Pathways Out of Extreme Poverty:

Findings from round I survey of CFPR phase II

Published by:

BRAC

Research and Evaluation Division, BRAC

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Cover design : Md. Abdur Razzaque

Typesetting and layout : Md. Akram Hossain

First edition: March 2009

Publisher:

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Telephone : 9881265, 8824051, 8824180-87 Website: www.brac.net/research

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Printed by BRAC Printers, 87-88 (old) 41 (new), Block C, Tongi Industrial area, Gazipur, Bangladesh

CONTENTS

ACKNOWLEDGEMENT

We would like to express our deepest gratitude to the BRAC Development Programme (BDP) for giving us the opportunity to be part of the CFPR team through research. We would like to thank the BDP staff for giving us all out cooperation; especially to the CFPR field staff without whose support and assistance it would be very difficult to undertake this baseline survey. We would particularly like to thank Mr. Aminul Alam, Executive Director, BRAC International and Ms. Rabeya Yasmin, the CFPR Programme Coordinator for their continued support and encouragement. We acknowledge the generous support of CFPR donors including Australian Agency for International Development (AusAID), Canadian International Development Agency (CIDA), Department for International Development (DFID) and NOVIB, OXFAM-America. We are also indebted to the CFPR beneficiaries who have given us their time and provided us with valuable information without which this report could not be published.

Introduction

CFPR Research Team

"Poverty never results from the lack of one thing but from many interlocking factors that cluster in poor people's experience and definitions of poverty" Such an understanding of poverty emphasizes its holistic nature, including both income and non-income dimensions (Sen 2005). Thus, the extent and prevalence of poverty varies almost entirely in the way in which it is understood. The Bangladesh Bureau of Statistics (BBS) of the government of Bangladesh (GoB), for example, prefers Cost of Basic Needs (CBN) as its preferred method for estimating poverty where an estimated cost of the bundle of goods (adequate to ensure that basic needs are met) is calculated. In addition to CBN, BBS also reports a calorie based estimate of poverty in its five-yearly reports on household income expenditure survey (HIES) (BBS 2007) (Table 1).

RECENT TRENDS IN POVERTY INCIDENCE IN BANGLADESH

Bangladesh has made remarkable progress in reducing the incidence of poverty during the last decade (Table 1). According to the HIES 2005, the head count ratio of poverty (using upper poverty line) reduced by 16.6 percentage point from 56.6% in 1991-92 to 40.0% in 2005. In terms of lower poverty line, incidence of poverty was estimated at 41.0% in 1991-92 and 25.1% in 2005, a reduction of 15.9 percentage point during the period (BBS 2007). HIES 2005 also captured the heterogeneity in the changes in poverty incidence among various divisions in Bangladesh. Between 2000 and 2005, rural poverty in Bangladesh has declined by 8.5 percentage points (by CBN method), from 52.3% to 43.8%. However, Rajshahi and Barisal, which are the two poorest divisions in 2005, have observed

a comparable decline of only 6.5 and 1.0 percentage points respectively. Among the two divisions, Rajshahi is historically been known as the poorest division in Bangladesh. On the other hand, rural Dhaka and Chittagong have observed declines in their poverty rates by 16.9 and 10.3 percentage points respectively. These simple numbers tell a compelling story of spatial heterogeneity and the need for customized interventions based on geographical concentration of poverty.

Table 1. Poverty estimates by Bangladesh Bureau of Statistics (BBS)

Variables	HIES 2005			HIES 2000			HIES 1995		
	National (%)	Rural (%)	Urban (%)	National (%)	Rural (%	Urban (%)	National (%)	Rural (%	Urban (%)
Upper poverty line head count (CBN method)	40.0	43.8	28.4	48.9	52.3	35.2	53.1	56.7	35.0
Lower poverty line head count (CBN method)	25.1	28.6	14.6	34.3	37.9	20.0	34.4	38.5	13.7
Less than 2122 kcal/person/day	40.4	39.5	43.2	44.3	42.3	52.5	47.5	47.1	49.7
Less than 1805 kcal/person/day	19.5	17.9	24.4	20.0	18.7	25.0	25.1	24.6	27.3

Source: Household income & expenditure survey 2005 (BBS 2007)

THE CASE OF THE ULTRA POOR

From the previous section it can be seen that the incidence of poverty in general is receding at varying rates across divisions. Moreover, from a programmatic perspective, it is imperative to comprehend that the poor is not a homogenous group and the population below the poverty line can be disaggregated further into moderate poor and ultra poor. Such distinction is necessary as interventions that might work well for the former may not bring about similar results for the latter (Halder and Mosley 2004). Bangladesh's experience with microfinance during 90s has been a good case illustrating how and why conventional development tools may not work for the poorest of the poor.

Though effective in reducing moderate poverty, it is now widely recognized that microfinance does not necessarily reach the poorest of the poor; in fact it actively excludes them for structural reasons (Ahmed *et al.* 2006). Matin *et al.* (2004) argues that this can be due to the mismatches of structure of opportunities available and the complex structural constraints faced by the ultra poor. Sulaiman and Gulesci (2008) point out that from the demand side, the ultra poor do not have an asset base or confidence to allow risk taking and, from the supply side, zero tolerance on non-repayment discourages the participation of those who have limited fall back options. These factors along with high morbidity and ill health

make the ultra poor risky clients for sustainable microfinance. The example on microfinance puts some shed on the multiple dimensions of rural poverty and multiplicity of constraints. Some of these dimensions are often captured in conventional indicators of income and human poverty. In addition, participatory poverty assessments can help moving beyond conventional indicators and provide information on such other dimensions of poverty. Such assessments often highlight gender inequality, powerlessness and injustice as forms of deprivation existing within the rural community. Ultra poor also lack social capital, the social networks and relationships necessary to improve their livelihood in rural Bangladesh. In general they depend on patrons who may provide security in the time of crisis resulting in arduous dependency obligations that may endure over generations.

CHALLENGING THE FRONTIERS OF POVERTY REDUCTION (CFPR)

Taking into consideration the special needs of the ultra poor[1], Challenging the Frontiers of Poverty Reduction, or CFPR as it is called, was initiated by BRAC to fight extreme poverty in rural Bangladesh. The first phase of the CFPR programme (henceforth CFPR I) was launched in 2002 for five years (2002-2006) with the vision of enhancing economic and social capabilities of ultra poor households in Bangladesh. According to its project proposal of CFPR II (BRAC 2006) two-pronged CFPR model was designed to 'push down' with instruments specially designed to help the ultra poor build their livelihoods and develop their human capabilities, while 'pushing out' to remove the wider socio-political constraints on their development, and raise the profile and priority of ultra poverty within the wider society.

The issues and challenges underlying the economic improvement of the ultra poor can be more concretely described through the Sustainable Livelihood Framework developed by DFID (DFID 1999). The framework essentially highlights how household livelihood strategies are influenced by the vulnerability context, assets and influence on and access to structures and processes. BRAC programmes serve the poor in most of the entry-points identified in the framework and its activities fit well within it. Annex 2 is an adaptation of the DFID framework that can be used to explain livelihood framework of the CFPR programme.

The core of the framework is the 'livelihood assets pentagon' containing human, natural, financial, social and physical capital. Findings from the baseline survey

[1] The term ultra poor is used broadly to refer to the bottom decile of rural population in income distribution.

carried out for CFPR I showed that the ultra poor households fare significantly poorly compared to the national average figures in every dimension mentioned in the asset pentagon. Since conventional interventions bypass the ultra poor, as mentioned earlier, CFPR programme design incorporates interventions curtailed towards the needs of the ultra poor. To create a sustainable livelihood asset base for the ultra poor women, the support package of 'pushing down' activities include enterprise development training, asset transfer, subsistence allowance, health subsidy and social development support.

In the context of vulnerability, seasonality and geographic location are two key areas that the CFPR has a strong focus. In Bangladesh seasonal food insecurity is well documented. October-November is the most vulnerable time when the households dependent on wage labour are most vulnerable, especially in the northern districts of the country. Moreover, from BRAC's programmatic experience, it was found that most of the ultra poor live in areas exposed to risk of flooding or river erosion. For this reason in its design CFPR II adopts a geographic targeting approach (described in details later) to focus on areas of vulnerability. The risk of asset loss as a result of natural disaster will be accommodated through a clearly defined and articulated risk management strategy.

In order to counter the shocks, the transforming structures and processes are introduced to the framework. Functioning village committees (*Gram Daridro Bimochon* Committee-GDBC) is one component of CFPR II that can be related to this particular livelihood component. These innovative community organizations are formed to involve respected members of the village elite in the CFPR programme to coordinate and focus existing local charitable efforts towards the ultra poor and promoting local awareness on problems faced by the ultra poor. GDBC will also make sure that the Specially Targeted Ultra Poor or STUP beneficiaries gain access to local services and resources, their assets are protected and they are provided with advice and support when needed. CFPR also aims to mainstream gender equity and women's empowerment as working principle. The programme for both strategic and practical reasons targets the ultra poor women as they are the most deprived and it can greatly empower them by building a sustainable livelihood for them. The intervention is done for the household and the transfers take place through a female member of the household, which is expected to bolster her bargaining power.

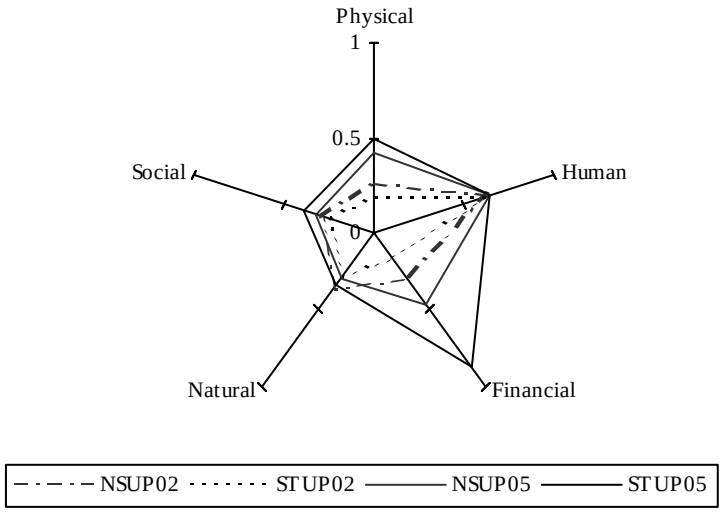
LEARNING FROM THE CFPR I EVALUATION

In order to evaluate CFPR I, research and evaluation division carried out a baseline survey in 2002 and repeated the survey for the same households in 2005. This essentially resulted in matched panel of 5,067 households. Most of the

evaluations followed a difference-in-difference method. Since there was no proper control group, the non-selected ultra poor (NSUP) were used as comparison group for measuring the differences. To be specific, the NSUP were those households who had been identified as ultra poor by the community during the wealth ranking but were excluded from the programme because of their failure to meet the final screening criteria. It was observed that the NSUP were generally better-off than the specially targeted ultra poor (STUP) households. Despite this drawback, NSUP were the closest group to the STUP for meaningful comparison. The basic premise behind using the NSUP as the comparison group was that without the supports that the STUP received, the gap between the STUP and NSUP would have remained the same. Therefore any reduction in the gap was considered as the programme impact.

In the evaluations for the first phase, it was found that in a number of domains, the STUP were not only catching up but also crossing the NSUP. Asset indices, measured by a list of objective indicators, in Figure 1 show the improvement in well-being of the STUP due to programme intervention. To be more specific, in 2002 the STUP were worse-off in all five asset indicators compared to the NSUP. By 2005, however, we can see that the situation had been reversed for all indicators except human assets. This pattern reveals that ultra poor households remain mostly dependent on labor to maintain livelihood and accumulating human asset is a long-term process. Quite expectedly, the greatest gain was found in financial assets.

Figure 1. Asset pentagon



Source: Mehnaz *et al.* (2006)

THE SECOND PHASE OF THE CHALLENGING THE FRONTIERS OF POVERTY REDUCTION (CFPR II)

One of the key learnings from CFPR I was that the ultra poor are more diverse than originally accounted for. Some of the factors that results in such divergence include economic context/proximity to markets; family structure and composition; personal capacities, human and social capital; NGO membership; and severity of material poverty. Taking into such diversity into context, CFPR II adopts a process of geographical targeting along with tailoring the package of inputs to meet the different levels and types of need for support among different ultra poor groups.

Based on the programmatic learning and research knowledge CFPR II was designed to increase the levels of outreach and incorporated diversity of packages. While in the first phase the STUP component was implemented in 15 districts with 100,000 beneficiaries, in the second phase the intended coverage in STUP component is 40 districts and 300,000 beneficiaries. The BDP-Ultra Poor model, which relies on customizing microfinance and provides significantly lesser amount of subsidies than STUP model, has been renamed as Other Targeted Ultra Poor (OTUP) in the second phase and has also been strengthened with additional services and targets to cover 500,000 ultra poor households. Selection of districts for programme implementation is based on concentration of poverty. STUP and OTUP components have been further disaggregated into STUP I, STUP II, OTUP I and OUTP II. STUP I component is being implemented in 20 districts with highest density of poverty and STUP II along with both the OTUP components will be implemented in rest of the 20 districts. The main difference between STUP I and STUP II is in the size of subsidy, size of asset transfer and the level of supervision in terms of staff member ratio (Annex 3). STUP I participants will benefit from larger asset transfer, greater amount of subsistence allowance and more intensive supervision compared to the STUP II beneficiaries. The main difference between STUP and OTUP is that microfinance is the main entry point for both of the OTUP models. Between OTUP I and OTUP II, the former addresses the issue of inexperience of some the ultra poor households in regards to microfinance and provide these households with flexible microfinance and some subsistence allowance to build their enterprise. The latter, OTUP II, aims to target the marginal participants of microfinance who may benefit from health subsidy and social development support in addition to ‘regular’ microfinance.

SELECTION OF THE ULTRA POOR

Targeting the ultra poor is essentially a three-stage process. In the first stage, the poorest districts and sub-districts are identified based on the poverty and

vulnerability mapping of WFP. Based on experience from other BRAC programmes in those localities, further geographical selection is carried out within each sub-district which helps CFPR team to identify the poorest parts of any branch office to start working with and expanding within the area. Participatory methods are applied in the second stage. For STUP it is essentially a participatory wealth ranking exercise to identify the 'community defined ultra poor' followed by a small questionnaire survey, in the third stage, to check their eligibility against 5 inclusion criteria (Table 2) and 3 exclusion criteria. The three exclusion criteria are: (a) no adult woman in the household who is able to work; (b) participating in microfinance; and (c) beneficiary of government/NGO development project. Any ultra poor household meeting at least three of the inclusion criteria and none of the exclusion ones becomes STUP. In contrast, for OTUP, potential beneficiaries are listed by the members of regular microfinance groups. This primarily identified potential beneficiaries consisting of households both from within and outside the regular microfinance groups go through verification against the inclusion conditions before finally being selected by the programme.

Table 2. Definition of different target groups

STUP I and STUP II	OTUP I and OTUP II	Wider Community
At least three of the following criteria will need to be met to be eligible for STUP membership: • The household is dependent upon female domestic work for example, begging • Own less than 10 decimals of land • No male adult active members in the household • Children of school going age have to take paid work • No productive assets in the household	At least three of the five criteria will need to be met to be eligible for OTUP membership: • The household owns no more than 30 decimals of land • Abandoned, separated or divorced • Husbands are disabled • Dependent on seasonal wage employment • Unable to make productive or effective use of NGO services	• BRAC microfinance VO members • Community members • Local elites • Government officials • Elected representatives • Other NGO staff • Members of civil society

EVALUATION DESIGN: LEARNING FROM THE FIRST PHASE[2]

One of the shortcomings of the evaluation design in the first phase was the non-inexistence of an 'ideal' control group. A difference-in-difference method was followed to compare between STUP and NSUP. NSUP households were essentially those households who were selected by the community as ultra poor during the wealth ranking exercise but were not finally selected by the programme because of their failure to meet the final screening criteria. A considerable difference was found between the groups, where the NSUP households were in general better-off compared to the STUP households. However, for a meaningful analysis it was considered that NSUP households were the closest group to the STUP households.

Thus in a status quo situation, it was assumed that the gap between STUP and NSUP would remain the same without any programme interventions. Any reduction in the gap can then be attributed as a programme impact. In most of the research and evaluation studies from the first phase, it was evident that the STUP households are not only catching up with the NSUP households but also crossing them in a number of domains. Though a reasonable inference can be drawn from these findings, a further improvement in process of the impact assessment was also identified.

Sulaiman and Gulesci (2008) identified several limitations in the evaluation of the STUP model in the first phase. As mentioned earlier one of the major limitation of the CFPR I evaluation was the absence of a proper control group which according to them was not feasible as the programme itself took shape as things progressed. Since the evaluation survey concentrated only on the ultra poor, the other limitation from the impact assessment was that it could not capture the effect of the programme on other welfare groups (i.e. externalities). Thus it was not possible to measure net contribution of the programme in reducing ultra poverty in its working areas.

Other limitations of the evaluations in the first phase include inability to capture the mechanisms through which income or food consumption change took place. This was due to lack of data that could be used to assess the household engagement in different activities, intensity of engagement, profitability of different activities, patterns of exchanges and role of the social network. In addition, due to data collection method and for not collecting information on non-food expenditure it was not possible to compare the estimates with national statistics. Psychosocial domains of the participants such as confidence, attitude

[2] This section of the chapter and the following sections on evaluation design of CFPR II draws heavily from Sulaiman and Gulesci (2008)

and entrepreneurship were not considered in the evaluation of the first phase of the CFPR programme.

EVALUATION DESIGN OF CFPR II

Based on the experience and learning from the first phase, the evaluation strategy in CFPR II is geared towards three major themes (Sulaiman and Gulesci 2008). These themes include: (a) mapping the welfare dynamics across different wealth categories in different parts of Bangladesh that are covered by the CFPR II programme, (b) investigating the ways in which these dynamics are affected by CFPR II programme and the extent of the resulting changes in the lives of the ultra poor and (c) measuring indirect effects of the programme on the community as a whole and the mechanisms through which these effects take place.

For CFPR II, all of the four components (STUP I, STUP II, OTUP I and OTUP II) will be assessed in terms of their impact. However, the methodology for each component may not be the same. For STUP I evaluation randomized control and treatment (RCT) will be used. For the other groups "propensity score matching" methodology will be used. Baseline surveys will be carried out for each component followed by two rounds of follow-up surveys. The follow-up surveys are going to be carried out in every two years after the baseline (Table 3). A sub-sample survey for the STUP I will be carried out every year to track the changes in the smaller horizon.

Table 3. Timeline for different rounds of survey

Rounds	STUP I	STUP II	OTUP I	OTUP II
Baseline survey	2007	2007	2008	2008
Second round survey	2009	2009	2010	2010
Third round survey	2011	2011	2012	2012

Source: Sulaiman and Gulesci 2008

As mentioned earlier STUP I is being implemented in the 20 poorest districts out of 40 districts listed by the programme. Once the programme decided which branch offices in the targeted districts are going to be included, the evaluation team chose 20 sub-districts with at least two branches for evaluation. From each of those 20 sub-districts, one treatment and one control branch office were selected randomly. Wealth ranking exercise was then carried out in both control and treatment branches to pull a sample of targeted and non-targeted populations within each area along with a sample of ultra-poor and non-ultra poor populations. The principals behind the evaluation strategy are given below (Table 4).

Table 4. CFPR II evaluation strategy

Outcome	Method
Changes in the lives of the population in the control spots over time	Exploring the dynamics of poverty in the absence of the programme
Effects of the programme on the households that are targeted by the CFPR II programme	Comparison between the beneficiary households in the treatment spots with the equivalent ultra poor households in the control spots over time
Measuring the full extent of the spillover effects of the programme	Comparison between the non-targeted households in treatment spots with the equivalent households in the control spots

Analyzing the spillover effect of the programme is one of the key components of the evaluation design in CFPR II. Existence of social network in the rural community means that the training on assets and enterprise given to the beneficiaries will be shared with those who are part of their network. Similarly, awareness level on various health and social development components may rise within the community through the social network. Decreasing pressure on the government transfer programmes such as the VGD cards will enable the government to mobilize its resources to other groups in the community. Since the programme will improve the economic status of the ultra poor households through engaging them in enterprise development, it will have an impact on the local economy in the form of changing in the price of goods and supply of labour. Since such spillover effect can be substantial, the CFPR II evaluation design incorporates to capture the full extent of these effects.

The other features of the evaluation design in CFPR II include assessing what sorts of social and economic institutions play role in the lives of the poor and the evaluation of *Gram Daridro Bimochon* Committees (GDBC) and their role in the ultra poor programme. The objective of GDBC is to bring together the village elite with the poor and to generate elite support for the ultra poor programme, as well as mobilize resources to help the poor.[3] Evaluation of these committees and their effectiveness will be done through using the log book of the committees that is kept to keep track of their activities and monthly meeting minutes.

STUP II, OTUP I AND OTUP II EVALUATION STRATEGY

"Propensity score matching" (PSM) technique will be used to evaluate STUP II, OTUP I and OTUP II models. For evaluation purpose sample households have been selected from the treatment spots in similar manner to the sampled

[3] For details see chapter 11

households in the treatment spots for the STUP I evaluation. Within each spot population were divided into targeted and non-targeted households. Within the general population those who were not selected by the programme were then matched using PSM with any of the three categories. This will allow for proxy control groups for the treatment households. The evaluation design also incorporates instruments to identify the availability of better economic and social opportunities in the STUP II, OTUP I and OTUP II districts. For that secondary sources will be used to collect information on variables such as population density, health and education institutions, cultivable agricultural land, etc.

OBJECTIVES OF THE BASELINE SURVEY REPORT

Baseline surveys can be considered as a first step towards long term evaluation studies. Information from baseline surveys can be used in setting targets, defining indicators and monitoring progress towards achieving desired outcomes (Bosch *et al.* 2000 and Penusshi *et al.* 2000 cited Pattanayak *et al.* 2006). From research perspective, baseline information may also help in generating further research hypotheses. In addition, it will also provide the programme with invaluable information for fine-tuning its intervention components.

As mentioned earlier, CFPR II incorporates the heterogeneity existing among the ultra poor and packages such diversity into four categories such as STUP I, STUP II, OTUP I and OTUP II. Selection of the areas for implementing each component is based on macro-economic indicators, poverty maps and BRAC's decades of experience in working on poverty. The underline assumption behind such geographical targeting approach is that the ultra poor households from the poorest districts are worse off compared to that of relatively less poor districts. Thus it is expected that, for all aspects of human well-being, there exists a gap between the beneficiaries of each component where STUP I is in the lowest and OTUP II is in the highest rung of the ladder. In this baseline report a humble effort has been made to quantify such gap.

The specific objectives of this baseline survey are as follows:

- To gather information on various indicators of economic, social and health related issues and create a baseline profile for the targeted ultra poor households
- To compare the status of the finally selected or targeted ultra poor households with the other community members such as the non-targeted ultra poor and non poor households
- To explore differences between targeted ultra poor households from STUP I areas and STUP II areas

- To compare firstly, the finally selected OTUP I households with the OTUP II households and secondly, to compare these OTUP households with STUP II households
- To provide information on the profile of the GDBC members and contrast their characteristics with other elites of the community who were not selected as members of GDBC
- To prepare a baseline report on knowledge, perception, attitude and behaviour related to gender in the programme areas for future impact assessment of the gender quality action learning (GQAL) component

BASELINE SURVEY: STUP AND OTUP[4]

STUP baseline survey

As mentioned earlier, STUP I evaluation will be conducted with the help of Randomized Control Treatment (RCT) method. The randomization was carried out at the branch office level where in total 40 branch offices have been selected for the baseline survey. Twenty of these branch offices have been selected as treatment branches and 20 as control branches[5]. In these 40 branch offices, using a small questionnaire, a census was carried out in all the spots where the programme conducted PRAs for the selection of STUP members. The main baseline survey covered all the primarily selected ultra poor households in each spot. In addition, 10% of the rest of the households have been selected randomly for the baseline survey. Furthermore, to have a representation of at least one rich household in each spot, an additional household was selected from the top ranked households identified in the community wealth ranking. The STUP I Baseline survey was conducted during April-December, 2007. Total sample for STUP I baseline survey was 26977 households (Table 5).

As mentioned earlier, evaluation of STUP II will be conducted with the help of propensity score matching. STUP II baseline survey was conducted in 50 branch offices from six southern districts of Bangladesh namely: Patuakhali, Pirojpur, Faridpur, Borguna, Magura and Narail. In each of these branch offices, five spots have been selected randomly for the census. For the baseline survey, selection of households from each spot was same as STUP I. STUP II baseline survey was conducted during May, 2007-January, 2008. Total sample size for STUP II baseline survey was 4305 households (Table 5).

[4] Methods of GDBC and GQAL survey are detailed in the respective chapters.

[5] STUP I baseline survey branches were from 13 districts (Chapainobabgonj, Kishorgonj, Madaripur, Naogan, Netrokona, Sherajgonj, Thakurgaon, Ponchogorh, Nilphamari, Lalmonirhat, Kurigram, Gaibandha and Rangpur).

Table 5. Sample size for STUP baseline survey

	Treatment	Control	Total households	Finally selected STUP hh
STUP1	13716	13261	26977	7817
STUP II			4305	937

OTUP baseline survey

The baseline survey for both OTUP I and OTUP II was conducted in 40 randomly selected branch offices during the period June-July, 2008. The households selected for the survey can be categorized into three representative groups, namely: general population, poor but not selected households and finally selected OTUP households. To represent the finally selected OTUP households from each branch office 20 finally selected OTUP members were selected for the baseline survey. The sample size for finally selected OTUP households was thus 800 for both OTUP I and OTUP II (Table 6). From the locality of the finally selected 20 households just mentioned, 15 households were selected for survey from the list of households who were primarily selected for OTUP membership but could not pass the final selection criteria.[6] From the locality, 15 general households were also selected for the baseline survey to represent general population., It should be noted here that OTUP I baseline survey branches were from two districts (Manikgonj and Chandpur). On the other hand, OTUP II baseline survey branches were from 13 districts (Bagerhat Cox's Bazar, Dinajpur, Faridpur, Hobigonj, Jamalpur, Joypurhat, Mymenshingh, Narsingdi, Noakhali, Satkhria, Sherpur and Tangail).

Table 6. Sample size for OTUP baseline survey

	OTUP members	Non-members	Total
OTUP1	800	1042	1842
OTUP II	800	1099	1899

ANALYTICAL METHODOLOGY

For the purpose of STUP baseline analysis, we have clustered all the surveyed households into three groups. First of these groups is the finally selected STUP households (called TUP henceforth). The next group is those households who were in the bottom two categories of wealth rankings but were not finally selected as STUP households. This group of households, called non-targeted poor (NTP), were identified as poor (or ultra poor) in the community wealth ranking since they were in the bottom two categories of the wealth the ranking. The rest

[6] However, for some branches 15 members were not available.

of the households of the PRA (spot) were considered as the non-poor (NP). For both STUP I and STUP II areas, we have thus three groups of households: non-poor (NP), Non-targeted poor (NTP) and targeted ultra poor (TUP). In the pooled analysis, appropriate weight factor was used.

For each geographical area, we have compared NTP households with TUP households and carried out statistical significance test. As mentioned earlier, NTP households are the households who have been identified as poor (or ultra poor) by the community but could not pass the final screening process. Thus, it would be interesting to know to what extent socioeconomic conditions of the NTP households were different from the TUP households. To explore such difference is one of the objectives of this study. Another key objective of this baseline report is to explore differences between targeted ultra poor households from STUP I areas and STUP II areas. For this reason we have compared TUP households from two geographical areas and carried out tests to check for statistical significance.

RANDOMIZED CONTROL AND TREATMENT: KEY FINDINGS

As was mentioned earlier, STUP I of CFPR II will be evaluated by randomization control and treatment (RCT) method. The randomization was at the branch level; i.e. branches were randomly selected not the other sub-cluster or households. It is thus expected that for a particular variable, the difference between control branches and treatment branches would be only due to sampling error i.e. statistically insignificant.

Table 7 Shows 22 key socioeconomic variables for control branches and treatment branches. None of the differences between treatment and control branches for the 25 variables studied was found to be statistically significant except for proportion of households having outstanding loans. For the proportion of households having outstanding loans the difference was found to be statistically significant at 10% level of significant. The findings thus indicate that RCT evaluation is likely to help to carry out rigorous impact assessment.

Table 7. Difference between randomized control and treatment on key variables (significant test were conducted at the branch level)

Variable	Treatment	Control	p-value
Household size	3.88	3.88	Ns
Ratio of earning members	0.61	0.62	Ns
Per capita income (Tk.)	7648	8370	Ns
No of income sources	2.66	2.76	Ns
Female headed household (%)	22	22	Ns
% of households have cultivable land	26	27	Ns
Size of cultivable land	182	207	Ns
% of household have livestock	35	37	Ns
No of livestock	3.19	3.11	Ns
% of households have poultry	59	58	Ns
No of poultry	6.85	6.29	Ns
Main occupation of the working aged men (15-60 years) is agriculture day labor (%)	36	32	Ns
% of households with at least one person work as day labor	58	56	Ns
Main occupation of the working aged women (15-60 years) is household core (%)	74	71	Ns
Vulnerability (% of households faced at least one crisis/event in last one year)	44	47	Ns
% of households always faced food deficit	19	19	Ns
Could not afford two meals a day most of the time in last one year (% of households)	32	37	Ns
% of household have outstanding loans	33	39	<0.10
% of respondents have cash savings	50	51	Ns
% of household have electricity connection	14	13	Ns
All children aged 6-17 are enrolled (% of households)	41	41	Ns
% of households having separate kitchen	62	61	Ns
% of household use sanitary latrine	42	40	Ns
Per capita monthly food expenditure (Tk.)	685	675	Ns
Per capita daily calorie intake (kcal)	2231	2205	Ns

Note: ns=not significant at 10% level of significance

STRUCTURE AND OVERVIEW OF THE BASELINE REPORT

This baseline survey report consists of fourteen independent and self-explanatory chapters. These chapters draw on information collected from various baseline and census surveys carried out for the CFPR II evaluation. While majority of the chapters are based on the instrument used for STUP areas, chapters on GQAL, GDBC and OTUP (Chapter 10, 11 and 14 respectively) are based on baseline surveys carried out specifically for those components. In line with the vulnerability framework mentioned earlier, all the chapters included in this report can be classified into four broad sections. The section on livelihood assets includes chapters on socio-demographic profile (chapter 2), asset holding (chapter 3) and, schooling and literacy (chapter 4). Chapters covered in the vulnerability section include health and health-seeking behaviour (chapter 5),

food security and nutritional status (chapter 6), maternal nutritional knowledge and child nutritional status, (chapter 7) and, vulnerability and social network (chapter 8). Chapters covered in the section on transforming structures and process include empowerment (chapter 9), knowledge, perception, attitude and behaviour on gender among the surveyed villagers (chapter 10), and *Gram Daridro Bimochon* committee (chapter 11). The section on livelihood and outcomes covers chapters on food consumption pattern (chapter 12) and, employment and income (chapter 13). Following is a brief overview of the chapters covered in the baseline support.

Chapter 2: Socio-demographic profile

The objective of this chapter was to find out how distinct the STUP households are in terms of various socio-demographic variables such as age and sex distribution, household composition and characteristics, education, disability and access to public services. This chapter also tried to explore similarities or dissimilarities between households from STUP I and STUP II areas in perspective of such variables.

In general it was found that the TUP households are smaller than compared households but have a higher proportion of female members. Prevalence of female headed households was higher among the TUP households with a significant difference between STUP I and STUP II areas. It was also found that the percentage of households with disabled member was higher for the TUP households in both the areas. Age and size distribution of the surveyed household members revealed that the TUP households have a lesser number of working aged members, a higher percentage of household members belonging to the age range below 15 years and higher percentage of single member household. Distribution of female headed households by size of households revealed that as households size increases, proportion of female headed household decreases.

Among the adult males and females, a good proportion of members were found to be unmarried. The proportion seems to be higher among the non-poor households. Marital dissolution was found to be highest for the TUP households compared to other two groups in both areas. Dissolution of marriage seemed to increase with age of the adult members. For the TUP households, by the age 50, about 75% of the females were found to be either separated or widowed or divorced.

It was found that a significantly lower percentage of TUP households were headed by a literate person (can read and write). Between STUP I and STUP II, a lesser percentage of TUP household heads were literate in the former areas. In this report, it was found that presence of disabled members is very high among the TUP households in both STUP I and STUP II areas. Prevalence of disabled

member was found to be higher for the TUP households in STUP II areas. It was also found that prevalence of disability is positively associated with age. NGO involvement among the TUP households in both geographical areas was found to be significantly low compared to the NP and NTP households

Chapter 3: Natural, physical and financial assets

This chapter reports on the existing natural, physical and financial asset holding of the surveyed households. Findings from this chapter justify the spatially distinctive strategies adopted by CFPR II. This report shows that the ultra poor from the most food insecure districts/*upazilas* are different from the perspective of natural, physical and financial asset holding. A strong correlation was found between asset holding and economic status within each geographically targeted area---households from more economically deprived areas are worse off compared to the households from economically better off areas. This study also corroborates the circular constraint of the extreme poor where in one hand they cannot access institutional credit because of their insufficient asset base and on the other hand they cannot accumulate asset because of insufficient capital base.

Chapter 4: Education: schooling and literacy

Investment in education is one of the key mechanisms through which inequality persists or flourishes. Lack of investment in human capital is one of the major determinants of intergenerational poverty. It is encouraging to note that the differences in enrolment rates among different poverty groups are narrowing down, especially at the primary level. However, lower enrolment rates among the boys should be taken seriously. About a quarter of 6-10 years-old boys from ultra poor households are not attending schools. Analysis of enrolment in this chapter finds a closing of the gaps between the ultra poor and others. Enrolment rate of 6-10 years old children was 64% in 2002, which is over 74% in 2007. However, it is still significantly lower than moderate poor.

The major challenges are enrolments at secondary level and equity in the quality of education. These two are closely linked as low level of education attained during primary level influences the children to drop-out before they enter into secondary schools. Learners from ultra poor households are more likely to be underachiever (in terms of class completed for age). The size of household expenditure in education and supplementary tutoring are positively associated with the level of grade completed for age. However, ultra poor households apparently cannot afford to make these investments. Special initiatives have been taken in CFPR for bringing change in education of ultra poor children. These initiatives have to be assessed to create policy for attaining equity in education.

Chapter 5: Health, health services and health-seeking behaviour

This chapter presents baseline data on the participant households' health status and health awareness, availability and access to health services, and health-seeking behaviour. Findings revealed disadvantaged condition of the ultra poor respondents in the study areas, sometimes varying by the two intervention areas (STUP I and STUP II). Overall, ultra poor fared marginally better in STUP I area with respect to some key variables such as CDR, self-rated health status, use of tube-well water, contraception practice, health-seeking behaviour for acute illnesses, and hospitalization for chronic illnesses. Except in few instances, the difference between the TUPs and the NTPs was found to be marginal. A substantial magnitude of unmet need for healthcare (reflected in no treatment/self-treatment), especially in case of the TUPs, was observed in the study. The findings also emphasize the importance of informal sector for healthcare of the poor as has also been revealed in a nationwide study of healthcare providers recently. These issues need to be kept in mind while developing and fine-tuning healthcare interventions for the poor/ultra poor in the CFPR II intervention.

Chapter 6: Food security and nutritional status

This chapter clearly demonstrates high prevalence of undernutrition among the ultra poor population. A larger segment of the poor households (TUP and NTP) suffer from food insecurity to various extent (ranging from occasional to extreme state) compared to the non-poor group. Food crisis increases during *Monga* or lean period when majority of them are forced to reduce the quantity of food and its diversity. Chronic food insecurity at the households led to undernutrition among both children and adults. More than half of the under-five children from TUP households are chronically undernourished which is likely to cause irreversible damage to their mental development and physical growth. Chronic energy deficiency (estimated at BMI <18.5) among adults (both male and female) is also alarmingly high compared to national figures. Economic loss is enormous due to undernutrition in adult resulting in reduced productivity. The wide spread undernutrition among the study population may not be only be due to the shortage of food but also likely to be compounded by other factors. These should be identified and addressed towards enabling vulnerable/poor households/ individuals to achieve desired nutrition outcomes.

Chapter 7: Maternal nutritional knowledge and child nutritional status

Mothers are the main providers of child care and the quality of care they provide to their children is largely dependent on their knowledge on nutrition as well as health related practices. Maternal nutritional knowledge has been found to be associated with improved child nutritional status, even within the poorest

socioeconomic setting. We hypothesized that the nutritional knowledge of mothers of the selected CFPR households would also have an association with children's nutritional status. This cross-sectional survey, conducted on 4789 mothers and 5039 of their children between age 6-36 months, explored the level of maternal nutritional knowledge and child nutritional status, and the association between the two. We found that the mothers of wellnourished children had higher nutritional knowledge score compared to the mothers of underweight (i.e., weight-for-age) and stunted children (i.e., height-for-age), but not so in mothers of wasted (i.e., weight-for-height) children. Maternal nutritional knowledge was a significant predictor ($p<0.05$ and $p<0.01$) of child nutritional status in terms of adjusted height-for-age but only in children between ages 6 to 23 months. Maternal nutritional status (i.e., BMI) was found to be a significant predictor ($p<0.01$) of weight-for-age and weight-for-height for all age groups, but of height-for-age only in age 24-36 month group. The findings from this study give further support to the evidence that maternal nutritional knowledge is important in reducing long-term child malnutrition (height-for-age) up to the age of 23 months. Programmes targeting rural women should therefore emphasize more on improving nutritional knowledge of mothers and take measures to effectively translate this knowledge into practice.

Chapter 8: Vulnerability and social network

This chapter looks into the vulnerability aspect of ultra poverty and the specific link between social network and vulnerability. Social network is found to be a significant factor for receiving informal assistances to cope with crisis, for reducing food insecurity and for enabling ultra poor households in taking new earning opportunities. Given this importance of social and family network, lower level of such networks for TUP households reflects their vulnerability, which is often less emphasized. Looking at social network is relevant in two important aspects, viz. targeting and strengthening social capital. The particular measure of social network (number of first kin belonging to better-off households) used in this analysis can be incorporated in targeting. However, family networks are not subject to any direct intervention, i.e. these are given. However, the importance of this network demonstrated in this chapter indicates the necessity of strengthening social network through the village committees to substitute the lack of family networks. Moreover, this suggests the possibility of a strong spill-over effect of CFPR on the households within beneficiaries' family network.

Chapter 9: Poverty and empowerment of women

Women's empowerment has been argued to be one of the essential preconditions for elimination of poverty. As such this chapter looks into the status of women's empowerment and the factors that influences it. Five dimensions of empowerment were used for this purpose: perceived ability to influence decision

making, mobility, control over one's own income, perceived ability to interact comfortably in the public sphere and legal and political awareness. Findings show that poorer women are less empowered in terms of ability to influence decision making and political and legal awareness. However, because of their economic insecurity, ultra poor women were more mobile, were able to interact comfortably in the public sphere and had more control over their own income. Although, ultra poor women were more empowered in terms of mobility, this did not translate into ability to confidently access services outside home. Similarly, spatial differences were also observed, where women in the more disadvantaged areas were less empowered in decision making ability and level of awareness. In addition, education, membership of NGO, involvement in income activities, and female headship all was found to influence some of the aspects of the empowerment indicators used for this chapter.

Chapter 10: Knowledge, perception, attitudes and behaviour of the villagers toward gender

The chapter draws data from a study which aims to explore the existing knowledge, perception, attitude and behaviour of the villagers in gender quality action learning (GQAL) and non-GQAL areas. Quantitative and qualitative methods were used to collect data from 50 branch offices in ten districts of Bangladesh. The GQAL spots of each branch as well as the respondents from the spots were randomly selected. Findings show that less than one-third of the respondents had knowledge on attitudinal aspects of gender in general, gender discrimination, women empowerment, and violence against women. Their perception on these themes was conventional favouring men. In other words, male and female were treated as segregated in all spheres of life. A trend in knowledge, perception, attitude and behaviour of the respondents towards gender equality was observed. The lower level of knowledge and traditional perception and attitude of the respondents led to the gender-differentiated behaviour.

Chapter 11: GDBC profile study

This chapter provides evidence on the GDBC members' profile in the STUP evaluation spots. The descriptive statistics on the background characteristics of the GDBC members were found to be similar to those of the non-member elites living in the same villages, excepting that the GDBC members were less likely to be self-employed, yet more likely to employ STUP members in their businesses; more likely to be a part of the local government or have contacts within the local government. On average they have transferred more cash or in kind resources to the poor and more so to the STUP members. It was found that wealth level of the elite member is correlated positively with how much he/she transfers. There was no correlation between being a member of the GDBC and the total value of transfers to the poor once we control for the establishment date of the GDBC,

wealth and education of the elite, however there was a positive correlation between being a member and the value of transfers to STUP members. This suggests that the GDBC may lead to a rearranging of the transfer networks in the village where they would transfer more resources to the STUP members and the non-members transfer more to those poor outside the STUP programme. Looking at the non-material transfers leads to similar results and in addition we find that the correlation between being a member of the GDBC and the total number of non-material assistance offered to the poor was insignificant if the GDBC was established recently. However there was a positive and significant correlation between the two for the more established GDBCs.

Chapter 12: Food consumption pattern and dietary diversity

Household food consumption and dietary diversity are considered as direct indicators of food security as well as distal proxies for a poverty indicator. The expected increase in income among the poorest households due to participation in CFPR programme therefore, has the potential to result in increased quantity as well as improved quality of their food. This study aimed to create a benchmark profile of the TUP households to be able to evaluate the impact of the programme after a certain period of intervention and to suggest the programme implementers on specific issues to strengthening the intervention components. Three-day recall method was applied to gather data from 21,868 households of the STUP-I and STUP-II areas. Four key findings of this study was of our interest. First, the food consumed by the TUP households was much lower in amount compared to the recommended intake for Bangladeshis and the mean national rural intake. Second, although the households of STUP II areas consumed lesser calories, their food expenditure was significantly higher ($p<0.001$) than that of households of STUP I areas. Third, across areas, percentage of calorie intake from cereal-based foods was much higher than the recommended intake and the national rural average. Forth, the diet of the TUP households was far from reaching the desirable diversity in major food groups.

Chapter 13: Employment and income

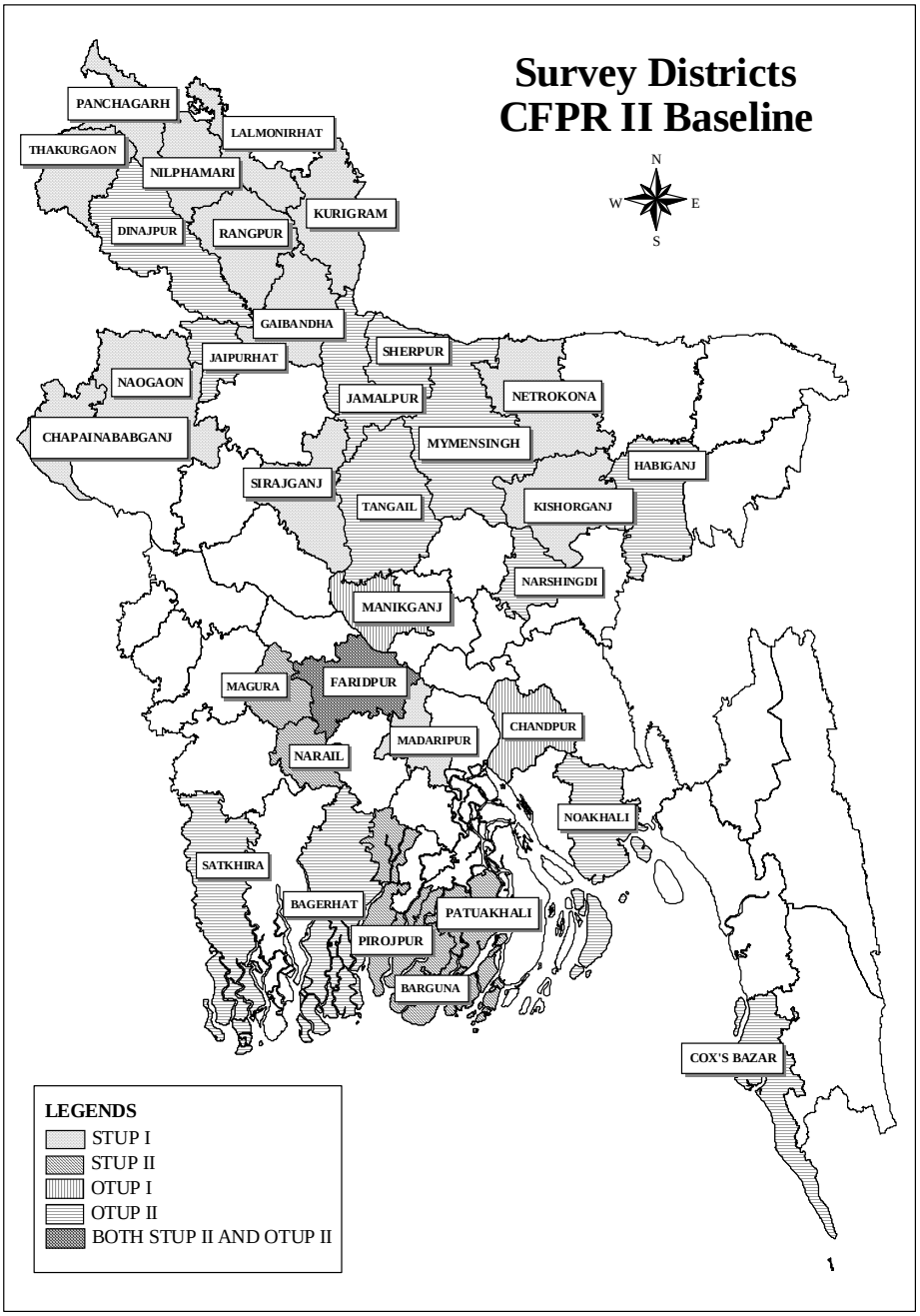
This chapter analyzed employment and income of the different wealth groups of households. It was found that working aged TUP males in both STUP I and STUP II areas were predominantly employed as day laborer. Compared to the non-poor and not-selection poor households, working aged TUP women in both geographical areas were found to be largely engaged in earning activities such as agricultural day laborer, housemaids and begging. Both agricultural and non-agricultural wage rates were found to be higher in the STUP II areas than that of the STUP II areas. Nutritional status of the workers was found to have significant implication on their productivity. Earning of a malnourished worker was found to be about 7% lower than that of the worker who is not malnourished. It was found

that there is no statistically significant difference between per capita income of the TUP households in the STUP I and STUP II areas. But, the TUP households in the STUP I areas were more likely to earn through engaging the children and old-aged members into earning activities. Number of income sources in the STUP II areas was found to be lower than that of the STUP I areas for all wealth groups; However, the number of income sources was higher among better off groups of households in both geographical areas. The number of income sources was also found to be positively associated with per capita income in both geographical areas although the association is stronger in STUP I areas, indicating that diversification of income sources might be an important way to increase income of TUP households, which is one of the primary objectives of the CFPR.

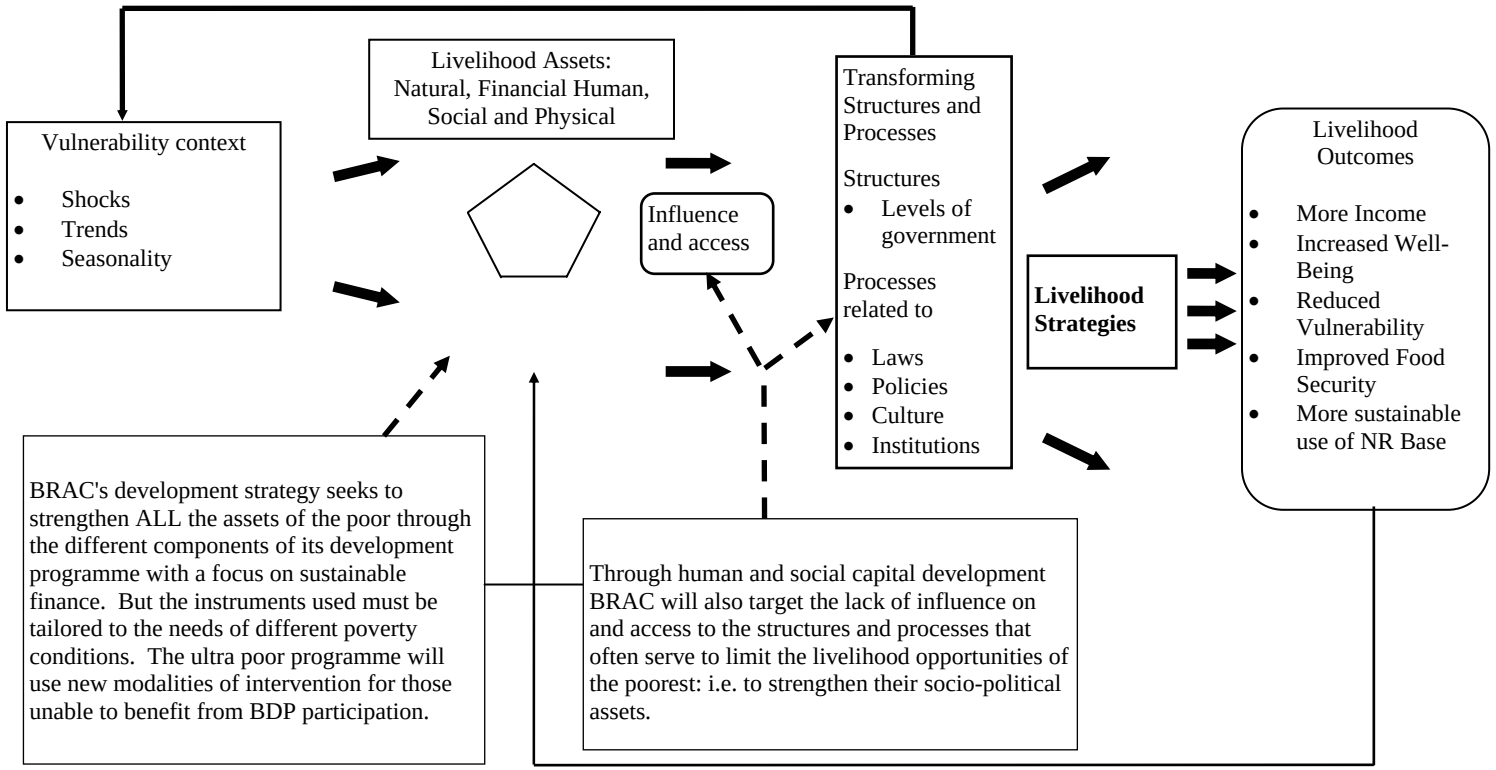
Chapter 14: The case of the OTUPs

This chapter has analyzed the baseline profile of the OTUP households. Along with a comparison between OTUP I and OTUP II households, effort was also made to compare the OTUP households with the STUP II households. Regarding the basic socio-demographic profile it was found that STUP II households were largely female headed compared to both groups of OTUP households although statistically significant difference was not found between the two groups of OTUP households. Asset base of the both groups of OTUP households was found to be stronger than the STUP II households. Among the two groups of OTUP households, asset base including livestock, poultry, and van/rickshaw was found to be stronger for the OTUP II. Non-farm self-employment was found to be a key income source of both the groups of OTUP households, whereas agricultural day labour and working as housemaid were the main sources of income of the STUP II households. Among the two groups of OTUP households, day labour was more prevalent among the OTUP II. OTUP households had a greater number of income sources compared to the STUP II households. Per capita income was found to be higher among the OTUP I households compared to the OTUP II households although income poverty and calorie based poverty analysis provide mixed picture regarding vulnerability in the OTUP I survey sites. In the vulnerability context such facing crisis and health-seeking behaviour, although STUP II households were found to more vulnerable compared to the both groups of OTUP households, no significant difference was observed between the two groups of OTUP households. More than one-third of the OTUP members were selected from existing VO members and dropout members from microfinance. Analysing use of last loan (taken from MFIs) of this group of members, it was found that the loan was significantly used for repaying other loans and current family consumption. This is probably an indication that they have been unable to adequately use the services of microfinance.

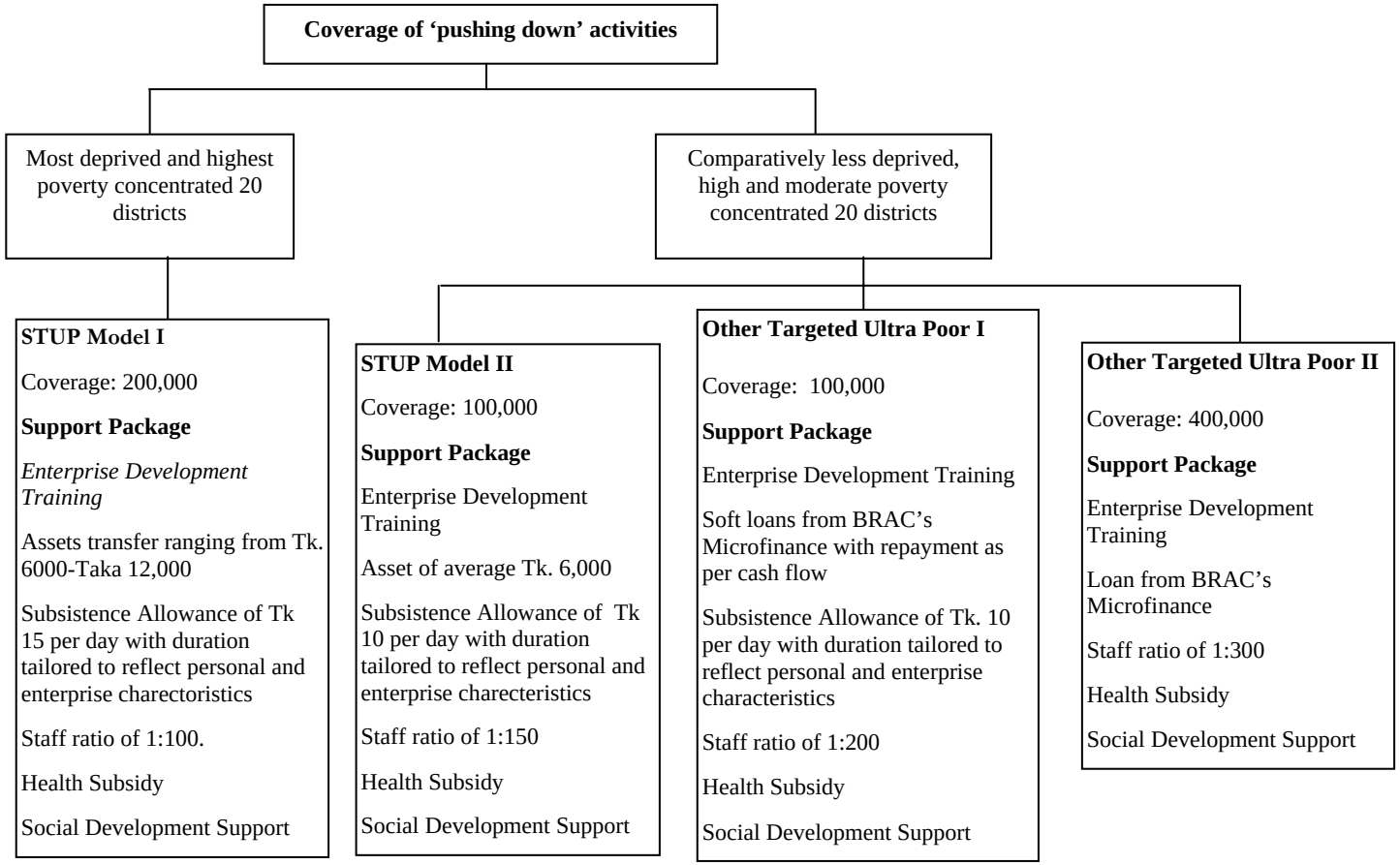
Annex 1. CFPR II baseline survey areas



Annex 2. The Bangladesh livelihoods



Annex 3. Coverage and support package of "Pushing down" activities



Livelihood Assets

Socio-demographic Profile

Narayan Chandra Das and Kazi Faisal Bin Seraj

INTRODUCTION

Bangladesh is one of the most densely populated countries in the world. It has been estimated that in 2005, 153 million people lived in Bangladesh within an area of 147,570 km^2 (UNDP 2007). Population pressure along with a shortage of natural and social resources created inequality in access to basic services such as education, health care and employment. Such disparities might have influenced in shaping the demographic and socioeconomic structure of the population (Hadi 2004). Human development index (HDI) is often used to compare socio-demographic situation in many countries (Khan and Raeside 2005). According to HDI (2007/2008) Bangladesh is ranked 140 among 177 countries in the world (UNDP 2007).

