects of this support package on self-employment, per capita income and consumption of rice, fish, vegetables, etc. There is also evidence that both the support packages increase the clothing of the ultra poor women and men alike.

Main limitation of this study, however, hovers around the methodological issue: first, we have used non-experimental evaluation design; nevertheless, we have tried to address the limitation using panel data that allows us to control for household-level fixed effects. Second, the target group for the OTUP support package is different from that of the STUP package. Hence, it is difficult to compare the effects of the two support packages. The ideal could have been experimenting STUP and OTUP packages for the same target group allowing us to investigate their relative effectiveness. We leave this issue for further research. But the general message of this study is that a credit plus approach (OTUP support package) can be an effective intervention at least for the ultra poor that are close to the edge of the ultra poverty line. Notably, Bangladesh has already achieved the status of lower middle income country; but yet, as per estimates of BBS (2011), 17% of the population live in ultra poverty, many of whom can perhaps fall in the target group of the OTUP support package (as per its selection criteria). Since the OTUP package (which is less costly than STUP) has been found to be an effecitve model, at least in the short-run, this model can be scaled up to help the ultra poor in Bangladesh.

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ANNEX

Table A1. Sample size and attrition rate

Year	STUP			OTUP		
	Total	Intervention	Non-intervention	Total	Intervention	Non-intervention
Baseline (2012)	3,957	2,197	1,760	4,840	2,484	2,356
Follow-up 2014	3,600	1,981	1,619	4,542	2,310	2,232
Attrition rate (%)	9.02	9.83	8.01	6.16	7.00	5.26

Table A2. Baseline characteristics of programme participants and eligible non-participants

Indicators	STUP			OTUP		
	Participant	Non-participant	Difference	Participant	Non-participant	Difference
	(1)	(2)	(3=1-2)	(4)	(5)	(6=4-5)
% of households have:						
Savings	15.62	19.93	-4.31	33.62	34.13	-0.51
Loan	28.26	27.84	0.43	40.94	44.28	-3.34
Cultivable Land	0.71	0.97	-0.25	8.66	9.12	-0.45
Homestead land	58.98	60.50	-1.52	72.85	71.36	1.49
Rent-in land	5.23	5.58	-0.35	21.78	21.26	0.53
Cow	1.19	4.76	-3.57***	12.14	20.18	-8.03**
Goat/sheep	5.67	11.41	-5.75***	15.01	17.43	-2.43
Poultry	26.87	37.35	-10.5***	55.95	50.55	5.40
Television	0.55	1.57	-1.02*	5.19	6.19	-1.00
Mobile	26.60	31.34	-4.75*	55.34	54.87	0.47
Chair	26.79	28.73	-1.94	53.08	52.18	0.90
Table	22.67	28.37	-5.70**	50.34	47.35	2.99
Choki	82.92	81.22	1.70	94.02	92.14	1.88
Mosquito net	87.63	87.33	0.30	95.79	92.44	3.35**
Sharee	52.60	53.67	-1.07	73.15	69.57	3.58
Lungi	55.17	50.20	4.98	89.81	84.56	5.25***
Per capita income (BDT)	12,080.84	11,399.05	681.8*	12,385.12	13,017.40	-632.3**
Per capita food expenditure (BDT)	27.81	28.55	-0.75	27.36	28.30	-0.94

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively and parentheses show the robust standard errors.

Table A3. Impact on time devoted to earning achieving by working age (15-65 years) males and females (individual fixed efforts).

	Impact of OTUP support package		Impact of STUP support package	
	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects	Impact estimates using DiD with fixed effects	Impact estimates using DiD without fixed effects
	(1)	(2)	(3)	(4)
Panel A: Males				
Self-employment in agriculture	87.25*	83.54*	154.6***	136.6***
	(45.38)	(44.64)	(36.88)	(32.54)
Self-employment in non-agriculture	61.99**	55.51*	79.05	73.24
	(29.38)	(29.02)	(50.86)	(56.35)
Wage employment in agriculture	-77.77	-72.52	-38.39	-61.23
	(59.52)	(58.74)	(66.17)	(62.88)
Wage employment in non-agriculture	60.82	68.69	-7.673	-1.68
	(72.06)	(72.26)	(86.44)	(81.17)
Salaried employment[#]	-16.28	-15.22	-16.53	-11.55
	(22.14)	(23.29)	(42.76)	(43.64)
Panel B: Females				
Self-employment in agriculture	88.27*	64.07	74.81	90.85**
	(49.57)	(41.59)	(50.15)	(38.61)
Self-employment in non-agriculture	5.278	6.035	15.15	8.946
	(13.57)	(9.967)	(18.79)	(14.05)
Wage employment in agriculture	0.693	-44.69*	71.65	7.129
	(30.88)	(25.94)	(78.19)	(64.53)
Wage employment in non-agriculture	-14.46	-18.16	10.92	19.26
	(24.73)	(15.82)	(67.21)	(41.3)
Salaried employment[#]	45.75	2.731	29.93	44.68
	(40.5)	(39.31)	(53.75)	(55.67)

Note: ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. Figures in the parentheses are standard errors, clustered at the branch office level. Results presented in column 1 and 3 have been estimated using equation 2 presented in Section 5; and results presented in column 2 and 4 have been estimated using equation 1 presented in Section 5.

[#] Salaried employment refers to non-casual wage employment.