Socio-demographic analysis from the CFPR I baseline survey revealed that the ultra poor population is significantly more disadvantaged from the average population of the country in virtually all social and demographic characteristics (Hadi 2004). In general, it was found that the household size among the ultra poor was much lower than the national rural figure; a higher proportion of ultra poor households were female headed compared to national estimates, teenage marriage was higher among the ultra poor and dependent population among the ultra poor households was also higher. It was also found that ultra poor were less educated and owned a meager amount of assets compared to the economically better off groups. In addition access to welfare projects such as cash grant for the elderly, food support for the vulnerable groups, food-for-work project, rural maintenance programme, etc. was very limited for the ultra poor.

As mentioned in the introductory chapter, one of the key findings from the evaluation of CFPR I is that the ultra poor are more heterogeneous than previously accounted for. In CFPR II such diversity has been addressed and the support package for the ultra poor have been differentiated based on geographical location. Though both STUP I and STUP II are supposedly similar in terms of their household endowment, it is believed that economic opportunity for the latter group is higher as they are living in relatively less poor areas. Thus from an evaluation perspective it would be interesting to find out whether any socio-demographical differences between STUP I an STUP II can be found or not.

In light of the above discussion the objective of this chapter is two fold. Firstly, the aim of this chapter is to find out whether in general the STUP households are socio-demographically distinct from other households in their respective localities or not. The second objective of this chapter is to explore similarities or dissimilarities between households from STUP I and STUP II areas in perspective of various socio-demographic variables such as age and sex distribution, household composition and characteristics, education, disability and access to public services.

DEMOGRAPHIC CHARACTERISTICS

Household characteristics

A household is defined as a person or a group of people who live together and share food from the same kitchen (cook stove). Table 1 shows a summary statistics of the household characteristics found in this baseline survey. As can be seen from Table 1, household size and economic status were found to be positively related. That is as we move down across the wealth groups, the average household size decreases in both STUP I and STUP II areas. For the proportion of female members the correlation was found to be reverse. The TUP households consisted of more female members compared to the NP and NTP households in both STUP I and STUP II areas. As female headed household is one of the selection criteria for targeting the ultra poor, it was not surprising to find that a significantly higher percentage of TUP households were female headed. The higher female-male ratio for the TUP households might also be a result of out-migration for employment among men, an important component of livelihood strategy often adopted by the poorest households (Hadi 2004)

Ratio of working aged members was calculated dividing the total number of member belonging to the age range 15 to 60 years by total number of members in a household. Overall ratio was found to be above 50% for all the concerned groups. Ratio was found to be lowest for the TUP households in STUP II areas. Proportion of disabled members was found to be highest in the TUP households

in both STUP I and STUP II areas. Similar result was found in case of percentage of households with disabled member(s).

Between STUP I and STUP II areas it was found that in absolute terms, TUP households in STUP II areas had larger household size, higher percentage of female headed households. The ratio of working aged members was found to be lower for the TUP households in STUP II areas compared to the TUP households from the STUP I areas.

Table 1. Household characteristics

	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
Household size	4.8	3.8	3.2	4.8	4.2	3.4	<0.01	<0.01	<0.05
Proportion of female members (%)	49	55	63	49	54	64	<0.01	<0.01	ns
Female headed hh (%)	5	18	42	6	20	48	<0.01	<0.01	<0.01
Ratio of working aged members (%)	63	60	62	62	59	57	<0.01	ns	<0.01
Proportion of disabled members	1.0	1.7	2.7	1.0	1.6	3.2	<0.01	<0.01	ns
Households with disabled members (%)	4.1	5.2	7.1	4.4	6.0	8.2	<0.01	<0.05	ns

Note: ns=not significant at the 10% level

Age and sex distribution

Table 2 shows population distribution of the surveyed households by age and sex. The total number of population for STUP I and STUP II survey was 122,999. It was found that for the TUP and NTP households, higher percentage of male population belonged to the age range 6-15 years and for the NP households higher percentage belonged to the age range 16 to 30 years in both STUP I and STUP II areas. This implies a lesser number of working aged member for the TUP and NTP households. In case of female members, except TUP households in STUP II areas, highest concentration of population was found to be in the age group 16-30 years.

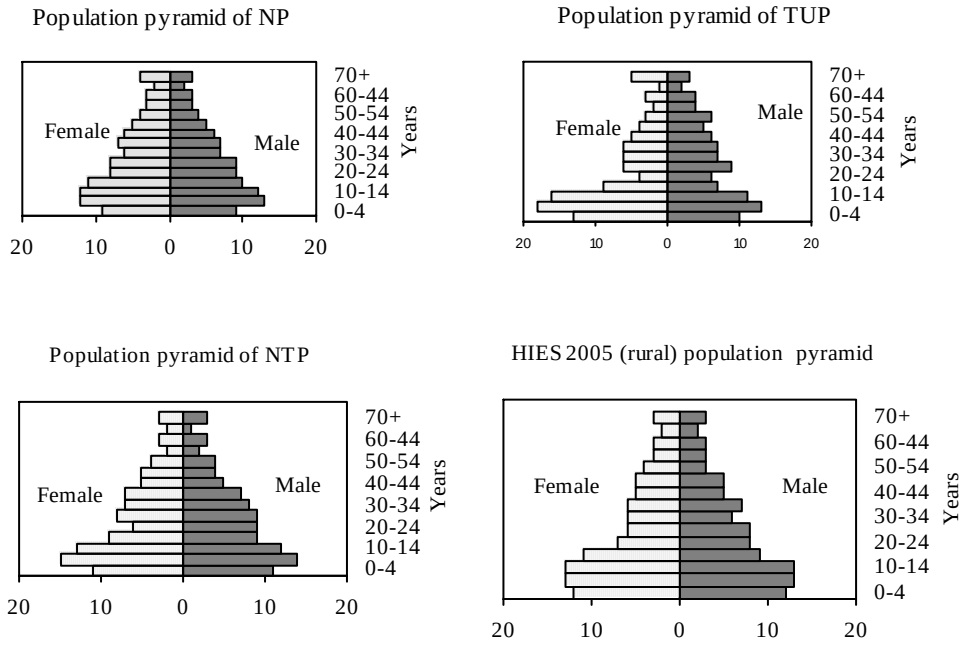
Table 2. Distribution of population by age and sex

	STUP 1			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
Male									
<=5 years	11	16	17	11	14	16	<0.05	ns	ns
6-15 years	24	26	31	24	29	34	<0.01	<0.05	<0.05
16-30 years	29	25	20	27	24	19	<0.01	<0.01	ns
31-45 years	18	19	17	18	18	16	<0.01	ns	ns
46-60 years	12	10	10	12	10	9	ns	ns	ns
60+ years	6	4	6	7	5	7	<0.01	<0.10	ns
n	14789	12690	1179	16871	13632	683			
Female									
<=5 years	12	15	13	11	12	12	<0.01	ns	ns
6-15 years	24	24	22	24	25	25	<0.01	ns	<0.01
16-30 years	30	30	25	28	29	22	<0.01	<0.01	<0.01
31-45 years	19	17	19	19	18	21	<0.01	<0.01	<0.05
46-60 years	11	10	16	11	10	14	<0.01	<0.01	<0.05
60+ years	5	4	5	6	5	7	<0.01	<0.01	<0.05
n	14,772	13,777	1,625	17,189	14,776	1,016			

Note: ns=not significant at the 10% level

Figure 1 shows that majority of the household members in both STUP I and STUP II areas regardless of gender belonged to the age range between 0-24 years. Compared to the national estimate (BBS 2007), the TUP households consisted of higher percentage of members who were aged under 15.

Figure 1. Population pyramid of different poverty groups



In general female headed households were found to have lower average size (Table 3). Within the STUP I and STUP II areas, regardless of gender of the head, TUP households had lower household size compared to other groups. TUP households from STUP I areas had lower family size compared to that of STUP II areas for the female headed households. If we look at the distribution of households by family size (Table 4), it can be seen that presence of single member household is very high for the TUP households in both geographical areas. Percentage of single member households was higher in STUP I areas compared to STUP II areas.

Table 3. Average household size by sex of household head

	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
Female headed	3.14	2.11	2.08	3.41	2.74	2.54	ns	<0.10	<0.01
Male headed	4.86	4.20	4.09	4.93	4.54	4.15	<0.01	<0.01	ns
All	4.77	3.83	3.24	4.83	4.19	3.38	<0.01	<0.01	<0.05

Note: ns=not significant at the 10% level

Table 4. Distribution of households by size (% of households)

HH Size	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP	2 vs 3	5 vs 6	3 vs 6
	(1)	(2)	(3)	(4)	(5)	(6)			
1	1.0	8	19	0.8	5	14	<0.01	<0.01	<0.01
2	7	13	19	6	11	20	<0.01	<0.01	ns
3	15	21	20	14	18	20	<0.05	ns	ns
4	26	25	19	27	25	21	<0.01	<0.05	ns
5	23	18	13	22	19	15	<0.01	<0.01	ns
6	14	9	6	16	12	6	<0.01	<0.01	ns
7	7	3	3	7	5	3	<0.01	<0.05	ns
8	4	1.2	0.8	4	2	0.8	<0.05	<0.05	ns
9	2	0.3	0.2	2	0.9	0.0	<0.10	<0.01	<0.01
9 +	2	0.3	0.2	1.5	0.7	0.1	<0.05	<0.05	ns

Note: ns=not significant at the 10% level

According to Table 5, all the single member households in each wealth groups except NTP in STUP I areas were found to be female headed. For NTP households in STUP I areas, 99% households were found to be female headed. For TUP households, such finding is obvious as CFPR targets women, indicating that in every TUP households there will be at least one female member. The distribution of female headed households by size of households also reveals that as household size increases proportion of female headed household decreases, and the decrease is sharper among the non-poor households.

Table 5. Proportion (%) of female headed households by size of households

Household size	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
1	100	99	100	100	100	100	<0.05	ns	ns
2	11	25	56	14	27	65	<0.01	<0.01	ns
3	7	10	36	12	15	47	<0.01	<0.01	<0.01
4	4	4	18	6	9	27	<0.01	<0.01	<0.01
5	2	3	11	3	5	26	<0.01	<0.01	<0.01
6	1	2	9	1	5	21	<0.01	<0.01	<0.01
7	2	2	9	5	2	8	<0.01	ns	ns
8	0	1	5	2	13	18	ns	ns	ns
Above 8	1	5	4	0	0	0	ns	ns	ns

Note: ns=not significant at the 10% level

MARITAL STATUS

Table 6 shows marital status of the adult males and females. A good proportion of adult males were found to be unmarried; however, the proportion seems to be higher among the non-poor households. Marital dissolution (in terms of

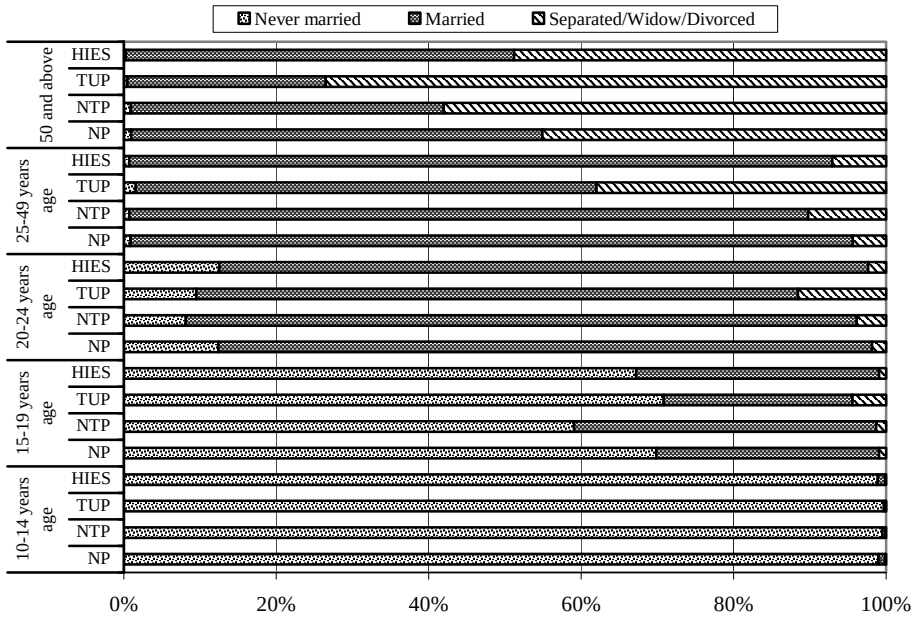
widowhood or divorce or separation) of the females was found to be highest for the TUP households compared to other two groups in both areas. Among the TUP households, marital dissolution in terms of separation was found to be higher in the STUP II areas. Marital dissolution among the females can be more clearly shown in Figure 2 where we tried to present the change of marital status among women by age. Dissolution of marriage can be seen to increase with the age of members. By the age of 50, about 75% of the TUP females were found to be either separated or widowed or divorced. The comparable proportion for all rural women (BBS 2007) was found to be significantly lower.

Table 6. Marital status of the adult members (aged ≥18 years for females and aged ≥21 years for males)

	STUP I			STUP II			p-value		
Marital status	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs 3	5 vs 6	3 vs 6
Female (≥18 years)									
Never married (%)	6	3	4	5	5	4	<0.01	ns	ns
Divorced (%)	0.3	0.8	1.8	0.4	0.8	1.6	<0.01	<0.05	ns
Married (%)	81	75	53	81	70	48	<0.01	<0.01	<0.05
Separated (%)	0.9	3.4	8.4	0.7	3.9	11.1	<0.01	<0.01	<0.05
Widow (%)	11	17	33	13	20	35	<0.01	<0.01	ns
Male (≥21 years)									
Never married (%)	14	5	4	15	8	5	<0.05	<0.05	ns
Divorced (%)	0.1	0.1	0.1	0.0	0.3	0.0	ns	<0.05	<0.05
Married (%)	86	94	95	85	91	94	<0.10	<0.05	ns
Separated (%)	0.2	0.2	0.3	0.2	0.1	0.2	ns	ns	ns
Widow (%)	1.1	1.0	0.8	1.5	1.6	1.0	ns	ns	ns

Note: ns=not significant at the 10% level

Figure 2. Martial status of the females by age



CHARACTERISTICS OF HOUSEHOLD HEAD

In terms of main characteristics of the household head, it was found that a significantly lower percentage of TUP households were headed by a literate person (can read and write) (Table 7). Only 9% of the TUP households in STUP I areas were headed by a literate person compared to 48% of the NP households. Between STUP I and STUP II, a lesser percentage of TUP household heads were literate in the former areas. In terms of age, the variation was very little in absolute terms though statistically significant difference was found between NTP and TUP in STUP I areas. Similarly, statistically significant difference was found in case of ability to count among the heads of various economic groups even though overall percentage figure was very high for all the groups. Percentage of household heads with primary education was found to be very low among the TUP households in both geographical areas. Analysis of marital status of the heads of the households reveals that a higher proportion of the heads among the TUP households in both geographical areas was widow/widower compared to the NP and NTP households.

Table 7. Characteristics of household head

	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
Age (years)	45	42	45	46	44	45	<0.01	<0.10	ns
Literate (%)	48	22	9	53	26	11	<0.01	<0.01	ns
Can count (%)	98	97	95	99	99	96	<0.01	<0.01	ns
Primary education (%)	44	19	7	49	25	10	<0.01	<0.01	ns
Marital status									
Never married (%)	2.0	1.2	1.4	1.8	2.0	2.6	ns	ns	<0.05
Divorced (%)	0.1	0.5	1.6	0.2	0.7	1.2	<0.01	ns	ns
Married (%)	94	82	58	94	80	53	<0.01	<0.01	<0.05
Separated (%)	0.4	2.6	7.3	0.1	3.1	10.8	<0.01	<0.01	<0.01
Widow/widower (%)	4	14	32	4	14	32	<0.01	<0.01	ns

Note: ns=not significant at the 10% level

DISABILITY

Disability is a significant outcome as well as determinant of poverty, with implications on productivity and dependency ratio. In this report, it was found that presence of disabled members is very high among the TUP households in both STUP I and STUP II areas (Figure 3). Prevalence of disabled member was found to be higher for the TUP households in STUP II areas. It was also found that disability is more prevalent among the male members for various age groups (Figure 4). Figure 4 also shows that proportion of disabled members has a positive correlation with age. That is, with the increase of age, proportion of disabled members increases for both male and female. Only less than 0.5% of the children aged up to 5 years were found to be disabled indicating that disability by birth was not prevalent at any significant extent among the surveyed households.

Figure 3. Percentage of disabled members

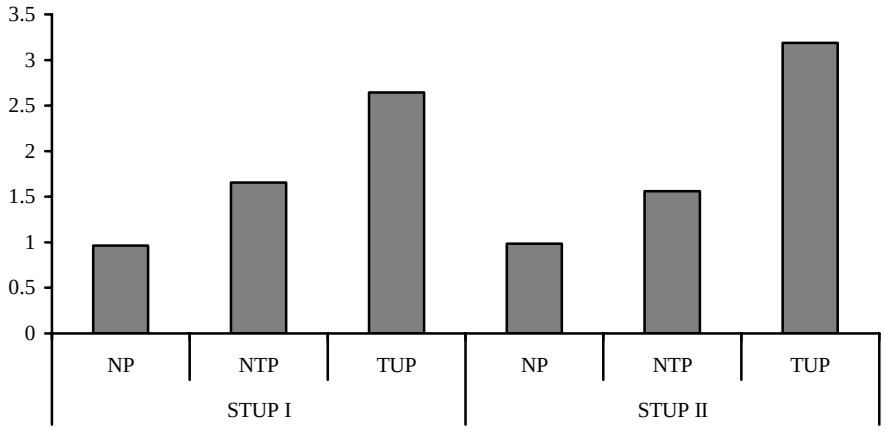
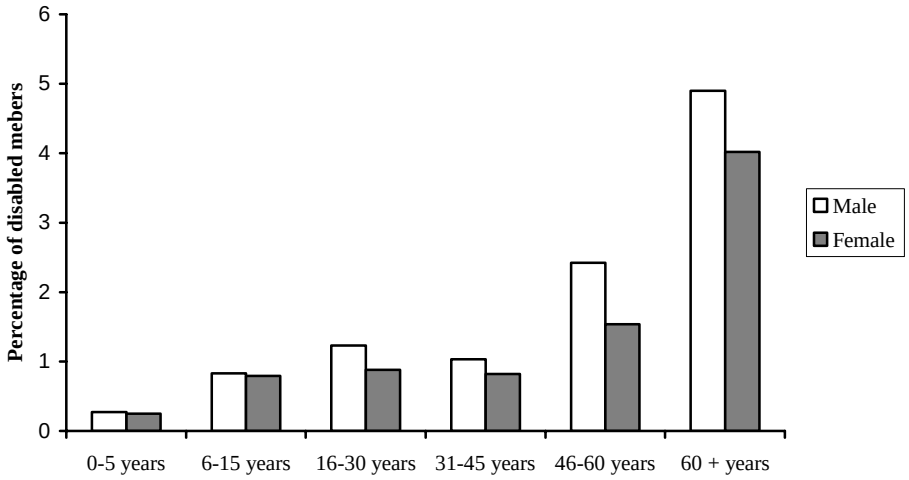


Figure 4. Gender and age distribution of disabled members



If we look into types of disability, it appears that around one-fifth of all disabled members were blind (Table 8); however, no statistically significant difference was observed between two groups of TUP members. Similarly difference between NTP and TUP households in both areas was found to be statistically insignificant. One of the most common disability reported by the surveyed household was inability to walk, ranging from 17% for NP households in STUP I areas to 34% in NTP households in STUP II areas. Mental disability was also found to be largely prevalent among all groups of members.

Table 8. Types of disability

	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
Blind (%)	19	20	15	17	23	20	ns	ns	ns
Deaf (%)	9	10	10	4	3	7	<0.05	ns	ns
Mute (%)	10	10	7	20	6	7	<0.01	ns	ns
Cannot walk (%)	17	19	24	26	34	20	ns	<0.05	ns
Cannot move hands (%)	9	6	8	8	9	13	ns	ns	ns
Mental disability (%)	29	28	29	22	18	30	ns	<0.10	ns
Paralysis (%)	2.5	1.1	1.7	1.7	1.6	0	ns	ns	0.01
Others (%)	4.2	5.4	5.2	1.4	6.5	2.8	<0.05	ns	ns

Note: ns=not significant at the 10% level

NGO PARTICIPATION

NGO involvement among the TUP households in both geographical areas was found to be significantly low compared to the NP and NTP households (Table 9).

Limited access to microfinance of the ultra poor in Bangladesh is well known, which is due to mainly demand and supply side constraints of the programmes as mentioned in the introductory chapter. Besides, one of the exclusion criteria for selecting TUP households was that no household member is involved in any development programme or NGO activities[1]. Among the NTP households 11% in STUP I areas and 14% in STUP II areas were found to be involved with NGOs. No statistically significant difference in current NGO membership, however, was found between TUP households from STUP I areas and STUP II areas.

Table 9. NGO participation of the members (aged 10 years and above)

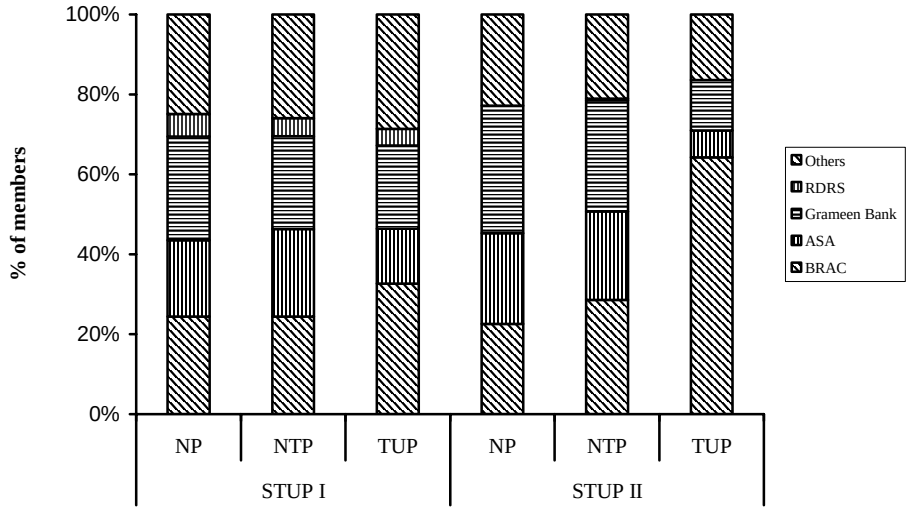
	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
Previously member of NGO (%)	1.2	2.7	2.6	1.5	2.8	3.0	ns	ns	ns
Currently member of NGO (%)	8.4	11.0	3.0	9.7	14.1	2.4	<0.01	<0.01	ns

Note: ns=not significant at the 10% level

BRAC, ASA and Grameen Bank together accounts for more than two-third of the surveyed members currently involved with NGOs (Figure 5). In fact, BRAC, ASA and Grameen Bank are amongst the largest microfinance institutions (MFI) of Bangladesh. These MFIs accounts for about three-fourth of total active microfinance borrowers of Bangladesh (Zaman *et al.* 2007). Membership at RDRS was found to be among the STUP I members only as it is now working in selected northern and north-east districts of the country.

[1] "However, learning from Phase I was that BRAC excluded ultra poor women from STUP participation because they were members of NGOs. However, BRAC staff observed that many of these households later dropped out of microfinance programmes, often with an outstanding balance of loans. Their affiliation with these organisations was frequently nominal and inactive, and they received little other support from those or other service providers. Based on this experience, it was decided to review the selection of such households for Phase II with the relevant NGOs, on a case by case basis. Staff will be equipped with detailed guidelines to support the review and the decisions taken on this issue." (BRAC 2007)". Therefore, it is not surprising to observe a proportion of members among the TUP households currently involved in NGO.

Figure 5. Distribution of NGO members by types of NGO



CONCLUSION

The aim of this chapter was to find out whether in general the STUP households are socio-demographically distinct from wealth groups in their respective localities or not and to explore similarities or dissimilarities in various socio-demographic variables between STUP I and STUP II areas. It was found that compared to the NP and NTP household size was significantly lower among the TUP households in both STUP I and STUP II areas. Expectedly, female headed households were found to be significantly higher among the TUP households in both geographical areas.

Single member households were found to be higher among the TUP households in both geographical areas. Marital dissolution (in terms of widowhood or divorce or separation) of the females was also found to be highest for the TUP households compared to other two groups in both areas. By the age of 50, about 75% of the TUP females were found to be either separated or widowed or divorced. In general, a higher proportion of TUP household heads was found to be illiterate although no significant difference was observed between TUP households from STUP I and STUP II areas.

Disability which is a significant outcome as well as determinant of poverty was found to be very high among the TUP households in both STUP I and STUP II areas. It was also found that prevalence of disability is positively associated with age. Disability was also found to be more prevalent among the males.

Natural, Physical and Financial Assets

Kazi Faisal Bin Seraj and Farzana A Misha

INTRODUCTION

In the context of rural Bangladesh, income and food security is often dependent on ownership or access to various natural and physical assets. A natural asset like land is not only a source of productivity and livelihood but also a determinant of security and shelter. Physical assets, both productive and non-productive, on the other hand, are essential for maintaining livelihood when natural assets are scarce or not available to the poor. Physical assets like livestock and poultry can help a poor household by augmenting income through selling their products in the market. Moreover, these products can also be domestically consumed creating an expenditure saving mechanism. Other productive assets, like rickshaws and vans, may also be considered as a substitute to land as they provide alternative income generating activities for the poor.

In general, it is understood that lack of capital is a major constraint to the enhancement of assets and that institutional credit targeted towards the poor can address such a problem (Hossain and Hossain 1995). However, such a notion is based on the assumption that "the poor" is a homogenous group and ignores the credit worthiness of the better off poor, compared to those at the bottom rung of the ladder. This essentially implies a circular constraint for the extreme poor where in one hand they cannot access institutional credit because of their insufficient asset base and, on the other hand, they cannot accumulate asset because of insufficient capital base. In addition, due to their preference on

present consumption they also tend to save less, which then makes them more vulnerable to shocks and disasters.

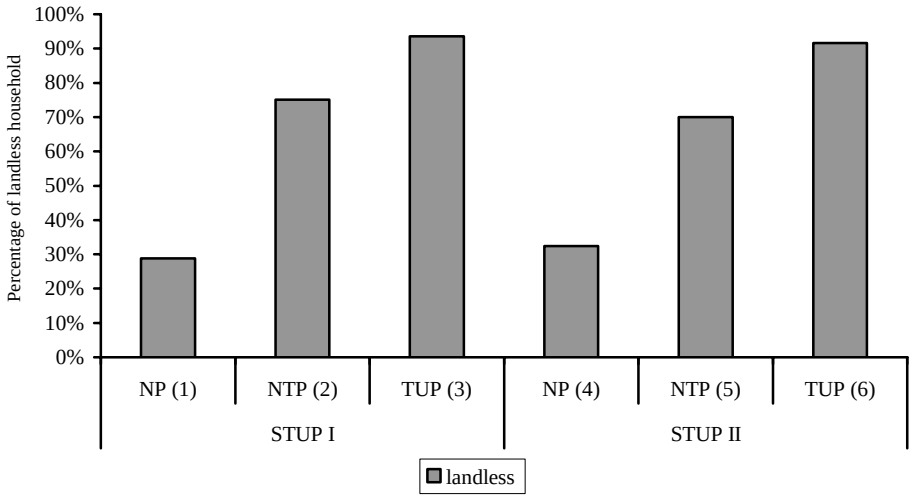
For the extreme poor, an alternative to the formal credit market is to participate in informal markets where the interest rates they have to pay on their outstanding loan is often much higher than those in the formal market. Remittances from relatives living outside can also help to meet daily needs. However, the amount and frequency of access to informal markets and transfers or remittance depends on the extent of a person's social network. The poor often lack such a network and, even if they have one, most of the time it results in an unfavorable repayment arrangement. As a result, they mostly rely on gifts from the richer households, get involved in non-skilled jobs or simply slip into begging.

The objective of this chapter is to prepare a baseline report on existing natural, physical and financial asset holding of the surveyed households. By natural asset, in this report we are only considering land as it is the most important natural asset in the context of rural Bangladesh. Physical assets in this report include both productive and non-productive assets. Data has been collected on various aspects of savings and outstanding loans at the time of the survey. Savings have been further disaggregated into home savings, savings in banks or insurance companies, savings with NGOs including BRAC, and with other people. The same has been done with outstanding loans (disaggregated into NGOs, money lenders, shops and relatives). We also tried to observe the flow of money lent to others to figure out the degree of solvency. For each of these variables data has been collected on the sources of loan, amount of loan/savings, type of loan, e.g. cash or in kind and whether or not interests is charged on the loans.

LAND HOLDING

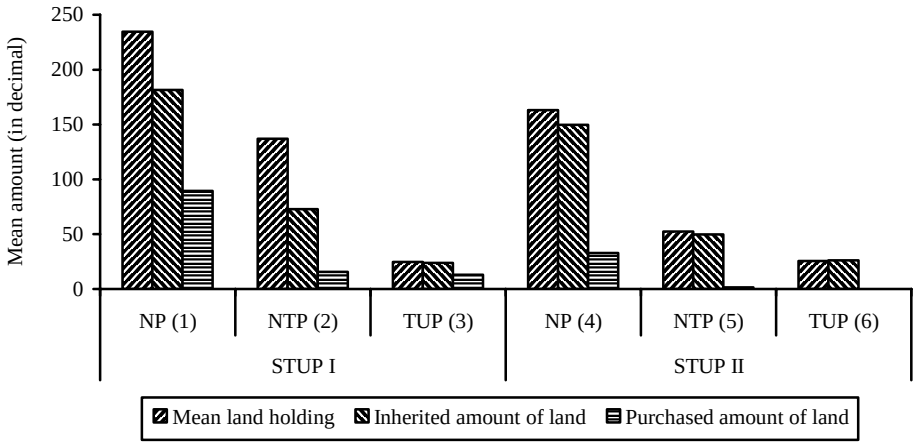
Historically in Bangladesh 'land poor' are the poor in general and there have always been a strong negative correlation between land ownership and incidence of poverty (BBS 2007). According to this study, the percentage of landless household was found to be highest for TUP households in both the STUP I and STUP II areas (Table 1). Figure 1 shows that as we move from NP to TUP, the percentage of landless household increases in both areas. Since households from the STUP I areas are economically worse off compared to the STUP II areas, it was expected that proportion of landless households will be higher for the TUP households from the STUP I areas compared to the TUP households from the STUP II areas. In this study a statistically significant difference between two groups was found (10% level of significance).

Figure 1. Proportion of landless households



In the case of amount of land holding, it was found that on an average NP households had more land compared to TUP households in both the STUP I and STUP II areas (Table 1). However, no statistically significant difference was found between TUP households from the STUP I and STUP II areas in case of

Figure 2. Ownership, purchase and inheritance of land

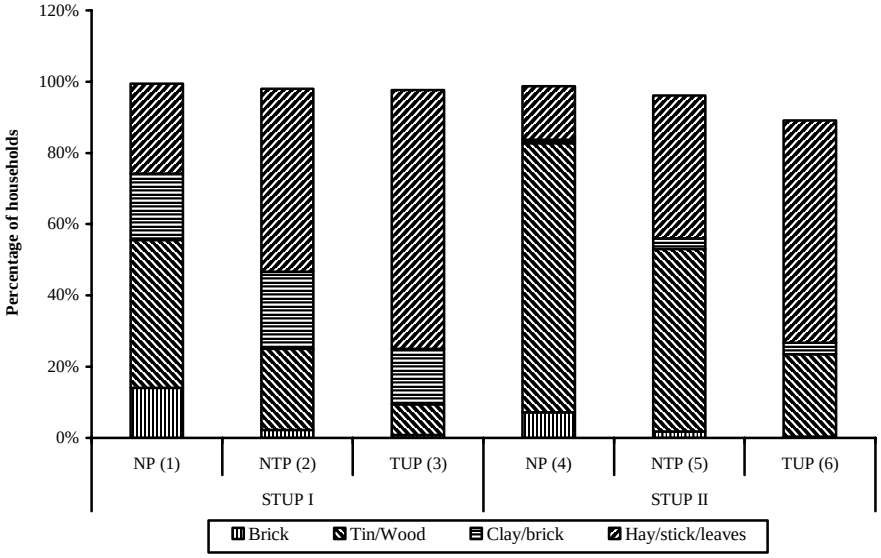


mean land holding. From Figure 2 it can also be seen that the higher amount of land holding by the non TUP is a result of both inheritance and purchase of land in larger amounts. In contrast, the TUP households inherited a lesser amount of land and do not (most probably can not) augment their land holding through purchase.

HOMESTEAD AND LIVING CONDITION

Housing status is an indicator that is sensitive to poverty scale. According to this study it was found that TUP households in general have smaller size of homesteads compared to the other two economic groups (Table 2). In both the STUP I and STUP II areas, a higher percentage of households belonging to the TUP category had less than one decimal of homestead land compared to NTP households. In addition, TUP households from the STUP I areas have a higher percentage of households having less than one decimal of homestead land compared to the TUP households from the STUP II areas. The proportion of households owning more than five decimal of land was found to be higher in non TUP households and, if compared between the areas TUP households from the STUP II areas are better off than the TUP households from the STUP I areas.

Figure 3. Building material of the house

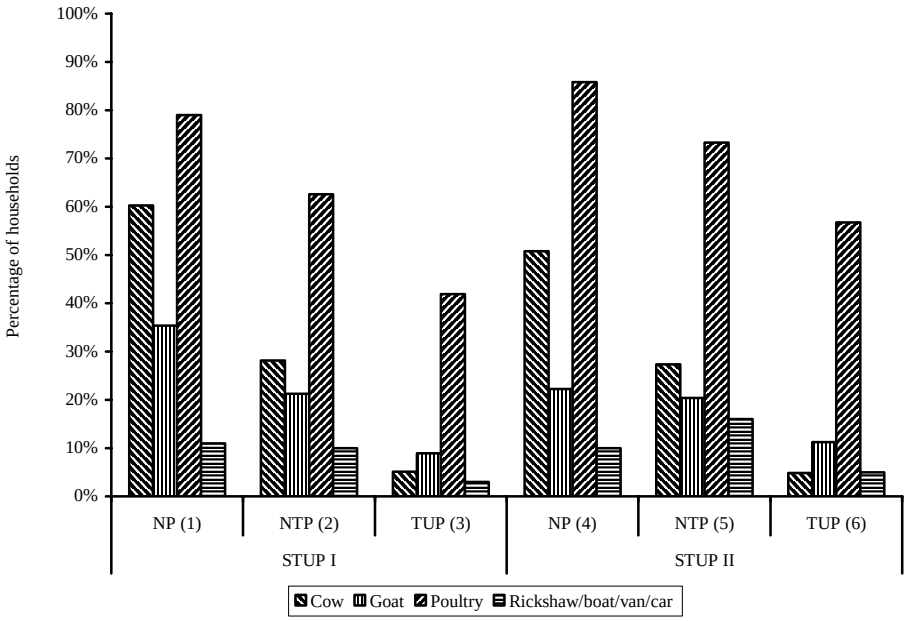


In case of building materials, economically better off households have houses with better quality building materials such as brick, tin or wood (Figure 3). Poorer households, in contrast, mostly use inferior quality materials such as clay, hay sticks or leaves for building their houses. As expected it was also found that the condition of the house was better for the economically better off groups compared to the worse off groups (Table 2). The presence of a sanitary latrine, electricity and separate kitchen was also found to be dependent on economic status and TUP households from the STUP II areas are better off than their counterparts in the STUP I areas.

PRODUCTIVE ASSETS

Ownership of cows and goats was found to be lower for TUP households in both the STUP I and STUP II areas compared to other economic groups (Figure 4). However, no statistically significant difference was found between TUP households in the STUP I areas and the STUP II areas (Table 3). Overall ownership of poultry is very high in the surveyed population. When compared between economic groups within the STUP I and STUP II areas, a lower percentage of TUP households owned poultry compared to NTP and NP. On the other hand, a comparison between TUP households in the STUP I areas and the STUP II areas shows that the later have a higher percentage of ownership. Overall ownership of rickshaw, boat, van or car was found to be very low in the surveyed areas with a statistically significant difference between economic groups (Figure 4). A Statistically significant difference in ownership of these assets also existed between TUP households from the STUP I and STUP II areas.

Figure 4. Ownership of productive assets

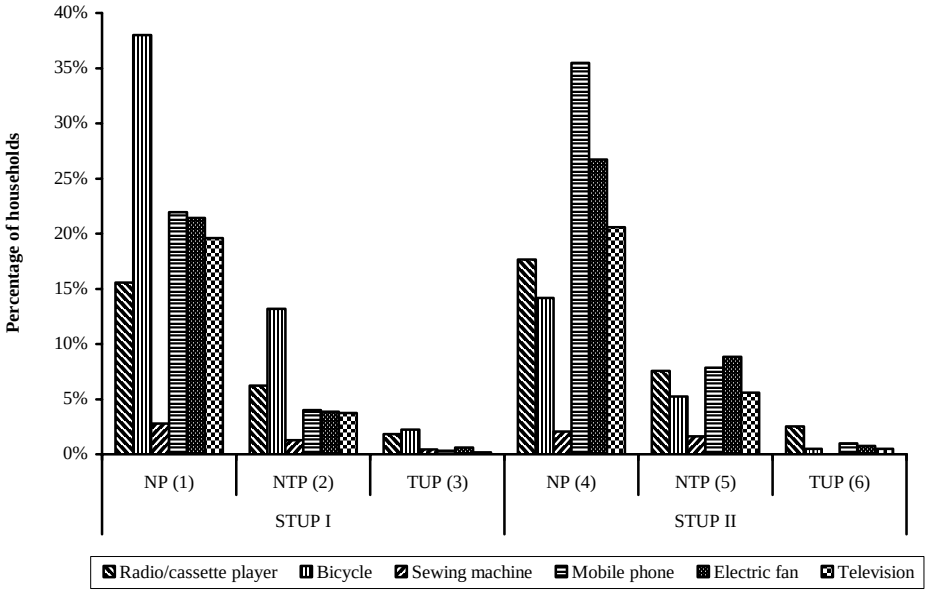


NON-PRODUCTIVE ASSETS

Non-productive consumer items such as radio, cassette player, television, bicycle, mobile phone and electric fan are often considered as secondary type of indicator for living standards. In Figure 5 it can be seen that very few of the TUP households actually have any of these assets in their home. These assets are not

seen as basic needs of a household and most probably considered as prestige items that they can not afford. Given recent expansion of mobile phone coverage in the country, it was very surprising to find out that almost none of the TUP households had a mobile phone in their house.

Figure 5. Ownership of non-productive assets



SAVINGS PATTERN

Overall, it was found that a very few of the surveyed households had any kind of savings (Figure 6**)**. One interesting finding of this study is that the percentage of households having savings is higher for NTP households compared to other groups in both the STUP I and STUP II areas. This apparently unusual finding can be partially explained if we look at the NGO membership and type of saving these households have. According to Figure 7 it can be seen that NGO membership is higher among the NTP households. Figure 8 shows that although most of the households prefer saving at home and that there is a correlation between economic status and saving at home, when it comes to having savings in an NGO (BRAC or other), the percentage of households is higher for the NTP category compared to the NP and TUP categories. NTP households also have higher participation in microfinance activities (Table 4). Since microfinance has a saving scheme imbedded, it can be intuitively inferred that the higher percentage of saving by the NTP households might be a result of higher microfinance participation.

Figure 6. Saving pattern among surveyed households

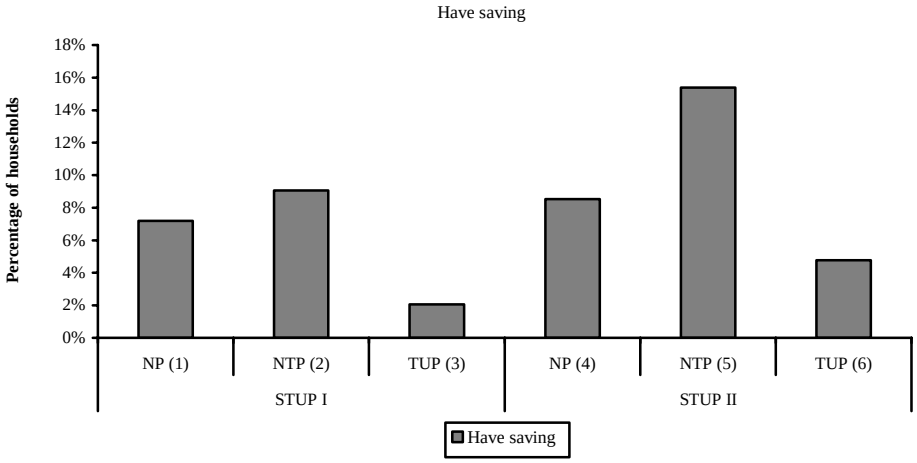


Figure 7. NGO membership status of the households

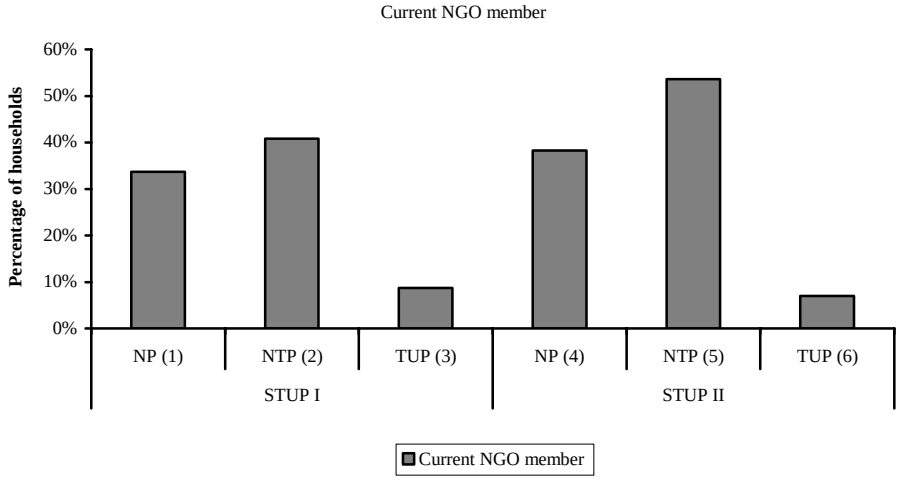
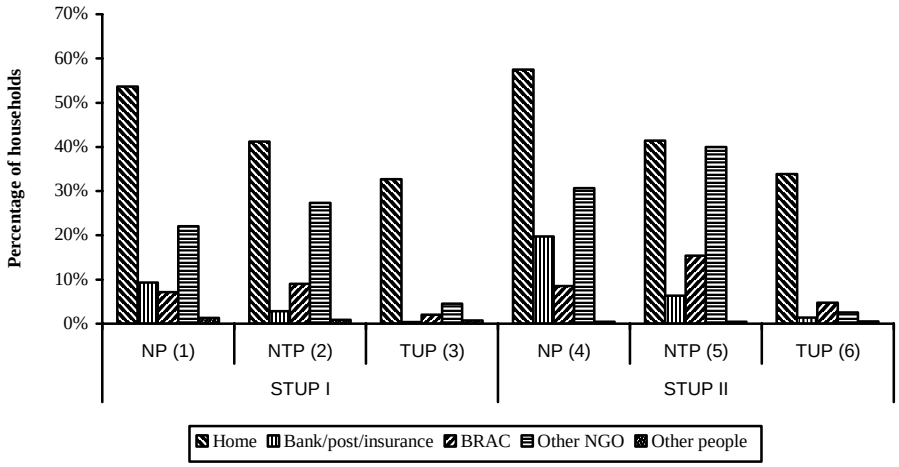


Figure 8. Places of saving



CREDIT ACTIVITIES

A higher percentage of NTP households were found to have outstanding loan compared to NP and TUP households in the STUP II areas (Figure 9). TUP households were reported to have more informal loans than any other group in both the STUP I and STUP II areas. It has also been seen that the ultra poor tends to take loans on kind more than any other group in both the STUP I and STUP II areas (Figure 10). This has significant implications since loans in kind are often associated with food insecurity and vulnerabilities (BRAC 2004). This is very rational given that the TUP households are often characterized as a *risky group* by the microfinance institutes and thus have to rely on non-institutional sources for credit. This can be further elaborated by looking at the sources of loans among the surveyed households (Figure 11).

At first, if we look at the NGO loans we can see that a lower percentage of TUP households took loans from NGOs compared to the other two groups. This is expected as one of the selection criteria for TUP excludes households with existing NGO membership. Now, if we look at informal sources of loans we can see a higher percentage of TUP participation compared to the other two groups. From Figure 11 it can also be seen that a higher percentage of TUP households from the STUP I areas have taken loans from friends and relatives. In the STUP II areas on the other hand, a higher percentage of TUP households took a loan from shops. This is expected given that TUP households from the STUP I areas are better off compared to TUP households from the STUP II areas and the fact that credit from shops is more formal than taking credit from friends and relatives. Further intuition behind this is that the survey was carried out in the

lean period when the men tend to migrate and leave family behind. During this time credit arrangements with shopkeepers are made which are paid back on their return. For these particular sources the TUP households tend to borrow more than that of NP or NTP. Considering the amount of loan, the NP households borrow more money than any other group. The underlying explanation for this is due to the fact that they are more reliable than any other group to lend money and also as they have more investments compared to rest of the groups.

Figure 9. Percentage of households having outstanding loan

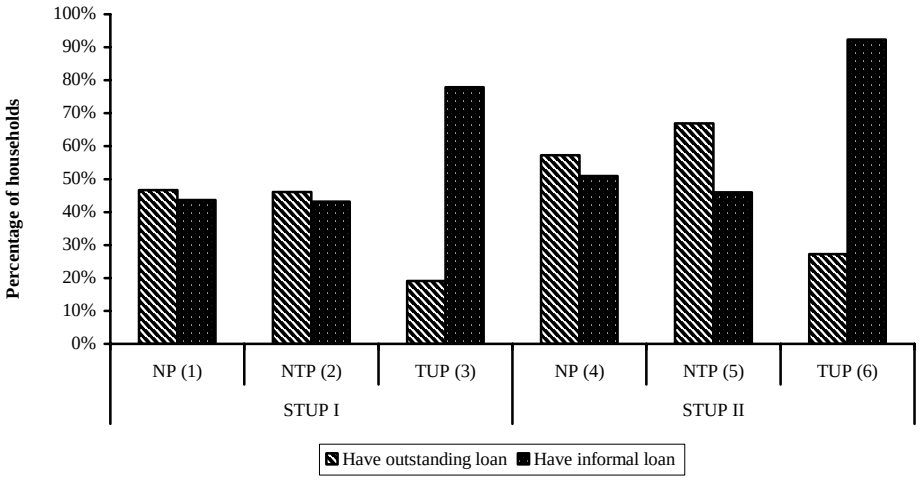


Figure 10. Types of loan among the surveyed households

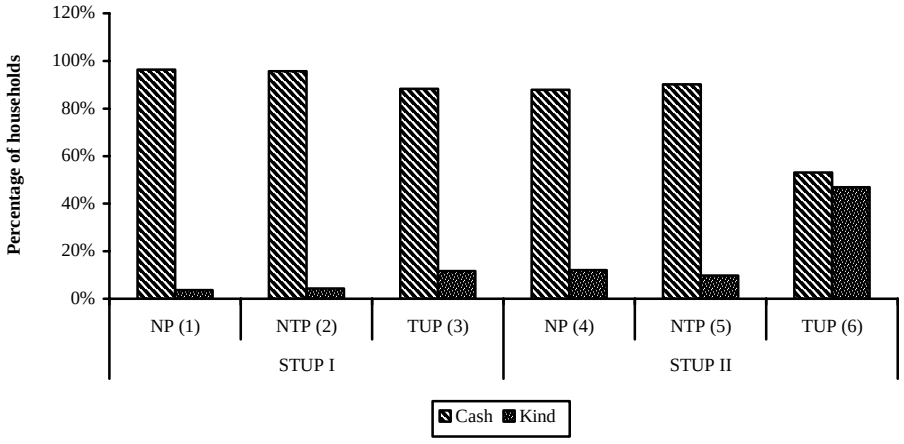
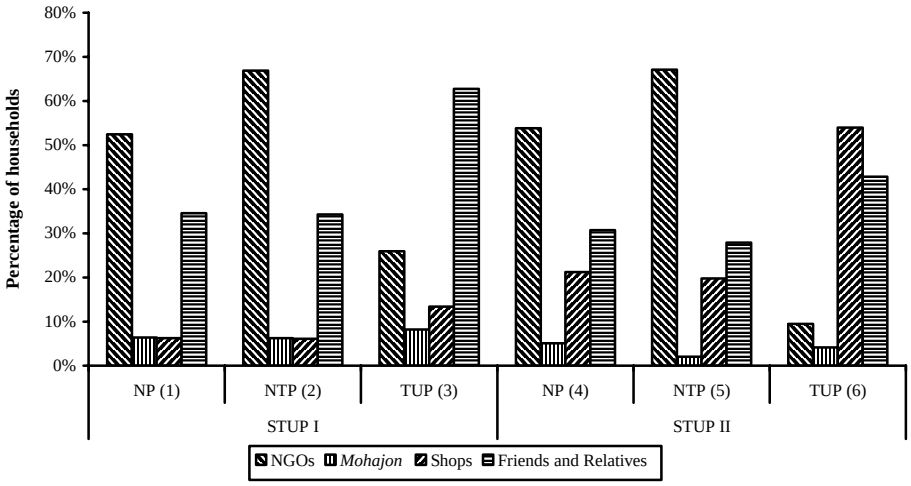


Figure 11. Sources of loan among the surveyed households



LENDING OUT

In the case of giving out loans, it was found that a very few number of the households from the surveyed areas actually disbursed loans to others (Table 4). As expected the percentage of households lending was significantly lower for the TUP households in both the STUP I and STUP II areas. The type of loan was predominantly in cash, while a higher percentage of TUP households reported to have given loans with interest compared to the other two groups. As it can be seen from Figure 12, most of the loans given out by the households are in the form of cash. The amount of loan found to be given out is very small for the TUP households in both the STUP I and STUP II areas (Table 4). It is interesting to see that even though the TUP households lent out a very small amount of money on an average, when it comes to charging interest, a higher percentage of them earned interest on the loaned money. This was very much expected as poorer households discount their present consumption at a higher rate.

TRANSFER/REMITTANCES

In case of remittance, the TUP households in both the STUP I and STUP II areas received some kind of remittance, either in the form of cash or in kind within a year (Table 5). In fact, most of the remittances received by these households were in kind rather than cash. From figure 13 we can see that the sources of remittances for the TUP households are either from their own village or from another village in the same district. From figure 13 it can also be seen that there is a correlation between receiving remittance from the same village and economic status. A further analysis is needed to find out whether gifts from the richer households have any role in such findings or not.

When it comes to giving out cash or goods in kind as remittance or transfer, it was found that the TUP households in both the STUP I and STUP II areas did not give out much within a year (Table 5). Once again, when they do send remittances it is mainly in kind rather than in cash as they mostly lack enough cash even for their daily necessities. In case of location, most of the transfers took place within their own district, with a significant transfer taking place within their villages.

Figure 12. Type of lending and contract

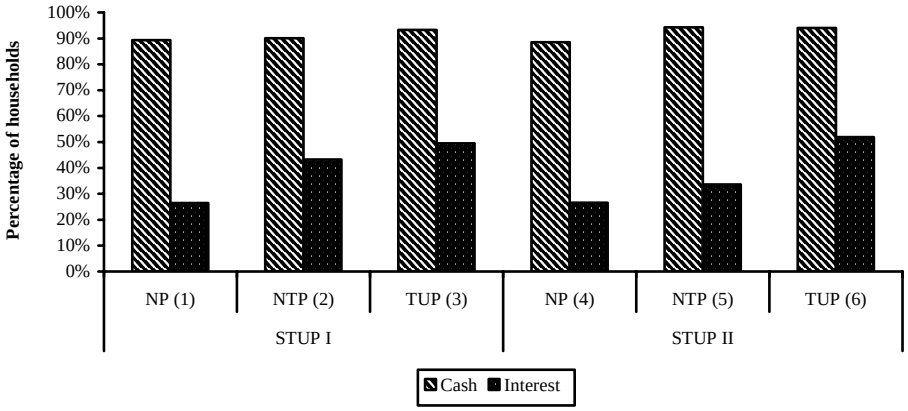
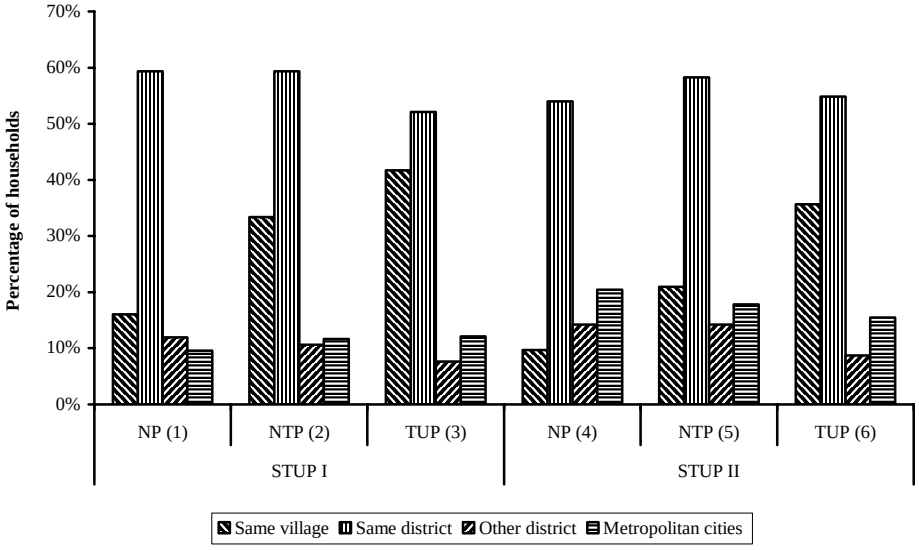


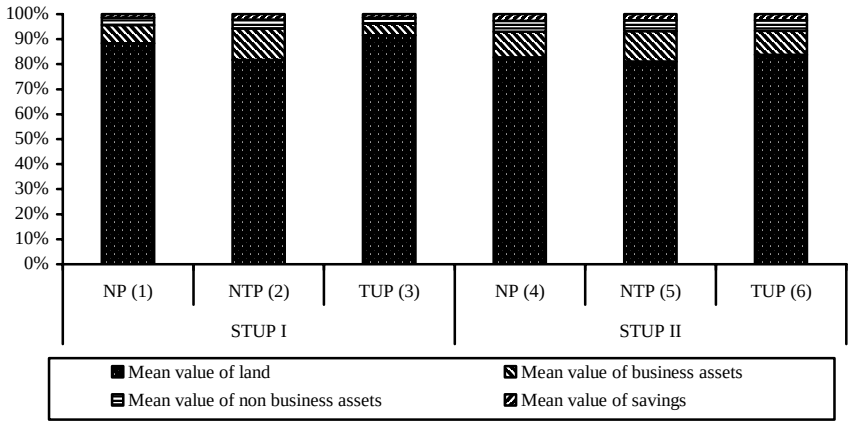
Figure 13. Location of remittance



TOTAL VALUE OF ASSET HOLDING

The total value of assets in monetary terms was calculated by adding reported value of land (including homestead), business assets, non-business physical assets and savings. As can be seen from Table 6, the TUP households on an average had an insignificant amount of asset according to our study. Overall, land occupies about 80% to 90% of the total asset value of the households across the economic categories (Figure 14). The value of business assets was found to be the lowest for TUP households from the STUP I areas. The average amount of savings was found to be very low for all surveyed households and contributed the least to the overall value of asset holding.

Figure 14. Proportional distribution of assets



CONCLUSION

One of the unique features of the CFPR programme in its second phase is that it uses spatially distinctive intervention strategies for the ultra poor. Such importance put on spatial distinction is justified from the findings of this report, which has shown that the ultra poor from the most food insecure districts/*upazillas* are different from the perspective of natural, physical and financial asset holdings. In general, there is a strong correlation between asset holding and economic status within each geographically targeted area and, those households from more economically deprived areas are worse off compared to households from economically better off areas. The vivid examples of the poor asset and capital base from this report also corroborates with the issue of circular constraint as mentioned earlier.

Table 1. Ownership of land

Variables	STUP I			STUP II			p-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs 3	5 vs 6	3 vs 6
Landless households	29%	75%	94%	32%	70%	92%	0.00	0.00	0.05
Mean land holding (decimal)	235	137	25	163	52	26	0.02	0.00	0.88
Households inherited land	85%	77%	85%	90%	94%	97%	0.00	0.24	0.00
Inherited amount of land (decimal)	182	73	24	150	50	26	0.00	0.00	0.59
Purchased land	47%	32%	15%	30%	11%	6%	0.00	0.17	0.01
Purchased amount land (decimal)	90	16	13	33	1	0	0.88	0.00	0.31
Selling of land (5 years)	8%	3%	1%	3%	2%	1%	0.00	0.01	0.68
Amount sold land (decimal)	10	1	0	1	1	0	0.00	0.02	0.35
Tenant households	16%	16%	4%	18%	14%	3%	0.00	0.00	0.05
HH renting in each group	1%	1%	0%	1%	1%	0%	0.00	0.00	0.10
HH renting out in each group	9%	9%	1%	20%	7%	3%	0.00	0.00	0.00

Table 2. Homestead ownership

Variables	STUP I			STUP II			p-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs 3	5 vs 6	3 vs 6
Size of homestead									
<1 decimal	20%	42%	60%	13%	27%	45%	0.00	0.00	0.00
1-5 decimal	22%	31%	29%	11%	18%	24%	0.01	0.00	0.01
5+	58%	27%	11%	76%	55%	31%	0.00	0.00	0.00
Condition of the house									
Damaged	10%	32%	64%	6%	21%	52%	0.00	0.00	0.00
Good	48%	16%	5%	57%	24%	5%	0.00	0.00	0.80
Average number of rooms in the house	2	1	1	2	2	1	0.00	0.00	0.00
Wall material									
Brick	14%	2%	1%	7%	2%	0%	0.00	0.00	0.08
Tin/wood	41%	23%	9%	76%	51%	23%	0.00	0.00	0.00
Clay/brick	19%	22%	16%	1%	3%	3%	0.00	0.71	0.00
Hay/stick/leaves	25%	51%	73%	15%	40%	62%	0.00	0.00	0.00
Others	1%	2%	2%	1%	4%	4%	0.32	0.00	0.00
Have separate kitchen	85%	68%	43%	92%	81%	58%	0.00	0.00	0.00
Type of latrine									
Sanitary	63%	42%	27%	89%	75%	56%	0.00	0.00	0.00
Pit	23%	28%	26%	9%	20%	35%	0.14	0.00	0.00
Open	15%	30%	47%	2%	5%	10%	0.00	0.00	0.00
Have electricity	30%	11%	3%	31%	16%	5%	0.00	0.00	0.00

Table 3. Productive and non-productive assets

Variables	STUP I			STUP II			p-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs 3	5 vs 6	3 vs 6
Cow/goat	35%	21%	9%	22%	20%	11%	0.00	0.00	0.07
Poultry	79%	63%	42%	86%	73%	57%	0.00	0.00	0.00
Rickshaw/boat/van/car	11%	10%	3%	10%	16%	5%	0.00	0.00	0.00
Radio/cassette player	16%	6%	2%	18%	8%	3%	0.00	0.00	0.27
Bicycle	38%	13%	2%	14%	5%	0%	0.00	0.00	0.00
Sewing machine	3%	1%	0%	2%	2%	0%	0.00	0.00	0.00
Mobile phone	22%	4%	0%	35%	8%	1%	0.00	0.00	0.05
Electric fan	21%	4%	1%	27%	9%	1%	0.00	0.00	0.64
Television	20%	4%	0%	21%	6%	0%	0.00	0.00	0.21

Table 4. Financial market participation

Variables	STUP I			STUP II			p-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs 3	5 vs 6	3 vs 6
Currently participating	34%	41%	9%	38%	54%	7%	0.00	0.00	0.14
Have savings	7%	9%	2%	9%	15%	5%	0.05	0.00	0.01
Mean amount of savings (Tk)	6550	1408	393	11290	2423	647	0.00	0.00	0.05
Type of savings									
Home	54%	41%	33%	57%	41%	34%	0.00	0.00	0.64
Bank/post/insurance	9%	3%	0%	20%	6%	1%	0.00	0.00	0.03
BRAC	7%	9%	2%	9%	15%	5%	0.00	0.00	0.01
Other NGO	22%	27%	5%	31%	40%	3%	0.00	0.00	0.00
Other People	1%	1%	1%	0%	0%	0%	0.40	0.76	0.45
HHs having outstanding loan	47%	46%	19%	57%	67%	27%	0.00	0.00	0.00
HHs having informal loan	44%	43%	78%	51%	46%	92%	0.00	0.00	0.00
Loan taken from									
NGOs	52%	67%	26%	54%	67%	9%	0.00	0.00	0.00
Mohajon	6%	6%	8%	5%	2%	4%	0.03	0.19	0.03
Shops	6%	6%	13%	21%	20%	54%	0.00	0.00	0.00
Friends and relatives	35%	34%	63%	31%	28%	43%	0.00	0.00	0.00
Loan taken in cash	96%	96%	88%	88%	90%	53%	0.00	0.00	0.00
Amount of loan	7605	3185	590	9685	6134	1077	0.00	0.00	0.11
Loan taken by self	57%	73%	57%	59%	75%	60%	0.00	0.00	0.41
Have to pay interest	85%	88%	70%	76%	80%	27%	0.00	0.00	0.00
Given loan to others	4%	2%	1%	6%	3%	2%	0.00	0.19	0.02
Loan given in cash	89%	90%	93%	89%	94%	94%	na	na	na
Amount lent	758	117	32	1186	197	93	0.00	0.06	0.07
Loan provided by self	26%	41%	70%	22%	38%	84%	na	na	na
Earned interest	26%	43%	50%	27%	34%	52%	na	na	na

Table 5. Transfer/remittances within a year

Variables	STUP I			STUP II			p-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs 3	5 vs 6	3 vs 6
Received cash/kind	19%	18%	22%	29%	29%	39%	0.00	0.00	0.00
Received cash	29%	26%	29%	31%	30%	30%	na	na	na
Value of the remittance (Tk)	1599	382	276	2252	970	602	0.01	0.06	0.00
Location of the sender									
Same village	16%	33%	42%	10%	21%	36%	na	na	na
Same district	59%	59%	52%	54%	58%	55%	na	na	na
Other district	12%	11%	8%	14%	14%	9%	na	na	na
Metropolitan cities	10%	12%	12%	20%	18%	15%	na	na	na
Given cash/kind	14%	5%	2%	17%	7%	2%	0.00	0.00	0.60
Given cash	22%	30%	29%	11%	5%	24%	na	na	na
Value of the transfer (Tk)	516	111	40	639	165	130	0.00	0.71	0.27
Location of the receiver									
Same village	22%	27%	27%	19%	16%	36%	na	na	na
Same district	74%	70%	66%	69%	74%	47%	na	na	na
Other district	12%	9%	5%	16%	15%	6%	na	na	na
Metropolitan cities	2%	1%	5%	6%	1%	12%	na	na	na

Table 6. Total value of assets

Variables	STUP I			STUP II			p-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs 3	5 vs 6	3 vs 6
Total land value (Home, Land)	426599	53386	25188	347907	80309	22446	0.03	0.00	0.83
Total value business assets	34881	8205	1258	43057	12048	2572	0.00	0.00	0.00
Total Value non Business assets	14702	2364	664	18478	4338	1129	0.00	0.00	0.00
Mean saving	6550	1408	393	11290	2423	647	0.00	0.00	0.05
Total Value	482732	65363	27503	420733	99118	26794	0.00	0.00	0.00

Education: Schooling and Literacy

Munshi Sulaiman

INTRODUCTION

Bangladesh has made considerable progress in basic education since early 1990s. Enrolment rate among children of primary school attending age (6-10 years) in rural areas has increased from 56% in 1990 to 75% in 2000 (Sen and Hulme 2005) and to 80% in 2005 (BBS 2007). Progress in rural areas has been greater than urban and the progress in reducing gender bias against girls has been even more impressive. Enrolment rate among secondary school going aged children (11-15 years) has also been remarkable, from 28% in 1990 to 70% in 2005. These progresses have been possible because of the universal primary education programme, food for education programme (Ahmed *et al.* 2001), female stipend program (Raynor and Wesson 2006) and NGO involvement in providing education (Sukontamarn 2005; Nath *et al.* 1999). Besides these supply side factors, growing awareness among the parents about necessity of education for both boys and girls, valuing mass education by the educated has created a social norm conducive for universal primary education (Hossain and Kabeer 2004).

Despite laudable progress in enrolment, quality of education is often being a cause of concern (Ahmed *et al.* 2005). Assessment of literacy and innumeracy skills reveals that only 29% children aged 11-12 years has the basic competencies (Chowdhury *et al.* 2003). In the Education Development Index by UNESCO, Bangladesh ranked 105 out of 121 countries (UNESCO 2006). Increased enrolment rate may also have, to some extent, had an influence on deterioration in quality of education. For example, Ahmed and Kuenning (2006) found that

increased enrolment by food-for-education program may have had negative influence on the test performance of non-beneficiary students. However, the impact is explained to have taken place through peer effects rather than crowded class size. From a different perspective, Hossain *et al.* (2002) explain that competition among political parties in Bangladesh to brand nationhood has been an ingredient to achieving higher enrolment rates while at the cost of a deteriorating quality. However, the recent focus on education quality is still at an advocacy level, though some initiatives of improving quality is taking place.

Another important and relatively contemporary line of discussion on education is its relationship with (in) equality. Inequality in access to education can foster future income inequality and consequently can create further inequality in access to education. Ahmad and Hossain (2001) found that access to secondary education had deteriorated among the landless households though there was improvement in primary education. A number of studies including Alia *et al.* (2005) also confirm the inequality in access to education.
A number of other studies have looked at the returns to level of education in Bangladesh. A recent study by Asaduallh (2006) found a persistent non-linearity in return to education. Return to additional schooling at secondary level is significantly higher than the return at primary level though social return to primary education can be higher. This finding underscores the relationship between inequality in education and income. In fact, inability to accumulate human capital in terms of level of education is a major determinant of chronic poverty in Bangladesh (Sen 2003).

Schooling of children has been a key consideration for CFPR since the beginning of this programme in 2002. One of the five inclusion criteria is that there is any child of school going age who is working instead of studying. It was understood that such households are at highly disadvantaged position. However, an impact evaluation revealed that there was very little change in school enrolment of beneficiaries in the first phase (Rabbani *et al.* 2006). Consequently, a number of new initiatives have been taken up in the second phase of CFPR to bring about more meaningful changes in the education of children in the ultra poor households. The objective of this chapter is to observe the level of persistence of inequality in access to education and the differences across region.

ENROLMENT RATES

School enrolment of children is clearly associated with the socio-economic background of the households that they come from (Table 1). Enrolment rates of both boys and girls are generally higher among the better-off households and the distinctions become more prominent in the secondary school enrolment rates. Two other points are noteworthy in this Table. Firstly, even among the TUP households, the enrolment rates are significantly higher in STUP II areas

compared to STUP I areas. The differences that have been observed between the two TUP groups are quite systematic. Given that there is also a difference in schooling, it is quite plausible that the children in the two types of households would have had very different trajectories had there been no intervention. Intergenerational extreme poverty is likely to be more persistent in worse-off areas. Secondly, enrolment rates of girls are higher than boys. The fact that girls have higher enrolment rate is not surprising at all given the trends in past few years. However, the size of this difference in secondary schooling age is quite remarkable.

Table 1. Enrolment rates by age and household category

Enrolment rate (%) of	STUP I			STUP II			t-test		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
6-10 yrs old boys	89	82	74	89	86	77	<0.01	<0.05	ns*
6-10 yrs old girls	88	86	76	92	88	83	<0.01	<0.10	<0.01
11-15 yrs old boys	79	60	38	79	66	46	<0.01	<0.01	<0.10
11-15 yrs old girls	86	71	53	88	78	62	<0.01	<0.01	<0.05

*ns= Not Significant at the 10% level

Enrolment rate by age group does not properly reflect primary and secondary enrolment. Net enrolment rate at primary and secondary level of education reflect a dismal state of education at secondary level of the children from ultra poor household (Table 2). While 38% of 6-11 years old boys from TUP households in STUP I area are attending school (Table 1), net secondary school enrolment of that group of children is only 9% (Table 2). This is because a large majority of the secondary schooling children, who should have been attending secondary schools by their age, are still in primary schools.

Table 2. Net enrolment rates by education level

Net enrolment rates	STUP I			STUP II			t-test		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
at primary level for boys	88	81	73	87	86	77	<0.01	<0.05	ns*
at primary level for girls	87	85	75	91	87	83	<0.01	ns*	<0.01
at secondary level for boys	47	26	9	47	32	18	<0.01	<0.01	<0.01
at secondary level for girls	58	36	20	55	39	19	<0.01	<0.01	ns*

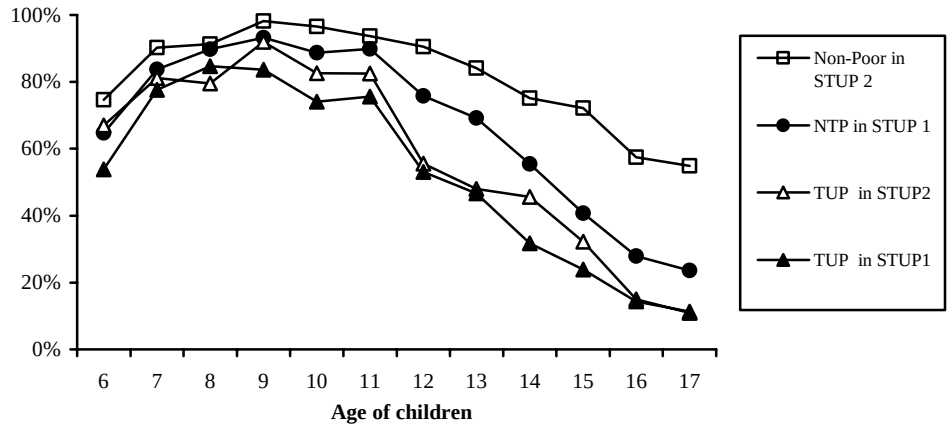
*ns= Not Significant at the 10% level

Enrolment rates are significantly lower among the TUP households than the NTP in STUP I area. Though there is a similar pattern in STUP II areas at secondary level, TUP households have better enrolment rate than the TUP in STUP I areas. Therefore, spatial focus is essential to achieve universal primary education.

Moreover, very low enrolment rates of boys at secondary level should be taken more seriously.

It is also important to explore whether the inequality in access to education for the TUP households has been changing over time. Net enrolment rate of 6-10 years old children from 2002-cohort of TUP households was 64.8% (BRAC 2004). Though the rates are not directly comparable as the 2002-cohort was limited to only the 3 poorest districts, there appears to be slight improvement in enrolment rates. Similar trends are observed in the enrolment rate among 11-15 years old children. However, the situation is not promising when net secondary school enrolment rates are considered. In other words, greater proportion of children from ultra poor households are attending schools but are not attaining the level of education for their enrolment.

Figure 1. Enrolment by age for selective groups of children

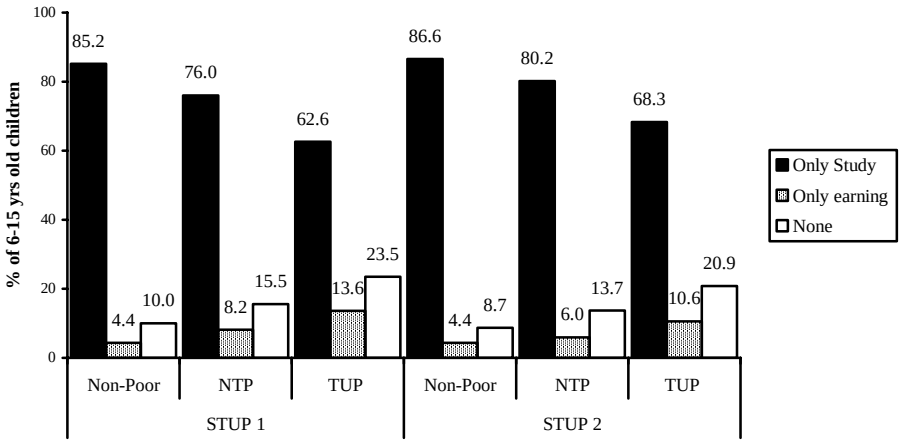


In order to closely observe the enrolment patterns, Figure 1 shows the percentages of children attending schools, disaggregated by their age and income groups. Non-poor households in STUP II area have the best enrolment rates in any age group. It is also evident that children from TUP households enter schools relatively late. About half of the 6 year old children from TUP household are not enrolled. Moreover, at the age of 12 there is a large drop in enrolment. While dropping out after completion of primary education is a reason for such pattern, a good portion of the children may have dropped out because of repeated failure. This specific issue will be explored further in the later part of this chapter.

Given the inequality in enrolments, it is important to investigate whether it is the necessity of their earning that prohibits children of TUP households from

attending schools. Figure 2 demonstrates the prevalence of work and study by the children aged 6-15 years in different household groups. Only a tiny percentage of children (less than half a percentage point for any group) are both attending schools and engaged in earning activity. Therefore, that group has been excluded from the graph. The figures also help to explain whether the differences in enrolment are being blown-up because of the selection bias of TUP in terms of children at work. Though child labor is more prevalent among TUP households, a much higher percentage of the children are in fact neither studying nor working. More than 20% of the children in TUP households are reportedly 'doing nothing'. Engaging them in studying or vocational training is essential to avoid future ultra poor.

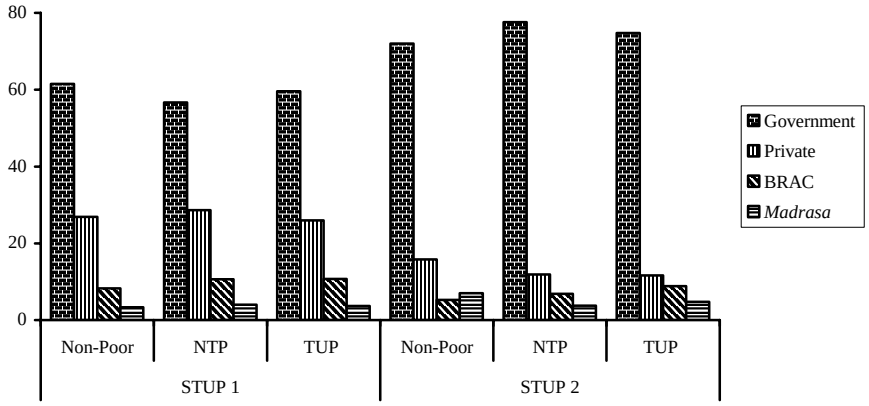
Figure 2. Study and work by 6-15 years old children



TYPES OF EDUCATIONAL INSTITUTES ATTENDED

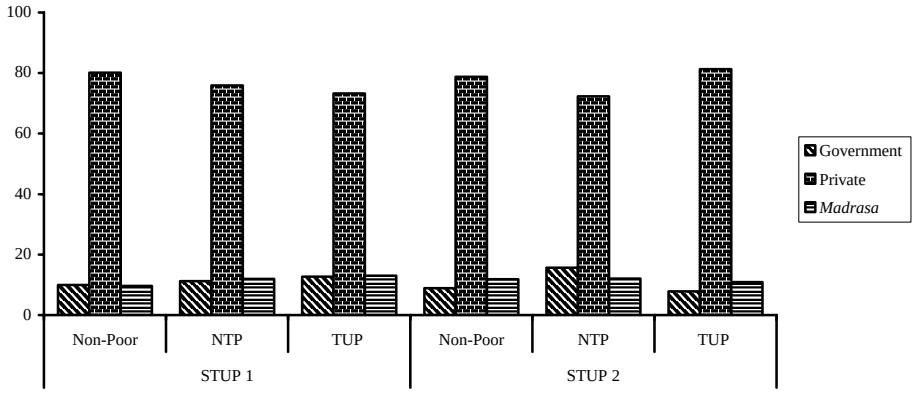
In terms of the types of schools attended at the primary level, there are no variations among the three groups of households within the areas (Figure 3). However, children in STUP II areas are more likely to attend government schools. Non-government schools (mostly private schools either government supported or not) are more common in STUP I areas. The greater concentration of BRAC primary schools in STUP I areas reflect the lower school attendance since these schools specially target areas with low enrolment rates.

Figure 3. Type of school attended at primary level



At the secondary level, a big majority of the students attend private schools (Figure 4). Private schools are a major player in junior secondary and secondary education sectors in Bangladesh. In general, the level of expenditure on education is higher in private schools. Given the lack of more affordable options, children from poorer households are taken out of schools. In fact, a major response to the question of "why is the child not going to school" was lack of affordability. According to this survey, about 55% of the secondary schooling aged children in TUP households are not attending primarily because of family's inability to afford the necessary expenses. The rate was less than half of that for the children from non-poor households.

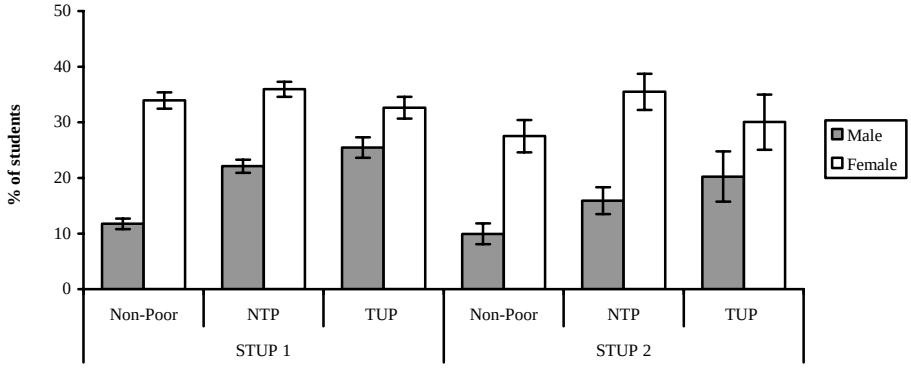
Figure 4. Type of school attended at secondary level



INVESTMENT IN EDUCATION

Given the importance of investment in education and the lack of ability among poor parents to make that investment, the government initiated the food-for-education programme, which has later been replaced by stipend programme. There is also a special stipend programme for female learners. There are also different other scholarship schemes at school levels. Many of the scholarships are based on both needs and performance of the students.

Figure 5. Students (at both primary and secondary level) receiving stipends/scholarship

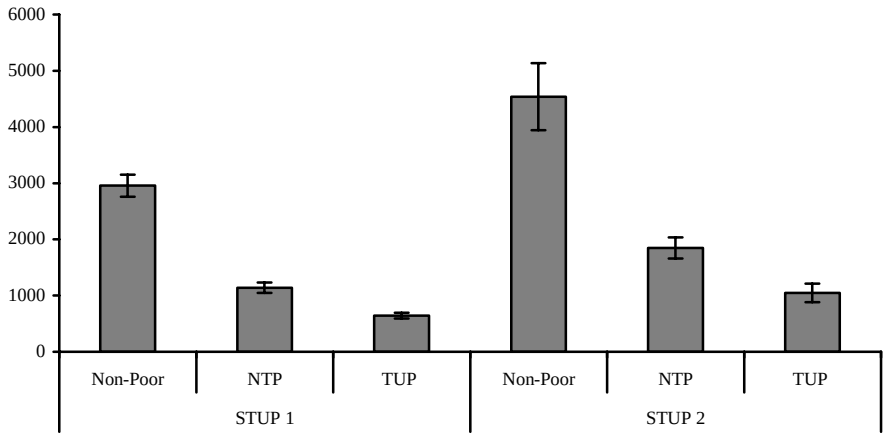


Exploring the concentration of scholarship recipients among different household groups reveals an interesting pattern. Though there are much fewer stipend opportunities for the male students, those are clearly more pro-poor (Figure 5). Male students from TUP households are at least twice as likely to receive stipends compared to the students from non-poor households in both areas. However, there is not such pattern for scholarships among the female students. On average, extent of stipend recipients is higher in STUP I areas than STUP II areas, which reflects a pro-poor geographical targeting of such schemes.

Scholarships or stipends can play only a minor complementary role to household investment in education, especially at secondary or higher levels. However, more pro-poor targeting of stipends can reduce the increasing inequality in education. This is important to avoid socially unacceptable inequality in future years. Household investments in education are clearly reflective of households' ability to make such investments (Figure 6). However, the level of difference is more than dramatic. Average expenditure per learner is 2 to 3 times higher among the non-poor households than the non-targeted poor households. TUP households in turn can spend only half of what the non-target poor households spend. Such

massive differences in spending are likely to be associated with the quality of education. A key means of differentiating quality of learning is providing supplementary tutoring.

Figure 6. Average annual expenditure per leaner (in taka)



SUPPLEMENTARY TUTORING

Private supplementary tutoring on payment has become a common practice over the last several years in Bangladesh. Although it was an urban phenomenon at higher level of education, payment-based supplementary tutoring is spreading in rural area as well as at primary levels. Even among the primary students, the extent of private supplementary tutoring has increased from 22% in 2000 to 31% in 2005 (Nath 2008). This is a demonstration of the deteriorating quality of education in schools. There are often claims that teaching is left for supplementary time rather than school time. Though the original idea of supplementary tutoring was to help out the weaker learners, it has become the other way round now. Nath (2008) found a strong positive association between receiving supplementary teaching and the students' test scores. While supplementary tutoring helps to achieve higher test scores, not necessarily the poor performers receive tutoring. In fact, this supplementary tutoring can become a major driver of rising inequality in education.

Table 3. Students receiving private supplementary tutoring

Type of learners		STUP I			STUP II			t-test		
		NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Primary	Male	30	18	14	34	15	6	<0.01	<0.01	<0.01
	Female	28	16	11	30	18	9	<0.01	<0.01	ns*
	p-value	ns*	<0.05	<0.01	ns*	ns*	ns*			
Secondary	Male	55	44	28	63	50	20	<0.01	<0.01	ns*
	Female	53	31	17	57	42	16	<0.01	<0.01	ns*
	p-value	ns*	<0.01	<0.01	<0.10	<0.01	ns*			

At the primary level, around 30% of non-poor children receive private supplementary tutoring while the prevalence is 15-20% among NTP households and around 10% for the TUP households (Table 3). Many of the children from TUP households are first-generation learners. Therefore, in terms of needs at least at the primary level, these children should have had more such tutoring. The differences get significantly higher at secondary level both by gender and poverty. The reverse gender bias that is observed by looking at enrolment rates is not reflective of the full scenario or at least of direct household investment in education. Girls are less likely to be provided with supplementary tutoring at secondary level. It is interesting to note that this pattern is most prominent among the NTP households. These households are prioritizing boys' education when making expenses in education.

In terms of poverty groups, the gaps between NTP and TUP are much higher than the gaps between non-poor and NTP. Status quo, next generation from these ultra poor households are likely to be at more disadvantaged position than their parents because of the rising gap in their human capital from the moderate poor households.

INVESTMENT AND EDUCATIONAL SUCCESS

From enrolment rates, it was observed that a good portion of secondary school aged children are attending primary schools. In other words, they are under-achieving in terms of class completed for age. Table 4 gives the distribution of class completed for age from the six categories of households. Of the total sample of primary schooling aged children, 31% students are attending the right class for their age (i.e. class 1 if 6 years old, class 2 if 7 years old etc.), 6% are one class above and a large majority are underachievers. About 28% are at least two classes below the desired class. The averages in the table demonstrate their mean achievement where 0 represents students are in their right classes on average. Clearly such under-achievement is highly prevalent in the sample and more common among the poorer households.

Table 4. Class attending for age by 6-10 years old children

Class attending for age	STUP I			STUP II			Total
	NP	NTP	TUP	NP	NTP	TUP	
One class above (+1)	8	7	5	6	5	3	6
Right class (0)	33	29	26	33	28	28	31
One class under (-1)	35	36	34	35	37	30	35
Two classes under (-2)	17	19	23	21	22	26	20
Three classes under (-3)	6	7	9	4	7	13	6
Four classes under (-4)	1	2	3	1	2	1	2
Mean	-0.85	-0.97	-1.13	-0.86	-101	-1.21	-0.93

While late entry is one of the reasons for lower achievement, failure to complete the requirements to get into the higher class is also a major component. Repeating the same courses can be seriously detrimental to the learning spirit of the children and may lead to dropouts. In fact, about 30-40% of the droped-out children were so because of their lack of interest in studying. Unattractive teaching methods in the classroom and reliance on teaching outside the classrooms appear to be more harmful for the children from poorer households. In the absence of someone help out the children with their studies, children from TUP households are highly marginalized in the current education system.

Using school-level survey data in the mid-1990s, Alam (2000) found that drop-out rates at upper grades of primary school are positively associated with the quality of schools. In such circumstances, there are initiatives in CFPR to help out the children from TUP households with their learning outside of schools. They are provided with one-hour teaching by a volunteer in the village. The village committees, Gram Daridro Bimochon Committee (GDBC), are mandated to find such a volunteer and provide necessary assistance to them. While it is of great interest to observe the level of change that such initiative can yield, we explored the relationship between class-for-age and supplementary tutoring from the baseline.

Table 5. Determinants of class completed-by-age

Explanatory variable	Regression 1	Regression 2
Male (1=yes, 0=no)	-0.190 (11.85)***	-0.105 (8.22)***
Age of children	-1.116 (44.46)***	-0.506 (24.42)***
Age^2	0.038 (31.31)***	-0.003 (2.79)***
Whether has any disability (1=yes, 0=no)	-0.380 (2.55)**	-0.306 (2.57)**
Muslim (1=yes, 0 otherwise)	-0.224 (9.38)***	-0.171 (8.98)***
Non-Poor in STUP-1 (1=yes, 0 otherwise)	0.380 (14.71)***	0.237 (11.48)***
Non-Target Poor in STUP I (1=yes, 0 otherwise)	0.146 (6.39)***	0.107 (5.86)***
Non-Poor in STUP II (1=yes, 0 otherwise)	0.384 (10.22)***	0.227 (7.54)***
NTP in STUP II (1=yes, 0 otherwise)	0.310 (8.61)***	0.152 (5.28)***
TUP in STUP II (1=yes, 0 otherwise)	0.131 (2.50)**	0.057 (1.38)
Whether involved in earning (1=Yes, 0=No)	-0.585 (4.66)***	-0.369 (3.68)***
Given supplementary private tutoring (1=yes, 0=no)	0.428 (21.27)***	0.292 (18.10)***
Ln (expenditure on education per learner)	0.031 (10.58)***	0.021 (8.93)***
Receives scholarship/stipend (1=Yes, 0=no)	0.186 (9.79)***	0.235 (15.50)***
Household head can read (1=yes, 0=no)	0.312 (16.47)***	0.180 (11.87)***
Government schools (1=yes, 0 otherwise)	-0.628 (33.90)***	-0.029 (1.83)*
BRAC schools (1=yes, 0 otherwise)	-0.693 (21.53)***	-0.076 (2.91)***
Madrasa (1=yes, 0 otherwise)	-0.460 (12.22)***	-0.287 (9.55)***
Primary school		-2.843 (114.64)***
Constant	5.692 (45.78)***	5.979 (60.22)***
Observations	23099	23099
R-squared	0.36	0.59

Note: Absolute value of t statistics in parentheses;
* significant at 10%; ** significant at 5%; *** significant at 1%

Underachievement is higher among males than female learners. On average, male students have completed 0.19 lower classes-for-age than female students (regression 1 in Table 5). The size of this gender effect is significantly lower when primary school dummy is added (regression 2). This reflects that many of the under-achieving boys dropout at secondary level and this finding is consistent with higher female enrolment in secondary schools. While the stipend scheme gives an incentive for girls to keep enrolled, the requirements of the stipend scheme may influence their success as well. Nonetheless, this demonstrates that there are needs for some similar initiatives to improve learning among boys.

In terms of socioeconomic status, students from TUP households in STUP-1 areas have the lowest level of achievement. Their performance is even lower than the TUP in STUP-2 areas. This is just another way of observing the same inequality in education that has so far been observed in other indicators. Though only a small portion of the children are involved in earning, their achievement is much lower than other students.

Supplementary private tutoring is a major determinant of the children being able to attend the right class for their age. Children who are receiving such tuition are on average 0.42 classes ahead of their less fortunate counterparts in terms of the class-attending-for-age. Similar association is observed for recipient of stipends, who are performing better. The requirement of successful completion of grades may have a strong influence on performance. The amount of expenditure on child's education has significant positive association with class attending for age. Literacy of household head is also a significant determinant of children's performance. Several of these variables (such as expenditure on education, head's literacy) are also closely linked with TUP households. Therefore, making a real dent on the lack of education of TUP households is expected to be challenging.

According to types of school attended, achievement of students attending government schools is significantly lower than private schools. Similar values for BRAC schools reflect that slightly higher aged children who are out of school are targeted for this programme. Finally, the dummy of primary schools is highly significant and it explains almost 23% of the variations in class attainments for age (R^2 increase from 0.36 to 0.59). This underscores the importance of quality of education at primary level. Underperformance at primary level is the major reason for the dismal enrolment rates at secondary level. Therefore, to improve secondary level performance, it is essential to improve quality of education and performance of students at the primary level first.

LITERACY RATES AMONG ADULTS

Literacy has been measured by the standard self-reported method of 'whether can read and write'. Though such literacy is better termed as 'reported literacy', some assessments have found minor difference between reported literacy and 'tested' literacy (Nath 2007). Estimates of literacy from this survey (Table 6) are broadly consistent with national estimates of literacy, where 52.5% of 15+ old population and 71% of youth population are literate (UNESCO Statistics). In general, literacy rates are higher among youth (15-25 years old) than the whole adult (15+ years old) sample. This is just a reflection of the improving education status in the decade before the last. However, here again we see a reversal of gender bias. Though female literacy rates are lower than male among all six groups when adult sample is considered, the pattern reverses when the rates are compared only among the younger population.

Literacy rates are much lower among the TUP households than NTP households (Table 6). In some cases, TUP in STUP II areas has higher literacy than TUP in STUP I areas. Adult literacy is below 20% for the TUP households though it is much higher among the youth. While such literacy may have some functional utility, this does not necessarily translate into meaningful higher income.

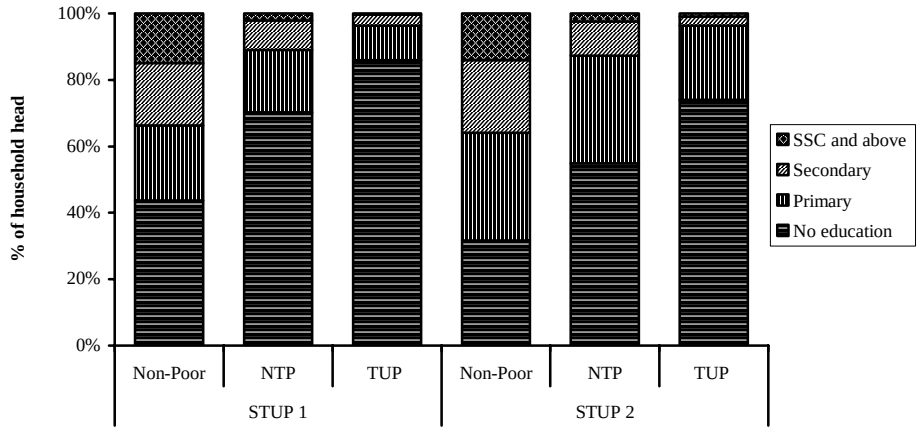
Table 6. Adult literacy by sex and poverty groups

Literacy rates among		STUP I			STUP II			p-value		
		NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Adult (15+)	Male	61	34	18	65	39	23	<0.01	<0.01	<0.05
	Female	47	26	12	53	37	16	<0.01	<0.01	<0.01
	p-value	<0.01	<0.01	<0.01	<0.01	ns*	<0.01			
Youth (15-24)	Male	79	58	37	83	65	49	<0.01	<0.01	<0.01
	Female	84	60	40	87	73	46	<0.01	<0.01	ns*
	p-value	<0.01	ns*	<0.10	<0.10	<0.10	ns*			

*ns= Not Significant at the 10% level

As different studies of return on education have shown (Asadullah 2006: Shafique 2007), primary education has a very limited household return. However, a sharp contrast is observed between TUP and NTP households in terms of level of education of the household heads (Figure 7). Over 80% of the TUP household heads in STUP I areas have no formal education while the rate in STUP II areas is 75%. However, the positive difference for the TUP in STUP II does not take them very far. There is almost none with above primary education among heads in TUP households. Similarly, figures on percentage of household heads with no education for NTP are 70% and 55% in STUP I and STUP II areas respectively. STUP I areas not only have a high poverty concentration, literacy rates have also been consistently low among all groups of households.

Figure 7. Education of household head



Such geographical pattern shows the potential of higher social returns to education. As the literature on proximate literacy suggests, educational

attainment of close neighbors/networks can have significant influence on households' functional ability. The lower level of education in STUP I areas shows that not only most of the TUP cannot perform the activities that require literacy but also they have limited number of people to turn to for activities requiring functional literacy.

CONCLUSION

Investment in education is one of the key mechanisms through which persisting inequality can be combated. Lack of investment in human capital is one of the major determinants of intergenerational poverty. It is encouraging to note that the differences in enrolment rates among different poverty groups are narrowing down, especially at the primary level. However, the still lower enrolment rates among boys should be taken seriously. Approximately a fourth of 6-10 years-old boys from ultra poor households are not attending schools.

The major challenges are enrolments at secondary level and equity in the quality of education. These two are closely linked as low level of education attained during primary level influences the children to drop-out before they enter into secondary schools. Learners from ultra poor households are more likely to be underachievers (in terms of class completed for age). The size of household expenditure in education and supplementary tutoring are positively associated with the level of grade completed for age. However, ultra poor households apparently cannot afford to make these investments. Special initiatives have been taken in CFPR for bringing changes in education of ultra poor children. These initiatives have to be assessed to create policy suggestions for attaining equity in education.

Vulnerability

Health, Health Services and Health-seeking Behaviour

Syed Masud Ahmed and AKM Masud Rana

INTRODUCTION

Taking healthcare to the door-steps of the ultra poor (i.e., poorest-of-the poor) has recently generated much interest (Green 2005). The issue is being addressed from both a biomedical as well as social protection perspectives. The biomedical model focuses on reducing the burden of diseases e.g., achieving the health-related MDGs (with equity), while the social protection model emphasizes on providing assistance to the ultra poor so that they can better manage the income erosion effect of illness. In order that the poor/ultra poor are benefited, the interventions should also seek to 'improve the performance of unorganised health systems, to extend coverage of organised health services at an affordable cost and to reduce the financial burden of major illness' (Bloom 2005). A combination of health and social protection measures is suggested to be more effective in reaching the ultra poor than either of the measures alone (Green 2005).

BRAC, an indigenous NGO, integrated a number of socio-political and economic capability enhancing activities into its microcredit-based interventions with customized healthcare services to reach the ultra poor in its recent poverty-alleviation programme. The programme is known as "*Challenging the Frontiers of Poverty Reduction/Targeting Ultra Poor, targeting social constraints (CFPR/TUP)"*. The first phase of the programme was launched in 2002 and consisted of an 18-month cycle of income-generating asset grants, skill training, in addition to subsistence allowance during the gestation period of the enterprise and social development and customized health inputs.

The health component of the CFPR/TUP programme was tailored specifically to overcome various barriers faced by the poor/ultra poor in accessing health services (such as informational, social exclusion, financial etc.) and included EHC services, consumer information on health and health services, installation of latrines and tubewells, issuing identity card for facilitated access to formal health facilities, and financial assistance (for diagnostics and hospitalization, if needed) through community mobilized fund (BRAC 2001).

A number of evaluations were carried out by RED and external evaluators to examine to what extent the objectives of the CFPR/TUP programme have been achieved (Rabbani *et al*. 2006; Sulaiman and Matin 2006). These studies revealed that after the first 18-month cycle (with supportive extension for another six months) the program positively impacted their livelihoods as well as their socio-economic and health status to the extent where 63% of households maintained asset growth and joined (or intended to join) a regular microcredit programme. Furthermore, better economic status was reflected in sustained improvement of both quantity and quality of food consumed (Haseen and Sulaiman 2007), as well as improved use of existing health services and treatment-seeking from formal providers (Ahmed *et al*. 2006).

Based on the learning and experiences from the first phase of the programme, the programme initiated the second phase in 2007 starting with a greater outreach (300,000 participants in 40 districts) and diversity of packages (e.g., grants-based and microfinance-based) (Sulaiman and Gulesci 2008). A randomized controlled trial (RCT) design was adopted for the evaluation of part of the intervention termed STUP I, under which participating households received the full package of asset transfer, subsistence allowance, skill training, and health and social support (BRAC 2006). The other part of the intervention termed as STUP II received a reduced package of the programme. A baseline survey was conducted on participating households in 2007 before the intervention began in order to record a benchmark and measure the programme's impact in future. This chapter reports findings on health, health services and health-seeking behaviour from this survey.

OPERATIONAL DEFINITIONS

Healthcare provider (HCP) refers to any person providing healthcare services, preventive or curative. The services, however, excludes over the counter (OTC) drugs purchased from pharmacies or grocery shops.

Health-seeking behaviour refers to the sequence of remedial actions that individuals undertake to rectify perceived ill health (Ward *et al*. 1996). In case of acute illness, health-seeking behaviour (first contact) with respect to the longest illness episode in last 15-days was sought. The information was furnished either

by a knowledgeable female member (usually spouse of household head) or an adult ill member present at the time of survey. Data on child illness was collected from the mothers.

The HCPs were categorized into the following types:

1) Self-care (including self-treatment): extending from no medication, other than rest and nursing, to the use of common home-remedies (e.g., oral saline), over-the-counter (OTC) drugs, or herbal preparations without consultation with any HCP.
2) Drug store salesmen (unqualified allopath): when consultation was made with drug store salesmen for diagnosis and treatment (excluding purchase of OTC drugs without consultation).
3) Traditional: when treatment was sought from herbalists (*Kabiraj*) and faith healers. Also included in this type are homeopathic practitioners, although negligible in proportion.
4) Para-professionals: comprised providers who have had some kind of institutional training on 'modern' i.e., allopathic medicine: a) village doctors (*Palli Chikitsok*) with variable training in diagnosing and treating common ailments, mostly from private institutions of questionable quality; b) medical assistants who complete a three-year medical assistant training programme from a public institution; and c) various government and non-government community health workers who have had variable periods of basic preventive and curative healthcare training.
5) Professional allopaths: registered medical graduates, the MBBS (Bachelor of Medicine and Bachelor of Surgery) doctors.

Chronic illness refers to any illness continuing for greater than or equal to one year. For chronic illnesses, health-seeking behaviour with respect to three major illnesses was sought. The information was furnished by the patient or a knowledgeable member of the household.

Emotional stress was defined as experiencing emotional disturbances in past month which was severe enough to interfere with daily activities.

DATA ANALYSIS

Data was analysed to compare the three groups, ultra poor (TUP), non-targeted poor (NTP), and the non-poor (NP) of both STUP I and STUP II areas. Tests for significance (t-tests for mean) were done where necessary. All analyses were done using Stata (version 9.2).

RESULTS

Self-health, emotional health and general health awareness

Significantly greater (p<0.001) proportion of respondents from STUP I area reported their current health as 'Good' (45%) compared to those from STUP II area (28%), though in both areas this proportion was less than the other two groups (Table 1). Also, the proportion of respondents self-rating their health as 'Bad' was significantly (p<0.001) more for the TUP respondents compared to their counterparts in STUP I areas. This trend of better self-health was also noted for the STUP I areas with respect to health transition over the year (Table 1).

Table 1. Self-rated current health status and health transition over past one year by areas and poverty groups (%)

	STUP 1			STUP 2			*p* value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Self-rated current health status by women									
Good	49.9	51.0	44.9	37.3	35.4	28.3	<0.001	<0.001	<0.001
Fair	34.0	32.9	34.6	45.3	46.0	50.1	<0.05	ns	<0.001
Bad	16.1	16.1	20.5	17.4	18.6	21.6	<0.001	ns	ns
Self-rated health transition over past one year by women									
Better than past year	29.2	30.0	26.9	20.5	21.5	17.2	<0.01	<0.05	<0.001
About the same	42.4	42.2	40.2	35.9	38.2	32.7	<0.05	<0.05	<0.01
Worse than past year	28.3	27.8	32.9	43.6	40.3	50.0	<0.001	<0.001	<0.001
n	6,217	12,164	6,854	1,402	1,657	850	---	---	---

* ns = Not significant at the 5% level

Emotional stress was reported by more than half (56%) of the TUP respondents in both areas, which was significantly higher (p<0.001 and p<0.01) than the reports from the respondents of the NTP households (Table 2). Poverty was the most commonly reported cause of emotional stress, followed by illnesses or death of close relatives, especially in case of NTP groups. The major coping response reported was an attitude of resignation, especially by the relatively well-off households. This attitude of resignation was more pronounced in case of TUPs from STUP I area compared to STUP II area. Interestingly, proportionately more TUP respondents from both areas reported to have acted actively to cope the crisis through seeking help from social networks or exploring opportunities to improve household income (Table 2).

Table 2. Emotional health and its consequences by areas and poverty groups (%)

	STUP 1			STUP 2			*p* value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Experienced emotional stress	36.6	43.0	54.1	38.4	49.7	58.7	<0.001	<0.01	<0.05
Major causes of emotional stress									
Chronic deficit of daily necessities	44.3	62.7	68.7	28.9	50.3	56.8	<0.001	<0.05	<0.001
Illness/death of close household member	34.1	21.1	17.5	44.3	27.4	23.7	<0.01	ns	<0.01
Problem(s) related to husband	12.4	10.6	9.3	14.9	13.2	13.3	ns	ns	<0.05
Others	9.3	5.6	4.5	11.8	9.2	6.2	<0.05	ns	Ns
Coping responses									
Depression[a]	7.3	6.5	4.9	6.0	4.4	3.9	<0.01	ns	Ns
Fatalism[b]	19.6	20.9	17.6	30.6	28.0	27.6	<0.01	ns	<0.001
Resignation[c]	50.0	44.6	43.9	42.2	37.6	29.5	ns	<0.05	<0.001
Pro-active[d]	23.2	28.0	33.6	21.2	30.0	39.1	<0.001	<0.01	<0.05
n	2,194	5,789	3,707	473	806	467	---	---	---

* ns = Not significant at the 5% level

[a] e.g., skip meals, shuns household chores, becomes listless, losses initiatives, adopts indifferent attitude to life; [b]e.g., seeks help from the God; [c]e.g., mourns for misfortune; [d]e.g., seeks help from neighbours/relatives/group members, explore opportunities for raising household income

Table 3. General health awareness by areas and poverty groups (%)

	STUP 1			STUP 2			*p* value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Knows about common measures for maintaining good health	90.5	88.8	89.3	88.2	88.7	86.6	ns	ns	<0.05
Knows the usefulness of taking vegetable and fruits	90.7	89.9	90.9	89.2	89.8	88.5	ns	ns	<0.05
Knows about the necessity of taking iodinated salt	71.2	69.2	66.2	69.3	65.6	61.8	<0.01	ns	<0.05
Knows about six monthly de-worming of the family members	86.6	84.2	82.5	83.0	803	78.8	<0.05	ns	<0.05
Knows about intake of Vit A following child birth	60.8	55.6	51.7	68.1	63.3	61.7	<0.001	ns	<0.001
Knows about the reason for taking Vit A after child birth	43.7	40.1	35.5	40.9	33.8	33.4	<0.001	ns	ns
Knows about the reason for taking iron tablets during pregnancy	60.8	58.5	52.9	60.5	56.5	52.4	<0.001	ns	ns
Knows how water is contaminated	89.8	88.4	89.3	89.8	90.1	88.0	ns	ns	ns
Knows what types of diseases are caused by contaminated water	89.3	87.3	88.3	88.9	88.7	86.4	ns	ns	ns
Knows how water can be made free of contamination	80.1	75.7	73.3	71.1	70.1	67.1	<0.01	ns	<0.01
Knows about problems when there is no sanitary latrine to use	78.8	70.7	68.6	78.4	75.1	70.0	<0.05	<0.05	ns
Knows about the norms of using sanitary latrine	78.1	71.2	69.4	77.6	75.7	71.0	<0.05	ns	<0.05
n	6,217	12,164	6,854	1,402	1,657	850	---	---	---

Level of general health awareness was good, with the exception of few instances such as intake and utility of Vitamin A after child birth or utility of iron intake during pregnancy (Table 3). No major differences were seen among the groups in either of the two areas.

Water, sanitation, domestic hygiene

Households from STUP II area appeared to lag behind those from STUP I area in terms of use of tube-well water for drinking or washing utensils, or hand-washing

before taking food (Table 4). This was especially pronounced in case of the TUPs from the STUP II area. On the other hand, respondents from STUP II area appeared better in terms of use of sanitary latrines compared to those from the STUP I areas. However, a socio-economic gradient was observed in the use of sanitary latrines, with the least proportion of the TUPs using sanitary latrines.

Table 4. Water and sanitation practices by areas and poverty groups (%)

	STUP 1			STUP 2			*p* value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Use of tube well water									
Drinks water from tube-well in all seasons	92.8	92.1	93.7	81.2	82.5	80.2	<0.01	ns	<0.001
Washes utensils with tube-well water in all seasons	84.6	86.3	84.6	35.2	36.2	31.1	<0.05	<0.05	<0.001
Washes hands before taking food with tube-well water in all seasons	92.6	91.8	93.3	77.6	77.8	76.7	<0.05	ns	<0.001
Use of sanitary latrines									
Male members of households use sanitary latrine	36.9	22.0	18.7	43.9	31.6	23.7	<0.01	<0.01	<0.05
Female members of households use sanitary latrine	37.0	21.8	19.3	43.7	31.4	25.8	<0.01	<0.01	<0.01
Children in the households use sanitary latrine	5.0	2.9	2.8	12.3	7.9	2.0	ns	<0.01	ns
n	6,217	12,164	6,854	1,402	1,657	850	---	---	---

* ns = Not significant at the 5% level

Of all the different types of domestic wastes (e.g., kitchen, poultry, cattle etc.), least proportion of children's stool was disposed in fixed places, irrespective of areas or groups. In case of TUPs, respondents from STUP II areas reported poorly in domestic hygiene behaviour compared to their counterparts in STUP I areas (Table 5).

Table 5. Domestic hygiene practices by areas and poverty groups (%)

	STUP 1			STUP 2			*p* value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Kitchen waste is disposed in fixed place	82.7	80.0	76.5	61.4	55.5	56.1	<0.001	ns	<0.001
Child's stool is disposed in fixed place	32.5	29.7	29.2	34.1	25.5	23.7	ns	ns	ns
Poultry waste is disposed in fixed place	76.0	75.9	73.2	55.7	50.9	51.1	<0.05	ns	<0.001
Cattle waste is disposed in fixed place	93.6	92.6	92.6	81.6	77.8	80.5	ns	ns	<0.001
Household waste is disposed in fixed place	82.9	80.3	77.0	60.8	55.7	54.9	<0.001	ns	<0.001
n	6,217	12,164	6,854	1,402	1,657	850	---	---	---

* ns = Not significant at the 5% level

Pregnancy care and Family planning

Proportion of respondents having Tetanus Toxoid (TT) injection was greater than the intake of vitamin A capsules or iron folic acid (IFA), across the groups and areas (Table 6). However, the TUPs reported poorer performance in terms of receiving vitamin A and IFA supplements compared to the NTPs, especially in the STUP I area.

The performance of the TUPs was especially worse in case of ante-natal care (ANC) and post-natal care (PNC). Among the TUPs, 37-49% reported to have had an ante-natal check-up during the last pregnancy compared to 42-57% of the NTPs. The situation was worse for PNC, given its very low prevalence. Only around 9% of the TUPs reported to have had a post-natal check-up.

Table 6. Pregnancy care by area and poverty groups (%)

	STUP 1			STUP 2			*p* value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Have had Vit 'A' Capsule after delivery of child	36.6	36.6	29.9	38.7	37.7	31.9	<0.001	<0.01	ns
Have had IFA during last pregnancy period	53.6	58.6	53.0	51.5	48.3	42.6	<0.01	ns	<0.05
Have had TT injection during last pregnancy period	88.3	88.6	85.9	86.2	81.1	82.8	<0.05	ns	ns
Have had ante-natal check-up during last pregnancy	52.9	56.6	49.0	60.0	42.5	37.4	<0.01	ns	<0.05
Have had post-natal check-up during last pregnancy	10.3	11.9	8.5	8.7	7.2	9.3	<0.01	ns	ns
n	524	1,464	534	112	119	41	---	---	---

* ns = Not significant at the 5% level

Greater proportion of respondents from STUP I area (around 65%) reported to currently practice contraception compared to those from STUP II area (around 55%) (Table 7). The TUP households of STUP I area (63%) reported greater practice of contraception than STUP II area (51%). In both areas, however, the proportion practicing contraception was less than their counterparts in the NTP households (68% and 60% respectively). Pill and injection were the two most common methods used by the respondents irrespective of area or household type.

Table 7. Contraceptive prevalence and methods used by area and poverty groups (%)

	STUP 1			STUP 2			*p* value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Currently practicing contraception (self or husband)	67.0	68.5	63.2	60.0	59.6	50.9	<0.001	<0.001	<0.01
Methods used									
Pill	64.9	61.8	55.6	50.3	51.5	47.7	<0.001	ns	<0.05
Injection	17.0	17.0	18.7	21.1	20.1	25.7	ns	ns	<0.05
IUD	1.0	0.9	1.0	2.5	2.2	0.6	---	---	---
Condom	1.8	1.1	1.0	2.7	2.1	2.2	---	---	---
Ligation	5.9	9.3	12.0	7.3	9.5	8.7	<0.01	ns	ns
Vasectomy	0.7	1.3	3.0	1.0	1.1	5.0	---	---	---
Natural	8.0	8.1	7.7	12.3	11.6	6.2	ns	<0.05	<0.05
Other(s)	0.7	0.6	0.9	2.4	1.8	3.5	---	---	---
n	6,217	12,164	6,854	1,402	1,657	850	---	---	---

* ns = Not significant at the 5% level

Crude death rate (CDR) and causes of death

The CDR was much higher for the TUP households (13-14 per 1,000) compared to the other groups i.e., 8 per 1,000 for the NTPs and 9 per 1,000 for the NPs (Table 8). This was especially pronounced for TUP infants in the STUP I areas (105 compared to 81 in the STUP II areas per 1,000). Also, death of elderly (age ≥60 years) was greater among the TUP households (60 per 1,000) compared to others (around 55 per 1,000) in the STUP I areas, however it was less than NTPs in the STUP II areas. Again, gender difference in the death rate disfavouring males was observed across the groups except NPs in STUP II area.

Table 8. CDR Crude death rate per 1,000 by area and poverty groups

	STUP 1			STUP 2			*p* value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
All	6.9	7.7	12.7	8.3	11.2	14.4	<0.001	ns	ns
Age (year)									
<1	51.0	54.7	105.3	62.0	93.5	80.6	<0.001	ns	ns
1-5	3.6	3.0	5.0	3.1	3.8	9.6	ns	ns	ns
6-14	0.5	1.6	2.0	2.7	0.6	2.5	ns	ns	ns
15-59	2.2	3.9	8.8	3.2	4.8	9.6	<0.001	ns	ns
≥60	55.0	54.8	60.0	50.4	79.1	62.5	ns	ns	ns
Sex									
Male	7.4	9.7	19.3	7.4	13.8	21.0	<0.001	ns	ns
Female	6.3	5.8	7.4	9.3	8.9	9.6	ns	ns	ns
n	29,883	46,704	22.557	6,872	7,013	2,912	---	---	---

* ns = Not significant at the 5% level

Chronic diseases of long duration accounted for about half of the deaths, while sudden death was responsible for another 25% (Table 9). The proportion of sudden death for the TUPs in STUP I areas (25%) was double that of STUP II areas (13%). More than one-fourth of the respondents did not receive treatment before death while 30-40% received care from qualified allopathic practitioners. Village doctors attended another 15-20% of the cases.

Table 9. Reported cause of death by area and poverty groups (%)

	STUP 1			STUP 2		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)
Cause of death						
Accident	7.8	10.0	4.9	10.4	6.7	16.3
Chronic disease of long duration	53.1	48.1	50.5	41.8	54.9	54,6
Short-term illness	13.0	18.5	18.4	8.4	12.4	9.7
Sudden death	25.5	21.2	25.4	37.7	25.7	13.2
Suicide	0.7	2.2	0.7	1.8	0.3	6.2
Types of treatment received before death						
No treatment	25.2	26.5	28.3	28.9	33.8	31.7
Qualified allopaths	42.9	31.5	34.6	44.7	42.3	41.9
Village doctor	17.8	24.9	22.6	24.0	14.8	13.2
Traditional	6.0	7.2	8.8	0.0	4.0	3.5
Drug seller	3.7	4.7	1.4	0.0	1.3	3.1
Homeopaths	1.7	1.9	1.4	0.0	0.0	3.1
Others	2.5	3.4	1.8	2.5	2.4	3.5
n	205	360	287	57	79	42

Decision-making for healthcare

More than one-third (39%) of the TUP households reported joint decision-making involving husbands regarding when and where to seek care in case a household member fell sick. This proportion, however, was much lower compared to the NTPs (55-70%) and the NPs (62-72%) (Table 10).

Table 10. Health decision-making by area and poverty groups (%)

	STUP 1			STUP 2			*p* value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Person who takes decision about seeking help when a household member gets sick									
Self	4.3	9.5	27.9	7.2	11.5	34.6	<0.001	<0.001	<0.001
Husband	20.9	20.8	14.1	3.9	3.1	3.0	<0.001	ns	<0.001
Jointly with husband	61.2	54.8	37.7	72.3	69.4	40.7	<0.001	<0.001	ns
Jointly with others	13.6	14.9	20.3	16.6	16.0	21.7	<0.001	ns	<0.01
Person who takes decision about the type of healthcare provider to be contacted									
Self	4.0	9.0	27.5	6.6	11.0	34.2	<0.001	<0.001	<0.001
Husband	19.8	20.0	13.3	3.9	3.0	3.2	<0.001	ns	<0.001
Jointly with husband	62.2	55.5	38.3	72.7	69.9	40.8	<0.001	<0.001	ns
Jointly with others	14.0	15.4	20.8	16.7	16.1	21.8	<0.001	<0.01	ns
n	6,217	12,164	6,854	1,402	1,657	850	---	---	---

* ns = Not significant at the 5% level

Awareness of locally available health providers/health services

The study respondents appeared to be more informed about the village doctors and the traditional healers, such as the *Kabiraj*, compared to other types of healthcare providers, in both areas and by all population groups (Table 11). Significant difference ($p<0.01$) was observed between the TUP households of the two areas, those of STUP I more knowledgeable (17%) than those of STUP II (13%).

Upazila Health Complex (UHC), followed by *Union* Health & Family Welfare Centre (UHFWC) have been reported to be the two most common health facilities where services were received by the respondents of all groups both areas (Table 11). More respondents from STUP II (~42%) mentioned about the UHC than those from the other area (~30%). Interestingly, far greater proportion of respondents from all groups of STUP II areas (~15%) mentioned about the drug shops than their counterparts in STUP II area (~6%). More than half of the respondents knew about such facilities. Neighbors and relatives were reportedly the other major source of information on healthcare facilities.

Table 11. Awareness of available health providers/facilities by area and poverty groups (%)

	STUP 1			STUP 2			P value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Providers/facilities available locally									
Providers									
CHWs (*SS* and others)	3.1	4.1	2.8	1.8	1.8	1.3	<0.01	ns	<0.01
Village doctors/*Kabiraj*	14.7	15.9	16.7	11.1	13.2	12.5	ns	ns	<0.01
MBBS doctor/panel doctor	4.3	3.2	2.9	4.9	4.7	4.6	ns	ns	<0.05
Homeopath	0.6	0.8	0.5	0.9	0.8	0.8	<0.05	ns	ns
Facilities									
UHFWC	15.7	17.5	16.5	13.4	13.5	13.1	ns	ns	ns
UHC	30.8	30.3	31.7	43.9	42.9	42.4	ns	ns	<0.001
Medical College Hospital	3.3	2.9	1.9	5.2	3.3	1.9	<0.01	<0.05	ns
Sadar Hospital	9.2	6.7	7.6	11.1	11.0	12.3	ns	ns	<0.01
BRAC HC	0.3	0.3	0.7	0.1	0.4	2.3	<0.01	<0.01	<0.01
Drug shops	14.7	15.7	16.0	5.3	6.5	6.7	ns	ns	<0.001
Other(s)	3.1	2.6	2.7	2.2	1.9	1.9	ns	ns	ns
Source of information									
BRAC workers	0.8	1.3	2.4	1.0	1.5	8.1	<0.01	<0.001	<0.001
Other health workers	2.4	3.0	2.6	4.1	2.2	2.4	ns	ns	ns
Knowing previously	60.5	55.5	51.2	56.8	54.4	50.5	<0.001	ns	ns
Neighbours/friends	30.8	34.5	37.3	27.0	30.6	29.2	<0.01	ns	<0.01
Relatives	5.5	5.6	6.4	10.6	11.2	9.9	ns	ns	<0.01
Mass media	0.0	0.0	0.1	0.4	0.1	0.0			
Other(s)	0.1	0.0	0.0	0.1	0.1	0.0			
n	6,217	12,164	6,854	1,402	1,657	850			

* ns = Not significant at the 5% level

Access to and use of available services

The three most commonly visited provider/facilities in last one year as reported by the respondents were the village doctors/traditional healers, MBBS doctors, and government health facilities (Table 12). The TUP households of STUP I areas visited MBBS doctors much less frequently than those of STUP II areas. Around one-fifth of the respondents stated to have visited the Govt. health facilities, especially in the STUP II area. Private clinics were visited by about 15% of the respondents, and drug shops by only a small proportion, especially the TUP households. The majority of the TUP respondents visited providers/facilities on their own, while in case of the other two groups husbands and relatives accompanied them while visiting providers/facilities. The majority

of those who visited providers/facilities were served with prescription and drugs, more so in STUP II areas (around 43%) compared to STUP I area (around 39%), especially in case of the TUP households (p=<0.01).

Table 12. Access and use of available services/facilities by area and poverty groups (%)

	STUP 1			STUP 2			*p* value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Three most commonly visited health providers/health facilities in past one year									
Providers									
Village doctors/*Kabiraj*	31.3	37.5	40.2	22.2	27.5	28.5			
MBBS doctor/panel doctor	20.3	10.6	9.8	22.0	13.2	14.7			
Govt. health facilities	23.5	23.6	22.6	31.7	35.2	26.5			
Private clinic	15.3	16.0	12.1	16.0	15.1	15.5			
Drug shops	6.1	8.0	11.1	4.5	5.6	7.5			
Others	3.3	4.3	4.2	3.5	3.3	7.4			
Person(s) accompanying									
Self	23.9	33.2	48.3	28.6	32.4	48.0	<0.001	<0.001	ns
Husband	50.5	44.8	28.0	38.8	35.2	17.0	<0.001	<0.001	<0.001
Relative	23.3	19.0	21.3	30.5	30.0	32.0	<0.05	ns	<0.001
Others	2.1	2.9	2.4	2.1	2.1	2.8			
Services availed									
Treatment	16.7	17.2	15.6	3.6	3.2	2.1	ns	ns	<0.001
Drug(s)	24.4	31.7	34.9	21.2	24.9	31.3	<0.01	<0.05	ns
Prescription	16.6	10.3	9.4	21.4	21.4	16.4	ns	<0.05	<0.01
Prescription and drug(s)	39.4	39.9	38.5	39.5	47.5	47.0	ns	ns	<0.01
Other	2.8	2.8	1.7	5.2	3.0	3.0	---	---	---
n	6,217	12,164	6,854	1,402	1,657	850	---	---	---

* ns = Not significant at the 5% level

Acute morbidity and health-seeking behaviour

Reported morbidity prevalence (15-days recall) was greater among the TUP households (28%) compared to the other two types of households (22-24%) in both areas (Table 13). Across the two areas fever and pain of different types and severity were the two most common illnesses reported by the respondents to have had suffered from in the previous 15 days (Table 14).

Table 13. Morbidity prevalence by area and poverty groups

	STUP 1			STUP 2			P value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Experienced any illness in last 15 days	24.4	24.3	28.3	22.8	23.1	28.4	<0.001	<0.001	ns
n	29,887	46,715	22,572	6,872	7,013	2,912			

* ns = Not significant at the 5% level

Table 14. Types of illnesses (15-days recall) by area and poverty groups

	STUP 1			STUP 2		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)
Types of illness						
Fever	39.3	44.3	42.4	30.7	36.7	32.8
Pain	17.9	15.8	16.7	24.6	18.9	24.0
Respiratory illnesses	8.8	8.6	7.3	10.4	9.6	10.7
GI illnesses	8.4	9.6	9.5	6.4	7.9	7.4
General weakness	6.6	6.4	7.2	5.5	5.0	6.1
ENT illnesses	0.7	0.7	0.6	0.6	0.6	0.6
Pregnancy associated illnesses	0.2	0.2	0.3	0.1	0.3	0.1
Reproductive illnesses	0.8	0.5	0.5	1.3	1.3	0.6
Others	16.9	13.9	15.5	20.2	19.3	17.4
n	6,377	12,062	7,148	1,528	1,717	817

A substantial proportion of the respondents, especially in the STUP II areas, either sought no treatment or resorted to self-treatment (Table 15). Around half of the of TUP households of the STUP II areas fell under this category compared to more than a quarter of households in the STUP I areas. Unqualified Village Doctors and sales people at drug retail outlets were the two types of healthcare providers who were most frequently sought after by the respondents of all types of households, especially in the STUP I areas. In the STUP II areas, proportionately more TUPs (14%) sought care from qualified allopathic practitioners than those from STUP I areas (7%). There was no difference between types of households in terms of reporting the number of days with disrupted income-earning activities due to illness. (Table 15). Due to illness in the reference period, the treatment cost of the TUP households was less compared to that of NTP and NP households, with the expenditure being less in the STUP I areas in general.

Table 15. Health-seeking behaviour for recent illnesses (15-days recall) by area and poverty groups

	STUP 1			STUP 2			P value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Types of healthcare sought									
No treatment (0)	17.3	19.4	24.1	25.8	30.1	42.2	<0.001	<0.001	<0.001
Self-treatment (1)	4.9	4.1	3.6	10.2	8.4	8.5	ns	ns	<0.01
Traditional (8, 7)	3.0	3.4	2.2	3.3	3.9	2.1	<0.01	<0.05	ns
Homeopaths (9)	3.0	3.4	2.2	3.3	3.9	2.1	<0.01	<0.05	ns
Drug seller (4)	24.1	23.6	24.6	12.4	11.9	8.3	ns	<0.01	<0.001
Village doctor (2)	36.4	38.0	33.4	26.4	28.5	20.9	<0.001	<0.05	<0.001
Paramedics (3)	1.7	2.2	2.7	2.5	2.6	2.0	ns	ns	ns
Qualified allopaths (5, 6)	11.1	7.7	7.3	18.1	13.4	14.1	ns	ns	<0.001
Others	0.0	0.0	0.0	0.0	0.2	0.1	ns	ns	ns
Mean duration of disruption of income-earning activities (days)	6.0 4.0)	6.5 (4.2)	6.5 (4.2)	7.3 (4.4)	7.2 (4.2)	7.1 (4.0)	ns	ns	<0.001
Total mean expenditure due to illness in past 15 days in Taka	193	121	90	296	181	104	<0.001	<0.01	<0.01
n	7,148	12,062	6,378	1,528	1,717	817	---	---	---

* ns = Not significant at the 5% level

Chronic morbidity and health-seeking behaviour

The two most commonly reported chronic illnesses (illnesses of ≥ 1 year) by the respondents were gastrointestinal illnesses (i.e., diarrohea, dysentery, hyperacidity, indigestion etc.) and pain of various types and intensity (Table 16). Interestingly, around 7-8% respondents across the groups reported to have had high blood pressure. According to the respondents, they have been suffering various chronic illnesses for the last three to four years.

Table 16. Types of chronic illnesses (duration of illness ≥1 year) by area and poverty groups (%)

	STUP 1			STUP 2			P value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Types of illness									
GI illnesses	26.1	26.2	24.9	24.3	24.9	21.0	ns	ns	ns
Pain	26.3	26.6	28.4	25.8	25.0	26.2	ns	ns	ns
Blood pressure	8.5	6.8	6.8	7.8	8.6	8.4	ns	ns	ns
Respiratory	6.1	6.6	8.1	7.5	9.0	13.0	<0.05	<0.05	<0.001
RTI	4.8	6.3	4.0	6.7	6.2	4.0	<0.001	ns	ns
Weakness	4.1	5.1	5.9	1.9	2.9	2.2	ns	ns	<0.001
Heart problems	3.2	2.5	2.2	3.3	2.5	1.1	ns	ns	ns
Skin diseases	4.9	4.1	3.7	4.0	3.6	4.4	ns	ns	ns
ENT	4.5	4.8	4.7	4.2	5.2	4.7	ns	ns	ns
Diabetes	1.5	0.4	0.4	1.7	0.8	0.8			
others	7.9	8.3	8.8	11.3	9.4	10.6	ns	ns	ns
Duration of illness in years-mean & (sd)	3.7 (1.9)	3.4 (2.1)	3.3 (2.1)	4.0 (1.8)	3.7 (2.2)	3.4 (2.3)	ns	<0.05	ns
n	5,142	7,139	4,063	1.220	1,198	550	---	---	---

* ns = Not significant at the 5% level

In case of chronic illnesses, the proportion without treatment or self-treatment was lower than in case of acute illnesses seen earlier (Table 17). In addition, the proportion in the TUP households was more in the STUP II area (20%) compared to STUP I area (14%). However, qualified allopathic practitioners were more frequently sought after for chronic illnesses than for acute illnesses. Comparatively lesser proportion of TUP households (25-34%) sought treatment from the qualified allopathic practitioners compared to the other two groups (28-41% and 40-57% for the NTPs and NPs respectively); the proportion being less in TUP households of the STUP I areas. Quite a substantial proportion of the TUP respondents, i.e., 15% in STUP I and 20% in STUP II, had to be hospitalized for treatment of illnesses. Of these, around 4% had to resort to surgery for cure.

The TUP respondents had to spend much more money at home for their chronic illnesses than at hospital (mean Tk.307 and Tk.38 respectively in STUP I areas and mean Tk.281 and Tk.18 respectively in STUP II areas). Households from STUP I areas spent more on treatment than those from STUP II areas (Table 17). Loans from relatives/neighbors/friends was an important source of fund for both the TUP and NTP households although the major source of fund was self or family savings or both.

Table 17. Health-seeking behaviour of chronic illnesses (duration ≥ 1 year) by area and poverty groups (%)

	STUP 1			STUP 2			P value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Types of healthcare sought									
No treatment	7.3	10.2	12.9	7.2	12.1	16.8	<0.01	<0.05	<0.05
Self-treatment	1.3	1.3	1.5	3.8	2.8	2.8	ns	ns	ns
Traditional	3.7	5.4	4.8	1.8	4.2	5.1	ns	ns	ns
Homeopaths	2.2	2.6	2.2	1.7	3.8	1.4	ns	<0.05	ns
Drug seller	14.8	16.9	18.9	5.8	8.2	10.1	<0.05	ns	<0.001
Village doctor	29.6	33.7	33.1	20.9	26.3	26.6	ns	ns	<0.001
Paramedics	0.0	0.0	0.0	0.0	0.0	0.0			
Qualified Allopaths	39.9	28.5	24.6	57.3	40.9	34.0	<0.01	<0.01	<0.01
Others	0.1	0.0	0.0	0.0	0.0	0.2			
Had to be hospitalized	19.4	15.4	15.3	30.8	22.2	19.6	ns	ns	<0.05
Reasons for hospitalization									
Treatment	94.6	94.3	95.8	96.0	93.5	96.4	ns	ns	ns
Surgery	5.4	5.7	4.2	4.0	6.5	3.6	ns	ns	ns
Expenditure on chronic illness in last three months in taka (sd)									
At home	588	408	307	662	533	281	<0.001	<0.01	ns
At hospital	107	66	38	187	94	18	<0.05	<0.05	ns
Source of expenditure									
Savings (self/family)	92.4	86.0	78.5	89.2	80.5	72.6	<0.001	<0.05	<0.05
Loan from relative/friends /neighbours	3.6	7.2	8.4	5.2	11.2	7.3	ns	ns	ns
Loan from NGO/Bank/ money-lenders	0.9	1.5	1.9	1.9	1.0	0.8			
Grants from relatives/friends /neighbours	1.6	3.8	8.2	2.2	4.8	14.3			
Grants from GO/NGO	0.1	0.1	0.6	0.0	0.2	2.2			
Sale of household asset(s)	1.5	1.3	1.8	1.3	2.2	2.9			
Other	0.1	0.1	0.6	0.2	0.3	0.0			
n	5,142	7,139	4,063	1.220	1,198	550	---	---	---

* ns = Not significant at the 5% level

SUMMARY FINDINGS

The health-related findings from the Second Phase of the CFPR Baseline survey provided important insights that would be helpful for fine-tuning and improving the programme. These are summarized below.

- The CDR (number of deaths per 1,000 population) was much higher in case of the TUPs (14 per 1,000) compared to the NTPs (8 per 1,000). Plausibly, CDR was greater for the males. Chronic disease and sudden death were the two most frequently reported causes of death and more than a quarter received no treatment before their death.
- Better state of self-health, both current and over the year, was reported by the TUP households of the STUP I areas, compared to those from the STUP II areas. Level of general health awareness was satisfactory across the poverty groups.
- Emotional stress was more prevalent among the TUP respondents (56%) compared to other groups, irrespective of area. Poverty was the main reported underlying cause with an attitude of resignation dominating the coping responses.
- Respondents from STUP II areas, especially the TUP households were lagging behind in the use of tube-well water for drinking etc., including hand-washing at critical times. However, they fared well in the use of sanitary latrines, with TUPs in the lowest tier.
- Availing ANC (43%) and PNC (9%) services was poor among the TUP households of both areas. Contraception practice was greater among TUP households of the STUP I areas (63%) than STUP II areas (51%).
- The study respondents were found to be knowledgeable about locally available health facilities, such as UHC and UHFWC and healthcare providers, such as village doctors and traditional healers, the latter especially by the TUPs. They also visited these providers/facilities frequently during the past year.
- Reported prevalence of acute illnesses (15-days recall) was greater among the TUP households (28%) compared to other households. Around 50% of the TUP households either sought no treatment or resorted to self-treatment in the STUP II areas, compared to 28% in STUP II areas.
- Unqualified village doctors and salespeople at drug retail outlets were the two most common providers sought after by the respondents, especially in STUP I areas. On an average, 6-7 days were lost from income-earning activities due to acute illnesses.

- A greater proportion of individuals suffering from various chronic illnesses (≥1 year) were treated by qualified allopathic practitioners compared to individuals suffering from acute illnesses. The proportion, however, was less for the TUP households. About 15% of the TUP households in STUP I and 20% households in STUP II were hospitalized for treatment. Of these around 4% had to resort to surgery for cure. They had to spend more money at home than at hospital for management of their chronic illnesses; the major source of expenses being savings and loans.

Table 18 presents a comparison of the key variables of interest between the TUP respondents of the two study areas.

Table 18. Comparing TUP respondents of two study areas with respect to key variables

	Study Area		
	STUP 1	STUP 2	p value
CDR per 1,000			
All	12.7	14.4	ns
Male	19.3	21.0	ns
Female	7.4	9.6	ns
Self-rated health status %			
Current health is good	44.9	28.3	<0.001
Better than past year	26.9	17.2	<0.001
Worse than past year	32.9	50.0	<0.001
Emotional stress %	54.1	58.7	<0.05
Poverty is major cause	68.7	56.8	<0.001
Attitude of resignation as major coping mechanism	43.9	29.5	<0.001
Use of tube-well water %			
For drinking	93.7	80.2	<0.001
For hand-washing at critical times	93.3	76.7	<0.001
Pregnancy care %			
ANC	49.0	37.4	<0.05
PNC	8.5	9.3	ns
Contraception prevalence %	63.2	50.9	<0.01
Self decision-making when a household member becomes sick %			
Whether to seek care	27.9	34.6	<0.001
Type of healthcare provider to seek care from	27.5	34.2	<0.001
Knows about locally available %			
Village doctor/*Kabiraj*	16.7	12.5	<0.01
Drug shops	16.0	6.7	<0.001
UHC	31.7	42.4	<0.001
Morbidity prevalence (15-days recall) %	28.3	28.4	ns
Resorted to no treatment	24.1	42.2	<0.001
Sought care from qualified allopathic practitioners	7.3	14.1	<0.001
Expenditure on acute illnesses (mean) in Taka	90	104	<0.01
Chronic Illness(es)			
Hospitalized for treatment	15.3	19.6	<0.05
n	4,063	550	

* ns = Not significant at the 5% level

CONCLUSION

Findings revealed disadvantaged condition of the ultra poor respondents in the study areas, sometimes varying by the two intervention areas (STUP I and STUP II) (Table 18). Overall, the ultra poor fared marginally better in the STUP I areas with respect to some key variables such as CDR, self-rated health status, use of tube-well water, contraception practice, health-seeking behaviour for acute

illnesses and hospitalization for chronic illnesses. Except in few instances, the difference between the TUPs and the NTPs was marginal.

A substantial magnitude of unmet need for healthcare (no treatment/self-treatment), especially in case of the TUP households, exists. The findings also emphasize the importance of the informal sector for healthcare of the poor, as was also recently revealed in a nationwide study of healthcare providers (BHW 2008). Expenditure for treatment care also warrants attention, as it has potential to contribute to catastrophic health expenditure and consequent decline in poverty status (Xu *et al.* 2003). These issues need to be kept in mind while developing and fine-tuning healthcare interventions for the poor/ultra poor.

Food Security and Nutritional Status

Monira Parveen

INTRODUCTION

Undernutrition is one of the major public health challenges in Bangladesh which passes from one generation to the next- begins in mother's womb resulting in low birth weight, and subsequently, undernutrition during childhood. Children suffer from both short-term acute food deficits as reflected in underweight (low weight-for-age) or wasting (low weight for height), as well as from longer-term chronic undernutrition as reflected in high rates of stunting (low height-for-age). Undernutrition manifested as growth failure carries increased risk of mortality and morbidity , which can inhibit accessing educational opportunities and labour force participation, and thus effect productivity. The high level of growth failure therefore represents an enormous loss of human capital (Gillespie and Haddad 2001).

There has been a steady decline in the prevalence of stunting and underweight among children aged 6-59 months in Bangladesh (HKI 2001, HKI 2005, HKI 2006, BDHS 2000, BDHS 2004 and BDHS 2007). However, child undernutrition rates in Bangladesh, especially among the poor, still remain very high – among the highest in the world. Recent survey (BDHS 2007) indicates that Bangladesh has 46, 36 and 16% of moderate to severely underweight, stunted and wasted children respectively. Also, around one third of women aged 15-49 years (34%)

have a Body Mass Index (BMI)[1] of less than 18.5 and are categorised as chronically energy deficient (CED); this figure is even higher among rural women (37%) and also among mothers (38%) of under-five children (BDHS 2004).

Children and women become under-nourished if they are unable to eat enough nutritious foods or if they suffer from illness. However, these two causes are confounded by many other factors at the households, community and national level, which makes the elimination of malnutrition challenging. Relationship between household income, food security and nutritional status is well known. Wealth status, overall household expenditure and expenditure on staple foods in particular, appear to have strong association with nutritional sufficiency in the households in general, and among children in particular (Dancer *et al.* 2008, HKI 2006b, Torlesse *et al.* 2003).

To record benchmark information and measure programme impact in future, a baseline survey was conducted on the TUP Phase II beneficiary households in 2007 before the intervention began. This chapter reports key findings on the household food security and nutritional status of the survey population with specific focus on women and children under-five years.

METHODOLOGY

Anthropometrical measurements

The anthropometry data collected in this survey were incumbent length/height, weight and mid upper arm circumference (MUAC) for all members of the study households present at the time of survey. However, length measurements for the infants less than 6 months of age and MUAC for the children less than one year and above five years were not taken. Selected subjects were measured following standard procedures (Gibson 1990). Weight was measured with a digital bathroom scale (TANITA, Japan) to the nearest 0.1 kg; subjects were barefoot and wore light clothes when they were weighed. The weighing scales were checked for performance (with known weight) everyday before use. Height/length was measured to the nearest 0.1 cm with a locally constructed portable wooden height cum length board. Tape at low cost (TALC) was used to measure MUAC to the nearest 2 mm.

[1] Body Mass Index (BMI) is defined as bodyweight in kilograms divided by height in metres squared (kg/m^2). *Low BMI or thinness* is used to assess different levels of undernutrition in adults:

- BMI 17.0 - 18.49 mild undernutrition
- BMI 16.0 -16.99 moderate undernutrition
- BMI <16.0 severe undernutrition

Nutritional indices used

Raw anthropometry data of the children under-five years and 6-9 years were converted into Z-scores using the new WHO growth standard reference values (ANTHRO 2005), WHO and STATA 9.0 using WHO macro files (igrowup_standard.ado). The nutritional status of the children was estimated using standard cut-off points for each of the indices. Underweight was defined as weight-for-age Z-scores <-2 Standard Deviations (SD) below the reference median, stunting as height-for-age Z-scores <-2 SD, wasting as weight-for-height Z-scores <-2 SD and thinness as BMI-for-age Z-scores <-2 SD below the reference median and less than 125 mm of MUAC (Gibson 1990). Body mass index (BMI) for adolescents (10-14 years) and adults were calculated (weight in kg/height in $(m)^2$) from weight and height data. Low BMI, which is often considered as an indicator of chronic energy deficiency (CED), was defined as BMI <18.5.

Assessment of household food security

Food security at the household level was assessed using a food frequency checklist in addition to a set of questionnaire that includes six questions developed for rural households in Bangladesh. Some of these questions were adopted from the BRAC/Cornell university study in Bangladesh (Frongilo 2003) and few were constructed to capture the seasonal food scarcity, as well as overall perceived food sufficiency status. There were three major dimensions of this assessment; 1) consumption frequency of certain food items in the last week prior to interview, 2) recent food security status in terms of access to enough (quantity) food, access to quality (nutritious) food and dependency on food in the last month and 3) year round food security status, in terms of meal frequency a day most of the time in the last year, changes in food consumption during crisis period (*Monga*) and perceived food sufficiency status in the last year prior to interview. Households were categorized according to the conceptual meaning and severity of the responses those are described in Table 1.

Ethical consideration

Ethical clearance was obtained from the Bangladesh Medical Research Council (BMRC) of the government of Bangladesh. Written consent was sought from all the respondents who are also the mother of children measured. Verbal informed consent was also taken from the head of the households.

Data management and analysis

Data was analyzed separately for the STUP I and STUP II areas, and compared among the three selected groups namely targeted ultra poor (TUP), non-targeted

poor (NTP), and the non-poor (NP). SPSS version 11.5 was used for data analysis. Tests for significance were done where necessary.

Table 1. Definition of the categories of household food security

Dimension	Themes	Categories of Food insecurity	Definition of categories
1. Food consumption frequency (in the last week)	Micronutrient Source (Green Leafy Vegetables (GLV) – purchased)	Secure	Could eat ≥ 3 times/week
		Moderate	Could eat only 1-2 times/week
		Extreme	Could not eat once/week
	Protein Sources (Eggs, fish and meat)	Secure	Could eat ≥ 3 times/week
		Moderate	Could eat only 1-2 times/week
		Extreme	Could not eat once/week
2. Recent food insecurity status (in the last month)	Access to sufficient/enough quantity of food	Secure	Always could eat enough food
		Occasional	Could not eat enough food 1-3 times/month
		Moderate	Could not eat enough food 1-2 times/week
		Extreme	Could not eat enough food ≥ 3 times/week
	Access to quality food (staple with other items making diversified diet)	Secure	Not once had to eat only rice
		Occasional	Had to eat only rice 1-3 times/month
		Moderate	Had to eat only rice 1-2 times/week
		Extreme	Had to eat only rice ≥ 3 times/week
	Dependency on food	Secure	Not once had to borrow rice/wheat
		Occasional	Had to borrow rice/wheat 1-3 times/month
		Moderate	Had to borrow rice/wheat 1-2 times/week
		Extreme	Had to borrow rice/wheat ≥ 3 times/week
3. Year round food insecurity (in the last year)	Meal Frequency for most of the time in last year	Secure	Could afford two meals/day
		Moderate to Extreme	Could not afford at least two meals/day
	Seasonal food insecurity (changes in food consumption during crisis or *Monga* period)	Secure	No change in food
		Moderate	Decrease in quantity of food
		Moderate	Decrease in quality of food
		Extreme	Decrease in both quantity and quality
	Food sufficiency in the last year as perceived	Secure	Surplus
		Secure	Neither deficit nor surplus
		Occasional/ Moderate	Deficit sometimes
		Extreme	Always deficit in food

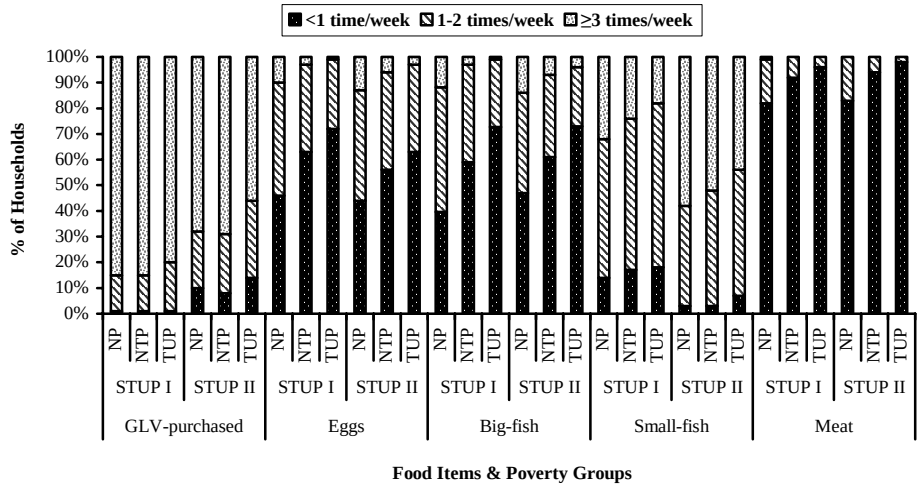
RESULTS

Household food security status

Food security status was assessed in-terms of food frequency in the last 7 days, access to enough (quantity) food, access to quality food and dependency on food in the last month, meal frequency a day most of the time in a year prior to the interview, changes in food consumption during crisis period (*Monga*) and overall food sufficiency status as perceived by the respondents and the findings are presented in this section (Figure 1,2 and 3).

Figure 1 shows the results on consumption frequencies for certain food items rich in micronutrients and protein in particular. Except vegetables and small fish, all other food items were consumed much less frequently (1-2 times/week or even not once in a week) specially by the NTP and TUP households in both areas (STUP I or STUP II). Furthermore, it was found that within each of the areas a significantly ($p<0.01$) higher proportion of TUP households suffered from this poor consumption compared to NTP. In addition, the proportion of households with poor consumption was higher in the STUP I areas compared to the STUP II areas within the same poverty group. Vegetables and small fish were consumed at higher frequencies by the majority across poverty groups (Annex 1).

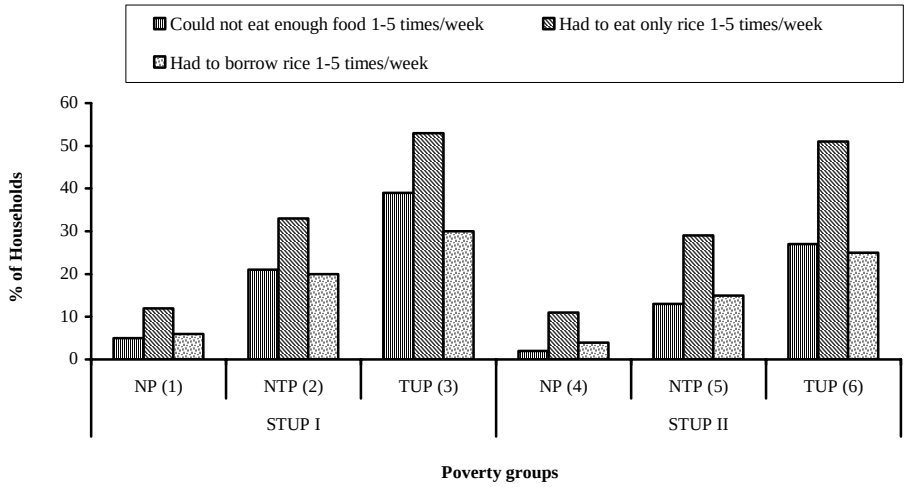
Figure 1. Consumption pattern in terms of food frequency by poverty groups



When recent food security status i.e., access to enough food in the last month prior to interview was enquired with the respondents, not unexpectedly the majority of the non-poor (71% in STUP I and 78% in STUP II) reported that they

had not had to face even one day in the last month where they could not eat enough food (Annex 2). On the other hand, 13 to 21% of NTP and 27-39% of TUP households could not eat enough food once or more times a week (moderate to extreme insecurity). Households facing this crisis were more ($p < 0.01$) in the STUP I areas compared to the STUP II areas, especially among the TUP (Figure 2). A similar feature also emerged for the access to quality food and dependency on food in the last month. Over half of the TUP households had to eat only rice with salt (no curry) once or more times in a week and, this proportion was significantly higher ($p < 0.01$) when compared to the NTP. Regarding dependency on food, 30% of TUP in STUP I and 24% of TUP in STUP II areas, had to borrow rice from others to make a meal once or more times in a week and, compared to TUP, households facing similar crisis were less in NTP group in both areas.

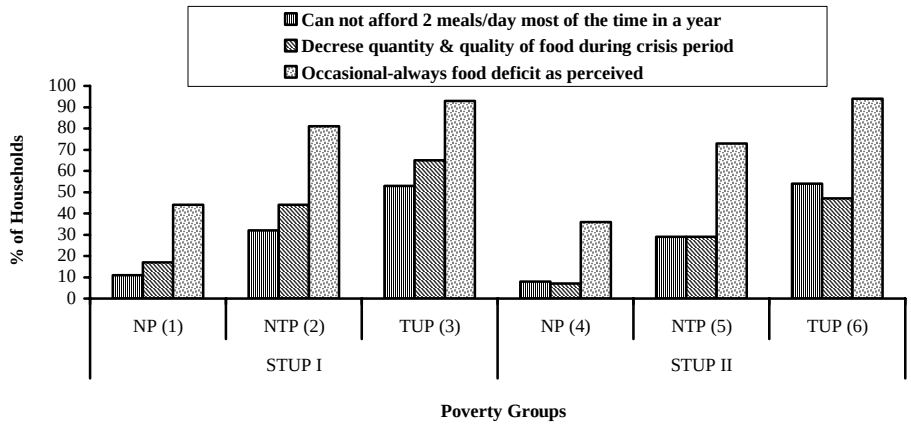
Figure 2. Recent moderate to extreme food insecurity based on three themes by poverty groups



In terms of year round food security status as assessed, more than half of the TUP households in both areas reported not being able to afford two meals a day most of the time in the last year prior to interview, compared to nearly one third in NTP facing similar crisis (Figure 3). There was no significant difference in proportion between the same poverty group from STUP I and STUP II areas. Regarding food crisis during *Monga*, 65% TUP in STUP I and 47% TUP in STUP II areas expressed that they are to face extreme food crisis during this lean period i.e., they need to compromise with both quantity and quality of food. Nevertheless NTP households experiencing seasonal food shortage to the similar extent were found to be relatively in lesser proportion than TUP in both areas. According to perceived status by the respondents in both areas, the majority of

the TUP (93-94%) followed by NTP (73-80%) households had occasional to always food insecurity in the last year prior to the interview (Figure 3 and Annex 3).

Figure 3. Year round moderate to extreme food insecurity based on three themes by poverty groups



Nutritional status of under-five children

Regardless if targeted or non-targeted by the programme, poor households had more number of malnourished children compared to non-poor households in both STUP I and STUP II areas (Figure 4).

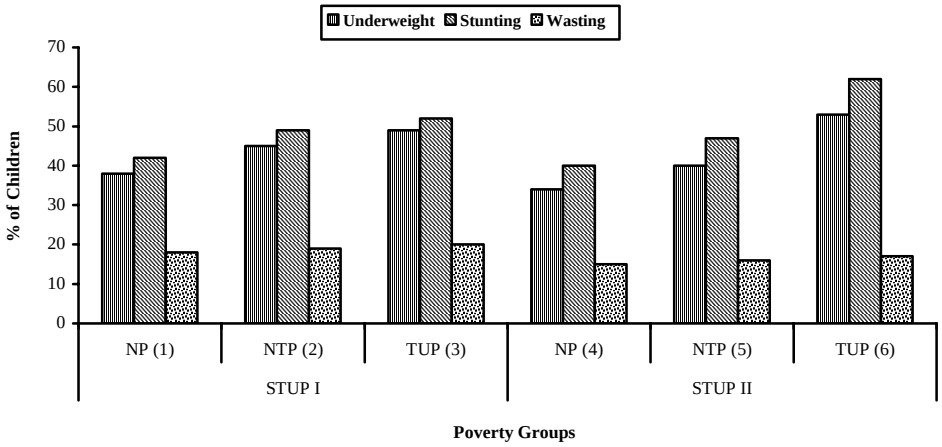
Among the targeted poor, chronic undernutrition was more evident in STUP II while acute undernutrition was prevalent more in the STUP I areas. Significantly ($p < 0.01$) higher proportion of underweight and stunted children were found among TUP in the STUP II areas compared to their counterparts in STUP I areas. On the other hand, proportion of children with wasting known as the acute undernutrition was higher ($p<0.01$) in the STUP I areas.

According to Mid Upper Arm Circumference (MUAC), undernourishment did not show such difference between STUP I and STUP II areas, although, it varied across the poverty groups in each of the areas. Non-poor households had only 6% of thin children (MUAC <125 mm) against 11-15% among poor households (NTP and TUP).

Undernutrition among under-five children was examined according to gender of the children (Annex 4). It was interesting to see that, gender difference exhibited more in chronic undernutrition compared to acute undernutrition, wherein boys were more undernourished compared to girls across the poverty groups in both areas (STUP I and STUP II). Underweight and wasted proportion in boys and

girls were almost similar, but there was a significantly higher proportion of stunted boys observed, especially in non-poor groups. However, according to MUAC, significantly higher proportion of girls were undernourished compared to their male counterparts. Proportion of underweight and stunted children increased as age progressed. However, this feature was not observed with wasting or thinness (Annex 6).

Figure 4. Nutritional status of under-five children



As a reflection of both short and long term undernutrition, the underweight proportion in children less than five years was investigated by some selected socio-demographic and household food security status. Table 2 reveals the differentials of underweight between various categories of household characteristics found from the bivariate analysis. Religion tended to be an underlying factor for undernutrition in children. In all poverty groups, underweight children were more in Muslim households compared to non-Muslims. Household size did show an influence on the underweight, but was not consistent for all the poverty groups. Among NTP and TUP in STUP I areas and NTP in SUP II areas, households with five or more members had a higher proportion of underweight children compared to households with four or less members, although this was not the case with the remaining poverty groups. Ownership of agricultural land is important for economic status and influence on the nutritional status of vulnerable groups. Among the poor groups in the STUP II areas, a significantly higher proportion of underweight children observed in the households did not own any agricultural land. However, this was not evident in the STUP I areas. Health and hygienic practice has a direct relationship with the nutritional status of children under the age of five years. However, the use of a hygienic latrine by the children did not show such relationship in most of the poverty groups in this study.

Table 2. Proportion (%) of underweight children by selected variables and poverty groups

Variables	STUP 1			STUP 2			P-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Religion									
Muslim	39.6	45.6	49.6	34.5	39.5	53.0	<0.01	<0.01	<0.05
Non-Muslim	31.0	40.3	46.1	29.8	41.7	47.3	<0.01	ns	ns
P-value	<0.01	<0.01	<0.1	<0.01	ns	<0.01			
Household size									
≤ 4 members	38.3	44.3	46.7	35.4	36.7	54.0	<0.05	<0.01	<0.01
≥ 5 members	38.5	45.4	51.5	33.0	42.1	51.3	<0.01	<0.01	ns
P-value	ns	<0.05	<0.01	<0.01	<0.01	ns			
Land ownership (Agricultural)									
Own	36.5	46.9	56.7	32.1	32.2	45.5	<0.01	<0.01	<0.05
Do not own	41.4	44.2	48.4	36.8	41.8	53.0	<0.01	<0.01	<0.01
P-value	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1			
Land ownership (Homestead)									
Own or rented	37.9	44.4	50.2	34.4	38.4	54.5	<0.01	<0.01	<0.05
Live on other's land	39.9	45.5	48.0	31.4	42.5	50.6	<0.01	<0.05	ns
P-value	ns	ns	ns	ns	<0.01	<0.05			
Hygiene practice (latrine use)									
Use hygienic latrine	33.6	42.3	48.8	35.9	41.0	45.8	<0.05	ns	ns
Use non-hygienic latrine	38.8	44.5	48.3	34.7	37.7	51.2	<0.01	<0.01	<0.05
P-value	<0.01	ns	ns	ns	<0.01	ns			
n	2538	5481	2759	587	726	316	---	---	---

ns = Not significant at the 5% level

Table 3 shows the proportion of underweight according to household's food consumption in terms frequency of selected protein and micronutrient rich foods such as eggs, meat (poultry and other), fish, green leafy vegetables (GLV) (purchased) and iodized salt. Frequent consumption of these foods by the households has shown to reduce undernutrition among children under-five years. Significantly higher proportion of underweight children observed in the households never consumed these food items in the last week prior to the interview, compared to those consumed as frequently as 3 or more times a week. It was also encouraging to see that, among all the poverty groups in both areas, underweight children were less in the households that used packed salt (which is assumed to be iodized), compared to those used open salt. An exception observed with the egg and GLV consumption among the TUP children in the STUP II areas wherein more children were undernourished in families with higher consumption frequency. This could be due to the fact that these households substituted GLV and eggs with other diversified nutritious foods.

Undernutrition was compared between food secured and food insecure (moderate to extreme) households (Table 4). In terms of recent food insecurity status, i.e.

status during the last one month prior to the interview, underweight children were more prevelent in the households with moderate to extreme food insecurity, compared to food secure households. Throughout the poverty groups, a significantly ($p<0.01$) higher proportion of underweight children were also found in households with a moderate to extreme level of food insecurity faced all over the year (including crisis period). There was only an exception with TUP in the STUP II areas.

Table 3. Proportion (%) of underweight children by food consumption and poverty groups

Variables	STUP 1			STUP 2			P-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Egg consumption									
Consume ≥ 3 times/week	29.1	38.3	41.7	39.3	36.4	71.4	0.405	<0.01	<0.01
Consume not once/week	40.9	45.1	48.5	41.1	41.7	49.0	0.002	<0.01	ns
P-value	<0.01	<0.01	ns	<0.01	<0.01	<0.01			
Meat consumption									
Consume 1-2 times/week	30.8	44.0	33.0	37.0	22.4	59.5	0.016	<0.01	<0.01
Consume not once/week	39.6	44.4	49.0	34.8	39.4	50.5	0.000	<0.01	ns
P-value	<0.01	<0.01	<0.01	ns	<0.01	ns			
Big fish consumption									ns
Consume ≥ 3 times/week	28.2	37.4	31.0	26.3	50.2	40.0	0.250	ns	ns
Consume not once/week	37.2	45.1	48.4	40.2	40.5	52.2	0.002	<0.01	<0.05
P-value	<0.01	<0.01	<0.1	<0.01	<0.01	<0.1			
Small fish consumption									
Consume ≥ 3 times/week	36.9	42.8	42.6	32.4	35.3	50.4	0.482	<0.01	<0.01
Consume not once/week	38.5	42.0	48.2	45.4	23.3	74.3	0.004	<0.01	<0.01
P-value	<0.05	<0.01	<0.05	<0.01	<0.01	<0.01			
GLV consumption									
Consume ≥ 3 times/week	37.7	44.3	47.0	35.0	35.9	49.0	0.304	<0.01	<0.01
Consume 1-2 times/week	41.9	43.4	54.2	35.8	44.4	41.6	0.000	<0.01	ns
P-value	<0.01	ns	<0.01	ns	<0.01	<0.01			
Iodized salt use									
BRAC or any packet salt	35.8	43.4	48.5	34.9	37.3	50.1	<0.01	<0.01	ns
Open salt	42.0	45.6	48.2	37.1	45.9	55.2	<0.05	<0.01	<0.05
P-value	<0.01	<0.01	ns	<0.05	<0.01	ns			
n	2538	5481	2759	587	726	316	---	---	---

ns = Not significant at the 5% level

Nutritional status of school age children and adolescents

Figure 5 shows the nutritional status of school age children (6-9 years) in STUP I and STUP II areas. Similar to the under-five age group, (Figure 4) in both areas proportion of undernourished children were significantly more ($p <0.01$) in poor groups (NTP, TUP) compared to non-poor (NP). Furthermore, chronic

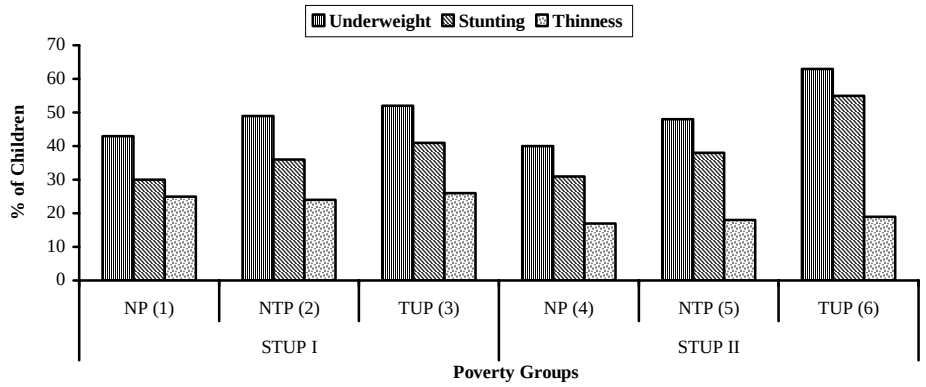
undernourishment (stunting) was higher in STUP II areas compared to the STUP I areas, while this was reverse in case of acute state (wasting).

Table 4. Proportion (%) of underweight children by household food insecurity status (recent and year round) and poverty groups

Variables	STUP 1			STUP 2			P-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Access to enough quantity of food in the last month									
Food Secured	37.4	44.9	46.9	30.7	38.6	51.8	0.185	<0.01	ns
Moderate-extremely food insecured	46.0	47.5	51.2	49.1	48.9	57.3	0.007	<0.01	<0.01
P-value	<0.01	<0.01	ns	<0.01	<0.01	<0.05			
Access to quality food in the last month									
Food Secured	38.4	43.8	49.6	28.8	39.2	48.5	0.009	<0.01	ns
Moderate-extremely food insecured	38.6	45.9	50.3	42.6	40.4	53.7	0.000	<0.01	0.050
P-value	ns	<0.05	ns	<0.01	ns	ns			
Dependency on Food in the last month									
Food Secured	36.4	46.2	47.7	32.6	38.8	47.0	0.218	<0.01	ns
Moderate-extremely food insecured	42.9	44.4	49.8	44.7	43.4	58.4	0.001	<0.01	<0.01
P-value	<0.01	<0.01	ns	<0.01	<0.01	<0.05			
Meal frequency in most of the time in the last year									
Have 2 meal/day always	37.5	44.7	46.4	32.7	38.4	56.0	0.109	<0.01	<0.01
Do not have 2 meal/day	46.0	44.9	51.0	46.5	43.1	49.5	0.000	<0.01	ns
P-value	<0.01	ns	<0.01	<0.01	<0.01	<0.01			
Changes in food consumption during crisis period (*Monga*)									
No Changes	34.7	49.4	52.3	29.0	40.8	63.9	0.336	<0.01	ns
Decrease quantity & quality	47.8	46.0	48.9	33.8	44.1	47.7	0.006	<0.05	ns
P-value	<0.01	<0.01	ns	<0.01	<0.01	<0.01			
Food sufficiency in the last year as perceived									
Never deficit	38.0	42.7	49.2	30.7	28.1	70.9	0.026	<0.01	<0.01
Always deficit	36.7	44.3	52.1	44.0	37.6	50.8	0.000	<0.01	ns
P-value	ns	<0.05	<0.1	<0.01	<0.01	<0.05			
n	2538	5481	2759	587	726	316	---	---	---

ns = Not significant at the 5% level

Figure 5. Nutritional status of 6-9 years old children

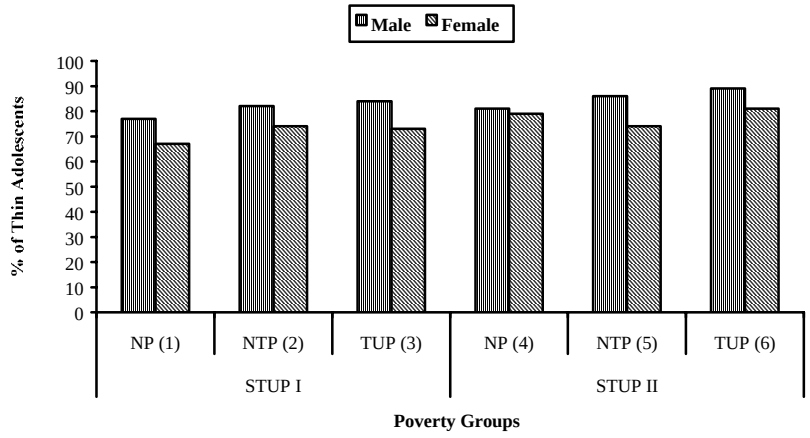


In STUP I areas 41 and 52% of TUP children were stunted and underweight respectively. The corresponding figures for the STUP II areas were 55 and 63%. The proportion of wasting was higher in STUP I areas compared to the STUP II areas and did not vary much between the poverty groups within an area.

There was no gender difference in underweight in the STUP I areas (Annex 8). However, a higher number of girls (42%) were underweight in non-poor category in the STUP II areas compared to their male counterparts (39%). In contrast, significantly higher proportion of boys were underweight among targeted and non-targeted poor, compared to their female counterparts. A similar pattern was observed with stunting in this age group. Compared to NP, the proportion of stunted children in TUP were 11 percentage points higher in the STUP I areas and 24 percentage points higher in the STUP II areas. Again this chronic undernutrition was higher in TUP than NTP in both areas. In case of thinness measured by BMI for age Z-score, there was no difference in proportion among the poverty groups in both STUP I and STUP II areas. In contrast to underweight and stunting, acute state of this undernutrition observed in significantly ($p<0.01$) higher proportion (25%) among TUP in the STUP I areas as compared to TUP in the STUP II areas (19%).

Nutritional status of adolescents aged 10-14 years was estimated based on BMI (weight in kg/height in $(m)^2$) and it was observed that, across the poverty groups more than 70% of them (both male and female) had a BMI of less than 16.0 (Figure 6). Male adolescents were thinner than their female counterparts. There was no difference between NTP and TUP, however significant difference observed between TUP in STUP I and TUP in STUP II areas (Annex 9).

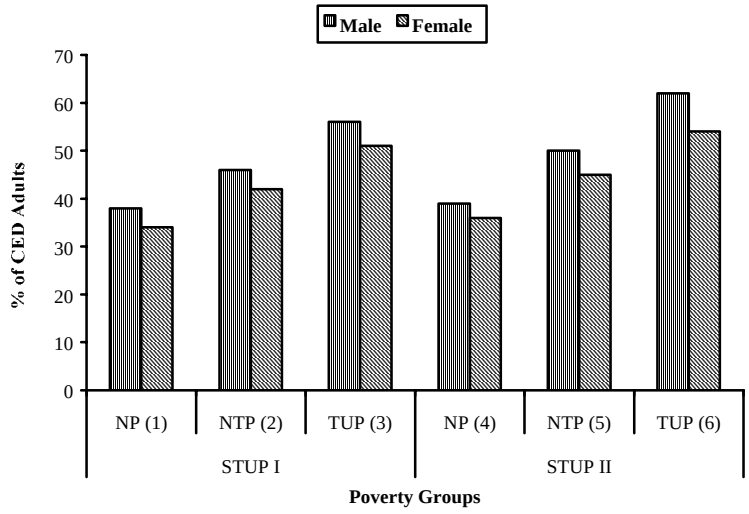
Figure 6. Nutritional status of adolescents



Nutritional status of adults

Nutritional status of adults (both male and female) in non-poor group was consistent with the national scenario (BDHS 2004). However, undernutrition in terms of chronic energy deficiency (CED) among adults in reproductive age was higher in TUP followed by NTP groups in both areas (Figure 7). Males were more undernourished compared to females (Annex 10).

Figure 7. Nutritional status of adults (15-49 years)



Undernutrition as manifested by chronic energy deficiency (CED) among non-pregnant women of reproductive age (15-49 years) was investigated according to some of their background characteristics. It can be seen from the Table 5 that there was difference in proportion between currently married and divorced/separated/abandoned or widowed women. A higher proportion of energy deficient (CED) women found among those were not living with their spouse. Religious status found to make difference in CED among these women, wherein Muslims were tended to be more undernourished compared to their non-Muslims counterparts. In all the poverty groups studied, significantly higher proportion of non-educated women found to suffer from CED compared to women with any level of education. Household size, ownership of agricultural or homestead land did not show any influence on the CED among women. However, household food sufficiency status, as perceived by the respondents, played an important role in nutritional status of these women. A significantly higher proportion of women from households with a constant food deficit were observed to suffer from CED, compared to those from households never faced food deficit during the whole year prior to interview.

Table 5. Proportion of chronic energy deficiency (BMI<18.5) among women in reproductive age by their socio-demographic characteristics and poverty groups

Variables	STUP 1			STUP 2			P-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Marital Status									
Divorced/separated/abandoned	40.0	46.4	51.7	27.8	44.2	63.8	ns	<0.01	<0.01
Widowed	33.6	47.5	52.3	37.4	46.6	56.7	<0.01	<0.01	<0.01
Married living with spouse	31.5	41.2	51.2	33.3	41.5	52.7	<0.01	<0.01	ns
P-value	<0.01	<0.01	ns	<0.05	<0.01	<0.01			
Religion									
Non-Muslim	26.7	37.0	43.4	35.4	40.6	62.1	<0.01	<0.01	<0.01
Muslim	35.3	42.9	53.1	36.2	45.4	54.0	<0.01	<0.01	<0.01
P-value	<0.01	<0.01	<0.01	ns	<0.01	<0.01			
Education (any class)									
Have No education	36.5	42.0	52.4	43.3	47.6	57.6	<0.01	<0.01	<0.01
Have education	32.6	41.9	48.5	33.9	43.1	49.2	<0.01	<0.01	ns
P-value	<0.01	ns	<0.01	<0.01	<0.01	<0.01			
HH Size									
≥ 5 members	34.7	41.8	50.2	39.4	46.4	51.6	<0.01	<0.01	<0.01
≤ 4 members	32.6	42.1	52.0	30.6	42.4	55.4	<0.01	<0.01	<0.01
P-value	<0.05	ns	<0.05	<0.01	<0.01	<0.05			
Agricultural Land ownership									
Do not own any	39.0	42.5	51.3	37.1	44.1	54.5	<0.01	<0.01	<0.01
Own any size	32.2	40.6	53.3	35.5	46.0	49.9	<0.01	<0.01	<0.01
P-value	<0.01	<0.05	ns	<0.05	<0.05	<0.1			
Homestead Ownership									
Live on others	34.3	43.3	50.2	38.3	42.0	55.1	<0.01	<0.01	<0.01
Live on own or rented	33.9	41.2	52.7	35.7	45.6	53.5	<0.01	<0.01	<0.01
P-value	ns	<0.05	<0.05	<0.05	<0.01	ns			
HH food sufficiency status as perceived									
Always deficit	35.0	46.6	52.2	43.2	46.7	55.4	<0.01	<0.01	<0.01
Never deficit (balance/surplus)	31.3	38.0	45.8	32.3	36.6	52.8	<0.01	<0.01	<0.01
P-value	<0.01	<0.01	<0.05	<0.01	<0.01	<0.05			
n	796	2111	2612	184	362	316	---	---	---

ns = Not significant at the 5% level

CONCLUSION

Findings revealed the existence of food insecurity throughout the poverty groups, with targeted ultra poor (TUP) households encompassing highest proportion of recent food-insecure households (moderate to extreme). A significant difference between the TUP and NTP households was also observed with respect to long term food insecurity. More than half of the TUP households could not afford at least two meals a day most of the time in a year, which was the case faced by less than one third of the NTP households. Increased food crisis during *Monga*, when majority reduce both quantity and quality of food consumed, was more evident among the TUP compared to NTP households.

Undernutrition among both children and adults was higher in TUP households compared to NTP in both intervention areas (STUP I and STUP II). Chronic undernutrition (stunting and underweight) was higher in STUP II areas, while acute undernutrition (wasting) was more apparent in the STUP I areas. The bivariate analysis showed that households that faced moderate to extreme food insecurity recently or over a period, have more underweight children compared to food secured households. Households with less frequent consumption of meat, fish, egg and green leafy vegetables were found to have higher proportion of underweight children compared to the households with greater consumption of these foods. Large and landless households also had higher number of underweight children. The above observations suggest that CFPR programme should take into consideration the disadvantaged condition of the food-insecure households and put extra efforts to improve their nutritional status, to break the poverty cycle.

ANNEXURE

Annex 1. Food consumption status by poverty groups (%)

Variables	STUP 1			STUP 2			P-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
FOOD ITEMS –Frequency/week									
GLV - purchased							ns	<0.01	<0.01
Consume ≥ 3 times/week	85.3	84.8	79.8	68.1	68.7	55.9			
Consume 1-2 times/week	13.8	14.0	19.1	22.4	23.2	29.6			
Consume not once/week	0.9	1.3	1.1	9.5	8.1	14.3			
Egg							<0.01	<0.01	<0.01
Consume ≥ 3 times/week	9.9	3.4	1.3	12.9	5.9	3.1			
Consume 1-2 times/week	43.9	33.8	27.2	43.5	37.6	33.7			
Consume not once/week	46.2	62.7	71.6	43.7	56.5	63.2			
Big-fish							<0.01	<0.01	<0.01
Consume ≥ 3 times/week	12.0	3.4	1.4	13.8	7.0	4.4			
Consume 1-2 times/week	48.5	37.7	26.2	38.8	32.4	22.7			
Consume not once/week	39.5	58.9	72.4	47.4	60.6	72.8			
Small-fish							<0.01	<0.01	<0.01
Consume ≥ 3 times/week	32.3	24.1	17.9	58.6	51.7	43.9			
Consume 1-2 times/week	53.7	58.5	64.1	38.6	44.8	48.8			
Consume not once/week	13.9	17.4	18.0	2.7	3.4	7.2			
Meat							<0.01	<0.01	0.05
Consume ≥ 3 times/week	0.9	0.4	0.2	0.6	-	-			
Consume 1-2 times/week	16.8	8.3	3.7	16.9	6.5	2.3			
Consume not once/week	82.3	91.3	96.1	82.5	93.5	97.7			

ns = Not significant at the 5% level

Annex 2. Recent food security by poverty groups (%)

Variables	STUP 1			STUP 2			P-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Access to enough quantity of food in the last month							<0.01	<0.01	<0.01
Food secure	71.3	34.6	16.9	78.0	46.6	21.8			
Occasionally food insecure	23.3	44.0	44.5	19.5	40.2	51.8			
Moderately food insecure	5.3	18.6	29.9	2.4	11.4	21.6			
Extremely food insecure	0.2	2.8	8.7	-	1.7	4.9			
Access to quality food in the last month							<0.01	<0.01	<0.01
Food secure	60.4	27.7	13.4	61.2	28.6	12.3			
Occasionally food insecure	27.5	39.3	33.2	27.9	42.7	36.7			
Moderately food insecure	10.4	26.3	37.8	10.7	24.6	42.2			
Extremely food insecure	1.6	6.6	15.6	0.2	4.1	8.8			
Dependency on Food in the last month							<0.01	<0.01	<0.01
Food secure	62.2	30.9	21.1	68.3	35.3	23.2			
Occasionally food insecure	32.0	49.1	49.0	28.0	50.1	52.6			
Moderately food insecure	5.3	17.7	24.8	3.7	12.8	19.7			
Extremely food insecure	0.5	2.3	5.1	-	1.9	4.6			
n	2538	5481	2759	587	726	316			

ns = Not significant at the 5% level

Annex 3. Year round food security by poverty groups (%)

Variables	STUP 1			STUP 2			P-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Meal frequency in most of the time in the last year							<0.01	<0.01	ns
Could afford 2 meals/day	89.0	67.7	43.7	91.8	70.6	45.6			
Could not afford 2 meals/day	11.0	32.3	53.3	8.2	29.4	54.4			
Changes in food consumption during crisis period (*Monga*)							<0.01	<0.01	<0.01
No changes in food	36.1	7.9	2.5	41.1	12.0	8.2			
Decrease quantity	13.4	21.3	19.9	5.6	12.7	18.0			
Decrease quality	33.1	27.2	12.9	46.5	46.1	26.7			
Decrease quantity & quality	17.4	43.6	64.7	6.9	29.2	47.2			
Food sufficiency in the last year as perceived							<0.01	<0.01	<0.01
Surplus	20.6	3.0	0.6	19.4	2.0	0.4			
Neither surplus nor deficit	35.6	16.5	6.5	44.9	25.3	5.1			
Occasional Deficit	38.6	67.0	63.0	33.1	62.9	71.8			
Always deficit	5.1	13.5	29.9	2.6	9.9	22.7			

ns = Not significant at the 5% level

Annex 4. Mean (±SD) Anthropometrics of under-5 children (0-59 Months) by various wealth groups

Variables	STUP 1			STUP 2			P-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Age (months)	28.6	28.4	29.5	29.6	30.1	29.8	<0.01	ns	ns
Weight (Kg)	10.1±2.8	9.9±2.8	9.9±2.7	10.3±2.9	10.2±2.9	9.9±2.9	ns	<0.01	ns
Height (cm)*	84.4±11.3	83.9±11.0	83.8±10.8	85.9±10.9	85.1±10.5	83.9±10.3	ns	<0.01	ns
MUAC (mm)*	140.4 ±10.8	138.9 ±10.8	137 ±11.1	140.9 ±11.1	140.3 ±10.4	137.5 ±11.7	<0.01	<0.01	ns
Weight-for-age Z-score	-1.7±1.1	-1.9±1.1	-2.0±1.1	-1.6±1.2	-1.8±1.0	-2.0±1.3	<0.01	<0.01	
Height-for-age Z-score	-1.7±1.3	-1.9±1.3	-2.0±1.3	-1.7±1.3	-1.9±1.2	-2.2±1.2	<0.01	<0.01	<0.01
Weight-for-height Z-score	-1.1±1.1	-1.1±1.1	-1.2±1.0	-1.0±1.1	-1.0±1.0	-1.1±1.1	<0.01	<0.01	ns
n	2542	5490	2760	587	726	317			

ns = Not significant at the 5% level

*Data obtained for ≥6 months old children only

Annex 5. Mean (±SD) Anthropometrics of 6 to 9 years old children by various wealth groups

Variables	STUP 1			STUP 2			P-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Age (years)	6.6±1.1	6.6±1.1	6.6±1.1	6.6±1.0	6.7±1.0	6.7±1.0	ns	ns	<0.01
Weight (Kg)	17.4±3.3	17.1±3.2	17.0±3.3	17.5±3.1	17.1±2.9	16.4±2.8	<0.05	<0.01	<0.01
Height (cm)	112.4±9.1	111.4±9.2	110.9±9.2	112.1±8.4	110.9±8.8	108.7±8.8	<0.01	<0.01	<0.01
Weight-for-age Z-score	-1.8±1.0	-1.9±1.0	-2.0±1.1	-1.7±1.0	-2.0±1.0	-2.3±1.0	<0.01	<0.01	<0.01
Height-for-age Z-score	-1.4±1.2	-1.5±1.2	-1.6±1.3	-1.4±1.1	-1.7±1.2	-2.2±1.2	<0.01	<0.01	<0.01
BMI-for-age Z-score	-1.4±0.9	-1.4±0.9	-1.4±0.9	-1.2±0.9	-1.2±0.8	-1.3±0.9	ns	ns	<0.01
n	2322	4474	2519	480	635	270			

ns = Not significant at the 5% level

Annex 6. Nutritional status of under-five children (0-59 Months) by age and poverty groups (%)

Variables	STUP 1			STUP 2			P-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Underweight (Wt-for-age < -2 Z-score)									
< 6 months	25.4	32.2	34.4	17.3	34.2	45.1			
6-23 months	33.7	41.1	47.0	33.1	36.5	55.8			
24-59 months	42.5	48.5	51.3	36.9	42.0	52.1			
All	38.4	44.9	49.0	33.9	39.8	52.6	<0.01	<0.05	<0.01
n	2542	5490	2760	587	726	317			
Stunted (Ht-for-age < -2 Z-score)									
6-23 months	38.9	45.1	49.9	37.5	41.6	61.4			
24-59 months	43.3	50.5	52.6	41.8	48.6	61.8			
All	41.8	48.7	51.7	40.4	46.5	61.7	<0.01	<0.01	<0.01
n	2198	4721	2451	476	608	265			
Wasted (Wt-for-ht < -2 Z-score)									
6-23 months	15.6	20.1	23.8	20.6	16.6	24.1			
24-59 months	19.5	18.6	19.1	12.5	15.1	13.5			
All	18.3	19.0	20.4	14.8	15.6	16.6	<0.05	ns	<0.01
n	2198	4721	2451	476	608	265			
Thinness MUAC <125 (mm)									
12-23 months	14.9	19.4	24.0	14.4	13.7	26.9			
24-59 months	3.5	5.0	6.5	1.7	3.7	5.2			
All	6.1	10.7	13.1	6.0	6.4	14.6	<0.01	<0.01	ns
n	1921	4215	2247	431	551	233			

ns = Not significant at the 5% level

Annex 7. Nutritional status of under-five children (0-59 Months) by gender and poverty groups (%)

Variables	STUP 1			STUP 2		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)
Underweight (Wt-for-age < -2 Z-score)						
Boy	38.8	44.7	48.2	34.6	42.7	52.7
Girl	38.0	45.1	49.8	33.0	36.6	52.5
P-value	ns	ns	ns	Ns	<0.01	ns
n	2542	5490	2760	587	726	317
Stunted (Ht-for-age < -2 Z-score)						
Boy	45.3	50.8	52.7	45.6	47.2	61.3
Girl	38.3	46.4	50.6	34.8	45.7	62.1
P-value	<0.01	<0.01	ns	<0.01	ns	ns
n	2198	4721	2451	476	608	265
Wasted (Wt-for-ht < -2 Z-score)						
Boy	19.7	19.6	21.5	17.0	17.2	16.7
Girl	17.0	18.3	19.3	12.3	13.7	16.7
P-value	<0.01	ns	ns	<0.01	<0.01	ns
n	2198	4721	2451	476	608	265
Thinness MUAC <125 (mm)						
Boy	4.4	6.1	9.6	3.4	5.3	8.1
Girl	7.9	11.1	11.8	5.9	6.7	13.0
P-value	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01
n	1921	4215	2247	431	551	233

ns = Not significant at the 5% level

Annex 8. Nutritional status of 6 to 9 years old children by gender and poverty groups (%)

Variables	STUP 1			STUP 2			P-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Underweight (Wt for Age <=-2z)									
Boy	44.3	49.7	52.2	38.8	52.1	67.7			
Girl	42.4	48.5	51.7	41.8	43.3	59.1			
All	43.3	49.1	52.0	40.3	47.9	63.1	<0.01	<0.01	<0.01
Stunted (Ht for age <=-2z)									
Boy	31.1	36.6	41.9	30.5	37.9	57.1			
Girl	28.9	35.5	40.4	31.7	37.2	53.8			
All	30.0	36.1	41.2	31.1	37.6	55.3	<0.01	<0.01	<0.01
Thinness (BMI for age<=-2z)									
Boy	26.5	24.7	26.9	16.0	20.0	19.3			
Girl	22.7	23.6	23.9	17.7	16.0	18.1			
All	24.6	24.2	25.5	16.9	18.1	18.7	ns	ns	<0.01
n	2322	4474	2519	480	635	270			

ns = Not significant at the 5% level

Annex 9. Mean (±SD) Anthropometrics and Chronic Energy Deficiency (CED) in Adolescents (10-14 years) by various wealth groups

Variables		STUP 1			STUP 2			P-value		
		NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Age (years)										
Male		11.0±1.4	10.8±1.4	10.8±1.4	10.9±1.4	10.9±1.4	10.7±1.4	<0.05	<0.01	ns
Female		11.0±1.4	10.9±1.4	10.9±1.4	10.9±1.4	10.8±1.3	10.8±1.3	ns	ns	ns
Weight (Kg)										
Male		28.2±7.2	26.9±6.6	26.1±6.3	27.9±7.2	26.4±6.2	24.8±5.3	0.000	<0.01	<0.01
Female		28.8±7.3	27.6±7.2	27.2±7.3	27.4±6.9	27.3±6.6	26.0±6.2	Ns	<0.01	<0.01
Height (cm)										
Male		135.9±12.0	133.6±11.8	132.4±11.3	135.4±11.8	132.9±11.6	130.6±10.7	<0.01	<0.01	<0.01
Female		135.9±10.8	134.3±11.1	133.1±11.3	134.7±11.0	133.3±10.8	131.7±11.3	<0.01	<0.01	<0.01
BMI (wt in kg/ht in sq m)										
Male		15.0±1.8	14.9±1.7	14.7±1.6	14.9±1.6	14.7±1.4	14.4±1.2	<0.01	<0.01	<0.01
Female		15.4±2.2	15.1±2.1	15.1±2.2	14.8±1.8	15.1±1.9	14.8±1.6	Ns	<0.01	<0.01
% of thinness (BMI <16.0 & 16.0-18.4)										
Male	<16.0	77.3	82.2	83.8	80.7	85.7	88.7			
	16.0-18.4	18.9	13.9	13.5	16.4	12.3	10.6			
p-value								ns	ns	<0.01
Female	<16.0	66.5	74.0	73.3	79.4	74.3	80.6			
	16.0-18.4	25.5	19.4	19.3	16.8	20.4	16.3			
p-value								ns	<0.01	<0.01
n		2589	4196	2328	569	647	295			

ns = Not significant at the 5% level

Annex 10. Mean (±SD) Anthropometrics and Chronic Energy Deficiency (CED) in Men and non-pregnant women by various wealth groups

Variables		STUP 1			STUP 2			P-value		
		NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Age (years)										
15-49	Male	28.8±10.5	30.2±10.3	29.9±10.5	29.0±11.1	29.0±10.9	29.4±11.2	ns	ns	ns
years	Female	29.4±9.9	29.1±9.3	30.7±9.6	29.9±10.1	30.0±10.0	31.2±9.7	<0.01	<0.01	<0.01
≥ 50	Male	60.7±9.5	60.0±9.4	62.1±10.0	61.8±10.4	60.8±10.3	65.3±10.9	<0.01	<0.01	<0.01
years	Female	58.5±9.3	59.1±9.4	57.8±7.6	60.7±10.0	60.2±9.7	59.7±8.5	<0.05	<0.05	<0.01
Weight (Kg)										
15-49	Male	50.7±8.1	48.4±7.0	46.3±6.7	51.1±8.7	48.6±7.3	45.6±6.8	<0.01	<0.01	<0.01
years	Female	45.1±7.4	43.2±6.5	41.4±5.9	45.3±7.7	43.2±6.8	41.5±6.3	<0.01	<0.01	ns
≥ 50	Male	49.8±8.3	46.9±6.8	44.2±6.3	50.1±8.3	47.8±8.0	44.4±6.8	<0.01	<0.01	ns
years	Female	41.4±8.1	38.8±6.9	38.5±6.1	40.6±7.5	38.7±6.6	37.6±6.4	<0.01	<0.01	<0.01
Height (cm)										
15-49	Male	161.5±7.2	160.2±7.2	158.9±7.7	162.0±7.1	161.0±7.1	158.5±7.4	<0.01	<0.01	ns
years	Female	150.5±5.7	149.8±5.8	148.9±6.0	150.5±5.6	149.7±5.4	149.2±5.9	<0.01	<0.01	<0.05
≥ 50	Male	160.4±6.8	159.5±6.4	158.3±6.7	160.5±6.5	16.0.6±7.3	158.6±6.6	<0.01	<0.01	ns
years	Female	147.8±6.3	146.8±5.9	147.4±6.0	146.8±6.6	146.7±6.0	146.9±5.9	<0.01	0.234	<0.01
BMI (wt in kg/ht in sq m)										
15-49	Male	19.4±2.6	18.8±2.1	18.3±2.0	19.4±2.5	18.7±2.1	18.1±1.9	<0.01	<0.01	<0.01
years	Female	19.9±2.9	19.2±2.6	18.6±2.3	20.0±3.1	19.2±2.7	18.6±2.4	<0.01	<0.01	ns
≥ 50	Male	19.3±2.7	18.5±2.3	17.6±2.2	19.4±2.7	18.6±2.5	17.7±2.1	<0.01	<0.01	ns
years	Female	19.0±3.3	18.0±2.8	17.7±2.5	18.9±3.2	17.9±2.7	17.4±2.6	<0.01	<0.01	<0.01
% CED (BMI <18.5)										
15-49	Male	37.7	45.5	56.4	39.0	50.2	61.7	<0.01	<0.01	<0.01
years	Female	34.0	42.0	51.4	36.0	44.7	54.1	<0.01	<0.01	<0.01
≥ 50	Male	41.2	54.7	69.9	41.1	54.7	62.6	<0.01	<0.01	<0.01
years	Female	50.0	64.1	67.4	51.2	61.8	72.2	<0.01	<0.01	<0.01
n		15429	21784	12144	3191	2992	1291			

ns = Not significant at the 5% level

Maternal Nutritional Knowledge and Child Nutritional Status

Nuzhat Choudhury and Chowdhury SB Jalal

INTRODUCTION

Despite being the major underlying cause of malnutrition in children, poverty does not always lead to undernutrition. Recent researches show that a significant proportion of mothers successfully raise wellnourished children in poor communities due to their positive attitude, belief, and practices related to child care, and their ability to use limited resources (Berggren and Wray 2002; Mackintosh *et al.* 2002). Mothers are the main providers of child care and the quality of care they provide to their children is largely dependent on their knowledge on nutrition as well as health related practices (Appoh and Krekling 2005). Studies show significant association between mother's nutritional knowledge and nutritional status of children although the association has been documented only in short-term effects (i.e., weight-for-height) as opposed to long-term effects (i.e., height-for-age) (Webb and Block 2003; Ruel *et al.* 1992; Glewwe 1999; Walia and Gambhir 1975).

The relationship between maternal nutritional knowledge and child nutritional outcomes has been found to be largely influenced by household socioeconomic status (Ruel *et al.* 1992; Reed *et al.* 1996). Maternal nutritional knowledge has positive effects on child nutritional status among mothers having adequate but not necessarily abundant resources. No effect has been found in mothers from the lowest socio-economic group and only a weak relationship was found in mothers of well-off socioeconomic status (Reed *et al.* 1996). Further, maternal education

has been found to be a key factor that enhances nutritional knowledge, thereby improves child nutrition in the upper socio-economic group (Ruel 1992).

Challenging the Frontiers of Poverty Reduction-Targeting the Ultra Poor (CFPR-TUP) is a poverty alleviation programme implemented by BRAC in rural areas of Bangladesh. The programme is specially designed to meet the needs of women who are too poor to access or benefit from traditional development interventions such as microfinance. CFPR-TUP addresses all aspects of extreme poverty and has been highly effective in targeting the ultra-poor. The programme succeeded in improving the socioeconomic condition of the participant households through asset transfer, training, subsistence allowance, special health services, social development, legal assistance, and microfinance loans (Sulaiman and Matin 2006; Jalal 2008).

Health and nutrition education is one of the most important components of CFPR-TUP's health intervention strategy. BRAC's experience showed that awareness-raising messages along with health and nutrition education can influence its participant's practices to a significant extent (BRAC 2006; Victora, Habicht *et. al.* 2004). It is expected that this type of programme will have positive effects on maternal nutritional knowledge both at the individual and community levels, and thereby will improve child nutritional status of the targeted households. Understanding the level of maternal nutritional knowledge and the baseline nutritional status of children, as well as the association between the two, is therefore important to evaluate the programme's effect on child nutrition at the end of the intervention and effectively allocate resources in such efforts. This study aims to fill-in this knowledge gap.

METHODS

This cross sectional study was conducted on a subsample of participants of a broader survey. The broader survey was conducted in rural areas of 19 districts of Bangladesh during May 2007-January 2008 and intended to serve as a baseline to investigate the impact of the CFPR-TUP programme at different points of time by comparing the programme households with a group of households of comparable socioeconomic status (i.e., control households). It included a total of 29,144 households from program and control spots of both STUP I and STUP II areas. The details of the methodology involved in the survey are described elsewhere in this report. Households that had mothers of children between ages 6-36 months were selected for this study. These mothers were essentially the respondents in the bigger survey. From each household, only one mother and whatever many children she had between ages 6-36 months were included. Based on the availability of mother-child pairs, 4789 households with 4789 mothers and 5039 children were finally selected for the study. This sample size was then tested for adequacy of power (i.e., $1-\beta=90\%$ and $\alpha=0.05$) based on the mean and

standard deviation of height and weight of the rural children under age 3 years as found in previous studies.

The survey instruments were well designed and tested in the ultra poor population. They were designed to collect information on maternal knowledge, attitudes, beliefs, and practices known to be associated with child nutrition and feeding. Data was also collected on mother's education and household socio-demographic characteristics. Both open and close ended questions were included in the questionnaires.

An index was prepared to measure maternal nutritional knowledge based on mother's responses to the six items shown in Table 1. A correct response was given a score of 1 while an incorrect response was scored 0. A cumulative score ranging from 0 to 6 was then created for the nutritional knowledge variable that has been used in the analyses to determine its association with child nutritional status.

Table 1. Scoring of mother's responses against items measuring nutritional knowledge

Item	Score = 0	Score = 1
Colostrum should be given to the baby	No	Yes
Child's age at which complementary food should be introduced	Before 6 months After 7 months	After 6 months
Eating green, yellow or orange vegetables is important	No	Yes
Iodized salt should be used	No	Yes
Vitamin A capsule should be taken after delivery	No	Yes
Should take iron tablets during pregnancy	No	Yes

Height and weight of the children were measured on the day of interview using standard wooden boards and TANITA digital weighing scales respectively. The digital scale recorded at 100 gram precision. Both measures were standardized for the children's age. A child was defined underweight (i.e., weight-for-age), stunted (i.e., height-for-age) or wasted (i.e., weight-for-height) for standardized scores below -2SD of the median reference value. Informed consent was obtained from each respondent prior to the interview and anthropometric measurement.

DATA ANALYSIS

Chi-square test was performed for categorical variables to determine the association between nutritional status and the individual variables. Logistic regression was conducted to examine the independent contribution of maternal nutritional knowledge index on child nutritional status. Covariates used in the

model were maternal nutritional status and education, sex of the children, and economic status. An alpha-level of 0.05 was considered statistically significant. STATA (Version 9) was used for all analyses while WHO ANTHRO (version 2.0.2) software was used to create standardized scores of weight and height.

RESULTS

Characteristics of mothers and children of different categories of STUP households are compared in Table 2. In general, there was no age difference between mothers of different household types except that the TUP mothers of STUP I areas were younger than TUP mothers of STUP II areas ($p<0.05$). Mean BMI of TUP mothers in both areas were lower than that of NTP mothers ($p<0.001$ and $p<0.05$). There was also no difference in nutritional status between TUP mothers of the two areas (i.e., 3 vs. 6). Fewer proportion of TUP mothers in both areas had ever been to school compared to the NTP mothers. The TUP mothers of STUP II area, however, had more schooling than the TUP mothers of STUP I. No difference was observed in terms of age, sex or anthropometric status of the children between households of the two areas with the only exception seen in NTP-TUP difference among children of households of STUP II areas.

Table 2. Characteristics of mothers and children of different type of households

	STUP I			STUP II			Comparison between type of households (*p* value)		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs 3	5 vs 6	3 vs 6
Mothers									
Age (years)	27.0	25.8	26.2	27.9	26.7	27.5	ns	ns	<0.05
BMI	19.2	18.8	18.5	19.6	19.1	18.5	<0.001	<0.05	ns
*Schooling (%)	66.6	49.9	31.1	80.8	70.3	45.4	<0.00	<0.01	<0.01
Children									
Age (month)	20.1	20.2	20.7	22.3	20.8	21.9	ns	ns	ns
Girls (%)	52.4	47.5	48.0	41.0	44.6	51.4	ns	ns	ns
Nutritional status (mean z-score)									
Weight-for-age	-1.7	-1.9	-2.0	-1.7	-1.8	-2.0	ns	ns	ns
Height-for-age	-1.7	-2.0	-2.1	-1.9	-1.8	-2.3	ns	0.013	ns
Weight-for-height	-1.1	-1.2	-1.2	-1.0	-1.1	-1.2	ns	ns	ns
n	917	2335	1200	194	272	121			

*Ever been in school
ns: not significant at 5% level

The prevalence of underweight (weight-for-age), stunting (height-for-age), and wasting (weight-for-height) by children's and mother's characteristics are shown in Table 3. About half of the study children were underweight (45%) and stunted

(50%), and one-fifth (21%) wasted. The mean age of mothers of children with different undernutrition types were 27.2, 26.9, and 27.5 years while the mean z-scores of children's anthropometry were -2.82, -3.01, and -2.70 respectively.

The prevalence of underweight (47.1%) and stunting (52.2%) was more in children of mothers who were divorced, separated or widowed at the time of data collection as opposed to the children of the mothers who were married at the time of data collection (Table 3). Children of mothers who had some schooling showed better nutritional status in all aspects compared to mothers who had never been to school. As expected, mothers who were better nourished (i.e., Body-mass index>18.5) had fewer percentage of malnourished children. The prevalence of undernutrition was more in boys compared to the girls in terms of all types of undernutrition. In general, the older age groups were more undernourished compared to their younger ones.

Table 3. Characteristics of mothers and children by categories of undernutrition

Variables	Underweight (weight-for-age) (%) *n*=2265	Stunted (height-for-age) (%) *n*=2530	Wasted (weight-for-height) (%) *n*=1036
Mothers			
Marital status			
Currently married	44.8	49.9	20.6
Others	47.1	52.2	18.2
Schooling			
Some	42.0	46.8	19.0
Never been	47.7	53.0	22.0
Body-mass index (BMI)			
≥ 18.5	40.0	47.8	17.3
<18.5	50.5	52.4	24.2
Children			
Sex of the child			
Boy	44.3	49.5	20.5
Girl	39.6	42.9	17.3
Age category			
6-11 months	34.9	36.1	18.5
12-23 months	44.4	52.4	22.6
24-36 months	51.0	56.1	20.1
Household economic status			
STUP I NP	37.2	42.6	19.4
STUP I NTP	46.2	51.5	20.6
STUP I TUP	49.7	53.5	22.5
STUP II NP	34.0	40.2	14.4
STUP II NTP	43.7	48.1	18.7
STUP II TUP	50.4	61.1	21.4

A gradual change in percentage of underweight, stunted, and wasted children has been observed with household economic status of the households. The poorer households had more undernourished children compared to the non-poor households.

MOTHER'S NUTRITIONAL KNOWLEDGE AND PRACTICES AND CHILD NUTRITIONAL STATUS

Mothers of well-nourished children had higher scores on the nutritional knowledge index indicating better nutritional knowledge compared to the mothers of underweight (i.e., weight-for-age) and stunted children (i.e., height-for-age) (Table 4). Chi square analysis shows no association between the variables used in the nutritional knowledge index and wasting. The index

Table 4. Associations between maternal nutritional knowledge and practices and child nutritional status

Variables	Underweight (weight-for-age) (%) n=2265	Stunted (height-for-age) (%) n=2520	Wasted (weight-for-height) (%) n=1036
Colostrum should be given to the baby			
Yes	44.73	49.96	20.43
No	48.48	50.84	22.56
X^2 Significance	ns	ns	ns
Child's age at which complementary food should be introduced			
After 6 months	44.77	50.41	21.14
Before 6 and after 7 months	45.01	49.87	20.35
X^2 Significance	ns	ns	ns
Eating green, yellow or orange vegetables is important			
Yes	44.86	49.89	20.54
No	54.17	62.50	22.92
X^2 Significance	ns	ns	ns
Iodized salt should be used			
Yes	43.68	48.03	20.55
No	49.00	56.33	20.58
X^2 Significance	<0.01	<0.001	ns
Vitamin A capsule should be taken after delivery			
Yes	45.32	49.85	20.72
No	43.98	50.43	20.13
X^2 Significance	ns	ns	ns
Should take iron tablets during pregnancy			
Yes	41.26	46.85	20.22
No	51.89	55.94	21.20
X^2 Significance	<0.001	<0.001	ns

ns: Not significant at the 5% level

variable, "Iodized salt should be used" and "Should take iron tablets during pregnancy", however, showed significant association ($p<0.01$ and $p<0.001$) with underweight. These two variables were also found significantly ($p<0.001$ and $p<0.001$) associated with stunting.

The results from the regression analysis show that maternal nutritional knowledge (i.e., index) is a significant predictor ($p<0.05$ and $p<0.01$) of child nutritional status in terms of adjusted height-for-age but only in children between ages 6 to 23 months (Table 5). The models, however, show no effect of maternal nutritional knowledge on nutritional status of children (i.e., weight-for-age and weight-for-height) in any of the age groups. Maternal nutritional status (i.e., BMI) was found to be a significant predictor of weight-for-age and weight-for-height for all age groups, but of height-for-age only in age 24-36 month group.

Table 5. Effect of mothers' nutritional knowledge on weight-for-age (WAZ), height-for-age (HAZ), and weight-for-height (WHZ).

		Coefficient	*p* value	95% conf. interval
6-11 months	†WAZ	-.000	ns	-.073 - .073
	†HAZ	.093	<0.05	.008 - .178
	‡WHZ	-.067	ns	-.150 - .015
12-23 months	†WAZ	.046	ns	-.009 - .103
	†HAZ	.105	<0.01	.034 - .175
	‡WHZ	-.007	ns	-.069 - .054
24-36 months	†WAZ	.001	ns	-.043 - .046
	†HAZ	-.014	ns	-.073 - .044
	‡WHZ	.011	ns	-.033 - .057

† Nutritional status and education of mothers, sex and age of the children, household economic status has been controlled for.
‡ Nutritional status and education of mothers, sex, height, and age of the children, household economic status has been controlled for.
ns: Not significant at the 5% level

DISCUSSION AND CONCLUSION

This study aimed at investigating the nutritional knowledge of mothers participating in CFPR-TUP programme and its association with child nutritional status. Our results show that mother's nutritional knowledge (i.e., the index) is positively associated with the nutritional status of children under age 24 months in terms of stunting (i.e., height-for-age). The lack of association in the older age group may be explained by the fact that stunting happens during the earlier age when children's demand for nutrients is high but the quality and quantity of diets are poor. Although no causality could be established due to the cross-sectional nature of the study, the association has particular importance as it implies

positive impact of mothers' nutritional knowledge on long-term nutrition (Black, Allen *et al.* 2008).

As expected, few of the individual variables that made up the nutritional knowledge index were also found to be independently associated with nutritional status. Although feeding colostrum is important for child nutrition and its prevalence has been found to be very high in our study (94%), we found no association between colostrum feeding and nutritional status. The lack of association may have been due to introduction of prelacteal feeding which is detrimental to the health and nutritional status of the children. This study did not investigate the use of prelacteal feeds and therefore cannot exclude the resultant onset of diseases such as diarrhea leading to undernutrition.

Studies show both significant associations (Webb and Block 2003) and lack of associations (Grant and Stone 1986) between mother's nutritional knowledge and child nutritional status. Caution, however, is needed when comparing the findings as such studies report on different indices of anthropometric measurements, variable age groups, and different composition of nutritional knowledge scale. Our study suggests that specific components of maternal nutritional knowledge may be related only to specific anthropometric measures.

The findings from this study give further support to the evidence that maternal nutritional knowledge is important in reducing long-term child malnutrition (height-for-age) up to the age of 23 months. Programmes targeting rural women should therefore emphasize more on improving nutritional knowledge of mothers and take measures to effectively translate this knowledge into practice.

Vulnerability and Social Network

Munshi Sulaiman

INTRODUCTION

Risk and vulnerability have gained considerable prominence in poverty analysis in recent years. In general, vulnerability refers to the likelihood at present of having poorer well-being in future. Besides its importance as a *cause* of future poverty, vulnerability as exposure to risk is equally important as a *constituent* of poverty (Tandon and Hasan 2005). In fact, the multidimensionality of poverty has fueled the importance of uncertainty since the feelings of insecurity, uncertainty and defenselessness can seriously diminish current well-being (Calvo and Dercon 2007). This constituent part of vulnerability instigated the call for including lack of access to consumption smoothing mechanism as a *component* of poverty (Morduch 1994). Importance of vulnerability in future poverty was duly highlighted in World Development Report 2000/2001, which identifies three means of analyzing causes of poverty viz. low asset base, lower return on assets and volatility of returns (World Bank 2001). Consequently, one of the major areas of actions in their proposed framework of attacking poverty is reducing vulnerability through the promotion of social security.

Literature examining the effects of vulnerability on poverty can be classified into three broad sets (Barrientos 2007). Firstly, crisis or shocks have direct effect on household welfare. With growing number of panel studies, this direct role of shocks has been well documented. Different forms of crisis, and especially health related shocks, have consistently been identified as a major driver of descent into poverty in Bangladesh (Sen 2003; Quinsumbing 2007). Secondly, the types of

mechanisms adopted to cope with shocks have bearings on longer duration of poverty. The occurrence of an incidence is necessary but not the sufficient cause of descent into poverty. The poorer households have a limited buffer and they are considered more vulnerable since they have to adopt costly means of coping. In the absence of sufficient assets or insurance, experience of shocks may lead to irreversible losses and create a poverty trap (Barrett and McPeak 2005). This provides some merit to the argument of using stock of assets as a proxy for vulnerability. Thirdly, risk management behavior of the poor to prevent crisis, or to mitigate the effects, may keep households in poverty. While this 'indirect' effect is still relatively less explored (Barrientos 2007), the list of possible 'harmful' behavioral responses is indicative of this being a major component of persistent poverty.

A focus on vulnerability, though conceptually attractive as it draws attention to livelihood dynamics and a forward looking strategy to combine both promotional and preventive social protection mechanisms, at measurement level there are extensive methodological constraints. Since the concept of vulnerability is essentially of dynamic nature, its true importance can only be realized through panel surveys. A simplified assessment of vulnerability is the distinction between chronic and transient poverty. Sen (2003) estimated vulnerability ratio (measured as the proportion of non-poor becoming poor) to be 41% in Bangladesh. However, such estimates provide only *ex post* estimate of the extent of vulnerability. Pritchett *et al.* (2000) developed the concept of "headcount vulnerable to poverty rate", which in effect adjusts the poverty line. There have been different initiatives of developing measures of vulnerability in terms of probability of becoming poor (Dercon and Pramila 2000; Chaudhuri 2003) and severity of such poverty (Dercon 2007). Amin *et al.* (1999) measured vulnerability based on the efficiency of informal insurance. Nonetheless, identifying indicators that can predict at-risk households is the real challenge.

Though the definition of vulnerable groups varies according to the contexts, vulnerable groups are often identified by age, sex, religion, ethnicity and location etc. For example, households with elderly are more prone to health shocks in Bangladesh (Quinsumbing 2007). The extreme poor are highly vulnerable to health shocks, not only in their exposure to such shocks but also in lack of coping mechanisms. People with disability face different extent of vulnerability. Populations in specific geographical areas are prone to food insecurity or natural calamities.

Indicators of vulnerability in Bangladesh have not been specifically explored. However, there are several studies on poverty dynamics demonstrating characteristics of households that are more likely to fall into poverty between different time periods. These studies identify that the descending households often have lower asset base compared to the never-poor. Human assets seem to

be of particular importance as it was lower among descending households compared to both ascending and never poor (Sen 2003). Using efficiency of informal insurance, Amin *et al.* (1999) demonstrates that female headed households are more vulnerable than male headed households. Larger households are also more likely to descend into poverty (Quinsumbing 2007).

The objective of this chapter is to observe the role of social network in household vulnerability. We find that households from different poverty groups face separate types of shocks and, the ultra poor households rely on their social network more often than other households. However, vulnerability extends beyond large crises events and includes predictable seasonality as well. The chapter also explores the potential roles of social network in reducing food insecurity, which is less visible compared to large idiosyncratic shocks, and in promoting livelihoods, such as taking risks. As such, lack of social network is an important dimension of vulnerability, which is often overlooked but very important for targeting.

INCIDENCE OF CRISIS

The extent of incidence of particular crisis has been explored in this section to assess relative exposure of different groups to particular types of crisis events in the year preceding the survey. Since differences in risk-aversion across poverty groups may result in under/over estimation of the risks, the results are only indicative of the true exposure to risk. Moreover, these results cannot capture the true extent of covariate shocks such as natural disasters.

Table 1. Incidence of specific crises or events in the last one year

	STUP I			STUP II			p-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Faced at least one crisis (%)	53	48	39	71	67	59	<.01	<.01	<.01
House severely damaged (%)	3	4	4	12	17	19	ns	ns	<.01
Severe illness of earning members (%)	10	12	13	10	13	13	ns	ns	ns
Severe illness of other members (%)	15	14	10	22	18	13	<.01	<..01	<.05
Loss of crop to natural disaster (%)	6	2	1	22	10	2	<.01	<.01	<.01
Death of earning member (%)	0.4	0.5	0.9	0.4	0.6	1.3	<.01	ns	ns
Death of other HH member (%)	0.9	0.5	0.5	0.5	0.6	0.5	ns	ns	ns
Marriage in the HH (%)	3.0	2.4	1.1	3.3	3.1	1.2	<.01	<.01	ns
Loss of livestock (%)	32	27	17	39	34	28	<.01	<.01	<.01
Legal dispute (%)	1.4	0.6	0.3	2.4	1.3	0.6	<.05	ns	ns
Theft in the HH (%)	2.3	1.2	0.6	2.4	2.1	1.2	<.01	<.10	<.10
Other incidence (%)	1.0	1.0	0.9	2.5	3.0	2.8	ns	ns	<.05

* ns = Not significant at the 5% level

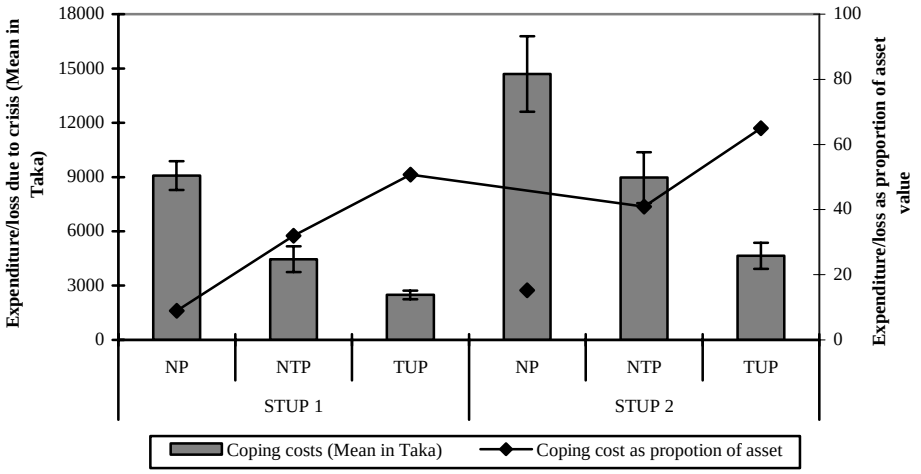
Incidences of crises are clearly higher among the richer households (Table 1). Among the TUP households, 39% and 59% reported facing any crisis event in STUP I and in STUP II areas respectively. It is evident that all three types of households in the STUP II areas faced greater extent of crisis compared to the STUP I areas. One of the reasons for this difference is that a major cyclone took place while the survey was being conducted and it only affected districts in the STUP II areas. In terms of specific nature of crisis, damage of dwelling, loss of crops and loss of livestock are the major consequences caused by the cyclone. However, incidence of crisis was higher in the STUP II areas when only the pre-cyclone data was compared. Among those who were surveyed before the cyclone, 50% and 62% of households in the two areas respectively reported at least one instance of crisis. Asset holdings are higher in STUP II areas and prevalence of asset related shocks also explains the differences in incidence of crises.

Prevalence of asset related shocks are conditioned on ownership of the assets and lower level of incidences of such shocks (loss of livestock and theft) among the TUP households clearly shows that. Loss of crops is understandably higher among the NP households. Illness of the earning member was equally prevalent among all the groups. However, this has varying implications on their well-being because of the differences in their ability to cope this crisis. Similarly the less common incidences, such as death of household member, marriage in the household and legal dispute may have more powerful consequences on the households facing them.

Figure 1 shows the average amount reported as direct loss incurred or expenditure made to cope with the crisis by the households who faced such event(s). These direct costs of coping are more reflective of the households' ability to make such expenses. Though the poor and ultra poor households incurred lower coping costs in terms of absolute amount, those costs account for larger share of their total household assets[1]. Therefore, the consequences of even lower direct coping costs for the poorer households can be more severe in terms of longer-term poverty.

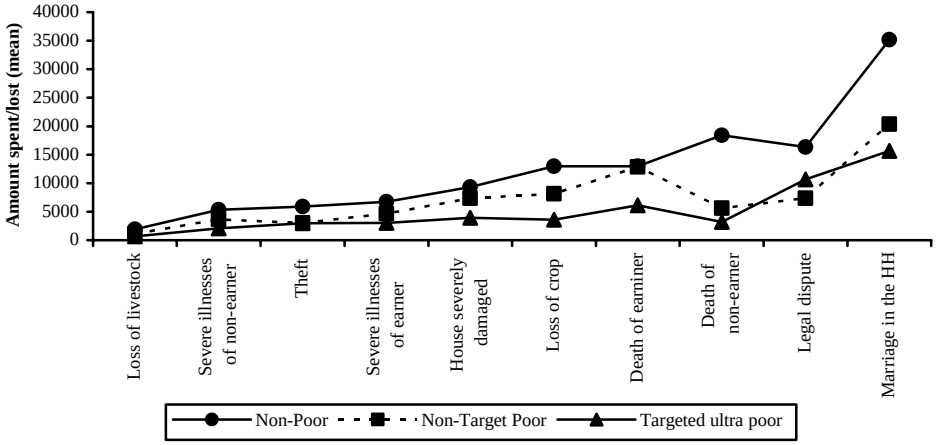
[1] Value of total household assets was calculated by summing the values of land, livestock, shop, vehicle, table, chair, electric fan, television and mobile phone that they own.

Figure 1. Expenditure or Loss due to crises/events



Distribution of coping costs by the types of shocks shows that marriage requires the highest amount of expenditure followed by legal expenses (Figure 2). Several studies have confirmed that payment of dowry and other wedding expenses can drive households into chronic poverty (Sen and Hulme 2004). Legal dispute and related expenses came out as a strong determinant of falling into poverty (Quinsumbing 2007). Coping cost related to death of household members shows funeral expenses and actual burden of such shock is apparently very high. Though loss of livestock is a relatively common phenomenon, average amount of loss in such events is not very high. However, its prevalence can influence the risk assessment by the household and consequently reduce the level of investment in such activity.

Figure 2. Direct coping costs by nature of crisis



COPING WITH CRISIS

In many cases, the households are left with nothing to do in response to particular shocks (e.g. death of livestock or damaged dwellings) and live with that. Majority of the households, who faced any crises, reported doing nothing to cope with it (Table 2). In cases of shocks where they suffer income erosion or need to incur further costs, households take up different coping mechanisms. Spending from savings demonstrates households' ability to cope with the crisis. Utilization of such buffer was more prevalent among the richer households. Different groups of households in STUP II areas demonstrated greater reliance on savings compared to corresponding groups in the STUP I areas. Conversely reduction in household expenditure was more common in the STUP I areas. A better financial market in the STUP II areas, which has been observed in the chapter on natural, physical and financial assets, may have influence on fostering crisis coping through savings rather than consumption reduction. While the ability to borrow to cope with crisis may reflect financial asset, it can create long-term indebtedness. Distress sale of assets, which erodes household resilience to future shocks, was more prevalent in the STUP I areas.

Informal assistance from friends and relatives is of particular importance to the poorer households. This demonstrates the level of informal social security available to those households. TUP households were more likely to receive such informal assistance compared to both the NTP and NP households. Such informal assistances also appeared to be more prevalent in the STUP II areas.

Table 2. Coping mechanisms

Variables	STUP I			STUP II		
	NP	NTP	TUP	NP	NTP	TUP
	(1)	(2)	(3)	(4)	(5)	(6)
Did nothing	64	56	48	74	69	65
Spent from savings	29	24	19	35	26	19
Reduced HH expenditure	21	24	24	10	14	11
Borrowed	12	19	18	13	17	14
Assistance from friend/relative	5	9	16	6	12	18
Sold assets	4	3	3	1	1	2
Other	1	3	7	2	3	5
Total	135	139	134	140	142	132

Note: the numbers represent percentage of the HHs facing any crisis. Multiple response counted as households may face multiple shocks and can use multiple mechanism to face each shock.

Given the incidence of cyclone affecting those districts[2], higher level of informal assistance is interesting as large covariate shocks are usually found to seriously erode social capital (Jayasankar *et al.* 1999), which is likely to weaken the

[2] Cyclone SIDR of 15 Nov. 2007 affected mostly the districts in STUP II areas.

informal social security networks. A brief look at the rate of informal assistance before and after the incidence of cyclone in the STUP II areas (figures not reported in Tables) reveals that households received such assistances in 8% of crisis events before the cyclone, which declined to 3% afterwards[3]. A similar pattern is observed for the ultra poor and the decline was much sharper (comparable figures are 18% and 7%). However, no such decline after that date was observed in the STUP I areas. Large covariate shocks such as floods and cyclones are quite common in Bangladesh and happening more frequently with greater severity because of climate changes. The erosion of social capital because of such shocks needs to be explored more seriously, especially in the context of informal security for the ultra poor.

The level of informal assistance is also sensitive to the specific nature of the crises (Table 3). Households are more likely to receive assistances for demographic shocks such as death or marriage. There is a strong sympathy element in providing help to fellow community members and, this type of shock is less prone to imperfect information. Death in the household clearly derives a lot of sympathy from the community. Dowry and wedding related expenses, especially of daughters in ultra poor households, are a major burden and the community extends their assistance in such cases.

Table 3. Coping mechanism by nature of crisis

Nature of crisis	Means of coping						
	None	Use savings	Expenditure reduction	Asset sales	Taking loan	Informal assistance	Others
Loss of livestock	95	2	3	0	0	0	0
Loss of crop to natural disaster	87	6	6	1	2	0	0
Theft in the HH	82	8	6	2	5	1	0
House severely damaged	70	12	10	1	6	2	2
Death of earning member	8	44	15	10	19	36	2
Death of other HH member	16	40	23	4	25	15	1
Severe illness of other HH member	4	53	27	2	23	11	1
Severe illness of earning members	4	42	23	4	30	18	2
Marriage in the HH	4	64	19	7	32	19	1
Legal dispute	3	48	25	6	25	18	1

The extent of borrowing is higher for illness and wedding related incidences. Since wedding expenses is a predictable event, households often manage to save as preparation for this and can then spend from their savings. Distress sale of

[3] Similar patterns are observed when pre and post-cyclone informal assistance is compared for specific types of crisis.

assets is most frequent in cases of death of earner to incur funeral expenses. Expenditure reduction as a coping strategy is more common for demographic shocks. Borrowing is also common for such shocks. Households tend to adopt multiple coping strategies in response to larger shocks, such as death of earner, marriage or legal dispute. Ultra poor households are more prone to illness and injury related shocks and these types of shocks draw relatively greater level of informal assistance. It is important to analyze the role of social network in informal assistance for different types of crisis to assess the potential breadth of informal insurance for the ultra poor.

Seasonal food insecurity: a silent crisis

All the measures of vulnerability almost invariably rely on the variability in income or expenditure. Seasonality is a key component of the total variability in consumption. People in north-western part of Bangladesh historically suffer from acute seasonal reduction in food consumption (widely known as *monga*). The STUP I areas broadly overlaps with the *monga* affected districts. However, all households across Bangladesh who depend on agriculture day labor as a major source of their income are vulnerable to seasonality in labor requirement for cropping.

Table 4. Change in food consumption during slack season

	STUP I			STUP II			p-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
No change	39	9	3	39	12	8	<.01	<.01	<.01
Reduce quality of food consumed	35	27	12	49	43	21	<.01	<.01	<.01
Reduce amount of food consumed	11	19	19	5	15	18	ns	ns	ns
Reduce both quality and amount	15	45	66	7	29	53	<.01	<.01	<.01

* ns = Not significant at the 5% level

As expected, households in the STUP I areas are more likely to report higher extent of suffering seasonal food shortage (Table 4). About two-third of the TUP households in the STUP I areas reported that they are forced to reduce both the quality and volume of meals during slack seasons. Though the extent is lower in STUP II areas, over half of the TUP households there suffer similar food insecurity. The extent of this seasonal fall in food consumption is also quite high among the NTP households. Such high prevalence of seasonal food insecurity despite its predictable nature strongly indicates lack of access to consumption smoothing mechanisms.

Social network and social security

The key source of vulnerability is an imperfect insurance market. Facing uninsured risks, communities develop and rely on informal risk sharing. Family and social network is a key ingredient to this informal insurance. Therefore, it is understandable that household or community with limited networks will have higher vulnerability given the same level of exposure to shocks. Relevance of social ties, especially for the households lacking other assets, has been greatly emphasized in social capital literature. Empirical investigations, however, are constrained by the measurement of social capital.

In this section, the role of social networks has been explored for three specific issues; a) coping major crisis, b) smoothing seasonality in food consumption, and c) materializing investment opportunities. Two measures of social network have been used. One is the size of family network and the other is participation in NGO groups. Zaman (1999) discusses several ways by which membership in micro-credit programs reduces vulnerability - by smoothing consumption, building assets, providing emergency assistance during natural disasters, and contributing to female empowerment. Our findings present a clear case of greater emphasis on lack of family network as an indicator of vulnerability. It is also argued that specific interventions to build social network can work both ways in reducing poverty - by promoting investment and by ensuring social security.

Family network represents the number of family members (first kin) of the respondent, or her husband, who have better economic status compared to the responding household. Households related to better-off households through family networks should have better social security. We observe an inverted-U shape in this measure of social network across the three groups of households (Table 5). Since the measure relies on relative comparison of the economic status of the family networks, well-off households may have lower networks as it requires the family in network to be better-off than that household. Therefore, we observe lower social network for the non-poor households. However, the lower level of such network among the ultra poor compared to the non-target poor is particularly important. Again, according to the same logic, it would have been more plausible for the family in network of ultra poor households to be better-off than that ultra poor household. Therefore, it is clear that the TUP households are not only ultra poor themselves, but also the households in their family networks are more likely to be of similar condition.

Table 5. Size of social network

	STUP I			STUP II			p-value		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Number of family members (first kin) living in better-off households	4.5	4.6	4.3	4.8	5.2	5.0	<.01	ns	<.01

* ns = Not significant at the 5% level

This particular trend in social network is possibly molded by the targeting process. If social networks are embedded in targeting, we may observe a lower network among TUP. To explore this, the size of social networks was observed by participatory wealth ranks. Interestingly, we get a reversed picture of social network by wealth ranks where the households in the poorest rank have a higher level of this social network (mean 4.93) than households belonging to the rank just above them (mean 4.70). Therefore, it is apparent that this factor gets into the beneficiary selection process after participatory wealth ranking.

Given that this social network is implicitly embedded in targeting, we demonstrate its relevance to vulnerability. Table 6 presents the results from logit regression on coping mechanisms adopted by the ultra poor households. A larger family network has significant positive association with probability of receiving assistance to cope with crises. Such network is negatively associated with probability of consumption reduction for coping. Greater NGO memberships in the communities do not have significant relation with coping strategy of the ultra poor. Female headed households are much more likely to receive informal assistances. Since the vulnerability of female headed households is clearly visible to the community, they receive greater assistance.

Table 6. Determinants of adopting different coping mechanisms

Variables	Type of coping strategy adopted		
	consumption reduction	Informal assistance	Distress borrowing
Family networks	-0.062 (4.01)***	0.040 (2.18)**	0.004 (0.22)
Number of HH members participating in NGO	-0.073 (0.27)	0.050 (0.13)	-0.750 (2.60)***
Proportion of HHs in the community who are NGO participant	-0.475 (1.57)	-0.633 (1.54)	0.448 (1.12)
HH having loan with any NGO (1=yes, 0=No)	0.001 (0.00)	-1.471 (2.86)***	1.916 (5.72)***
Female headed HH (1=yes, 0=No)	-0.444 (3.50)***	0.400 (2.58)***	-0.022 (0.13)
Head's occupation (1=agri day labor, 0=others)	0.132 (1.12)	-0.431 (2.89)***	0.198 (1.47)
Number of years the respondent living in the same homestead	-0.005 (1.26)	0.013 (2.49)**	-0.014 (2.87)***
Type of crisis (1=Natural calamity, 0=other)	-0.226 (0.71)	-1.221 (2.83)***	-1.159 (2.66)***
Type of crisis (1=Illness or accidents, 0=other)	1.436 (4.46)***	1.571 (4.11)***	1.523 (3.84)***
Type of crisis (1=demographic, 0=other)	0.858 (2.24)**	1.511 (3.49)***	0.423 (0.89)
Area (1=STUP II, 0=STUP I)	-0.748 (4.70)***	0.080 (0.51)	-0.335 (2.09)**
Number of crisis in the HH last year	0.037 (0.44)	-0.149 (1.49)	0.045 (0.47)
Ln(total coping cost)	-0.007 (0.24)	0.401 (8.72)***	0.452 (9.94)***
Constant	-0.778 (2.14)**	-5.421 (10.40)***	-5.401 (10.39)***
Observations	4598	4598	4598
Pseudo R-squared	0.14	0.25	0.24

t statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Type of crisis has strong influence over the chances of receiving informal assistances. Health related shocks and demographic shocks (marriage in household) can derive greater extent of informal assistances. Natural calamity, which is much more likely to be affecting the community, can derive much lower level of assistances. Probability of receiving assistance is also likely to be associated with the severity of the shocks. The total amount spent or lost as a direct consequence of the crisis is used as proxy for the severity of crisis[4]. It is important to note here that the association between family network and informal assistance did not hold for the other groups of households implying its importance for the ultra poor in coping with crises.

The second aspect of vulnerability that is mitigated (or exacerbated) by family network (or lack of it) is the variability in consumption. Food consumption

[4] However, the observed positive association between probability of receiving assistance and the amount of coping costs presumably involves high level of endogeneity.

appears to be better secured through informal insurance than non-food consumption (Skoufias and Quinsumbing 2005). Using six different indicators, an index of food insecurity was formed, which ranged between -1.36 and 3.87. The indicators largely reflect the level of food access and seasonality in consumption (Annex 1). Table 7 shows the determinants of food insecurity to assess significance of social network.

Quite understandably, household poverty status is by far the key determinant of food insecurity. NP households have the lowest level of food insecurity followed by NTP and TUP. On average, food insecurity is lower in the STUP II areas. Influence of family network on food insecurity is also visible for all groups (regression 1), especially for the TUP households (regression 2). Group membership in NGOs is associated with enhanced food security only as far the TUP households are concerned. However, borrowing from a NGO reflects higher food insecurity for TUP households, which is a strong case of reverse causation where food unsecured households borrow to meet food requirements. Though female headed households derive greater informal assistance to cope during crisis, they are significantly vulnerable to food insecurity.

Risk of variability and especially seasonality in consumption is more sharable than the risks of crises. Because of the recurrent nature of food shortages, there is greater scope of reciprocity and formation of cooperative behavior. A major crisis, on the other hand, happens less frequently and cooperators may not be equally identifiable. Living in a particular community for some time is essential to build a risk-sharing network. However, analysis shows a counterintuitive result where households living in the same homestead for longer period suffer higher food insecurity. This association does not hold in alternative specifications (e.g. when amount of homestead land is dropped).

Table 7. Determinants of food insecurity

Dependent variable ⟶	OLS-1	OLS-2
	Full sample	Only for TUP
Family networks	-0.010 (3.73)***	-0.018 (4.36)***
Number of HH members participating in NGO	0.014 (0.46)	-0.283 (3.17)***
Proportion of HHs in the community who are NGO participant	-0.102 (1.13)	-0.015 (0.11)
HH having outstanding loan with any NGO (1=yes, 0=No)	0.050 (1.51)	0.226 (2.12)**
Group (1=NP, 0=other)	-1.250 (43.60)***	-
Group (1=NTP, 0=other)	-0.489 (19.53)***	-
Area (1=STUP II, 0=STUP I)	-0.085 (3.12)***	-0.090 (1.82)*
Amount of homestead land owned	-0.253 (11.04)***	-0.156 (5.00)***
Number of years the respondent living in the same homestead	0.001 (1.80)*	0.003 (2.94)***
Female headed HH (1=yes, 0=No)	0.470 (12.05)***	0.271 (7.78)***
Head's occupation (1=Agri day labor, 0=others)	0.386 (16.91)***	-0.021 (0.72)
Constant	1.061 (19.45)***	1.228 (15.04)***
Observations	31155	8709
R-squared	0.32	0.05

t statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Finally, we observe the importance of family network in taking investment opportunities. For the TUP households, even a very elementary investment such as share-rearing livestock may be constrained. The usual mode of transaction for such investment is NP households providing the livestock to the NTP households for rearing. The NP households work as the principal in such transactions as they have the finance to make this investment but are not able to invest their time. On the other hand, NTP are more likely agents compared to TUP as long as the wealth level of the agents is considered as a signal of risk associated with them. A fair amount of trust is involved in these informal contracts and having social network is important to build such trust. Significant association is observed between family network and probability (as well as number) of livestock reared for shared production (Table 8). Since only a very small fraction of the transactions actually happened *within* such family networks, it is possible that such network signals better risk coping ability by the households to potential livestock owner willing to give it out to share production. Family networks may also play direct roles by acting as intermediaries.

Both the general extent of NGO membership in the community and NGO participation of the households themselves are highly associated with such businesses. Outreach of NGO activities can potentially enhance such transactions by building the necessary network as well as providing finance to the investors. As such, the crucial part is making the process more pro-ultra poor.

Table 8. Determinants of rearing livestock for production sharing

Dependent variable ⟶	Logit	Poisson
	Whether rear livestock for production sharing	Number of cows rearing for production sharing
Family networks	0.017 (2.22)**	0.026 (2.47)**
Number of HH members participating in NGO	0.371 (4.48)***	0.209 (2.41)**
Proportion of HHs in the community who are NGO participant	1.170 (5.91)***	0.715 (3.20)***
HH having loan with any NGO (1=yes, 0=No)	0.065 (0.65)	0.321 (2.76)***
Group (1=NP, 0=other)	-0.613 (8.26)***	0.117 (1.20)
Group (1=NTP, 0=other)	0.098 (1.68)*	0.614 (7.54)***
Area (1=STUP II, 0=STUP I)	-0.936 (11.33)***	-0.669 (6.14)***
Amount of homestead land owned	0.117 (1.74)*	0.136 (1.53)
Number of years the respondent living in the same homestead	-0.001 (0.36)	0.005 (1.96)*
Female headed HH (1=yes, 0=No)	-0.464 (4.62)***	-0.698 (4.53)***
Head's occupation (1=agri day labor, 0=others)	0.603 (9.37)***	0.584 (7.14)***
Constant	-1.250 (8.81)***	-2.582 (13.04)***
Observations	31190	31190
F (prob)	57.19 (0.000)	53.30 (0.000)

t statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

CONCLUSION

Given the importance of social and family network, the lower level of such networks for TUP households reflects their vulnerability, which is often less emphasized. Looking at social network is relevant in two important aspects, viz. targeting and strengthening social capital. There is a clear trade-off in simplicity of targeting and including more nuanced aspects of household dynamics as targeting indicator. It is not feasible to directly include such aspects in an activity, which requires simplicity for monitoring and maintaining transparency. However, CFPR has been able to incorporate these aspects through its multistage targeting process. The stages of selection after participatory targeting enable CFPR to include such diverse factors.

Social network has been found to be significant factors for receiving informal assistances to cope with crisis, for reducing food insecurity and for enabling ultra poor households in taking new earning opportunities. The particular measure of social network (number of first kins coming from better-off households) used for this analysis is not subject to any direct intervention. However, this indicates the potential of strengthening social network through the village committees. Moreover, this suggests the possibility of a strong spill-over effect of CFPR on the households in beneficiaries' family network.

Annex 1. Food insecurity index

	Factor loadings	KMO-sample adequacy	Scoring coefficient
Whether the HH managed to have at least two meals a day regularly in the last year (1=Yes, 0=No)	-0.69	0.92	-0.19
Self-perceived food security (1=Chronic deficit, ..., 4=Surplus)	-0.77	0.88	-0.22
Seasonality in consumption (1=No seasonality, ..., 4=Reduce both quality and amount)	0.74	0.88	0.21
How often did it happen that you could not have adequate food in last month	0.85	0.85	0.24
In the last month, how often did you have "only rice" (1=Never, ..., 4=More than 5 times weekly)	0.80	0.88	0.22
In the last month, how often did you have to borrow rice (1=Never, ..., 4=More than 5 times weekly)	0.77	0.88	0.22

The index was formed using Principal Component Analysis. The principal component explained 59% of the variations in the variables. The factors loadings of the variables with the principal component are quite high, reflecting good consistency in the variables. The sign of the coefficients demonstrate that the underlying principal component is food insecurity.

Transforming structures and process

Poverty and Empowerment of Women

Shumona Sharmin Salam

INTRODUCTION

The concept of empowerment has been used in a variety of ways and has been the subject of much intellectual discourse and analysis since mid-1980s (Kabeer 1999). Women's empowerment is a critical issue both in developed and developing countries, but certainly more in the developing parts of the world as it is often articulated that "not all men are poor, but women everywhere are poorer than men". They lack control over resources, self-confidence and opportunity to participate in decision making (Oxall and Baden 1997), while they also bear the burden of poverty. Hence, it is now widely recognized that women not only have an important role to play in social and economic development, but also their empowerment is an essential precondition for the elimination of world poverty, as well as for upholding of human rights (DFID 2000).

Although, empowerment of women has been acknowledged as an important goal in international development, a review of literature suggests that there is much debate at the theoretical level about both its conceptualization and measurement (Malhotra *et al*. 2002). The World Development Report 2000/2001 defines empowerment as the process of "enhancing the capacity of poor people to influence the state institutions that affect their lives by strengthening their participation in political processes and local decision making. And it means removing the barriers political, legal and social that work against particular groups and building the assets of poor people to enable them to engage effectively in markets". The World Bank's Empowerment Sourcebook refers to

empowerment as "the expansion of freedom of choice and action to shape one's life" (World Bank 2000).

According to Kabeer (1999), empowerment is both a process and an end result. Kabeer defines empowerment as an "expansion in people's ability to make strategic life choices in a context where this ability was previously denied to them". This definition has set out from the understanding that empowerment is a process by which those who have denied power, gain power to make strategic life choices. She argues, that for this power to come, three interrelated dimensions are needed; access to and control of resources; agency (the ability to use these resources to bring about new opportunities); and achievements (the attainment of new social outcomes) (Kabeer 1999).

Several different efforts have been made in recent years to develop the various dimensions along which women's empowerment can be measured. Malhotra *et al*. (2002), in their analysis of 45 qualitative and/or quantitative empirical literature on empowerment from different fields revealed that indicators used to measure empowerment are mainly those measuring domestic decision making, those measuring either access to, or control over resources and mobility. The less frequently used indicators include economic contribution to household, time use/division of domestic labor, freedom from violence, political participation, control of loans, control over choosing a spouse, negotiation and discussion of sex etc. (Malhotra *et al*. 2002).

In Bangladesh, research on empowerment has mostly concentrated on the impact of microcredit programs on women's empowerment (Malhotra *et al*. 2002). In their study of empowerment of women in rural Bangladesh, Hashemi *et al*. (1996) used eight criteria- mobility, economic security, ability to make small purchases, large purchases, involvement in major household decisions, relative freedom from domination by the family, political and legal awareness, participation in public protests and political campaigns to create an empowerment indicator. Parveen and Leonhäuser (2004) focused on measuring empowerment in rural Bangladesh based on six key indicators of empowerment (contribution to household income, access to resources, ownership of assets, participation in household decision making, perception on gender awareness, coping capacity to household shocks) covering three dimensions (socio-economic, familial and psychological).

In recent years, the major drivers of women empowerment in Bangladesh have been their level of education and engagement in economic activities (Hossain and Tisdell 2005). The role of microcredit in empowering women in Bangladesh (Pitt *et al*. 2003) clearly elucidates the importance of women being an active economic agent. The status of poor rural women can thus be improved by creating entrepreneurial ability among them, one of the key means of graduating

the ultra poor in CFPR program. However, this can only be achieved if their ability to make decisions in the household is increased, if they are more able to move and communicate in the public domain and have an increased knowledge and skills to reduce their vulnerability. This chapter of the report thus provides baseline information on the extent of women's empowerment in STUP I and STUP II areas and factors influencing it.

EMPOWERMENT INDICATORS: OPERATIONAL DEFINITIONS

The concept of women's empowerment is elusive for a variety of reasons and the potential for structured quantitative surveys to capture the concept and extend our understanding of it is essentially limited (Hashemi *et al*. 1996). We do acknowledge that the indicators used for this survey only capture a slice of the entire empowerment process of poor women and, are at best proxy measures of particular aspects of empowerment. Despite the inherent shortcoming of the empowerment indicators, this chapter does try to provide an insight into the status of women's empowerment. In this study a series of dichotomous questions related to a variety of different aspects of empowerment were developed. The responses were consolidated into five indicators constructed as continuous variables all of which were given equal weights. The operational measures of the survey variables are described below.

The five indicators of women's empowerment covering a wide range of attributes that were comprehensively measured are: (i) Perceived ability to influence major household decisions; (ii) Spatial mobility; (iii) Women's control over their own income; (iv) Ability to interact comfortably in the public sphere; and (v) Political and legal awareness.

Perceived ability to influence major decisions of the household

This refers to the extent of the women's ability to influence major decisions of other family members regarding domestic, financial, and child welfare issues. One point was given for the respondent who felt that she would be able to influence decision making in each of the eight different aspects of her household-buying land, house repair or renovation, lending money from a different source, getting involved in new activity without seeking permission, influencing husband/son/daughter to take up a new activity, decision on children's education, influencing husband on spending more on children's clothing. In addition, considering the relative importance of health matters of the household members, a different indicator was constructed if the women felt that she could influence decisions regarding healthcare seeking behavior of family members. The questions asked in this regard were whether the women felt that she could influence in choosing family planning methods, decision to seek outside

treatment and type of provider during illness of family members. Details are provided in Annex 1.

Spatial mobility

A common measure of women's agency is their mobility in the public domain (Kabeer 1999). Mobility indicators generally ask whether it is acceptable for women to move around (travel or visit) on their own in certain pre-identified locations. The variable used in this study has also tried to capture the extent of physical movement (travel or visit) to different locations. The respondent was presented with a list of locations (local market, *Upazilla* market, *Upazilla* health centre, other health centre, NGO office, court, *Upazilla* livestock office, *Upazilla* agri-office) and asked if she had gone there in the past one year. She was given one point for each place she had visited and additional points were awarded if she did not, or does not, need permission from her husband or senior member of the household to visit those locations, if she felt comfortable going to those locations on her own, if she felt she could avail the services at those locations alone and if she felt that she would not require any assistance from members outside the household to avail the services.

Financial autonomy/control over one's own income

In the existing socio-cultural milieu of Bangladesh, only a handful of women currently control her earnings. This is particularly true of the rural areas (Banu *et al*. 1998). With this hypothesis in mind, this variable tried to measure the extent to which the respondent has the ability to control her own earnings (if any) and enjoy benefits accruing from them. The respondent obtained a positive score if she could easily spend the money she earned in activities she wanted.

Ability to interact comfortably in the public sphere

The respondent was presented with a list of persons and was asked whether she would feel comfortable in interacting with those people: NGO male worker, NGO female worker, sales person-male, sales person-female, ward member/ local politician. One point was given for a positive response.

Political and legal awareness

Political and legal empowerment of the poor requires a complex combination of technical, institutional and political changes. However, as a starting point, the poor, especially women, must first be made aware of the existing political and legal context. Fifteen crucial issues were selected and one point each was given for knowing the legal age of marriage for a boy/girl, the punishment in the law against dowry, legal system of divorce and the days after issuing the notice the

divorce is effective, lowest age for casting vote, the name of a local government official, a member of Parliament, the Prime Minister and the President, and one point each for knowing the significance of registering a marriage, and knowing the law governing inheritance, BRAC legal aid and the services they provide, knowledge about wife/child beating. In addition, the respondent scored an additional point if she had participated in any campaigns or taken any steps in the past year to stop violence against women.

Determinants of women's empowerment: independent variables

Six *ex ante* influential factors, three at individual level (viz. education, involvement in earning activities, participation in NGO) and three at household level (viz. socio economic status, female headship and period of stay in the places) were used as predictors in order to check for their significance as women's empowerment determinants.

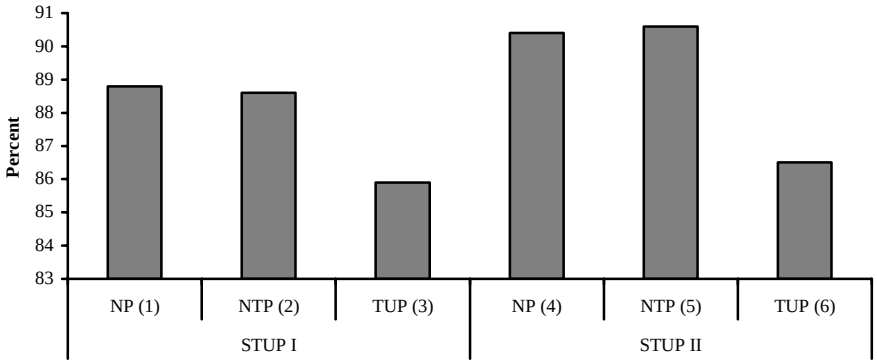
RESULTS AND DISCUSSION

The poverty classification based on wealth ranks in other chapters has been used to present the findings: NP–Non poor, NTP–Non-targeted poor, TUP–Targeted ultra poor.

Perceived ability to influence decision making of the households

Figure 1 shows that in general the TUP households appear to be less empowered in terms of ability to influence decision making compared to NTP households in both the STUP I (89%- NTP and 86% TUP) and STUP II (91%- NTP and 87% TUP) areas (Table A1, Annex 1). However, the mean score in perceived ability to influence decision-making shows that there are no significant differences among the TUP households in both the groups (Table A1, Annex 1). The results are not surprising and again reflect that traditional gender norms are more prevalent in poorer segments of the society and their decisions are not considered as valuable.

Figure 1. Perceived ability to influence household decision making (mean score)



Ability to influence decision making regarding health

Since health is a complex issue, the ability to influence decision making regarding use of family planning methods and healthcare seeking behavior was analyzed separately. Results show no significant pattern. However, TUP women in STUP II areas are significantly able to choose family planning methods compared to TUP women in STUP I areas.

Table 1. Ability to influence decision making regarding use of family planning method and health

Variables	STUP I			STUP II			p-value		
	NP [1]	NTP [2]	TUP [3]	NP [4]	NTP [5]	TUP [6]	2 vs 3	5 vs 6	3 vs 6
Decision in choosing method (N = 12914)	95.9	95.8	95.0	98.3	95.9	97.8	ns	ns	<.05
Ability to influence decision in seeking outside treatment	94.2	94.3	95.4	94.9	97.2	96.1	<.05	ns	ns
Ability to influence decision in type of treatment (N = 28941)	94.1	94.1	95.2	94.6	97.6	96.0	<.05	<.10	ns
Score of decision making ability (mean)	94.3	94.3	95.3	95.2	97.2	96.2	<.01	ns	ns

ns = Not significant at the 10% level

Spatial mobility

Mobility in the public domain is an important aspect of empowerment in contexts where women's movement is subject to various socially defined restrictions (Kabeer 1999).

Travel to the pre-specified locations

Table 2 presents the locations to which the respondents had visited in the past one year either alone or being accompanied with somebody else. Results show that there are a range of acceptable and unacceptable places to which women can travel to either alone or being accompanied by somebody such as the market and health centre. Due to the enormous proliferation of NGO activities and involvement of women in those, an NGO office has also become an acceptable place to which women can visit. The reasons for these may be that these places are either linked to the familial responsibilities of women, or are considered to be less threatening. However, visiting these particular places does not reflect mobility as such and depends on the requirements.

Table 2. Travel or visit to pre-specified locations

Locations	STUP I			STUP II		
	NP [1]	NTP [2]	TUP [3]	NP [4]	NTP [5]	TUP [6]
Local Market	56.9	64.8	70.0	66.0	77.0	86.1
Upazilla Market	35.9	30.9	31.0	52.1	52.1	59.0
Upazilla health centre	33.9	29.7	28.2	51.8	48.2	48.9
Other health centre	25.8	26.2	22.8	45.6	45.1	42.3
NGO office	22.4	25.4	15.6	37.0	49.2	54.2
Court	1.0	0.9	0.9	1.0	1.6	2.0
Upazila livestock office	0.9	0.6	0.6	0.8	0.9	1.1
Upazilla Agri-office	0.6	0.5	0.5	0.8	0.6	0.8

For example, it is quite understandable that very limited proportion of women had visited court since it is not common to be required to visit court. Similarly, visiting health center is related to incidence of illness experienced by that particular household. Although it is not yet fully acceptable for women to be in the rural market places, women from TUP households are found to be more likely to have visited market compared to other categories. Moreover, such visits are more common in economically advanced area (STUP II). This proves that poorer women who are usually more engaged in economic activities appear to be playing a catalytic role in changing traditional norms.

Permission from spouse/in-laws in visiting or traveling to pre-specified locations

Table 3 shows that poorer households are less likely to require any permission from spouse or in laws in visiting the list of locations. Compared to TUP households, NTP households are more likely to require permission to travel to the specified locations in both he STUP I and STUP II areas. There is no significant difference among the TUP households in both the areas.

Table 3. Percentage of women who do not require permission from spouse/in-laws in visiting or traveling to pre-specified locations

Locations	STUP I			STUP II			p-value		
	NP [1]	NTP [2]	TUP [3]	NP [4]	NTP [5]	TUP [6]	2 vs 3	5 vs 6	3 vs 6
Local Market	8.9	15.6	38.4	7.6	16.0	38.0	<.001	<.001	ns
Upazilla Market	8.1	13.7	36.7	6.21	12.3	36.3	<.001	<.001	ns
Upazilla health centre	8.3	14.2	36.7	6.1	12.4	35.7	<.001	<.001	ns
Other health centre	8.3	14.6	37.1	7.5	13.2	36.1	<.001	<.001	ns
NGO office	8.0	14.3	36.3	6.7	13.5	37.4	<.001	<.001	ns
Court	7.3	13.4	35.8	6.8	12.1	35.9	<.001	<.001	ns
Upazilla livestock office	7.4	13.5	36.0	6.5	12.0	36.0	<.001	<.001	ns
Upazilla Agri-office	7.5	13.6	36.0	6.7	12.0	35.6	<.001	<.001	ns

ns = Not significant at the 10% level

In addition, economic insecurity in ultra poor households pushes these women to be more economically active. When that happens, they are bound to be out of house relatively more at least for their 'out of house' earning activities. Hence, it can be said that economic empowerment can translate into greater control over one's own mobility. Figure 2 and 3 supports this argument. Women, specifically the ultra poor women who are involved in economic activities in both STUP I and STUP II areas, are less likely to require permission from spouse or senior members of the household in traveling to the local market or *Upazilla* market. These figures also reveal that, although involvement in earning increases empowerment for all types of women (NP, NTP and TUP), the increases are much higher for TUP. What this suggests is that "an additional penny in TUP household can buy more empowerment than in other households". Increasing economic opportunities of poorer women will strengthen their household bargaining power, and the results imply that this benefit would accrue to more for TUP than the NTP.

Figure 2. Percentage of women who does not require permission to travel to local market

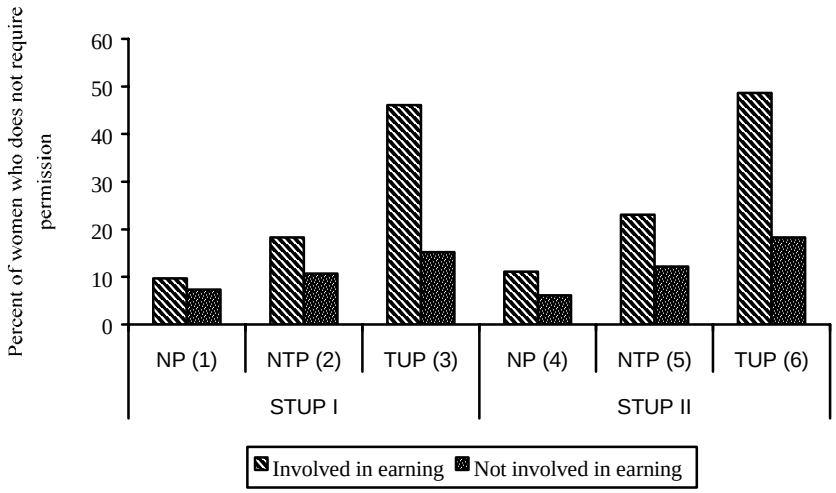
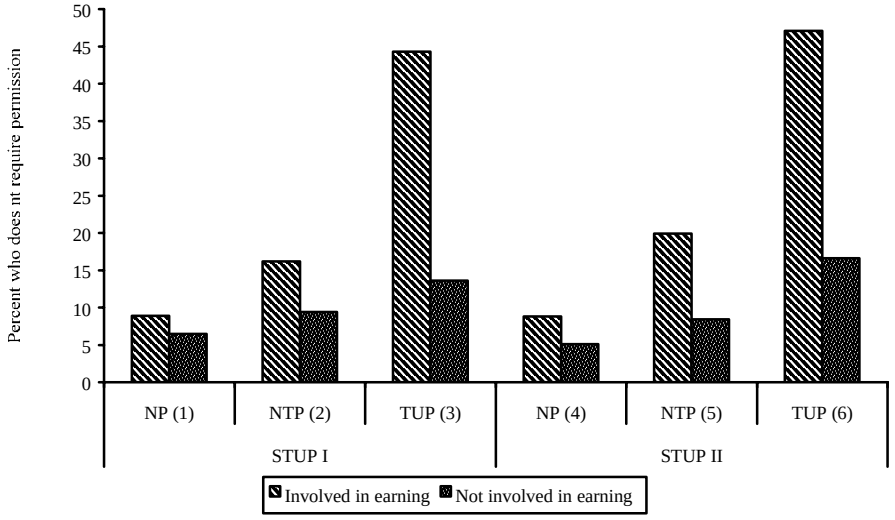


Figure 3. Percentage of women who does not require permission to travel to *Upazilla* market

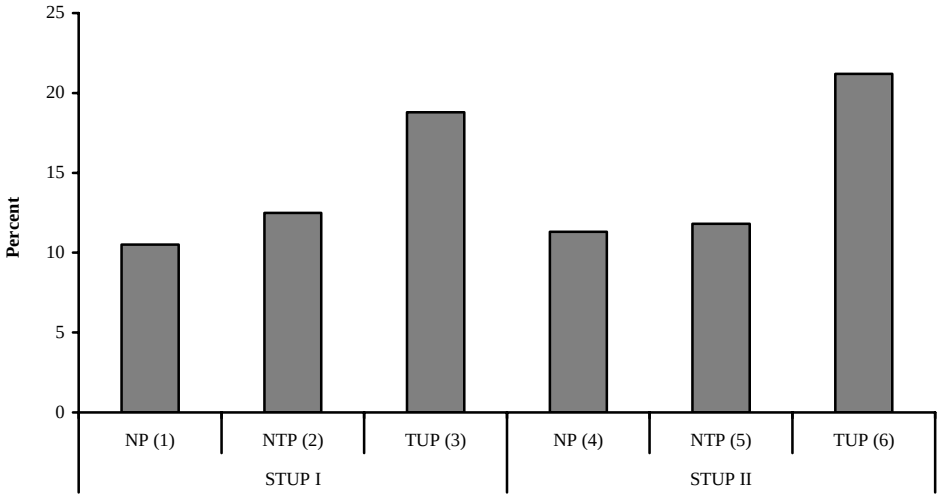


Mean mobility score

The overall mobility score (Figure 4) that was constructed based on whether the respondent required permission from spouse/in-laws, whether the respondent felt

she would be able to avail services on her own (Table A2, Annex 1), whether the respondent felt comfortable in going to the pre-specified locations (Table A3, Annex 1) and whether the respondent felt that she would not require any assistance from members outside the household to avail the services revealed that poorer households are more likely to be more empowered in this aspect compared to richer households. The NTP households in both STUP I and STUP II areas showed significantly lower mobility compared to TUP households respectively (Table A4, Annex 1).

Figure 4. Mean mobility score

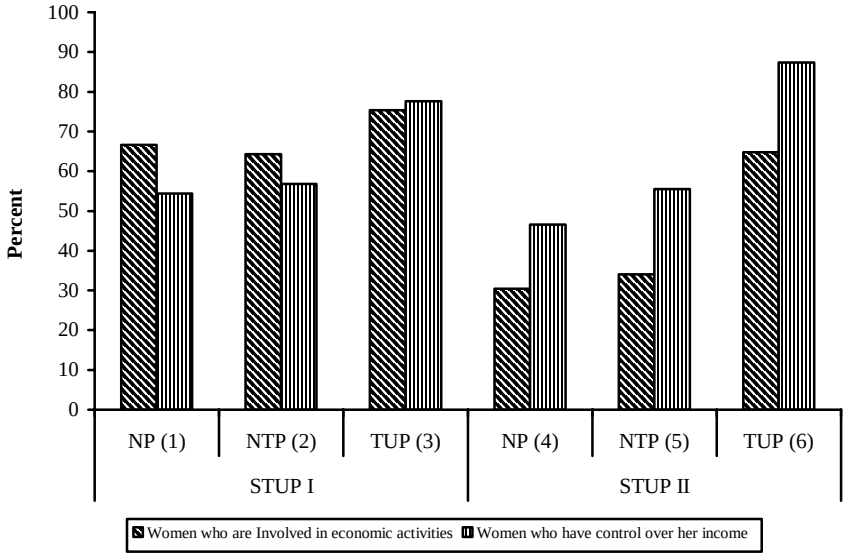


Moreover, Table A2 also reveals that there are significant differences in perceived ability to avail services on one's own between NTP and TUP women in the STUP I areas compared to those in the STUP II areas. This signifies that women in poorer areas are less confident in accessing services. Again, though ultra poor women seemed to have greater mobility in terms of not requiring permission and actual mobility, Table A2 show that they are not confident in accessing services. This suggests that being mobile by itself will be fruitless if it does not translate into accessing services on one's own.

Financial autonomy/control over one's own income

Results show that the TUP households are more involved in income generating activities; women in STUP I areas (75%) are more likely to be involved in economic activities compared to STUP II areas (65%). In addition, compared to NTP households, women in TUP households were significantly more involved in economic activities in both areas (Table A5, Annex 1).

Figure 5. Status of women's financial autonomy



Amongst those who are involved in economic activities, Figure 5 reveals that women in poorer households were more likely to have control over their own income and could spend the earnings according to their own requirements. TUP women in the STUP II areas were more empowered compared to TUP women in the STUP I areas. A statistically significant difference was observed between the two groups (Table A5, Annex 1). In addition, a statistically significant difference was also observed between NTP and TUP households in both the areas, with NTP women having lesser control over their earnings compared to TUP households (Table A5, Annex 1).

Ability to interact comfortably in the public sphere

The mean score in Table 4 shows that members of the poorer households feel that they would be more comfortable in interacting in the public sphere compared to richer households both in the STUP I and STUP II areas. Significant differences were observed only between NTP and TUP members in both the STUP I and STUP II areas. In general, women remain at ease in interacting with female NGO workers or female sales person and feel that they would be most uncomfortable in talking to a ward member or local politician. The results reinforce the fact that traditional patriarchal norms in Bangladesh still prevent women from being able to interact comfortably with all members of the society.

Table 4. Ability to interact comfortably in the public sphere

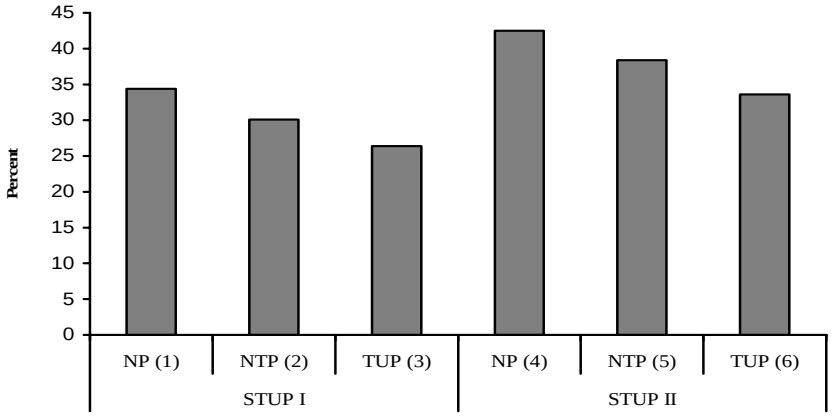
Variables	STUP I			STUP II			p-value		
	NP [1]	NTP [2]	TUP [3]	NP [4]	NTP [5]	TUP [6]	2 vs 3	5 vs 6	3 vs 6
NGO male worker	79.3	84.9	86.3	76.7	84.9	89.4	<.10	<.01	<.10
NGO Female Worker	94.6	96.1	97.0	92.4	96.1	96.8	<.01	ns	ns
Sales person-Male	77.6	84.4	85.5	75.1	84.1	87.8	ns	<.05	ns
Sales person-Female	94.4	95.8	96.5	92.0	95.1	95.5	<.10	ns	ns
Ward member/Local politician	73.1	78.7	80.5	66.3	75.1	83.0	.<.05	.01	ns
Mean score	83.8	88.0	89.1	80.5	87.1	90.5	<.05	<.01	ns

ns = Not significant at the 10% level

Political and legal awareness

Figure 6 (Mean score on 16 key legal and political issues) shows that poorer households in both the STUP I and STUP II areas are less aware compared to the richer households, with households in STUP II areas scoring more. This is mainly because respondents in the STUP II areas are more educated and, also have more NGO participation as found elsewhere in the report. The TUP households in the STUP II areas scored significantly higher compared to those in the STUP I areas (Table A6, Annex 1). Similar significant results are observed between NTP and TUP households in both the areas. Details are provided in Table A6 (Annex 1).

Figure 6. Political and legal awareness (mean score)



Determinants of women's empowerment

Education has been identified as one of the best solutions to empowerment and rural poverty (Parveen and Leonhäuser 2004) as literate women can more easily

demand and protect their rights in order to change and improve their situations. As expected the results show that women who are educated, or have some form of formal schooling, are significantly more empowered with respect to ability to influence decision making, mobility, legal and political awareness and control over income (Table 5). The study conducted by Parveen and Leonhäuser (2004) also found that women with formal education were more empowered than those without. An interesting finding that needs further exploration is the negative relationship between education and interaction in the public sphere (Table 5).

Table 5. Factors influencing women's empowerment

Variable	Decision making	Mobility	Interaction in public sphere	Legal and political awareness	Control over income
Education (1 = Yes; 0 = No)	0.003	0.01	-0.012	0.02	0.009
	(3.93)***	(10.52)***	(1.82)*	(27.31)***	(3.66)***
NP (1)	0.016	-0.03	-0.202	0.029	-0.032
	(3.16)***	(5.36)***	(5.55)***	(7.40)***	(2.39)**
NTP (2)	0.017	-0.015	-0.049	0.012	-0.034
	(3.66)***	(3.24)***	(1.76)*	(3.86)***	(3.27)***
NP (4)	0.03	-0.03	-0.319	0.088	-0.133
	(3.52)***	(3.23)***	(4.71)***	(13.56)***	(4.23)***
NTP (5)	0.035	-0.03	-0.069	0.069	-0.093
	(4.46)***	(3.42)***	-1.15	(10.31)***	(3.64)***
TUP (6)	0.007	0.009	0.088	0.06	0.038
	-0.73	-0.82	-1.33	(7.64)***	(2.13)**
Member of an NGO (1 = Yes; 0 = No)	0.005	0.025	0.286	0.017	-0.054
	-1.08	(5.25)***	(7.92)***	(3.91)***	(3.73)***
Female headed household (1 = Yes; 0 = No)	-0.027	0.217	0.232	0.001	0.45
	(3.70)***	(20.64)***	(5.58)***	-0.24	(30.48)***
Involved in earning (1 = Yes; 0 = No)	0.002	0.012	0.174	-0.01	0
	-0.33	(2.85)***	(4.24)***	(2.42)**	(.)
Period of stay	-0.001	0	-0.002	0	0.002
	(2.52)**	(1.70)*	-1.53	-1.42	(4.75)***
Constant	0.872	0.075	4.259	0.262	0.499
	(133.41)***	(11.34)***	(85.49)***	(53.14)***	(35.43)***
Observations	28268	31102	31102	31102	20349
R-squared	0.01	0.15	0.03	0.23	0.14

t statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
ns = Not significant at the 10% level

With regards to involvement in NGO activities the results are mixed. The results depict that, as expected, women who are members of any NGO are more empowered with respect to mobility, feel more confident in interacting in the public sphere and are significantly more legally and politically aware. However,

results show that women who are involved in NGO activities have significantly less control over their income. Several studies have been carried out, especially in Bangladesh, on the impact of NGO programs (in particular microfinance) on empowerment. The results have however also been mixed. According to Kabeer (2005) opinions on the impact are divided between those who see microfinance as a 'magic bullet' for women's empowerment and others who are dismissive of its abilities. Selim (1996), in his account of BRAC, notes that the social services such as, health, education and legal literacy that is available to women through village organizations (VO) are important in developing a sense of self-worth and self-confidence. Hashemi *et al*. (1996) in their study on Grameen Bank and BRAC found similar results. However, studies done in Bangladesh have also found that women have much less or no control over the ways in which the loans were being used (Goetz and Gupta 1994; Ackerly 1995; Montgomery *et al*. 1996). Similarly, it is not surprising that women, in the context of the existing patriarchal society, also have less control over the ways in which her earnings will be spent. In this regard Kabeer (2005) argues that like other development interventions such as education, political quotas, etc, that seek to bring about the radical structural transformation, microfinance presents a range of possibilities rather than a predetermined set of outcomes, whose realization would depend on the extent the programs are tailored to the needs and interests of those they are intended to reach, the nature of the relationships which govern their delivery, and the caliber and commitment of the people involved.

Compared to TUP households in the STUP I areas, all the other households were significantly more empowered in terms of decision making (except TUP households in STUP II areas) and legal and political awareness. However, negative association was seen in terms of mobility, interaction in the public sphere and control over income. That is, compared to TUP households in the STUP I areas, all the other households were significantly less empowered in terms of mobility (except TUP households in the STUP II areas where no association was found), interaction in the public sphere (no association was found for NTP and TUP areas in the STUP II areas) and control over income (except TUP households in the STUP II areas where positive association was found).

It is expected that in households that are female headed, the head would be positively involved in making decisions. However, findings show that there is a negative association between female headed households and their ability to influence decision making. This may be partly due to the fact that questions asked in this section were mostly inapplicable to these respondents and needs further exploration. In addition, a positive association was found between mobility, ability to interact in the public sphere and control over income for these households.

No significant association was found between those respondents who were involved in earning and decision making. However, those who were involved in earning were found to be positively associated with mobility and ability to interact in the public sphere but negatively associated with political and legal awareness.

It was assumed that the respondent's period of stay in a particular place would increase her level of empowerment in terms of mobility, ability to interact in the public sphere and have more control over her income. Findings are partially consistent with this hypothesis and women who had lived longer in a particular place were positively empowered in terms of mobility and control over one's income.

CONCLUSION

The objective of this chapter was to see the extent of women's empowerment in two spatially distinctive areas and among women with different socioeconomic status. Five dimensions of empowerment (ability to influence decision making, mobility, control over one's own income, perceived ability to interact comfortably in the public sphere and legal and political awareness) were used for this purpose. The results show that poorer women are less empowered in terms of ability to influence decision making and political and legal awareness. However, because of their economic insecurity, ultra poor women have more mobility, are more able to interact in the public sphere and have more control over their own income. Although, ultra poor women were more empowered in terms of mobility, this did not translate into ability to confidently access services outside home. Similarly, spatial differences were also observed where women in the more disadvantaged areas were less empowered in their decision making ability and awareness. However, no clear pattern was observed in terms of mobility, ability to interact in the public sphere and financial autonomy. Again, education, membership of NGO, involvement in income activities, and female headship all was found to influence some of the aspects of empowerment. Hence, these findings not only give direction as to what aspects of women's empowerment need to be addressed while increasing their entrepreneurial ability and reducing their vulnerability but also justify spatial focus of the second phase of the CFPR program.

ANNEX - 1

Table A1. Perceived ability to influence household decision making

Variable	STUP I			STUP II			p - value		
	NP [1]	NTP [2]	TUP [3]	NP [4]	NTP [5]	TUP [6]	2 vs 3	5 vs 6	3 vs 6
If your household is going to buy land and you think it is not the right time, can you influence them to do it later?	88.8	89.8	90.5	89.0	91.4	90.4	ns	ns	ns
If your household is going to repair your house and you think it is not the right time, can you influence them to do it later?	90.1	90.6	91.2	91.1	92.7	91.5	ns	ns	ns
If your HH is going to borrow from a source that you think is not the right source, can you influence them to change their decision?	88.6	88.9	90.2	87.4	89.8	88.6	<.05	ns	ns
If you wish to be involved in a new activity would you not need to take permission from other HH members?	95.3	93.8	82.7	95.9	92.4	76.1	<.01	<.01	<.01
If you think your husband should take up a new activity, can you influence him to do that?	81.0	84.3	81.1	76.1	78.8	70.0	<.01	<.01	<.01
If you think your son should take up a new activity, can you influence him to do that?	88.4	87.9	88.8	97.0	96.0	97.0	ns	ns	<.01
If you think your daughter should take up a new activity, can you influence her to do that?	85.6	86.3	87.4	96.5	97.1	97.2	ns	ns	<.01
Can you influence the decision on how far your son proceeds with his studies?	88.4	84.9	79.0	89.5	89.0	84.7	<.01	<.10	<.05
Can you influence the decision on how far your daughter proceeds with her studies?	90.5	86.0	79.5	93.1	89.7	85.3	<.01	<.05	<.05
If your husband is not spending as much on your children's clothing as you would like him to, can you make him to spend more?	92.0	91.2	89.6	94.3	93.2	83.8	.0175	<.01	<.05
Ability to influence Household decision making (Mean Score)	88.8	88.6	85.9	90.4	90.6	86.5	<.01	<.01	ns

ns = Not significant at the 10% level

Table A2. Ability to avail services on one's own

Variable	STUP1			STUP2			Significance		
	NP [1]	NTP [2]	TUP [3]	NP [4]	NTP [5]	TUP [6]	2 vs 3	5 vs 6	3 vs 6
Upazilla health centre	22.2	20.6	17.7	22.3	16.6	19.5	<.001	ns	ns
Other health centre	23.7	21.9	18.5	23.8	19.1	20.1	<.001	ns	ns
NGO office	20.8	19.9	14.8	23.6	22.7	23.4	<.001	ns	<.001
Court	3.5	2.8	3.1	6.0	5.1	6.4	ns	ns	<.01
Upazila livestock office	6.0	6.1	5.1	7.5	5.8	8.4	<.05	<.05	<.01
Upazilla Agri-office	5.9	5.6	4.8	7.5	5.6	8.8	<.10	<.01	<.001

ns = Not significant at the 10% level

Table A3. Comfort in going to specified locations on one's own

Locations	STUP I			STUP II			p-value		
	NP [1]	NTP [2]	TUP [3]	NP [4]	NTP [5]	TUP [6]	2 vs 3	5 vs 6	3 vs 6
Local Market	20.3	23.6	33.7	19.3	23.4	35.5	<.001	<.001	ns
Upazilla Market	9.5	11.5	15.6	12.4	11.8	23.1	<.001	<.001	<.001
Upazilla health centre	8.9	10.9	13.0	11.3	8.8	15.9	<.001	<.001	ns
Other health centre	9.6	11.9	13.9	12.3	10.4	14.6	<.01	<.05	ns
NGO office	9.3	12.0	12.1	11.8	13.8	19.7	ns	<.01	<.001
Court	2.5	3.9	5.1	3.1	3.1	5.8	<.01	<.05	ns
Upazila livestock office	3.0	4.6	5.7	4.2	3.5	7.4	<.01	<.01	ns
Upazilla Agri-office	2.8	4.4	5.5	4.4	3.7	7.5	<.01	<.01	<.10

ns = Not significant at the 10% level

Table A4. Mean mobility score

Variable	STUP I			STUP II			p-value		
	NP [1]	NTP [2]	TUP [3]	NP [4]	NTP [5]	TUP [6]	2 vs 3	5 vs 6	3 vs 6
Mobility score	10.5	12.5	18.8	11.3	11.8	21.1	<.001	<.001	<.10

ns = Not significant at the 10% level

Table A5. Status of women's financial autonomy

Variable	STUP I			STUP II			p-value		
	NP [1]	NTP [2]	TUP [3]	NP [4]	NTP [5]	TUP [6]	2 vs 3	5 vs 6	3 vs 6
Women involved in economic activities	66.6	64.3	75.4	30.4	34.0	64.8	<.001	<.001	<.001
Women who have control over her income	54.4	56.8	77.6	46.6	55.5	87.4	<.001	<.001	<.001

ns = Not significant at the 10% level

Table A6. Political and legal awareness

Variables	STUP I			STUP II			p-value		
	NP [1]	NTP [2]	TUP [3]	NP [4]	NTP [5]	TUP [6]	2 vs 3	5 vs 6	3 vs 6
Legal age of marriage for a boy?	23.6	16.2	10.7	37.7	28.3	22.1	<.001	<.01	<.001
What is the legal age of marriage for a girl?	51.3	42.2	31.1	63.8	57.2	44.7	<.001	<.001	<.001
What is the punishment in the law against dowry?	5.8	3.9	3.2	13.2	10.3	7.5	<.10	<.05	<.01
What is the legal system of divorce?	6.7	4.12	3.6	10.7	7.9	7.5	<.10	ns	<.01
How many days after notice is the divorce effective?	3.9	2.3	1.7	6.9	3.5	3.3	<.05	ns	<.10
What is the lowest age for casting vote?	36.7	25.8	17.3	61.0	52.4	40.1	<.001	<.001	<.001
Muslims inheritance act (only for Muslims) How is the property divided between son and daughter? N = 26913	41.4	31.4	25.6	60.7	55.3	43.5	<.001	<.001	<.001
Name one Ward Member:	88.5	87.8	88.3	93.8	93.6	92.7	ns	ns	<.01
Name a member of parliament of your area:	41.9	37.7	27.6	51.7	41.0	32.6	<.001	<.001	<.05
Name the Prime Minister/Chief Advisor:	42.7	36.2	26.6	46.4	39.5	26.7	<.001	<.001	ns
Name the President:	6.8	2.0	1.0	1.2	5.4	2.8	<.001	<.01	<.05
Have you heard of BRAC Legal Aid?	6.1	4.0	4.0	9.1	1.0	12.7	ns	ns	<.001
What services do they provide?	2.2	1.5	1.5	3.7	4.3	4.1	ns	ns	<.01
Do you think beating a woman is a crime?	91.3	87.9	86.5	94.7	94.3	90.5	<.05	<.01	<.05
Do you think beating a child is a crime?	88.8	86.5	83.4	94.9	94.3	91.0	<.001	<.05	<.001
During the last year, have you taken any action to stop violence against women?	15.1	13.5	11.3	21.5	18.4	15.8	<.001	ns	<.05
Mean Score	34.4	30.1	26.4	42.5	38.4	33.6	<.001	<.001	<.001

ns = Not significant at the 10% level

Knowledge, Perception, Attitudes and Behaviour of the Villagers Toward Gender

Md. Abdul Alim

INTRODUCTION

Gender equality is achievable when there is increased awareness, a transformation in attitude, and removal of discriminatory practices that are often deeply rooted in societies (CIDA 2003). An increase in gender awareness means increased sensitization, and the recognition of a need to incorporate women into the development process as active participants. Gender awareness positively contributes to changes in the attitude and the behaviour of individual people, and of groups (*Ibid*). Gender awareness is increasingly being recognized of paramount importance in the development process of Bangladesh. Given the patriarchal norms and ideologies prevailing in the society, external forces like non-government organizations (NGOs) may work as catalyst in affecting the relationship between men and women by enhancing the status of women in the different spheres and locations (Mahmud 2004).

BRAC, as an NGO is involved in promoting poverty alleviation practices and women's empowerment. Since women are more adversely affected by poverty, BRAC puts emphasis on gender equity in its development programmes. In the process of implementing these programmes, the need was felt to develop a positive attitude in the society about improving gender relations and enhancing gender equity and equality. Thus, in 1994, BRAC initiated a gender quality action learning (GQAL) programme for its staff to improve gender relations among its employees. This training programme was expanded to include the

members of its village organizations (VO)[1] on a pilot basis in 2001. Though the goals were similar, it focused more on fostering gender equality and equity among the villagers. The main purpose of this programme was to create a positive attitude in rural areas for women's empowerment and for improving gender relations in the family, society, and organization at the village level.

After successful completion of the VO-based GQAL programme in rural areas, BRAC decided to expand it in two more districts on a pilot basis in 2005 and 2006 and ultimately, in ten more districts in 2007 with similar tools and methods. The aim of this programme currently is to build a platform to identify the gender-based discrimination and to facilitate a community movement to end violence against women and children, especially in terms of domestic violence (CFPR 2007). A total of 3000 men and women were given GQAL training who were selected from the specially targeted ultra poor (STUP), *Palli Shamaj*, PS (combination of two or more VOs), VOs, *gram daridra bimochon* committee, GDBC (members of the village elites), *union parishad* (UP) member, and *Shasthaya Shebika (SS)* (community health volunteers). These trainees worked as educators and conducted 18,000 *Uthan baithaks* (courtyard meetings) for educating community members. People living in the vicinity of these educators participated in the courtyard meetings. Besides *Uthan baithak,* additional learning tools such as videos on gender based violence and discrimination, and popular theatres on gender equity were organized to deliver message to the community members. To measure the impact of the interventions, this baseline survey was conducted to know the present status of villagers' knowledge, perception, attitude and behaviour related to gender.

METHODS AND MATERIALS

This study utilized both quantitative and qualitative methods for analysis. It included different socio-demographic information of the respondents and their knowledge, perception, attitude and behaviour toward gender roles, discrimination and violence against women. Based on the issues the study was divided into four themes, under which different issues were used to explain them. These themes are written out as general perception toward man and woman, discrimination between them, women empowerment and violence against women.

The general perception toward men and women are how people in the society treat them in terms of physical differences and essentially discrimination arising from them. Moreover, the differences between men and women are taken into consideration in terms of division of labour. The discrimination refers to men

[1] The village organization (VO) is an association of poor and landless people who come together with the help of BRAC to improve their socioeconomic condition.

having preferential treatment with regards to food intake, decision making rights over child education, treatment, leisure and wage labour. Empowerment indicates a woman's access to resources, ownership of assets, participation in decision-making, and their mobility. Finally violence against women includes the dowry, divorce, physical, psychological, and action-related violence (e.g. impeding mobility, forcing to give up money etc.).

Study area

The study was conducted in 50 area offices in 10 districts where GQAL programme started training to the villagers. The GQAL programme is funded by CFPR-TUP and therefore, it was initiated in those areas where CFPR-TUP programme was already begun. In other words, the programme in essence intended to focus on the ultra poor people to raise awareness against gender discrimination and violence against women and in turn facilitating gender equality. Along with the ultra poor, other classes of the society would also be addressed in this process.

SAMPLING

The GQAL programme selected four spots[2] in each branch office having similar socio-demographic characteristics. Two out of four spots from each area were selected randomly as intervention spots and the rest as control spots. The programme listed down the number of households from each spot, consisting of approximately three hundred households.

The number of respondents from selected households of each cluster was determined by the 'power calculation' software. It was found that 30 respondents randomly selected from each spot would be reasonable and representative and this number was statistically significant. Thus, the total number of respondents was 5999, in which 3,008 were in intervention areas while the remainders were in control areas.

After selecting the households, the respondents were selected randomly from them. The respondents for in-depth interview were also selected randomly. Four respondents from each branch offices were selected resulting to a total of 200.

[2] Among other steps for targeting ultra poor selecting village is bit final stage of this process. Once the villages are selected, several participatory wealth-ranking exercises are conducted to cover all possible locations of a village where extreme poor live. These sub-village level locations are known as spots, which typically constitute 100–150 households. But GQAL spots were different from typical definition of spot used in CFPR. This programme has extended the number of households to around 300 households for extensive intervention for five years.

Data collection technique

Except the aforementioned survey and in-depth interviews, a psychological tool named four-point Likert scale was used to collect data for measuring the attitudes of the respondents toward gender equality issues. The respondents put forth their attitudes on four statements that were selected for each of the themes. The statements reflected situations with which the respondents were asked to agree or disagree. Respondents' attitude on each of the statements were captured in four-point Likert scale –completely agreed, partially agreed, partially disagreed, and completely disagreed. Both positive and negative statements have been considered to elicit balanced attitudes from each of the respondents. Each of the statements were given a numerical weight scale, ie, four for completely agreeing with the statements and one for completely disagreeing. A variation in the responses would emerge depending on the nature of the statements. Higher score from a statement related to themes meant more favourable attitude and the opposite meant less favourable attitude toward gender roles and relations.

Total score was computed by compiling the responses from each statement. The cumulative score of each of the different themes represented respondents' attitude toward that particular theme. In the case of attitude toward gender roles and relations possible scores for a respondent ranged from 4 to 16.

Data analysis

To measure knowledge, perception, attitude and behaviour of the respondents, SPSS v11.5 was used. To know the existing status of the respondents on gender roles, discrimination, empowerment, and violence against women, both bi-variate and multivariate analyses were undertaken.

FINDINGS

Socio-demographic profile of the respondents

This section describes the socio-demographic profile of the respondents. The percentage of male and female respondents in both GQAL and non-GQAL or NGQAL areas were dissimilar (Table 1). The female respondents in GQAL areas were higher in number, whereas the number of male respondents was lower in GQAL areas compared to NGQAL.

Table 1. Percentage of respondents' socio-demographic profile by areas

Indicators	GQAL	NGQAL	p value
Sex			
Male	43	47	.01
Age			.01
15-22	11	9	
23-30	34	32	
31-38	27	29	
39 plus	27	29	
Mean years of age	32.69	33.29	.08
Education			ns
Illiterate	58	55	
One to four	8	8	
Five to nine	27	30	
Ten plus	7	7	
Mean years of schooling	2.80	2.98	ns
Marital status			ns
Married	97	98	
Widow/ Separated/ Divorced	3	2	
NGO membership			ns
Yes	26	23	
n	3008	2991	

ns=not significant at the 10% level

The age of the respondents was categorized into different groups. Around 30% of the respondents belonged to the range of 23 to 39+ years. There was a significant difference in the age of the respondents between GQAL and NGQAL areas. Table 1 also reveals that more than half of the respondents were illiterate while only 7% of them had eleven or more years of education. Most of them were married while few of them were widowed, divorced and or separated. More than one fourth of the respondents had affiliation with NGOs. Similar findings were also found in NGQAL areas.

Knowledge

To measure the knowledge of the respondents in different issues under each of the four themes - general attitudes toward man and woman (GAMW), discrimination, empowerment, and violence against women (VAW) – were included in this section. The issues include how gender difference (aside from the biological difference) is created; how does society help to abet this difference; how a man's and woman's activities are shaped in the family and society; and lastly whose work is more important. Additionally, the respondents' knowledge on what class of education is compulsory for boys and girls; the necessity of nutrition of man and woman; their right to get proper treatment and enjoying leisure; right of control over household assets; decision on children's marriage;

age of marriage of boys and girls; law of divorce and multiple marriages were considered in this study.

Table 2. Mean number of questions correctly answered by themes and areas

Themes	No. of questions	GQAL	NGQAL	p value
GAMW	4	.56 (14)	.36 (9)	.000
Discrimination	4	.83 (21)	.65 (16)	.001
Empowerment	4	1.19 (30)	.96 (24)	.000
VAW	4	1.17 (29)	1.11 (28)	.000
All	16	3.77 (24)	3.09 (19)	.000
n		3008	2991	

Figures in the parenthesis indicate percentage.

The respondents' knowledge on different themes of gender was low in both GQAL and NGQAL areas (Table 2). However, knowledge of the respondents on empowerment and violence against women was better compared to other themes such as GAMW and discrimination. With regard to GAMW 14% of the respondents answered correctly in GQAL areas while the proportion of correct answer in NGQAL areas was lower.

Knowledge score was further analyzed using linear regression in which results show that the male respondents had better knowledge than female respondents in that particular area. There was a strong association between knowledge score, education and age of the respondents. In other words with the increase of education and age, the probability of knowledge also would increase (Table 3). Moreover, the respondents' knowledge score in GQAL areas was higher than the NGQAL areas. In this analysis the adjusted R square is .12.

Table 3. Linear regression of the respondents' knowledge score

Independent variables	Beta co-efficient
Household status (GQAL=1, NGQAL=0)	.631***
Sex (Male=1, Female=0)	.396**
Education (continuous)	.308***
Age in years	.041***
Household type (TUP=1, Non-TUP=0)	-.001
Marital status (Married=1, Widow/divorced/separated=0	-2.85
NGO memberships (Yes=1, NO=0)	.069
Adjusted R square=.12	

***p<.01, ***p<.001*

Perception

The respondents' perception on gender differences in general, discrimination, empowerment and violence against women was considered in this section.

Division of labour within household was also observed based on some common functions performed by man and woman.

Findings show that 10% of the respondents perceived that earnings for the family should be female's role (Table 4). In lieu with the previous finding the traditional perception of the respondents was found to cooking, washing dishes, teaching and taking care of children and house. In other words respondents perceived that this was the job that woman should do.

Table 4. Percentage of the respondents reflecting the perception on female activities by areas

Type of activities	GQAL (%)	NGQAL (%)
Earning (service/business, agriculture)	10	12
Cooking, washing dishes	97	100
Teaching and taking care of children at home	84	89
House management (cleaning)	75	75
Buying from the market	2	2
Washing cloths and cleaning cow dung	2	2
IGA at home (PL rearing, sewing, handicrafts)	18	16
Others (collecting firewood, taking care of paddy)	1	1

Multiple responses are considered

The respondents' perception on discrimination on food intake, treatment, enjoying leisure, and necessity of education for boys and girls was observed. More than half of the respondents stated that the man should consume more food than the woman in both GQAL and NGQAL areas (Table 5). With regard to treatment and enjoying leisure, the respondents perceived that the male should be given a higher priority than the female.

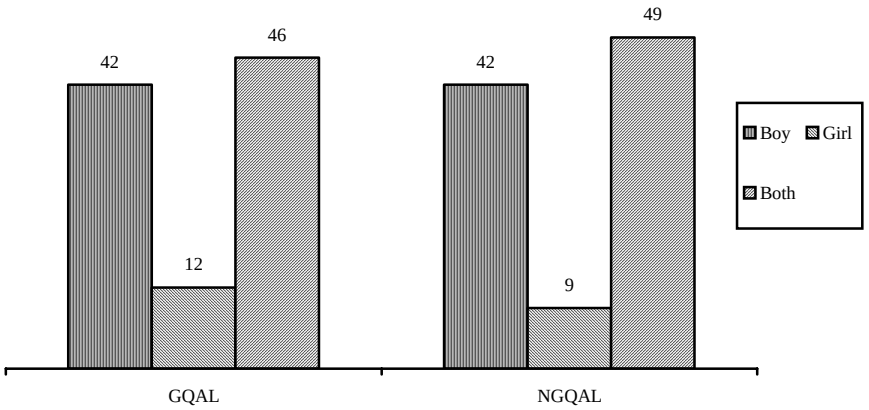
Table 5. Percentage of the respondents reflecting the perception on selected issues by areas

	Food intake (%)			Treatment of fever (%)			Enjoy leisure (%)		
Sex	A[1]	B[2]	p	A	B	p	A	B	P
Female	22	25	.002	12	11	ns	20	18	.09
Male	56	53	.02	55	58	.005	60	61	ns
Both	22	22	ns	31	30	.03	20	21	ns
n	3008	2991		3008	2991		3008	2991	

A[1]=GQAL, B[2]=NGQAL, ns= not significant at the 10% level

As for the education of boys and girls, less than half of the respondents believed that both boys and girls should be given equal priority in terms of education (Fig.1).

Figure 1. Percentage of respondents perceiving on education of boy and girl by areas



Perception of the respondents on control over household assets such as land, cow/goat, poultry, aluminium pots, trees, and ornaments was explored. More than half of the respondents believed that husband should be the one to decide to buy land, cow/ goat and trees and a similar perception was also found in NGQAL areas (Table 6). But to buy an aluminium pot, most of the respondents (73%) thought that the wife should make the decision and more than half of the respondents perceived that wife should be involved in making a decision to buy poultry. To buy ornaments, 35% of the responses were that both husband and wife should decide together. To sell those assets and for using sale proceeds around half or more of the respondents perceived that husband should make the decision (Table not provided).

Table 6. Percentage of respondents reflected the perception on buying assets by areas

Decision makers	Land %			Cow/ goat %			Poultry %			Aluminium pot %			Trees %			Ornaments %		
	A^1	B^2	p	A^1	B^2	P	A^1	B^2	p	A^1	B^2	p	A^1	B^2	p	A^1	B^2	p
Both	37	36	ns	38	38	ns	27	28	ns	17	18	ns	34	35	ns	35	38	.02
Wife	8	6	.000	12	10	ns	52	51	ns	73	72	ns	9	7	.01	29	27	.05
Husband	55	58	.01	50	51	ns	21	20	ns	10	10	ns	56	57	ns	36	35	ns
n	2966	2972		2981	2975		2996	2980		2999	2982		2988	2978		2995	2983	

A^1=GQAL, B^2=NGQAL, ns=not significant at the 10% level

The respondents showed a traditional perception on the mobility of women. A tiny percentage of the respondents believed that women should go alone in local bazar, upazila town, government and NGO offices etc. (Table 7). However, a majority of the respondents believed that women should take permission from the husband when they go outside.

Table 7. Percentage of respondents reflected perception on mobility of women to the places by area

	Go alone (Yes) %			Permission (Yes) %		
Places	GQAL	NGQAL	p	GQAL	NGQAL	p
Local bazaar	8	8	ns	97 (2984)	95 (2991)	.000
Upazila town	7	7	ns	98 (2981)	96 (2991)	.000
Govt. office	9	9	ns	97 (2981)	96 (2990)	.002
NGO office	10	10	ns	97 (2982)	96 (2991)	.003
UPH[3]	12	10	.01	97 (2984)	96 (2990)	.002
UP	9	8	ns	97 (2972)	96 (2987)	.002
n	3008	2999				

UPH[3]=*Upazila* hospital, ns= not significant at the 10% level

Traditional views of the respondents were observed in terms of their opinion of boy's and girl's marriage (Table 8). A small number of respondents thought that each should take the decisions on marriages on their own, while less than half of the respondents believed that only father or both father and mother should decide for their children's marriage. In GQAL areas less than one-third of the respondents thought that mother should take decision of girl's marriage.

Table 8. Perception of respondents on the opinion of marriage of boy and girl by areas (%)

	Boy			Girl		
Decision makers	GQAL	NGQAL	p	GQAL	NGQAL	p
Self	5	4	.001	4	2	.001
Father	44	40	.002	28	27	ns
Mother	14	9	.000	27	22	.000
Both father and mother	37	47	.000	41	49	.000
n	3008	2991		3008	2991	

Table 9. Percentage of respondents' perception on type of violence by areas

	GQAL	NGQAL	
Types of violence	Yes (%)	Yes (%)	p
Beating	86	90	.000
Slang	72	80	.000
Insulting	70	79	.000
Mental torture	72	80	.000
Giving no food	84	90	.000
Preventing from going father's home	70	75	.000
Giving no chance for leisure	71	74	.01
No help in household work	56	63	.000
Using slang in illness	74	80	.000
Forced child marriage	89	92	.001
Get out of home	91	93	.001
Bearing no expenses of son and wife	93	95	.001
n	3008	2991	

The perception of the respondents on different types of violence against women was also observed. Seventy or more percentage of the respondents considered all types of violence against women mentioned in the Table 9 as violence. But highest number of the respondents considered beating, forced child marriage, forced to get out of home, and bearing no expenses of son and wife as violence. There was little difference in perception of the respondents in GQAL and NGQAL areas.

Attitude

The attitude of the respondents was also measured on the basis of the themes mentioned earlier. The average score gained by the respondents revealed their attitudes. The higher the score, better the attitude of the respondents was.

The respondents showing positive attitude toward GAMW were statistically different between GQAL and NGQAL areas (Table 10). The analysis also shows that 24% of the respondents had a more favourable attitude toward GAMW (Fig. 2). The respondents rationalized this attitude by saying that man and woman should have equal rights and both of them were equally responsible for the family that ensured the happiness in the family and a cordial relationship between them. On the other hand, the majority of the respondents displayed a negative attitude by stating, "Man and woman are different. Men are more intelligent than women. Man goes outside home and earns to run the family. But woman, according to the rule of the creator, can only look after the family efficiently. If there is exception there will be dispute in the family and thus family may break down."

Approximately 48% of them had a more favourable attitude in terms of discrimination between man and woman for education, food-intake and wage labour (Fig. 2). They expressed that discrimination toward girls' education was bad as girls could also earn for the family like boys. Thus, she would no longer be a burden for parents and would understand the importance of education for their children after her marriage. Moreover, discrimination in wages for women was also disliked by the respondents. Equal wage is a human right, said many of the respondents. One said, "According to religion it is a sin to deceive anyone." Similarly discrimination in food intake would cause suffering to women from malnutrition, and she could get sick.

Table 10. Mean score of the respondents reflecting the attitudes by themes and areas

Themes	No. of statements	GQAL	NGQAL	p value
GAMW	3	5.50	5.52	.000
Discrimination	3	9.3	9.8	.000
Empowerment	3	6.27	6.36	.003
VAW	3	5.64	5.82	.000
Total score	12	26.75	27.54	ns
n		3008	2991	

ns= Not significant at the 10% level

On the other hand, the respondents who had negative attitude toward girls' education said, "Girls are the asset of others. There is no benefit in educating them whereas a boy is a future bread-winner and look after the whole family." Others said, 'To educate girl is against the *Shariah* (Islamic law), if they are highly educated parents will go to hell."

With regard to wages, some mentioned that women should be given a lower amount, otherwise man's status would go down. In the case of food-intake, the husband should be given a higher priority compared to the wife as he earns and runs the family.

Table 10 shows that the respondents showed a better attitude toward empowerment compared to GAMW and VAW. Figure 2 shows that 34% of the respondents had more favourable attitude toward women empowerment in terms of decision-making of household assets, and women's mobility. Respondents rationalized this type of attitude saying that the family is centred around the husband.

Since both the husband and the wife contribute to the family, the woman should be listened to in the decision making process and this would bring harmony in the family. One said, "For a woman to be able to give an opinion is her right." Besides, only one person's decision might cause harm for the family versus two

people's. In case of mobility, a woman does not need to take permission to go anywhere in case of emergencies.

On the other hand, the respondents who did not favour the empowerment of women rationalized that, "As man is likely to be more intelligent than woman the family should be maintained according to his words." Besides, family might break down if it is run, according to woman's decision. One said, "Heaven is at the feet of husband so family should be run by his words." Many mentioned that selling property and asset is the exclusive right of the husband as he earns for the family. Like the control over assets, the husband should also control the mobility of women. One said, "To go outside without the permission of man is a sin according to Islam."

The survey shows that 26% of the respondents had a more favourable attitude against any types of violence against women (Fig. 2). The respondents showed positive attitude because there is no law of beating wife by her husband. Rather, physical violence is a crime and causes disintegration of families. This also has an impact upon children who may dishonour their father later. Moreover, serious beatings also result economic loss from treatments.

Figure 2. Percentage of respondents reflected the attitudes by themes and areas

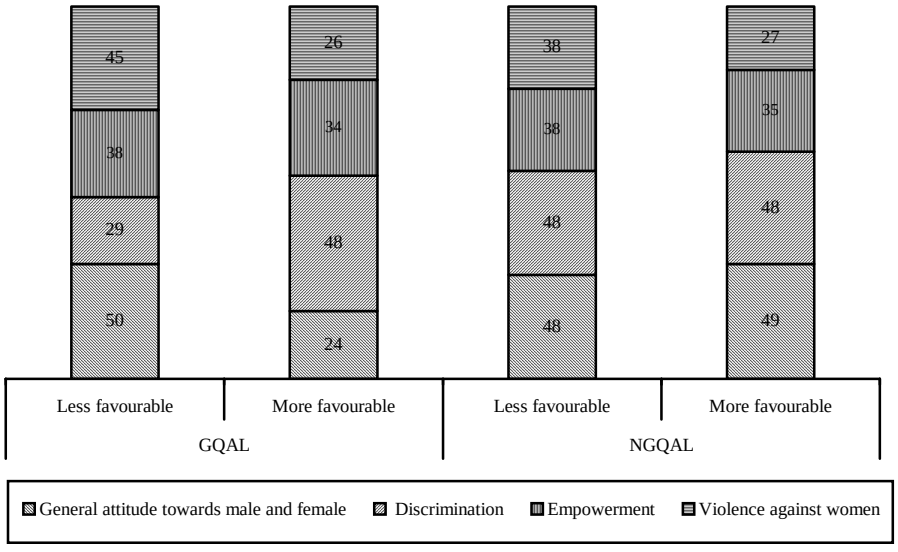


Table 11. Linear regression analysis of respondents' attitude score

Independent variables	Beta co-efficient
Household status (GQAL=1, NGQAL=0)	-.75*
Sex (Male=1, Female=0)	.99**
Education (continuation)	.09**
Age in years	.74**
Household type (TUP=1, Non-TUP=0)	.44
Marital status (Married=1, Widow/divorced/separated=0)	.008
NGO membership (Yes=1, No=0)	.63
Adjusted R square=.09	

*p<.01, **p<.001

Most of the respondents had a negative attitude toward violence against women. But some of them mentioned that punishing wife is a right of the husband and a rule of religion. Other respondent stated, "If wife is beaten by her husband she will go to heaven. Besides, there is an advantage of beating wife that she would be attentive to family. Otherwise she would not listen to the husband."

Another determinant of violence against women is dowry. There are many consequences of demanding dowry that the girl may commit suicide if she is forced to bring dowry or husband can divorce if his demand is not met.

Some respondents defended dowry by saying that husband could invest the dowry money and earn more money for the family. Moreover, dowry could have enhanced the status of wife in husband's family. Listening to and obeying the husband is a wife's duty, and if she does not then *gunah* (sin) will take place. Or husband can divorce the wife and get married again.

The linear regression analysis shows that men had a more positive attitude toward gender than women. With the increase of schooling and age the respondents' attitude toward gender would be better (Table 11). Besides, the respondents' attitude toward gender in GQAL areas was significantly better than in NGQAL.

Behaviour

The nature of behaviour of the respondents regarding general attitude toward man and woman, discrimination, empowerment and violence against women was also explored.

In terms of division of labour, the findings show that less than half of the male respondents in GQAL areas fed and bathed their children while less than one third of respondents admitted that husbands washed cloths and made bed (Table

12). Only a small percentage of respondents told that husbands were engaged in cooking at home.

Table 12. Percentage of the respondents expressed type of works done by husbands by areas

Type of works	GQAL (Yes) (%)	NGQAL (Yes) (%)	p
Washed cloths	27	21	.000
Making bed	22	18	.000
Cooking	14	11	.000
n	3008	2991	
Feed and get children bathed	49 (n=2787)	36 (n=2765)	.000

With regard to schooling of the children, girls were in better position than boys meaning that more girls were sent to school than boys in both the GQAL and NGQAL areas (Table 13). However, a lesser number of girls were given private tutoring sessions in those areas compared to their male counterparts. Both girls and boys were given school bags in equal numbers.

Table 13. Percentage of respondents on selected issues by sex and areas

Sex	Schooling (5-18 yr.) (Yes)			Private (Yes)			School bag (Yes)		
	GQAL	NGQAL	p	GQAL	NGQAL	P	GQAL	NGQAL	p
Boy	66 (2546)	70 (2379)	.000	42 (1688)	36 (1672)	.000	29 (1688)	25 (1672)	.000
Girl	75 (2300)	80 (2182)	.000	37 (1719)	32 (1746)	.000	28 (1719)	25 (1746)	.000

Figures in the parentheses indicate n.

On the other hand, there was a difference in ambition of the respondents in terms of educating their boys versus girls. Sixty one percent of the respondents wanted to educate their girls up to Secondary School Certificate (SSC) whereas 43% of them wanted similar education for the boys (Table 14). However more respondents wanted to educate their boys passed the 11^{th} grade versus the respondents with daughters. Fifty-three percent of them wanted to get their son educated up to class eleven or more. In other words, they preferred higher education for their sons as opposed to their daughters. Similar findings were found in both GQAL and NGQAL areas.

Table 14. Percentage of respondents expressed the ambition of sending children to school by areas

	Boy (%)			Girl (%)		
Class	GQAL	NGQAL	p	GQAL	NGQAL	p
Five	3	3	ns	7	8	ns
SSC	41	44	.08	61	60	ns
HSC and Higher	56	53	ns	32	32	ns
n	1637	1623		1715	1727	

Table 15. Percentage of respondents reported the consultation between husband and wife for buying and selling household assets by areas

Asset/things	Buying (Yes)			Selling (Yes)		
	GQAL	NGQAL	p	GQAL	NGQAL	p
Poultry	89 (1252)	89 (1133)	ns	93 (905)	92 (733)	ns
Cow/goat	94 (629)	94 (530)	ns	93 (624)	91 (558)	ns
Land	96 (245)	98 (180)	ns	91 (92)	94 (52)	ns
Utensils	86 (1637)	84 (1541)	.06	-	-	
Cloths	92 (2358)	91 (2456)	ns	-	-	
Ornaments	95 (259)	95 (186)	ns	86 (29)	93 (15)	ns

Figures in the parenthesis indicate n.

Table 16. Percentage of respondents used sale proceeds by areas

	Cow/goat (%)			Poultry (%)			Land (%)			Ornament (%)		
	*A	**B	p	*A	**B	p	*A	**B	P	*A	**B	p
H[1]	59	64	ns	52	57	.04	58	61	Ns	32	21	ns
W[2]	6	3	.03	17	14	ns	4	8	Ns	7	14	ns
B[3]	34	32	ns	31	29	ns	38	31	Ns	61	64	ns
n	610	547		896	727		89	52		28	14	

1=Husband, 2=Wife, 3=Both, *A=GQAL, **=NGQAL, ns=not significant at the 10% level

Majority of the respondents reported to have consulted with their wives to buy assets as mentioned in the Table 15 and almost similar percentage of the respondents reported that both husband and wife consulted each other for selling the assets during the preceding year of data collection period.

With regard to the use of sale proceeds, more than half of the respondents reported that both husbands and wives used the money from selling ornaments. In the case of other assets, more than half of the respondents reported that husbands used the sale proceeds of those assets (Table 16).

The respondents were asked to report whether their wives/women of the households went outside home during the preceding year. Around one-third of the respondents in GQAL areas reported that their wives went to their father's home and local bazaar alone. Less than half of them stated that their wives went

to government offices (Table 17). This Table also shows that around more than half of the respondents in GQAL areas reported that their wives took permission to go outside home. There were statistically significant differences between GQAL and NGQAL areas regarding mobility of female members and permission from members in the households.

Table 17. Percentage of respondents reported wives going different places by areas

Places	Alone (Yes)			Permission (Yes)		
	GQAL	NGQAL	p	GQAL	NGQAL	p
Father's home	31	21	.000	62	52	.000
Local bazaar	37	37	ns	61	47	.000
Upazila bazaar	26	20	.01	51	38	.000
Govt. office	48	42	ns*	60	48	.06
NGO	24	19	.002	52	42	.000
Upazila Hospital	25	17	.000	62	46	.000

ns = Not significant at the 10% level

The respondents also mentioned that their children were sent to different places for various purposes. Less than half and more than half of the respondents did not send their boys and girls respectively any places both in GQAL and NGQAL areas (Table 18). Respondents had discriminatory behaviour when it came to sending boys and girls outside home for different purposes. A significant number of respondents did not send their girls outside home in the preceding month of data collection.

Table 18. Percentage of respondents reported the children sent in different places by sex and areas

Places	GQAL		NGQAL	
	Boy (%)	Girl (%)	Boy (%)	Girl (%)
Not sent	41	59	36	63
Shop	60	40	62	37
Market	81	19	84	15
Relatives' house	43	56	40	60

Multiple responses are considered

Few families paid/received dowry in marriage in the preceding year of data collection. Less than half of the respondents both in GQAL and NGQAL areas reported to have given or taken no dowry for boy's and girl's marriage (Table 19). Most of the dowry transactions were done in cash. Two percent of the respondents in GQAL areas received and paid in kind and ornaments as dowry.

Having been angry the husbands committed different types of violence. When husbands became angry they committed three major types of violence such as

action-related, psychological, and physical violence (Table 20). In most cases the husbands committed physical violence (85%) whereas a small number of husbands (7%) did not commit any violence.

Table 19. Amount of dowry transacted in boy and girl's marriage by areas (%)

	Boy			Girl		
Category	GQAL	NGQAL	p	GQAL	NGQAL	P
No dowry	31	43	ns	46	33	ns
Things and ornaments	2	0	.06	0	0	-
1300-20000	38	29	.000	23	33	ns
21000-40000	19	17	.05	23	17	ns
41000-80000	8	8	ns	0	17	ns
81000 and above	2	3	ns	8	0	ns
n	370	279		13	12	

Table 20. Percentage of husband committed violence by areas

Nature of violence	GQAL (%)	NGQAL (%)
Action related violence	29	26
Psychological	2	1
Physical	85	92
No violence	7	7

Multiple responses are considered

Table 21. Percentage of female experienced violence by husband by areas

Nature of violence	GQAL (%)	NGQAL (%)
Action related violence	30	29
Psychological	1	1
Physical	86	92
No violence	5	6

Multiple responses are considered

The similar questions were asked to the female respondents and almost identical results were found. Most of the respondents reported that the incidence of physical violence was higher than other types of violence (Table 21). Aside from this, there were no big differences between GQAL and NGQAL areas in terms of violence committed by husbands.

Table 22. Percentage of respondents reported the incidences of violence by areas

Incidents	GQAL (Yes)	NGQAL (Yes)	p
Taken away money from wife	10 (n=2926)	8 (n=2917)	.000
Sold wife's assets	3 (n=2928)	2 (2919)	.000
Prevention of going father's home	7 (n=2987)	6 (n=2998)	.000
Prevention of going outside home	14 (n=2909)	9 (n=2910)	.000
Prevention of doing job	12 (n=603)	1 (n=647)	.000
Not taken to doctor	16 (n=390)	14 (n=347)	ns
Threat to divorce	8 (n=2833)	6 (n=2809)	.000
Stop talking	22 (n=2926)	23 (n=2916)	ns
Used slang language	34 (n=2925)	42 (n=2919)	.000
Threat/shouting	63 (n=2926)	81 (n=2916)	.000

ns= Not significant at the 10% level

More detailed data were collected on violence against women including the above. Around 63% of the respondents in GQAL areas and 81% in NGQAL reported that wives were threatened/scolded (husband told about his wife, whereas wife described her own incidents) in their family (Table 22).

More than one-third of the respondents both in GQAL and NGQAL areas reported that women of these families experienced hearing slang language from their husbands. Psychological torture such as to stop talking with his wife also took place in around one-fourth of the families both in GQAL and NGQAL areas. Besides, a small number of respondents reported that the wife was restricted from going outside.

DISCUSSION AND CONCLUSION

Findings revealed stereotyped segregation of gender roles, attitudes and behaviours to be prevailing among the study participants. To them, sex segregation is a normal process with men being breadwinners while women being homemakers. Therefore, a man should be given preference over woman. Respondents in this study perceived similarly in different issues such as food intake, treatment, leisure, level of education to be achieved by their sons or daughters etc. From economic perspective, women empowerment would be possible if their access to and control over resources is ensured. But the perception of the respondents on this issue remained conventional in this study. Attitude of the respondents toward womens' empowerment was mostly found to be negative. The status of the woman is still not recognized within the family, as it should be. But the mobility of women outside home alone was fairly better than the perception and attitude of the respondents.

Patriarchal norms, values, traditions, stereotyped social role for men, discrimination and other factors help to instigate violence against women. The prevalent form of violence against women was of physical in nature. Majority of the respondents disfavoured violence against women and believed that the perpetrators should be punished. Perception and attitude toward gender-based norms etc. varied with knowledge level of the respondents, but their behaviour was discriminatory.

It can be safely said that gender-based discrimination in knowledge, attitudes, and practices is deeply ingrained in the study community as elsewhere in Bangladesh and the programme has to do a lot of strategic thinking in alleviating this situation through pro-active, determined and concerted efforts.

GDBC Profile Study

Selim Gulesci

INTRODUCTION

Gram Daridra Bimochon Committees (GDBCs) are a part of the STUP programme and are established in every village where the programme takes place. These committees are established with a view to protecting STUP assets, providing social support for the programme and strengthening the customary support systems of the poor. Furthermore, by bringing together the village elites who have been transferring resources to the poor on an individual basis in the past, the GDBC allows them to invest in costly public projects (such as providing safe drinking water to the poor). The GDBC may act as a platform for the village elite to raise extra resources for the poor by lobbying inside the local social and political organizations.

Table 1. GDBC survey sample size

Surveyed components	Total
Branch Office	20
Villages	123
Spots	411
Elite Households Surveyed	1442
Individuals	8089

This chapter provides information on the profile of the GDBC members. A survey was carried out during March-May in 2008 in order to gather information on the profiles of the village elites that lived in STUP programme villages. The

sample included not just the elite members of the GDBCs but also the elites who lived in the programme villages but were not members of the GDBC (hereafter referred to as "non-members"). Table 1 provides information on the breakdown of the sample. The sample includes elites from 20 branch offices, 123 villages and 411 spots. Since the GDBCs are established on a village basis, this implies that there were 123 GDBCs included in the present study. Information were collected on a total of 1,442 elites and their household members wherein 66% were GDBC members and the rest were non-member elites living in the selected STUP programme villages (Table 2).

Table 2. GDBC membership status

GDBC Membership Status of the Respondent	Frequency	Percent
GDBC member	954	66%
Non-member in Treatment Village	488	34%
Total	1442	100%

Table 3 shows the breakdown of the GDBC members in our sample based on their roles in the GDBC. As expected there were one chairperson, one secretary and one treasurer from each GDBC, and rest of the sample were general members of the committee.

Table 3. Position of GDBC members

Position of GDBC member	Frequency	Percent
Chairperson	120	12.5%
Secretary	121	12.5%
Treasurer	124	13%
Member	553	58%
Other	36	4%
Total	954	100%

There was variation in the establishment dates of the selected GDBCs. Despite the fact that the STUP Phase II Evaluation covered spots where the programme started in 2007, GDBC profile study included some of the spots where the programme had already been in place since as early as 2003. As such, some of the GDBCs in the present study were in place before the programme expanded its second phase operation in the sampled spots. As demonstrated in Table 4, 57% of the committees in the sample have been established in or after 2007 and the rest between 2003 and 2006. This may allow us to identify the differences in characteristics of the village elites where a GDBC has been in place for longer. Table 5 shows that on average the survey was carried out about 500 days after the establishment of the GDBC in each village, and there was considerable variation in the GDBC establishment dates among the villages.

Table 4. GDBC establishment year

GDBC Establishment Year	Frequency	Percent
2003	37	3%
2004	46	4%
2005	130	11%
2006	292	25%
2007	537	45%
2008	149	12%
Total	1191	100%

Table 5. GDBC experience by membership status

GDBC Membership Status	Days since GDBC established (average)	Std. Deviation
GDBC member	488	407
Non-member in Treatment Village	510	400

PROFILE OF THE GDBC MEMBERS VS. NON-MEMBERS

Some descriptive statistics on the background characteristics of the GDBC members in comparison with that of non-members are presented in this section including the results on the test for any significant differences between the GDBC member and non-member groups (Table 6).

Table 6 demonstrates that members and non-members living in GDBC villages are similar in many of their background characteristics. In particular, both member and non-member village elites own comparable amounts of land, have similar amounts of per capita expenditure, and are equally involved in other BRAC programmes. The rates of literacy and numeracy are also identical among GDBC-member and non-member elites in this study; there were equal number of university graduates in both groups. On the other hand, significantly higher number of GDBC members was involved with other NGOs compared to non-members. Even though the members are significantly less likely to be self-employed, they are more likely to have hired STUP members for their business activities during the last year. Even though this is merely suggestive, it could imply a channelling of resources in terms of job creation to the STUP members by the GDBC members.

Table 6. Summary statistics by membership status

Variables	Member	Non-Member	Difference
Age	46.52	47.48	-0.86 *
	(0.38)	(0.54)	(0.66)
Muslim	0.88	0.87	0.01
	(0.01)	(0.02)	(0.02)
Household Size	5.58	5.67	-0.09
	(0.08)	(0.11)	(0.13)
Land owned (decimals)	379.4	372.50	6.93
	(25.44)	(26.34)	(40.24)
Per capita expenditure (TAKAs)	30997	31363	-366
	(510)	(595)	(830)
Involved in any other BRAC programmes	0.08	0.07	0.01
	(0.01)	(0.01)	(0.01)
Any other HH member involved in other BRAC programmes	0.10	0.09	0.004
	(0.01)	(0.01)	(0.016)
Involved with other NGO(s)	0.11	0.07	0.04 ***
	(0.01)	(0.01)	(0.02)
Any other HH member involved with other NGO(s)	0.16	0.13	0.027 *
	(0.01)	(0.02)	(0.019)
Literate	0.84	0.85	-0.01
	(0.01)	(0.02)	(0.02)
Can keep accounts	0.98	0.98	(0.00)
	(0.004)	(0.006)	(0.01)
University graduate	0.13	0.13	0.00
	(0.01)	(0.01)	(0.02)
Self-employed for main business activity	0.81	0.88	-0.07 ***
	(0.01)	(0.02)	(0.02)
Number of labourers hired for main business activity	21.8	24.74	-2.94
	(1.64)	(2.30)	(2.79)
Whether hired any STUP members for main business activity	0.37	0.08	0.30 ***
	(0.02)	(0.04)	(0.07)
Total number of labourers hired for all business activities	24.75	27.56	-2.81
	(1.58)	(2.19)	(2.69)
Whether hired any STUP members for any business activity	0.32	0.01	0.30 ***
	(0.02)	(0.01)	(0.02)

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

The attitude of the village elites towards poverty have been assessed in this study. The first question to the respondents was asked to estimate the percentage of poor people in their village. Both GDBC members and non-members answered it to be nearly 10%. The rest of the questions were subjective statements about the poor and their attitudes and the respondents were asked whether they agree with the statements. In general, the responses of GDBC members to those of the non-members did not seem to vary to a great extent. For instance, nearly 60% of the respondents in both groups agreed that poor people are as honest as people who are not poor. Nearly 60% of member and 56% of non-member respondents consented that “If a person is poor, it is probably because he never had the

opportunity that other people have". Table 7 shows the summary statistics for responses to all such statements included in the survey.

Table 7. Attitudes towards poverty

Questions	Member	Non-member	Difference
In your opinion, what percentage of people in your village is poor and cannot afford two meals a day?	10.62 (0.33)	10.47 (0.44)	0.15 (0.56)
Whether agrees with the following statements:			
Poor people are as honest as people who are not poor	0.64 (0.02)	0.61 (0.02)	0.03 (0.03)
The poor generally possess a lower moral standard	0.50 (0.02)	0.52 (0.02)	-0.02 (0.03)
Sometimes poor people engage in illegal activities because they have no choice	0.53 (0.02)	0.53 (0.02)	0.01 (0.03)
Poverty is no excuse for breaking law	0.66 (0.02)	0.63 (0.02)	0.03 (0.03)
Poor people are as hard working and ambitious as anyone else	0.79 (0.01)	0.78 (0.02)	0.01 (0.02)
A lot of people who are unemployed just don't want to work	0.48 (0.02)	0.50 (0.02)	-0.02 (0.03)
The rich should have greater privileges than the poor	0.11 (0.01)	0.10 (0.01)	0.01 (0.02)
Being on welfare is nothing to be ashamed of	0.75 (0.01)	0.76 (0.02)	-0.01 (0.02)
Most people on welfare would probably could get along all right without it if they had to	0.47 (0.02)	0.48 (0.02)	-0.01 (0.03)
Most poor people really want to keep their homes clean	0.62 (0.02)	0.62 (0.02)	0.00 (0.03)
Poor people make their own slums	0.65 (0.02)	0.68 (0.02)	-0.033 * (0.026)
If a person is poor, it is probably because he never had the opportunity that other people have	0.60 (0.02)	0.56 (0.02)	0.04 * (0.03)
If a person is poor, it is probably his own fault	0.76 (0.01)	0.76 (0.02)	0.00 (0.02)
Elected representatives do not need to listen to people	0.05 (0.01)	0.06 (0.01)	-0.01 (0.01)

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Participation of the village elites in social and charitable activities was surveyed and Table 8 provides the elites' contribution to charitable and religious activities in the village. On average there was no difference between the monetary contributions between members and non-members to charity or to religious causes. However, some variation in the self-reported frequency with the performance in their religious activities was found. 28% of the GDBC members reported to perform their religious activities regularly as oppose to 24% of the non-member village elites. The difference was significant at 95% confidence level.

Table 8. Participation in social and charitable activities

Variables	Member	Non-Member	Difference
In the last year, how much money have you given in zakat/charity? (approx)	2335 (131)	2238 (163)	97 (218)
How much money have you donated in religious causes (e.g. mosque, gathering) in the last year?	1383 (85)	1432 (96)	-50 (137)
Performs religious activities regularly	0.283 (0.015)	0.24 (0.02)	0.046 ** (0.025)
Only for Muslim respondent: Says prayers 5 times a day.	0.41 (0.02)	0.35 (0.02)	0.055 ** (0.027)
Last year, in how many fund raising activities for social cause have you engaged in?	1.62 (0.06)	1.50 (0.09)	0.12 (0.10)

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 9 provides information about the membership of the village elites in local social and political organizations. GDBC members were likely to be currently involved more in the local government and also have a friend/relative who is a member of the local government. Members and non-members represented in other social committees of the village on an equal level. The elites in the GDBC were significantly more likely to have been a member of a local social committee in the past compared to the non-members. The total number of social committees that the respondents were a member of was slightly higher for the GDBC members. Investigation on the membership status of the respondents by the type of committee demonstrated most of the GDBC members to have been involved in the primary school committee and in the village committee.

Table 9. Membership in social and political organizations

Variables	Member	Non-member	Difference
Currently involved with the local government	0.041	0.023	0.018 **
	(0.006)	(0.07)	(0.010)
Was involved with the local government in the past	0.049	0.059	-0.010
	(0.007)	(0.011)	(0.012)
Has friend/relative in the local government	0.421	0.377	0.044 *
	(0.016)	(0.022)	(0.027)
Whether member of a social committee	0.631	0.617	0.014
	(0.016)	(0.022)	(0.027)
Whether has been member of a social committee in the past	0.301	0.252	0.049 **
	(0.015)	(0.020)	(0.025)
Number of social committees the respondent is currently involved with	1.105	1.004	0.101 *
	(0.038)	(0.049)	(0.063)
Membership in primary school committee	0.248	0.197	0.051 **
	(0.014)	(0.018)	(0.023)
Membership in high school committee	0.090	0.072	0.019
	(0.009)	(0.012)	(0.015)
Membership in *madrasha* committee	0.078	0.092	-0.015
	(0.008)	(0.013)	(0.015)
Membership in mosque committee	0.393	0.385	0.008
	(0.016)	(0.022)	(0.027)
Membership in temple committee	0.031	0.043	-0.011
	(0.006)	(0.009)	(0.010)
Membership in market committee	0.070	0.059	0.011
	(0.008)	(0.011)	(0.014)
Membership in village committee	0.117	0.092	0.024 *
	(0.010)	(0.013)	(0.017)

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

TRANSFERS FROM THE VILLAGE ELITE TO THE POOR

This section looks at the amount of transfers in cash or kind from the village elites to the poor. We contrasted the value of transfers from GDBC members to those from non-member elites in the village. Table 10 reports the results on the differences between the mean values of transfers in cash or in kind by the GDBC members to others relative to transfers from the non-member elites to others. Although total transfers from the two groups to others did not differ considerably, GDBC members' transfer was significantly more to STUP members compared to the non-members. On average 20% of the transfers from GDBC members to others were allocated to STUP members whereas for the non-members the ratio of transfers to STUP members to total transfers was nearly zero. This suggests that member and non-member elites give out equal amounts of transfers, but the GDBC members channel a higher proportion of their transfers to the STUP members.

Table 10. Transfers in cash or kind

Variables	Member	Non-Member	Difference
Total value of transfers (in TAKAs)	888.38	1001.14	-112.8
	(54.5)	(68.1)	(90.2)
Total value of transfers to STUP members	126.6	2.7	123.9 ***
	(13.7)	(1.7)	(19.2)
Ratio of the value transfers to STUP members to	0.20	0.004	0.19 ***
total value of transfers	(0.01)	(0.002)	(0.02)

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Regression analysis was carried out in order to determine the correlates of the total value of transfers from the village elite to the poor. The general empirical specification is demonstrated in equation (1). The total value of transfers in cash or in kind from individual *i* in village *v* was regressed on a dummy variable equal to one if the GDBC in village *v* was recently established and on another dummy to indicate whether the individual *i* was a non member of the GDBC in village *v*. Certain characteristics of individual *i* including per capita expenditure in his/her household, whether he/she was a university graduate and the total amount of land owned by his/her household were included in the regression. In order to capture the attitude of the individual *i* towards the poor, response to the question "Do you agree that the poor are poor due to lack of opportunity" was controlled. A dummy variable equal to 1 was created to a positive ("YES") response to this question.

$$T_{iv} = \beta_0 + \beta_1 New_v + \beta_2 Non-member_{iv} + \gamma' \cdot X_{iv} + \varepsilon_{iv}$$

Equation (1)

T_{iv} : Total value of transfers from individual *i* in village *v* to others

New_v : Whether the GDBC in village *v* was established in 2007 or 2008

$Non-member_{iv}$: Whether individual *i* in village *v* was a non member of the GDBC

Table 11 presents the results from the regression analysis. Column 1 shows that, there is a negative correlation (although insignificant) between having a new GDBC and the total value of transfers from the village elite to the village poor. This suggests that the value of transfer increases as the GDBC gets more established in a village. Being a non-member has a positive coefficient, which suggests that non-members transfer more in cash/kind to the poor. This effect is insignificant but remains the same when it was controlled for education or wealth level of the individual. In column (2), the interaction term between being a non-member of the GDBC and having a new GDBC established in the village allows to see whether the effect of having a new GDBC is different from non-members. In fact it seems that the positive correlation between being a non-member and the

total transfers made by that individual doesn't exist when the GDBC is new. The only variable that was significantly correlated with total value of transfers seems to be the wealth level of the individual. Whether wealth is measured by per capita expenditure or total amount of land owned, a significantly positive correlation existed with the total value of transfers.

Table 11. Regression results for total value of transfers

Dependent variable: Total value of transfers						
	(1)	(2)	(3)	(4)	(5)	(6)
GDBC started in	-113	-67.19	9.497	-88.05	16.01	-81.78
2007/8	(-88.7)	(-107)	(-105)	(-105)	(-105)	(-105)
Non-member	81.38	138.5	160.3	125.6	163.1	128.4
	(-93.5)	(-119)	(-117)	(-118)	(-117)	(-118)
Non-member X						
GDBC started in		-149.3	-166.2	-112.7	-173.4	-119.9
2007/8		(-192)	(-189)	(-190)	(-189)	(-190)
Per capita			0.0193***		0.0195***	
Expenditure			(-0.0029)		(-0.0029)	
University Graduate			97.96	169.8	95.24	166.6
			(-127)	(-126)	(-127)	(-126)
Poor due to lack of					-138.2	-154.2
opportunity					(-97.9)	(-98.5)
Land owned				0.330***		0.336***
				(-0.057)		(-0.057)
n	1350	1350	1350	1350	1350	1350
R squared	0	0	0.04	0.03	0.04	0.03

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

A similar regression analysis on the total value of transfers to STUP members was carried out and Table 12 presents the results. Being a non-member has a significant negative correlation with the total value of transfers to STUP members. Members transfer more to STUP members as oppose to the non-members. In column (2), the interaction term between being a non-member and having a new GDBC in the village was almost zero, which implies the negative correlation between being a non-member and total value of transfers to STUP members exists regardless of the establishment of GDBC. This suggests that the GDBC members are those elites who even upon selection in the GDBC had already transferred more to STUP members. Similar to results in Table 11, wealthier individuals are also expected to transfer more to STUP members.

Table 12. Regression results for total value of transfers to STUP members

Dependent variable: Total value of transfers to STUP members						
	(1)	(2)	(3)	(4)	(5)	(6)
GDBC started in 2007/8	8.497	13.73	20.91	11.06	21.15	11.31
	(-18.9)	(-22.6)	(-22.6)	(-22.6)	(-22.6)	(-22.6)
Non-member	-121.4***	-115.0***	-113.7***	-116.9***	-113.5***	-116.8***
	(-19.9)	(-25.2)	(-25.1)	(-25.1)	(-25.1)	(-25.1)
Non-member X GDBC started in 2007/8		-17.51	-17.98	-12.84	-18.28	-13.16
		(-41.3)	(-41.2)	(-41.3)	(-41.2)	(-41.3)
Per capita Expenditure			0.00213***		0.00214***	
			(-0.00062)		(-0.00062)	
University Graduate			-29.84	-20.34	-29.98	-20.52
			(-27.7)	(-27.5)	(-27.7)	(-27.5)
Poor due to lack of opportunity					-6.617	-7.956
					(-21.2)	(-21.3)
Land owned				0.0307**		0.0310**
				(-0.013)		(-0.013)
n	1441	1441	1441	1441	1441	1441
R squared	0.03	0.03	0.04	0.03	0.04	0.03

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

NON-MATERIAL HELP FROM THE VILLAGE ELITE TO THE POOR

This section looks at the non-material help offered from village elites to the poor. Some instances of such non-material help are resolving conflicts between the poor and other households, supporting health treatment for a poor household member, getting a child admitted to school or reducing the tuition fees of students from poor families, guaranteeing VGD cards for the poor, assisting the poor to find work, setting up a tube-well or a sanitary latrine etc.

Table 13 looks at the total number of incidences where the village elites provided non-financial assistance to a household. On average a GDBC member provided 2.73 such assistances during the last year whereas a non-member elite person provided 2.45 assistances. The difference was significant, i.e. on average GDBC members provided more non-material assistance than their counterparts in the study. Similarly they were also more likely to provide non-financial assistance to a STUP member.

Table 13. Non-material assistance

Variables	Member	Non-Member	Difference
Number of incidences where non-material assistance was offered	2.73 (0.07)	2.45 (0.09)	0.28 *** (0.12)
Number of incidence where non-material assistance was offered to a STUP member	0.47 (0.03)	0.012 (0.006)	0.45 *** (0.04)

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 14 presents the breakdown of non-financial assistance by the type of assistance being offered. GDBC members and the non-member elites in the study were equally likely to assist the poor in resolving conflicts, supporting health treatments, getting children admitted to school and finding them work. On the other hand GDBC members were more active in guaranteeing VGD cards to the poor, setting up sanitary latrines and tube-wells and helping the poor to get old age allowance. Since these are some of the key areas in which the programme encourages the GDBC members to take part in, it is not surprising that GDBC members are more likely to provide assistance in these issues than the non-members.

Table 14. General non-material assistance offered

Assistance offered to anyone in the village	Member	Non-member	Difference
Help resolve conflict	1.07 (0.04)	1.12 (0.05)	-0.05 (0.07)
Getting health treatment	0.53 (0.03)	0.49 (0.04)	0.03 (0.04)
Getting child admitted to school	0.19 (0.02)	0.17 (0.02)	0.02 (0.03)
Reducing tuition fees for child at school	0.07 (0.01)	0.06 (0.01)	0.01 (0.02)
Guaranteeing VGD cards	0.48 (0.03)	0.30 (0.04)	0.18 *** (0.05)
Helping to get work	0.11 (0.01)	0.13 (0.02)	-0.02 (0.03)
Helping to get tubewell	0.09 (0.01)	0.06 (0.01)	0.04 ** (0.02)
Helping to get a sanitary latrine	0.11 (0.02)	0.07 (0.02)	0.044 ** (0.026)
Helping to get scholarship	0.017 (0.006)	0.008 (0.005)	0.009 (0.009)
Helping to get elderly allowance	0.04 (0.008)	0.02 (0.007)	0.02 * (0.01)

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 15 shows the breakdown of the non-financial assistance offered to STUP members by the type of assistance offered. GDBC members were more likely to assist the STUP members in all the situations compared to non-member elites. As for example, GDBC members were on average 15% more likely to assist a STUP member in resolving a conflict with another household.

Table 15. Non-material assistance offered to STUP members

Assistance offered to anyone in the village	Member	Non-member	Difference
Help a STUP member to resolve conflict	0.16	0.008	0.15 ***
	(0.02)	(0.004)	(0.02)
Getting health treatment for STUP member	0.10	0.004	0.10 ***
	(0.012)	(0.002)	(0.02)
Getting health treatment for STUP member	0.10	0.004	0.10 ***
	(0.012)	(0.002)	(0.02)
Getting child admitted to school for STUP member	0.023	0	0.023 ***
	(0.006)		(0.01)
Reducing tuition fees for child at school for STUP member	0.01	0	0.01 ***
	(0.004)		(0.005)
Guaranteeing VGD cards for STUP member	0.10	0	0.10 ***
	(0.01)		(0.01)
Helping STUP member to get work	0.017	0	0.017 ***
	(0.005)		(0.003)
Helping STUP member to get tubewell	0.023	0	0.023 ***
	(0.006)		(0.008)
Helping STUP member to get a sanitary latrine	0.017	0	0.017 ***
	(0.005)		(0.007)
Helping STUP member to get scholarship	0.004	0	0.004 *
	(0.002)		(0.003)
Helping STUP member to get elderly allowance	0.004	0	0.004 *
	(0.002)		(0.003)

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

A regression analysis similar to the one in the previous section was carried out in order to determine the correlates of non-material assistance. Equation (2) demonstrates the empirical specification. A regression of total number of incidences was carried out where individual *i* in village *v* offered non-material assistance to another household on whether the GDBC in village *v* was established in 2007/08, whether individual *i* is a member of the GDBC in village *v* and control variables.

$$A_{iv} = \beta_0 + \beta_1 New_v + \beta_2 Non-member_{iv} + \gamma' \cdot X_{iv} + \varepsilon_{iv} \qquad \textit{Equation (2)}$$

A_{iv} : Total number of non-material assistance offered from individual *i* in village *v* to others

New_v : Whether the GDBC in village *v* was established in 2007 or 2008

$Non-member_{iv}$: Whether individual *i* in village *v* was a non member of the GDBC

Table 16 shows the regression results. Having a new GDBC in the village has a negative and significant correlation with the total number of non-material assistance offered by village elites to the poor. This correlation is robust in controlling for the wealth and education of the individuals. Furthermore, the regression results in column (1) shows that non-member elites offer less non-material assistance to the poor in general. However, once the interaction variable of being a non-member and having a recently established GDBC in the village was included in the regression (see columns (2)-(6)), the interaction term showed a positive and significant coefficient implying that the negative correlation between being a non-member and the number of non-material assistances offered by the village elites to the poor does not exist if the GDBC has been recently established. This suggests that as the GDBC becomes more and more established in a village, the non-material assistance offered by the GDBC members' crowd out the assistance offered by the non-member elites. The overall impact on the welfare of the village poor is however not clear and requires further analysis once the repeat survey for the STUP evaluation is carried out. As expected, wealth of the elites offering the non-material assistance was positively and significantly correlated with the total number of non-material assistance offered by him/her. Columns (5) and (6) show that individuals that have responded positively to the question "Whether the poor are poor due to lack of opportunities" are less likely to offer non-material assistance to the poor, controlling for their wealth level and GDBC membership status.

Table 17 provided evidence on the correlates of the total number of non-material assistance offered by individual *i* in village *v* to STUP members. The only variable that came out as significant is the GDBC membership status of individual *i*. If individual *i* was not a member of the GDBC in village *v* than he/she is significantly less likely to offer non-material assistance to STUP members.

Table 16. Regression results for total number of non-material assistance offered

Dependent variable: Total value of transfers						
	(1)	(2)	(3)	(4)	(5)	(6)
GDBC started in 2007/8	-0.256**	-0.400***	-0.363***	-0.415***	-0.356***	-0.408***
	(-0.11)	(-0.14)	(-0.14)	(-0.14)	(-0.14)	(-0.14)
Non-member	-0.350***	-0.528***	-0.521***	-0.539***	-0.517***	-0.535***
	(-0.12)	(-0.15)	(-0.15)	(-0.15)	(-0.15)	(-0.15)
Non-member X GDBC started in 2007/8		0.481*	0.476*	0.506**	0.466*	0.497**
		(-0.25)	(-0.25)	(-0.25)	(-0.25)	(-0.25)
Per capita Expenditure			0.0000104***		0.0000106***	
			(-0.0000037)		(-0.0000037)	
University Graduate			-0.0877	-0.05	-0.0921	-0.0551
			(-0.17)	(-0.17)	(-0.17)	(-0.17)
Poor due to lack of opportunity					-0.215*	-0.227*
					(-0.13)	(-0.13)
Land owned				0.000191**		0.000199***
				(-0.00008)		(-0.00008)
n	1441	1441	1441	1441	1441	1441
R squared	0.01	0.01	0.02	0.01	0.02	0.02

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 17. Regression results for total number of non-material assistance offered to STUP members

Dependent variable: Total value of transfers to STUP members						
	(1)	(2)	(3)	(4)	(5)	(6)
GDBC started in 2007/8	-0.0419	-0.0653	-0.0701	-0.0632	-0.0681	-0.0615
	(-0.042)	(-0.05)	(-0.05)	(-0.05)	(-0.05)	(-0.05)
Non-member	-0.464***	-0.493***	-0.494***	-0.491***	-0.493***	-0.491***
	(-0.044)	(-0.055)	(-0.055)	(-0.055)	(-0.055)	(-0.055)
Non-member X GDBC started in 2007/8		0.0783	0.0802	0.0753	0.0777	0.0731
		(-0.091)	(-0.091)	(-0.091)	(-0.091)	(-0.091)
Per capita Expenditure			-0.00000124		-0.0000012	
			(-0.0000014)		(-0.0000014)	
University Graduate			-0.0171	-0.0193	-0.0182	-0.0205
			(-0.061)	(-0.061)	(-0.061)	(-0.061)
Poor due to lack of opportunity					-0.0553	-0.0531
					(-0.047)	(-0.047)
Land owned				-0.000033		-0.0000312
				(-0.000028)		(-0.000028)
n	1441	1441	1441	1441	1441	1441
R squared	0.07	0.07	0.08	0.08	0.08	0.08

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

CONCLUSION

This chapter provides evidence on the GDBC members' profile in the STUP evaluation spots. The descriptive statistics on the background characteristics of the GDBC members were found to be similar to those of the non-member elites living in the same villages, excepting that the GDBC members were less likely to be self-employed, yet more likely to employ STUP members in their businesses; more likely to be a part of the local government or have contacts within the local government. On average they have transferred more cash or in kind resources to the poor and more so to the STUP members. Regression analysis on the correlates of the total value of transfers from the village elite to the poor showed that wealth level of the elite member is correlated positively with how much he/she transfers. There was no correlation between being a member of the GDBC and the total value of transfers to the poor once we control for the establishment date of the GDBC, wealth and education of the elite, however there was a positive correlation between being a member and the value of transfers to STUP members. This suggests that the GDBC may lead to a rearranging of the transfer networks in the village where they would transfer more resources to the STUP members and the non-members transfer more to those poor outside the STUP programme. Looking at the non-material transfers leads to similar results and in addition we find that the correlation between being a member of the GDBC and the total number of non-material assistance offered to the poor was insignificant if the GDBC was established recently. However there was a positive and significant correlation between the two for the more established GDBCs. These results are only suggestive and a more detailed analysis of the transfer networks within the villages and how they are affected by the programme, in particular by the GDBC, should be a part of the agenda of the future STUP evaluation.

Livelihood and outcomes

Food Consumption Pattern and Dietary Diversity

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INTRODUCTION

This chapter provides information about the quantities of food items consumed and the dietary diversity of the survey households. Household food consumption has been defined as the total amount of food available for consumption in the household, generally excluding the food taken outside unless prepared at home (Klaver, Knuiman *et al.* 1982). It serves as a direct indicator of food security as well as a distal proxy for a poverty indicator (WFP 2007). Research in developing countries show that as income increases, the poorest households spend a major share of their additional income on food expenses. This increase in the food budget resulting from rise in income is manifested by increased quantity as well as improved quality of the food (Subramanian and Deaton 1996). Further the share of food expenses increase in their budget, more it is characterized by the diversity in the type of food they acquire and consume, although not necessarily altering their calorie intakes (Behrman and Deolalikar 1989).

Dietary diversity is the sum of the number of different food groups consumed over a given reference period (Hoddinott and Yohannes 2002). It is considered as a proxy to household food security. Diversity in diet is an important outcome in and of itself. A more diversified diet is associated with a number of improved outcomes in areas such as, birth weight, child anthropometric status, and improved hemoglobin concentrations (Swindale and Bilinsky 2006). Diversity in the diet is highly correlated with factors such as caloric and protein adequacy, percentage of protein from animal sources, and household income.

Information about food consumption and diversity in diet is important from the programmatic point of view as it has the potential to be used to effectively change, modify or improve programme activities. Understanding the baseline consumption pattern of the poorest of the poor households and the extent of their dietary diversity is important to assess the impact of the programme in terms of poverty alleviation as well as improvement in their food security, and health and nutritional wellbeing. Also, it will help design policies or programmes targeting specific population which depends on geographical or household characteristics.

METHODOLOGY

The STUP baseline survey was conducted on 29,140 households from 19 districts of Bangladesh. This research, however, included households that only had complete dietary information. Therefore, after necessary cleaning of the data, only 21,868 households were finally included in this study, of which 18,956 households were from the STUP I areas while the remaining 2,912 households from the STUP II areas. A structured questionnaire, based on the three-day recall method was applied to gather dietary information. Data was collected from the female members of the households, who are usually more informed about food purchases, intra-household food allocation, cooking and child feeding. The respondents were asked to recall all food items that they had consumed within the last three days prior to the interview. A checklist of food items was used by the enumerators to help the respondents recall the names and amount of the food consumed. The checklist also helped them calculate the number of household members who had eaten during those days.

Per capita calorie consumption was derived by dividing the total household consumption of three days by the number of persons (including guests) in that household for the same time. The quantity of food consumed at household level was first estimated in household measures (i.e., cup, spoon, bowl etc). The enumerators then converted those measures into their raw weight in grams. The amounts of ingredients of cooked food were calculated using a conversion Table that had been provided to the enumerator. The food items were pooled into six basic groups for programmatic use as shown in Figure 2. Conversion Factors (CF) were not used during conversion of amount in grams to calorie for any of the food items. Considering this overestimated the actual calorie derived from the food by 10%, the analysis was done after the adjustment for this increment (Gibson 2005).

The number of persons per day was calculated based on the number of persons who ate at least one meal during any specific day. The total number of persons having a meal in each day was then compared to the other two days and a maximum variability of 3 persons between any of the three days was only considered in the analysis. To standardize the consumption of individuals within

households, all children below age 10 years were weighted 0.5 to convert them to adult equivalent (Gibson 2005; BBS 2007).

The enumerators also recorded the amount of money spent on the food consumed during the 3 days prior to data collection. In terms of food produced, received in kind or collected otherwise, where the households did not have to spend money, the expense equivalent for that food item was calculated and used in the analysis. The food expenditure was calculated based on the local market price for the food.

Two dietary diversity scores were used in the analysis based on food groups. The first was based on the six basic food groups, i.e., cereal, pulse, vegetables, fruits, animal products, and oil. The second was based on more diverse food groups created by separating leafy vegetables from 'vegetables', and splitting animal products into meat, fish, egg and milk as suggested by Helen Keller International, Bangladesh and Household Dietary Diversity Indicator Guide (Damton-Hill, Hassan *et al.* 1988; Swindale and Bilinsky 2006.

All analyses for this chapter have been done using STATA version 9 and SPSS WIN version 15.

RESULTS

As expected in the context of rural Bangladesh, the total amount (g) of food intake was significantly higher ($p<0.001$ and $p=0.034$) in economically better-off households compared to the poorer households (NTP vs. TUP) within same STUP areas, as well as between households (TUP vs. TUP) ($p<0.001$) of the two areas (Table 1). Further, the between-area comparison shows that the total amount (g) of food consumed by the households of STUP I areas was significantly higher ($p<0.001$) than the amount consumed by households of STUP II areas. On average about two thirds (62.3%) of the amount consumed by the households had been from cereal-based foods. Within the same area, the share of cereal-based food in the diet (percentage of total intake) was significantly higher ($p<0.001$ and $p=0.028$) in TUP households than that of the NTP households. However, there was no difference found between households of the two areas. Marked differences ($p<0.001$) were observed in the amount intake from pulses between TUP households of the two areas (e.g., 3 vs. 6). Significant ($p<0.001$) differences were also observed between same categories of households from STUP I and STUP II areas.

The intake of vegetables, which included potato and other roots and tubers, was higher in the non-poor households compared to the poorer households (Table 1). Contrary to the general trend in consumption, however, intake of green leafy vegetables (*shak*) was higher in the TUP households compared to the NTP households ($p<0.001$). The average amount (83.6g) of animal products consumed

by the survey households is identical to national average intake (88.3g) (BBS 2007).

Table 1. Mean per capita per day quantity of food intake (g) by the survey households

Variable	STUP I			STUP II			*p* values		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Total (g)	999.9	921.1	868.8	908.3	849.1	811.5	<0.001	0.034	<0.001
Cereal (g)	587.7	577.6	560.3	538.2	539.5	528.1	<0.001	ns	<0.001
Pulses (g)	12.4	9.6	10.6	22.3	17.8	21.8	ns	ns	<0.001
Vegetables	198.2	194.3	189.3	165.3	158.4	151.2	ns	ns	<0.001
Leafy (g)	40.2	49.2	61.5	25.5	30.1	33.6	<0.001	ns	<0.001
Others (g)*	158.0	145.1	127.8	139.8	128.3	117.6	<0.001	ns	0.033
Fruit (g)	55.2	41.2	30.3	45.0	30.0	22.4	<0.001	ns	ns
Animal product	111.1	70.6	50.9	93.6	68.6	57.9	<0.001	ns	ns
Fish (g)	52.7	39.7	33.7	54.5	43.3	38.8	<0.001	ns	ns
Meat (g)	11.9	5.7	3.4	13.9	11.6	8.3	0.004	ns	0.017
Egg (g)	4.6	2.7	2.6	6	4.1	4.2	ns	ns	0.005
Milk (g)	41.9	22.5	11.1	19.1	9.6	6.6	<0.001	ns	ns
Oil (g)	13.3	10.7	10.3	18.4	15.2	14.4	ns	ns	<0.001
Others (g)	21.9	17.1	17.1	25.5	19.4	15.6	ns	ns	ns
% from cereal	58.8	62.7	64.5	59.3	63.5	65.1	<0.001	0.028	ns
n	4268	8922	5766	998	1268	646			

*includes potato
ns: Not significant at the 5% level

Consistent with the amount of food consumption shown in Table 1, the total calorie intake within STUP areas was higher in economically better-off households compared to the poorer households (i.e., NP vs. NTP, NTP vs. TUP etc.) (Table 2). This trend, however, is not consistent in consumption of other types of food. The households of STUP I areas in general, consumed significantly (p<0.001) more calories (2264.1 Kcal) than the households of STUP II (2203.1 Kcal) areas. On average, about four-fifth (80.1%) of the calories consumed by the households were from cereal-based foods. Within the same area, poorer households gained more percentage of energy from cereal-based foods compared to the economically better-off households.

Calorie intake from vegetables including potato and other roots and tubers, was significantly (p<0.001) higher in TUP from STUP I compared to STUP II households. In contrary to the general trend in Table 2, calorie intake from green leafy vegetables (*shak*) was higher in the TUP households.

The calorie consumed from oil and animal products are significantly higher (p<0.001 and p<0.01 respectively) in households of STUP II areas compared to households of STUP I areas. The calories consumed from oil in households of STUP II areas is about 40% higher than that of STUP I households, however, the consumption of animal products was only found to be 10% higher.

Table 2. Mean per capita per day calorie intake (Kcal) by the survey households

Variable	STUP I			STUP II			*p* values		
	NP	NTP	TUP	NP	NTP	TUP	2 vs. 3	5 vs. 6	3 vs. 6
	(1)	(2)	(3)	(4)	(5)	(6)			
Total (Kcal)	2346.4	2210.6	2126.9	2254.4	2159.5	2095.6	<0.001	ns	ns
Cereal (Kcal)	1881.9	1849.9	1794.8	1722.6	1727.4	1690.6	<0.001	ns	<0.001
Pulse (Kcal)	38.5	29.7	32.9	69.1	55.2	67.9	ns	ns	<0.001
Vegetables	114.4	107.0	102.1	98.4	93.3	88.6	<0.001	ns	<0.001
Leafy (Kcal)	15.4	19.6	25.1	9.4	11.0	12.9	<0.001	ns	<0.001
Others (Kcal)*	99.0	87.4	77.0	89.0	82.3	75.7	<0.001	ns	ns
Fruit (Kcal)	36.1	25.7	19.2	30.6	19.9	16.0	<0.001	ns	ns
Animal product	104.0	68.3	53.1	103	76.6	64.1	<0.001	0.043	0.037
Fish (Kcal)	57.0	43.7	37.8	66.0	51.2	44.4	<0.001	ns	ns
Meat (Kcal)	12.3	5.8	3.5	14.2	12.0	8.5	0.005	ns	0.023
Egg (Kcal)	7.3	4.3	4.1	9.6	6.6	6.8	ns	ns	0.004
Milk (Kcal)	27.4	14.5	7.6	13.0	6.8	4.4	<0.001	ns	ns
Oil (Kcal)	108.1	86.8	84.3	148.9	123.2	116.6	ns	ns	<0.001
Others (Kcal)	63.1	42.9	39.4	77.7	59.7	46.0	ns	ns	ns
% from cereal	80.2	83.7	84.4	76.4	80.0	80.7	<0.001	ns	<0.001
n	4268	8922	5766	998	1268	646			

*includes potato
ns: Not significant at the 5% level

The mean food expenditure of the households from STUP II areas (Tk. 27.23) is significantly (p<0.001) higher than that of households of the STUP I areas (Tk. 24.04) (Table 3). The within-area NTP-TUP difference (p<0.001 and p=0.013) and the between-area difference among TUP households (p<0.001) was also found to be significant. Although, the total amount of per capita calorie gained from cereal-based foods is almost 80% over the areas, the households only spent about half (54.7%) of their food expenses on cereal-based food.

The amount spent on purchasing fish by households across areas was about half of the total amount spent on animal products. This does not necessarily indicate

the preference of the households for fish over other animal products, but perhaps highlights the wider availability of fish in villages.

Table 3. Mean per capita per day food expenditure (Taka) by survey households

	STUP I			STUP II			*p* values		
	NP (1)	NTP (2)	TUP (3)	NP (4)	NTP (5)	TUP (6)	2 vs. 3	5 vs. 6	3 vs. 6
Total (Tk.)	26.52	22.35	20.40	30.17	25.52	23.96	<0.001	0.013	<0.001
Cereal (Tk.)	12.79	12.35	11.97	13.68	13.57	13.18	<0.001	ns	<0.001
Pulse (Tk.)	0.65	0.49	0.59	1.07	0.88	1.15	<0.001	0.053	<0.001
Vegetables	2.82	2.42	2.1	2.72	2.25	2.12	<0.001	ns	ns
Leafy (Tk.)	0.26	0.31	0.37	0.31	0.33	0.34	<0.001	ns	ns
Others (Tk.)*	2.56	2.11	1.73	2.41	1.92	1.78	<0.001	ns	ns
Fruit (Tk.)	0.99	0.60	0.45	0.98	0.46	0.41	<0.001	ns	ns
Animal product	6.48	4.18	3.12	7.23	5.4	4.22	<0.001	ns	ns
Fish (Tk.)	3.62	2.68	2.16	4.22	2.98	2.41	<0.001	0.041	ns
Meat (Tk.)	1.55	0.77	0.47	1.80	1.72	1.13	0.014	ns	0.045
Egg (Tk.)	0.47	0.29	0.27	0.61	0.39	0.44	ns	ns	<0.001
Milk (Tk.)	0.84	0.44	0.22	0.60	0.31	0.24	<0.001	ns	ns
Oil (Tk.)	1.15	0.94	0.94	2.55	1.33	1.36	ns	ns	<0.001
Others (Tk.)	1.64	1.37	1.23	1.94	1.63	1.52	<0.001	0.036	ns
% from cereal	48.2	55.3	58.7	46.9	53.2	55.3	<0.001	0.014	0.011
n	4268	8922	5766	998	1268	646			

*includes potato
ns: Not significant at the 5% level

COMPARISON WITH NATIONAL DATA

We compared the amount of food consumed by households of the STUP areas with the national rural consumption as reported by Household Income and Expenditure Survey (HIES) by Bangladesh Bureau of Statistics (BBS 2007). The method suggested by HKI was followed in defining 'vegetables' and 'other' type of foods which may have varied from the definition that has been used in HIES. We therefore, excluded these two food groups from comparing with the HIES data.

The total amount of food intake by households of the STUP I areas (952.0g) was higher than that of national rural consumption (946.3g). The mean intake of households of STUP II areas (876.3g), however, was much lower than the national rural mean. The share of cereal-based foods is much higher in the

households of the STUP areas as percentage of total intake (62.3% vs. 51.3%). The STUP II households consumed a greater amount of pulses, fruits, and oil compared to the national rural average.

Table 4. Comparison of per capita mean amount of food intake of the survey households with Household Income and Expenditure Survey

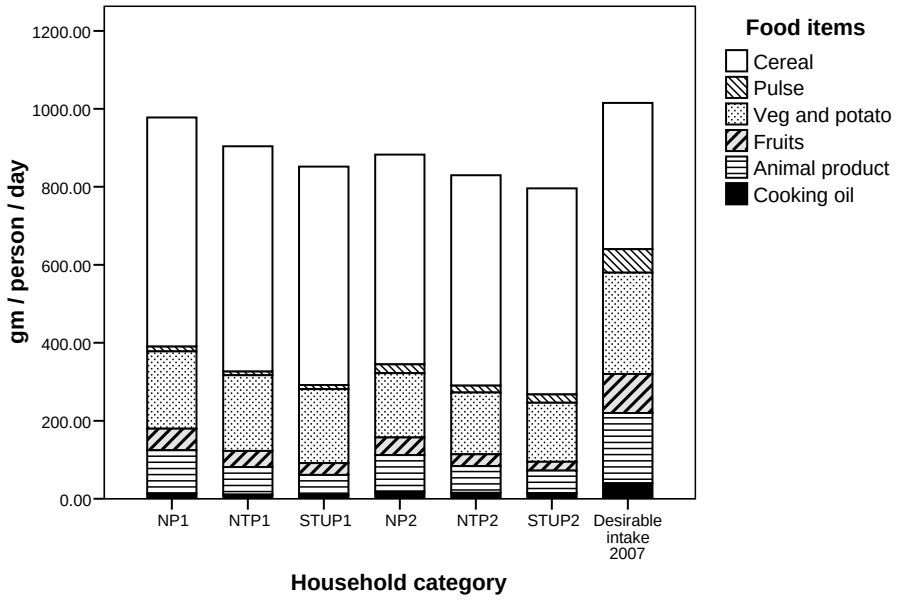
	STUP I	STUP II	Total	2005 HIES Rural
Total (g)	952.0	876.3	914.2	946.3
Cereals (g)	580.8	538.5	559.7	485.6
Pulse (g)	10.9	20.1	15.5	12.7
Vegetables (g)*	195.7	161.5	178.6	218.4
Fruit (g)	46.6	37.0	41.8	32.4
Animal product (g)	86.9	80.2	83.6	88.3
Oil (g)	11.9	16.7	14.3	14.3
Others (g)	19.2	22.3	20.7	94.6
% from cereal	62.2	62.5	62.3	51.3

*includes potato

The amount of major food groups (i.e., cereal, pulse, vegetables, fruits, animal product, and cooking oil) consumed by the survey households have been compared to the recommended intake[1] for a Bangladeshi individual (Figure 1 and Table 5). Expectedly, the average total amount (i.e., 891.2 g/person/day) consumed from the major food groups by all categories of households is much lower compared to the recommended intake (i.e., 1015 g/person/day). The quality of their diet is also compromised by adding more of cheaper cereal-based foods to achieve fulfilling volumes of food. The bulk of the cereal-based food took shares of the other food groups, further compromising a balanced diet that is important for a healthy life.

[1] National Food Policy Capacity Strengthening Project, Food Planning and Monitoring Unit Ministry of Flood and Disaster Management/ Ministry of Agriculture, Government of Bangladesh expert consultation, August 2007.

Figure 1. Consumption (gram) of selected food groups of the survey households compared to the recommended intake for Bangladeshi individuals



To achieve the recommended intake, consumption of cereal-based foods need to be reduced to about two-thirds (67.7%) of the current consumption of the STUP households (Figure 1 and Table 5). Conversely, the amount consumed from all other food groups need to be increased by varying degrees. Pulse consumption should be increased by four times, while vegetables by 1.5 times of the current intake. In addition, as much as three times more fruits, animal products, and oil need to be added to the diets of the survey households to achieve the recommended intake amount.

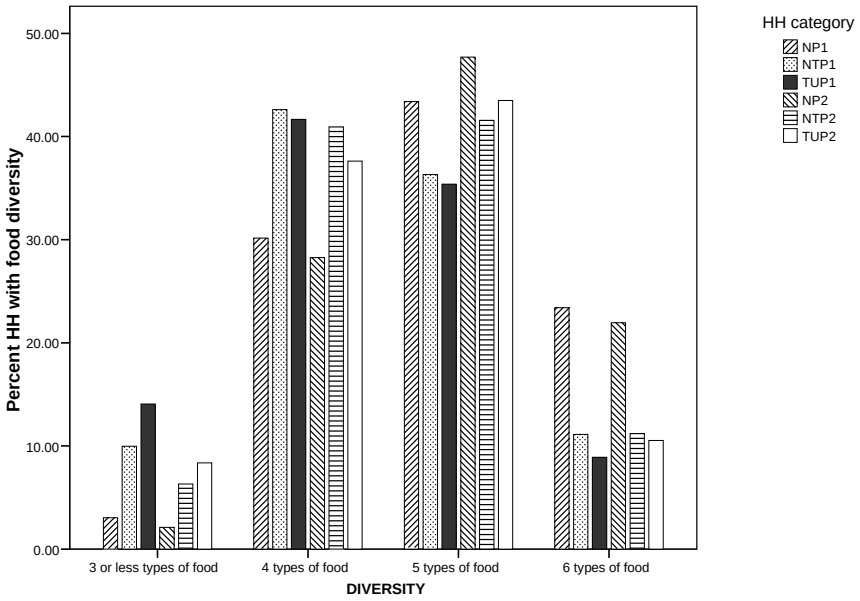
Table 5. Consumption (gram) of selected food groups of the survey households compared to the recommended intake for Bangladeshi individuals

	STUP I			STUP II			Desirable intake
	NP	NTP	TUP	NP	NTP	TUP	2007
Cereals (g)	587.7	577.5	560.2	538.2	539.5	528.1	375
Pulse (g)	12.4	9.6	10.6	22.3	17.8	21.8	60
Vegetables* (g)	198.2	194.3	189.3	165.3	158.4	151.2	260
Fruit (g)	55.2	41.2	30.3	45.0	30.2	22.5	100
Animal pro	111.1	70.6	50.9	93.6	68.6	57.9	180
Oil (g)	13.4	10.7	10.4	18.4	15.2	14.4	40
Total	978	903.9	851.7	882.8	829.7	795.9	1015

*includes potato

Similar to the calorie consumption pattern, we observed much the same monotonic trend in dietary diversity within households of the STUP I and STUP II areas. In general, the households of STUP I areas consumed fewer varieties of food compared to the households of STUP II areas (Figure 2). The differences between NTP and TUP households within the same areas were also pronounced. Across STUP I and STUP II areas, about two-thirds (66.8% and 69.5%) of the non-poor households and half (44.3% and 54.0%) of the poorer households consumed 5 or more major food groups. More than a fifth (23.4% and 21.9%) of the non-poor households and about a tenth of the poorer households (8.9% and 10.5%) in both areas consumed all 6 food groups.

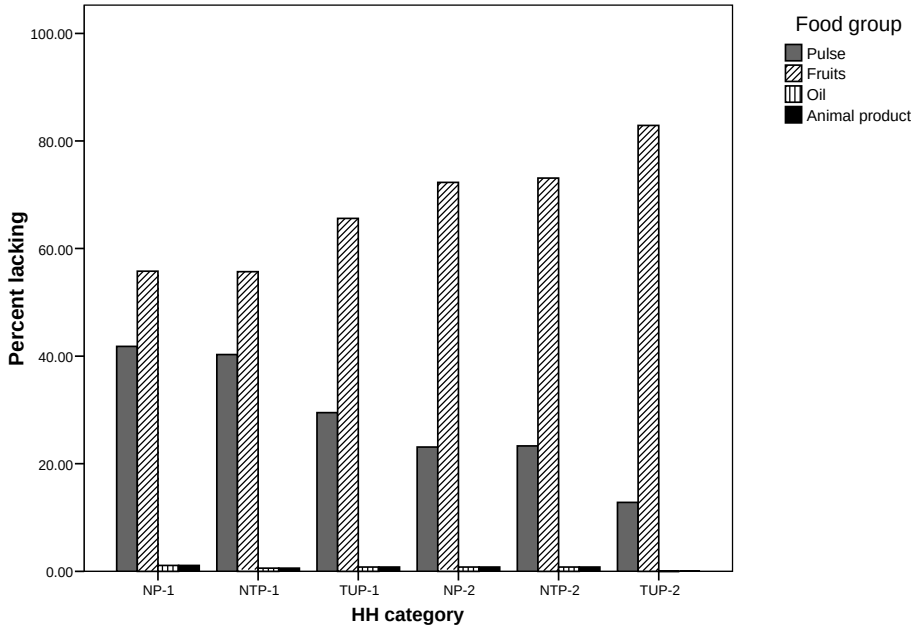
Figure 2. Proportion of households achieving dietary diversity (six food groups)



We explored the food groups that lacked most in achieving a completely diverse diet covering the major (i.e., macro-nutrient) six food groups (Figure 3). Results show that fruits and pulses were the food groups that were most deficient in all types of households. Very small percentages of households were found to be lacking oil or animal protein in their diet, while only few were deficient in vegetables. As expected, none of the households were found deficient in cereal-based food in their diet. More than half (ranging from 56.2% to 80.3%) of all household categories fell short of only fruits in their diets across areas with more percentage of STUP II households lacking fruits compared to the STUP I households. The NTP-TUP household differences in both areas were also found significant ($p<0.01$) in terms of deficiency only in fruits to achieve a completely

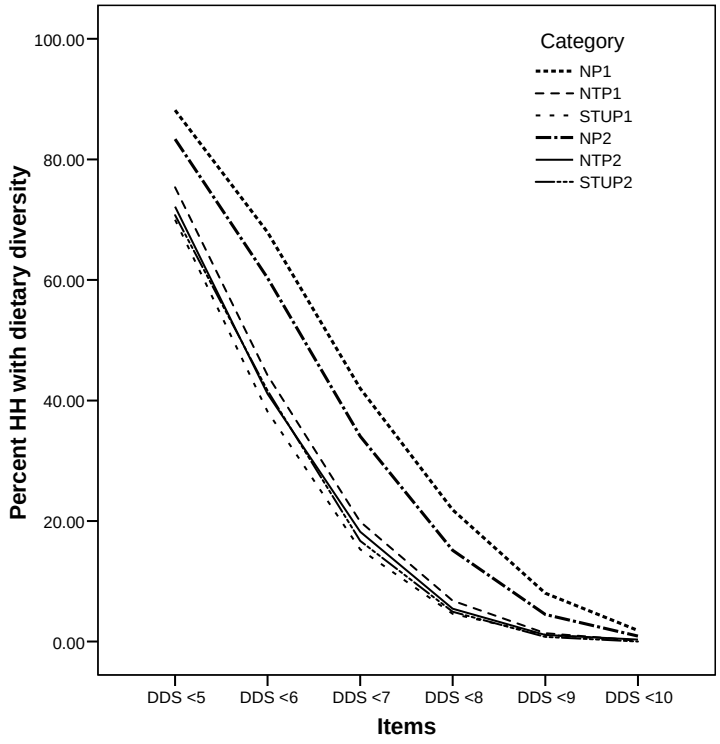
diverse diet. Conversely, fewer STUP II households lacked pulse in their diet compared to the STUP I households. Similar NTP-TUP differences were observed in both areas although in a reverse direction.

Figure 3. Proportion of household by categories lacking only one group of food in achieving diversity in their diet (six groups)



Further exploration of dietary diversity shows that about 80% of all households consumed six or more out of 12 food groups (as mentioned in the methodology section). Only a small percentage (0.7%) of households consumed all food groups. These household were therefore, not included in the graphical presentation. The percentage of households decreased with the increase in dietary diversity score.

Figure 4. Proportion of households achieving dietary diversity (12 food groups)



DISCUSSION AND CONCLUSION

The major purpose of this study was to create a benchmark profile of the TUP households to evaluate the impact of the programme after a certain period of intervention. Another aim was to suggest the programme implementers on specific issues for strengthening the intervention components. We focused on four key findings of the study. First, the food consumed by the TUP households was much lower in amount (lower than the mean national rural intake) compared to the recommended intake for Bangladeshis as set by the national expert committee. Second, although the households of the STUP II areas consumed lesser calories, their food expenditure was significantly higher than those of the STUP I areas.. Third, in both the areas, percentage of calorie intake from cereal-based foods was much higher than the recommended intake and the national average. Fourth, the diet of the TUP households was far from reaching the desirable diversity in major food groups.

Within the same area, the higher calorie intake of the non-poor (NP) households compared to the poorer (TUP) households supports findings from other study that the calorie intake increases with a rise in income in the developing countries (Subramanian and Deaton 1996). On the other hand, the households of STUP II areas consumed less calories than households of the STUP I areas, although they spent more money in buying food. This suggests that the households of the economically better-off areas (i.e., STUP II) may have had consumed relatively higher priced food items such as pulse, fish, meat, and egg, which added quality in their diet but not necessarily increased the total calorie intake (Behrman and Deolalikar 1989; BBS 2004). Adding these non-inferior food items, however, improved the diversity of their diet. This phenomenon is also consistent with the characteristics of the households from poorer socioeconomic areas where the cheaper cereal-based food adds to the bulk of the food volume, thus fulfilling the demand for adequate meals. In households of the STUP areas, increased share of income was used to buy relatively higher priced food. Such increased calorie consumption of oil and animal product may have been also due to the relief packages that composed mainly of rice, pulse, and oil.

The difference between STUP areas in the consumption of pulses, animal protein, and oil may have been due to the variation in the availability of animal protein and pulses in the southern areas. The southern districts may have a different food culture with higher dependency on pulses compared to the northern districts. Another likely explanation could be based on the composition of food relief that had been provided to the households affected by hurricane *Sidr* in some of the southern districts (STUP II areas) of Bangladesh. The high amount of pulses and oil that had been provided to the households to meet their protein needs may have allowed the households to spare money to buy more animal foods which leveraged the consumption of quality proteins by households of STUP II areas. It is likely that the income generating activities of the program particularly relating to poultry, goat and cow rearing also have the potential to improve the quality of diets of the ultra poor. Efforts should continue, to find out way to sustainably include animal protein in the diets of TUP households not involved in IGA related to poultry and livestock. At the same time the pulse supplementation currently provided to the TUP households should also continue as it has the potential to improve the quality as well as add more diversity to their diets.

Employment and Income

Narayan Chandra Das

INTRODUCTION

Economic growth is a necessary condition for poverty reduction although the sources and distribution of such growth play an important role. Generating employment for the poor in the growth process is thus very important for Bangladesh, as employment and labor market related variables were found to be important amongst the factors influencing the probability of a household being poor (Rahman and Islam 2003). Although Bangladesh achieved notable economic growth over the last couple of years, it was lead by the service sector which does not provide employment opportunities for the poor. The key sector that does provide huge employment opportunities for the poor is agriculture. However, even though the agricultural sector of Bangladesh has witnessed a growth rate of around 2-5% in last few years, employment in this sector has in proportional term decreased overtime (BBS 2008).

Theoretically, if there is surplus labor in the economy, such as in Bangladesh, industrialization would proceed through the absorption of surplus labors (Lewis 1954). However, industrialization may not precede enough to fully absorb the surplus labor in the presence of constraints such as lack of capital and technology in the economy. In such a situation, different kinds of self-employment may be promoted to absorb the surplus labor force. Access to finance is critically important for such self-employment. However, the ultra poor of Bangladesh have very limited access to the formal credit market since they lack collateral. Even though microfinance institutions (MFIs) provide collateral free credits to the

poor, there is a general consensus that the ultra poor are largely left out from these institutions in Bangladesh (Rahman and Razzaque 2000, Zaman 2005). The ultra poor also have a limited and fragile asset base. As a result, human labor becomes the main asset of the ultra poor. Efficient utilization of their human labor is thus critically important.

It is therefore intriguing to understand how the ultra poor use their human labor in order to derive their livelihoods. The employment dynamics may not only vary across wealth groups but also across the geographical regions in Bangladesh as poverty and vulnerability largely vary across different geographical regions in the country. For example, a higher proportion of poor reside in Rajshahi and Barisal compared to the other divisions in Bangladesh (BBS 2007). This chapter focuses on labor market participation of different wealth groups of households and on how it varies across two geographical areas namely STUP I and STUP II areas. This chapter also analyzes sources of income, per capita income, and seasonality in income earning.

OCCUPATION OF THE WORKING AGED MEMBERS

Primary occupation of the working aged males

Limited access to natural and physical assets of the ultra poor in Bangladesh is well known, and consequently they have limited scope to engage themselves in farming activities. Analysis of main occupations of the working aged (15-60 years) males reveals that only a negligible proportion of TUP males were engaged in farm self-employment (Table 1). However, the proportion of males engaged in farm self-employment increases as we move up through the wealth groups. It is well known that ultra poor households are largely dependent on the earnings as day laborers. Present analysis reveals that day labor (agricultural and non-agricultural) was the primary occupation for more than half of the TUP males in the STUP I areas and for close to half in the STUP II areas. However, the TUP males in the STUP I areas were more likely to be employed as agricultural day laborer compared to those in the STUP II areas. On the other hand, TUP males in the STUP II areas were more likely to be employed as non-agricultural day laborer compared to the STUP I areas. Demand for agricultural day labor follows seasonal variation in Bangladesh. A significant dependency on agricultural day labors for livelihood strategy of the TUP households in the STUP I areas has thus severe consequence on their food security. Non-farm self-employment was predominant among all wealth groups and there was found to be little variation between the two groups of TUP males (statistically significant at 10% level). Non-farm salaried employment was observed to be very low among TUP males, as higher education is a prerequisite for salaried employment which the ultra poor can rarely gain.

Table 1. Primary occupation of the working aged males (15-60 years old)

Occupation	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
Farm self-employed (%)	40	13	3	31	16	7	<0.01	<0.01	ns
Farm wage employed (%)	10	39	57	6	20	33	<0.01	<0.01	<0.01
Non-farm self–employed (%)	22	32	24	27	38	30	<0.01	<0.01	<0.10
Non-farm wage employed (%)	2	3	3	3	8	13	ns	<0.01	<0.01
Non-farm salaried employed (%)	12	5	3	14	7	4	<0.01	ns	ns
Student (%)	13	4	2	14	8	4	<0.01	<0.05	ns
Don't work (%)	2	2	5	5	4	7	<0.01	0.01	<0.05
Begging (%)	0	0.4	2	0	0.1	3	<0.01	<0.01	<0.01

Note: ns=not significant at the 10% level

Primary occupation of the working aged women

Predominance of household chores as primary occupation among the women in Bangladesh is well known. However, what is apparent from present analysis is that the proportion of working aged women engaged in household chores as primary occupations was higher among the well off group of households (Table 2). This is mainly because many of the ultra poor women are to engage in different kinds of ill paid activities such as housemaids and agricultural day laborers. Pitiable occupation like begging was observed among TUP women in both geographical areas. The main distinction between the primary occupations of the two groups of TUP women was that a significant proportion of TUP women in the STUP I areas worked as agricultural day laborer which was very uncommon among the TUP women in the STUP II areas. Instead, it was found that working as housemaid was more prevalent among the TUP women in the STUP II areas.

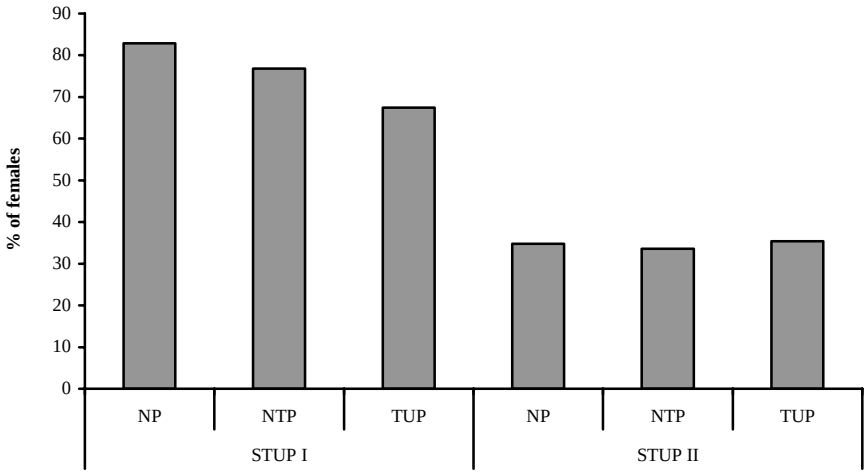
Table 2. Primary occupation of the working aged women (15-60 years old)

Occupation	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
Farm self-employed (%)	2	1	1	1	0.5	1	<0.01	ns	ns
Farm wage employed (%)	1	5	14	0	0.2	1	<0.01	ns	<0.01
Non-farm self-employed (%)	1	2	4	1	2	4	<0.01	<0.01	ns
Non-farm wage employed (%)	0	1	3	0	0.3	2	<0.01	ns	<0.01
Non-farm salaried employed (%)	2	1	1	2	3	1	<0.01	<0.05	<0.01
Student (%)	10	4	2	9	5	2	<0.01	<0.01	ns
Don't work (%)	1	2	2	2	2	2	ns	ns	ns
Begging (%)	0	1	3	0	0.3	5	<0.01	<0.01	<0.01
Household chores (%)	82	78	49	84	82	51	<0.01	<0.01	ns
Working as housemaid (%)	1	5	21	1	5	30	<0.01	<0.01	<0.01

Note: ns=not significant at the 10% level

Although, household chore as primary occupation was predominant among the working aged women in all wealth groups, a substantial proportion of them were found to be engaged in earning activities as secondary occupation (Figure 1). But compared to the STUP II areas, the proportion was much higher in the STUP I areas, implying that the overall participation in earning activities by the women in the STUP I areas was higher than that of the STUP II areas. The proportion of women engaged in earning as secondary activity in the STUP I areas exhibits a decreasing pattern as we move down through the wealth groups, while it was not in the case of the STUP II areas.

Figure 1. Engagement in earning as secondary activity of the working aged women whose primary occupation was household chore



Average working days

Table 3 shows average working days in earning activities of the males and females. The average working days were found to be higher for males, as most of the women were found to allocate a significant proportion of their time to household chore which is considered a non-earning activity in Bangladesh. Among the women, average days of working are much higher for TUP households than that of the non-poor and NTP households. This is expected as in many ultra poor households there is no active working aged male member. Even if there are male earning members among the TUP households, their average working days are lower than those in non-poor and NTP households, indicating that the greatest burden of poverty falls on the women.

Table 3. Average working days in earning activities in the working aged males and females

	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
Males	271	273	257	326	313	301	<0.01	<0.05	<0.01
Females	110	133	166	136	167	208	<0.01	<0.01	<0.01

Note: 8 hours of work were considered as one working day

CHILD LABOR AND OLD-AGED MEMBERS' OCCUPATION

Child labor

Although Bangladesh is experiencing notable progress in reducing poverty and vulnerability, the issue of child labor remains a key concern. For example, Khanam (2006) showed that child labor in Bangladesh is increasing overtime, while that of India and Pakistan shows decreasing trend. Child labor was found to be more pronounced among the poor households (Amin *et al.* 2004). The study concluded that keeping children away from work is a luxury that poor families cannot afford.

This section focuses on this key issue, comparing how it varies across the wealth groups and identifying what are the factors associated with child labor. We have divided the children into four groups based on their activities; (1) those who are at work only; (2) those who are at school and work; (3) those who are at school only; and (4) those who are doing nothing. As expected, a smaller proportion of the TUP children are at school only compared to non-poor and NTP children (Table 4). Among the TUP children, 56% in the STUP I areas were going to school without engaging in any activity, while the corresponding proportion in the STUP II areas was 64%. On the other hand, as we move down through the wealth groups, proportion of children at work only increases in both geographical areas. The proportion was lower in the STUP II areas for each comparable wealth group. Among the TUP children, 17% in the STUP I areas and 11% in the STUP II areas are engaged in work instead of going to school. The proportion of children at school and work was also found to be higher in the STUP I areas for each comparable wealth group. Proportion of TUP children doing nothing was found to be same in both geographical areas.

Among all children in the STUP I and STUP II areas, 13% of them were found to be at work, whether going to school or not. This figure is very close to the national level estimate (13.4%) from the Child labor survey 2003 conducted by

BBS[1]. The present study was not based on national representative sample; the sample was instead taken from some the poorest areas of Bangladesh. The findings on the rate of child labor in the present study thus may indicate that there was an improvement in child labor situation in Bangladesh.

Table 4. Activities of the children (aged 5-14 years)

Activity	STUP I			STUP II			All	p-value		
	NP	NTP	TUP	NP	NTP	TUP				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	2 vs 3	5 vs 6	3 vs 6
At work only (%)	8	12	17	5	7	11	10	<0.01	<0.01	<0.01
At school and work (%)	5	5	3	1	1	1	3	<0.01	ns	<0.01
At school only (%)	74	64	56	81	75	64	70	<0.01	<0.01	<0.01
Doing nothing (%)	13	19	24	13	18	24	18	ns	<0.01	ns

Note: ns=not significant at the 10% level

Compared to the non-poor and NTP children, types of activities of the TUP children were largely related to paid jobs (Annex 1). Wage employment was observed among 11% of TUP children in the STUP I areas and 18% in the STUP II areas. One-fifth of the TUP children were working as housemaids in both the STUP I and STUP II areas. On the other hand, farm self-employment was predominant among the children in non-poor households.

To understand what factors are associated with child labor, a logit regression analysis was carried out. The dependent variable of interest is a dummy variable which takes 1 if household has at least one child who was working (whether going to school or not) and zero if otherwise. The regression analysis was based on a sub-sample of households having at least one child aged between 5-14 years. The regressors include some economic variables (number of income sources, dummy variable on whether household has working aged member, dummy variable on whether household head's main occupation was day labor). A dummy variable on gender of household head was also included. Years of education of household head, and a dummy variable for the STUP I areas were also included in the regression model.

It appears from the regression analysis that an increase in household size raises the probability of a child to engage in work (Table 5). It also appears that education of the household head has a negative impact on the probability of the children engaging in work. This indicates that economic factors are not solely responsible for child labor. Expectedly, if a household has male working aged member(s), the probability of the child to engage in work decreases. However, dummy variable for female working aged members was found to be statistically

[1] Key Findings of National Child Labour Survey (NCLS), 2002-03

insignificant. Interestingly, the result suggests that if the main occupation of the household head is day labor, the probability of the children being at work increases. This is expected because households that depend on day labor are more likely to be poor in Bangladesh. The regression results show that children in female headed households are more likely to be engaged at work. It was also revealed that the probability of being at work of a child living in the STUP I areas is higher than a child with similar characteristics living in STUP II areas.

Table 5. Determinants of child labor: logit regression results

Regressors	Marginal effect #	z-value
Household size	0.028*	10.86
Years of education of household head	-0.008*	-5.38
Main occupation of household head is day labor=1	0.032*	3.61
Household has male working aged member=1	-0.034**	-1.98
Household has female working aged member=1	-0.105	-1.50
Female headed household =1	0.113*	5.55
STUP I=1	0.112*	5.38
F-value	53.01*	--
Pseudo R^2	0.03	---
n	16459	---

Notes: *, and ** denote statistically significant at 1%, and 5% level respectively.
for dummy variable the effect is from 0 to 1

Earning activity of the old aged member

Figure 2 shows the percentage of old-aged members engaged in earning activities. It appears that the percentage of old-aged members engaged in earning activities increases as we move down through the wealth groups. However, compared to the STUP I areas, the proportion was lower in the STUP II areas for each wealth group. Table 6 reveals that working old-aged members in non-poor households were engaged in mainly farm self-employment and non-farm self-employment. On the other hand, the working old-aged members in TUP households were engaged mainly in day laborers, begging, and working as maids, indicating that TUP households are to depend upon the earning by the old-aged members. A significant proportion of the old-aged TUP members were found to be engaged in begging as an earning activity. Among the NTP households, occupations like day labor, begging, and working as housemaids were also largely prevalent but at lower extent than that in the TUP households.

Figure 2. Percentage of old aged members (above 60 years) engaged in earning activity

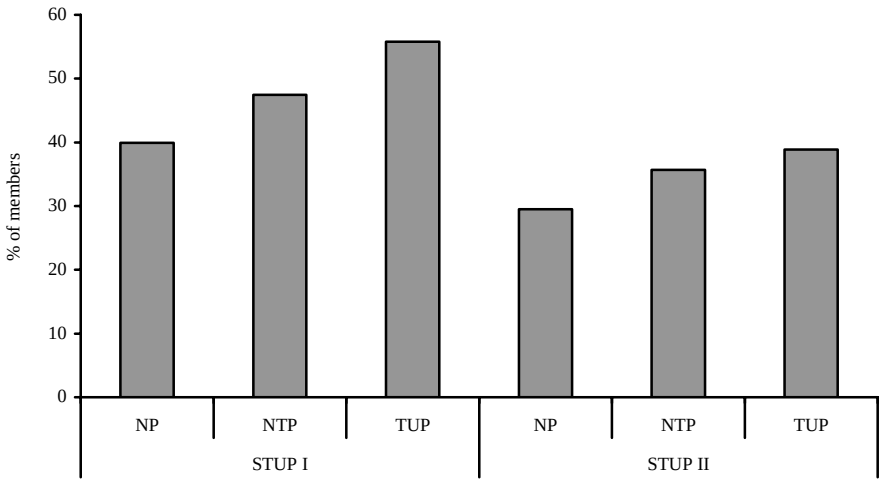


Table 6. Description of earning activities of the old aged members (aged above 60)

	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
Farm self-employed (%)	78	29	5	68	30	6	<0.01	<0.01	ns
Wage employed (%)	6	33	34	5	23	21	ns	ns	<0.01
Non-farm self-employed (%)	9	15	14	19	25	18	ns	ns	ns
Salaried employed (%)	4	1	1	7	3	3	ns	ns	ns
Begging (%)	1	14	24	0	11	33	<0.01	<0.01	<0.05
Working as housemaid (%)	1	7	20	1	7	20	<0.01	<0.01	ns

Note: ns=not significant at the 10% level

What are the factors responsible for old members' engaging in earning activities? To understand this, a logit regression analysis was carried out (Table 7). The regressors are the same as those included in earlier regression analysis of child labor. The results reveal that if household has working aged member(s), either male or female, the probability of an old-aged member engaging in earning activities decreases. Expectedly, the regression analysis shows that if main occupation of the household head is day labor, the probability of engaging in earning activity of the old-aged member increases. The coefficient of years of education is statistically significant and bears expected sign. It appears that female headed household is less likely to engage the old-aged member in earning activities. This probably indicates that females are more aware regarding not to engage the old-aged members in earning activities than their male counterparts.

The probability of engaging in earning activity of an old-aged member in the STUP I areas is higher than an old-aged member with similar characteristics living in the STUP II areas.

Table 7. Determinants of old-aged members' engaging in earning activity: logit regression results

Regressors	Marginal effect #	z-value
Household size	0.005	0.83
Years of education of household head	-0.008**	-2.35
Household has male working aged member=1	-0.344*	-12.88
Household has female working aged member=1	-0.104*	-2.88
Main occupation of household head is day labor=1	0.113*	4.71
Female headed household=1	-0.246*	-7.96
STUP I=1	0.118*	6.21
F- value	46.74*	---
Pseudo R^2	0.10	---
n	5631	---

Notes: * and ** denotes statistically significant at 1% and 5% level respectively
for dummy variable, the effect is from 0 to 1

MIGRATION

Migration can be a key livelihood strategy since there are spatial differences in job opportunities, and seasonal variations in employment in some geographical areas of the country. Moreover, since Bangladesh is a labor surplus economy, migration to abroad also may be the key livelihood strategy. Analysis of migration reveals that in the STUP I areas, a higher proportion of members (aged above 10 years) among the NTP and TUP households migrated for work in the last year compared to the non-poor households (Figure 3).[2] In the STUP II areas, we do not observe significant variations in proportions of migrant members among the wealth groups. However, the proportion of migrant members among the TUP households was found to be higher in the STUP I areas compared to the STUP II areas.

When we analyze the destination of migrants, it was found that proportion of members migrated to large cities (Dhaka/Chittagong) decreases as we move down through wealth groups (Figure 4). However, the proportion was found to be higher in the STUP II areas than that of STUP I areas. This might be due to the fact that compared to the STUP I households, STUP II households have greater networks with the large cities of the country or alternatively are more informed about the job opportunities in large cities. Migration to abroad was entirely found

[2] Migration was considered for those who were out of house for work at least for 15 days.

to be existent among non-poor households; this is because poor households cannot afford the steep costs associated with migration to abroad.

Figure 3. Percentage of members (aged above 10 years) migrated for work in last year

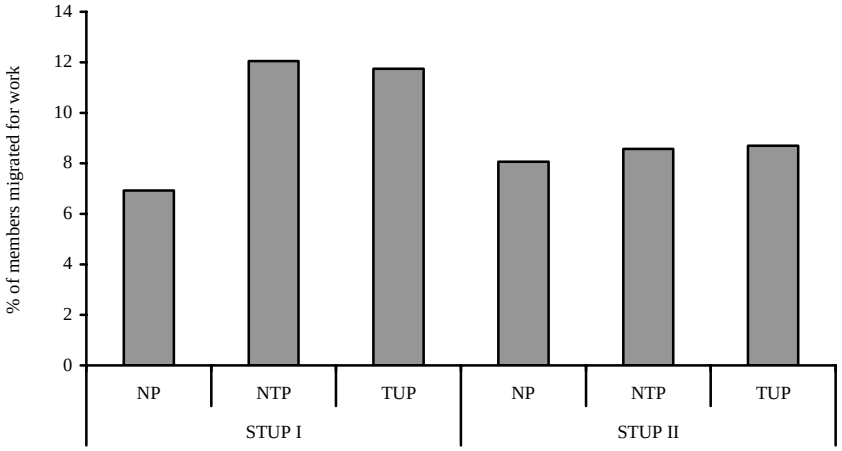
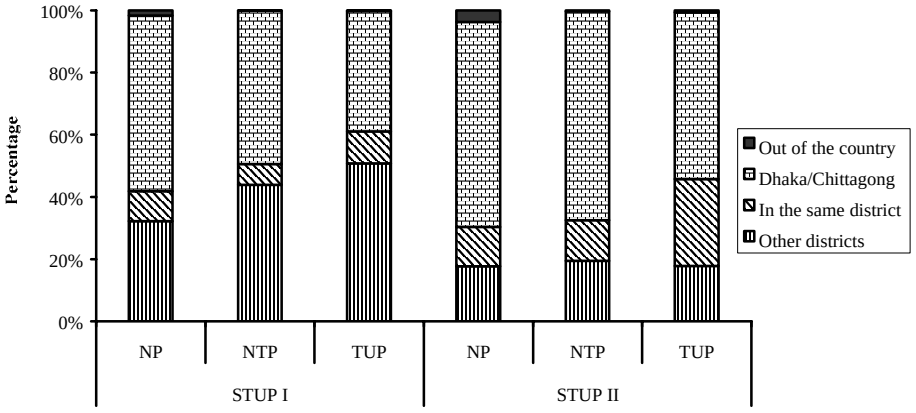


Figure 4. Destinations of the migrants

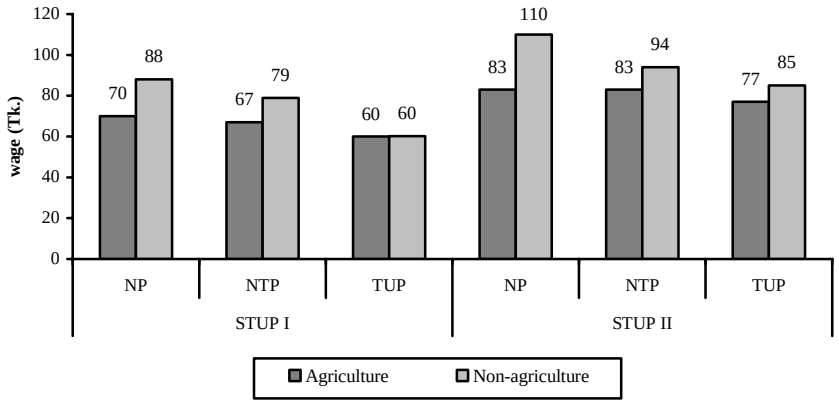


WAGE RATE

Both agricultural and non-agricultural wage rates were found to be higher in the STUP II areas compared to STUP I areas (Figure 5). The low wage rate in the STUP I areas may be due to the fact that compared to the STUP II areas there was a greater supply of day laborers which consequently put downward pressure on wage rate. Expectedly, non-agricultural wage rate was found to be higher than

agricultural wage rate in both geographical areas. Another interesting observation from figure 5 is that, wage rates, particularly the non-agricultural wage rate, fell as we move down through the wealth groups. This might be as a result of two main reasons. Firstly, productivity of poor labor may be lower due to their lack of human capital (such as education), and physical capital (such nutritional status).[3] Secondly, poor day laborers are to work in lean seasons when wage rate is low compared to the peak season, whereas the non-poor may not work in lean season. If we look into agricultural and non-agricultural wage rates by sex of the labors, we find that male's wage rate was higher than that of the female (Annex 2).

Figure 5. Agricultural and non-agricultural wage rates in Tk. (male and female, with food)



NUTRITIONAL STATUS AND PRODUCTIVITY

Malnourishment is a key concern in Bangladesh. As mentioned in chapter 6 a significant proportion of the family members were malnourished and the proportion was higher among TUP households. Prevalence of malnutrition may have severe impact on quality of life and economic growth. On the economic issue, malnourished labor may have lower productivity and this, consequently, may lower their earning. To understand the implications of malnourishment on labor productivity a regression analysis was carried out. The dependent variable of interest is the average per hour income (in log form) of the working aged members (15-60 years old). Regressors include years of schooling (as a proxy to human capital), age (in years) and square of age. A dummy variable for sex (takes '1' if the labor is male and '0' if female) was included as a regressor to capture how productivity varies between male and female labor. A dummy

[3] However, later in this section we will analyze impact of nutritional status on labor productivity.

variable for Body Mass Index (BMI)[4] was incorporated to capture the effect of nutritional status on productivity. The BMI dummy variable takes 1 if BMI<18.5 and 0 if BMI>=18.5. A dummy variable for the STUP I areas was included to know whether there is any difference between labor productivity in the STUP I and STUP II areas.

Per hour return, which appears as a dependent variable (in log form), however, is not solely the return of the labor, it is in fact inclusive of return of capital and land, if any. To control the effects of land and capital, a set of dummy variables was introduced in the regression based on type of activity. Since some workers were engaged in more than one activity, an activity dummy was introduced based on the activity from which s/he obtained larger share of his/her income. Agricultural cultivation was considered as the "base category" occupation. However, BMI was not available for all earning members as weights and heights of a good proportion of household members were not recorded due to their absence at the time of household visit of the survey. Therefore, to analyze the effect of BMI on productivity, regression analysis was carried out for the sub-sample for whom the BMIs were available.

Earning members whose height and weight were not recorded were mainly in work during the time of household visit. Therefore, it might be likely that, on an average, this group of earning members was physically more fit than those whose height and weight were recorded. Exclusion of this group might have biased the coefficient obtained for the BMI dummy variable in the sub-sample regression. However, to have an idea about this, we conducted a regression analysis on the full sample without using the BMI dummy variable. Instead, a dummy variable which takes '1' if the height and weight of the worker were recorded and '0' if his/her height and weight were not recorded was included in the model.

The regression results (regression 1) presented in Table 8 show that years of education, which is a proxy for human capital, has statistically significant positive impact on labor productivity. For one year increase in education of the worker, productivity is likely to increase by 4%. This indicates that increase in investment on education in Bangladesh will help to achieve sustained poverty reduction, as well as to boost economic growth of the country. The regression analysis reveals that female workers have lower productivity than their male counterparts.

The dummy variable BMI bears a negative sign and it was found to be statistically significant. Productivity of the malnourished workers was found to be 7% lower than that of the malnourished workers not. However, when we introduce an interaction variable of BMI and Male in the model, it turns out to be

[4] BMI stands for Weight in Kg/(Height in metre)^2

statistically insignificant indicating that there is no differential effect of malnourishment on the productivity of the males (Regression 2). Malnourishment is more prevalent among the poorest, as mentioned in chapter 6, indicating that the burden of lower productivity due to malnourishment is higher for the poor households.

The regression results for the full sample (regression 3) reveal that the dummy variable 'BMI available' has a positive coefficient and was statistically significant at the 5% level of significance, indicating that per hour return of earners whose height and weight were not recorded was higher. This may indicate that workers who were excluded from regression 1 (i.e. whose height and weight were not recorded) might have a better BMI and consequently had higher productivity. This further indicates that the coefficient of BMI dummy variable (in regression 1) might have been underestimated in absolute term.

Table 8. Determinants of labor productivity: OLS regression results

	Sub-sample				Full sample	
Regressors	Regression 1		Regression 2		Regression 3	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Male=1	0.583*	27.51	0.593*	24.30	0.570*	27.93
Age (years)	0.054*	18.49	0.054*	18.46	0.061*	24.40
Age square	-0.001*	-16.22	-0.001*	-16.20	-0.001*	-21.32
Years of education	0.043*	18.57	0.043*	18.55	0.044*	25.18
Salaried employed=1	-0.068	-1.33	-0.068	-1.33	0.020	0.62
Working as maid=1	-0.417*	-12.31	-0.417*	-12.32	-0.439*	-13.56
Livestock rearing=1	-1.266*	-37.37	-1.265*	-37.40	-1.259*	-36.80
Agricultural day labor=1	-0.268*	-12.53	-0.267*	-12.53	-0.247*	-11.81
Non-agricultural day labor=1	-0.279*	-9.34	-0.279*	-9.34	-0.230*	-8.54
Non-farm self-employed=1	-0.331*	-12.84	-0.331*	-12.84	-0.278*	-11.69
BMI<18.5=1	-0.068*	-5.73	-0.057*	-3.03	----	---
BMI*Male	---	---	-0.023	-0.93	---	---
BMI available=1	---	---	---	---	0.027**	2.27
STUP I=1	0.046**	2.25	0.047**	2.24	0.029***	1.80
Constant	0.774*	---	0.772*	11.43	0.602*	10.19
F-value	736*	---	686*	---	968*	---
R^2	0.45	---	0.45	---	0.46	---
n	35165	---	35165	---	---	---

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

INCOME

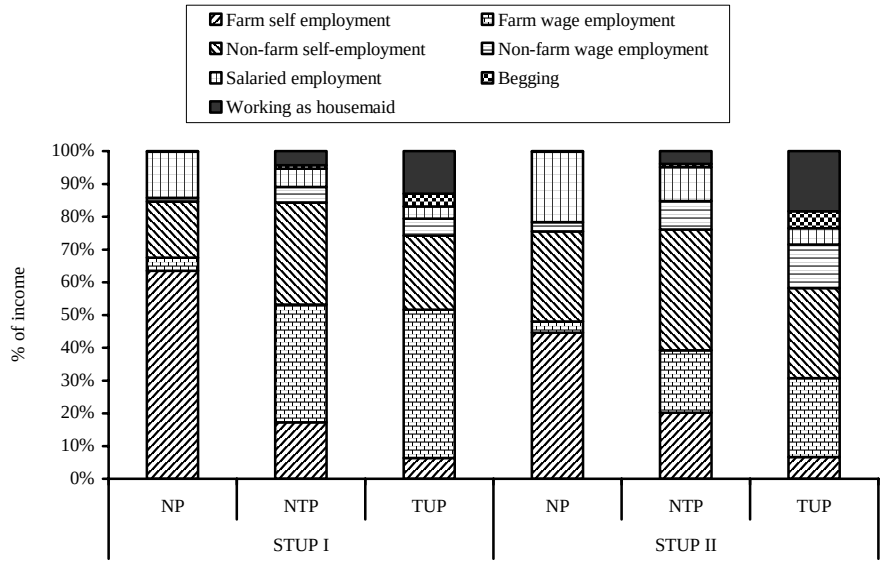
Main source of income

As our earlier analysis indicated, agricultural day labor was more pronounced among the TUP households in the STUP I areas. Analysis of distribution of income by different broad categories of sources indicate that farm wage

employment contributed a significant proportion of income of the TUP households and the proportion was higher in the STUP I areas (Figure 6). Farm wage employment contributes a significant proportion of income of NTP households even though it was lower than that of TUP households. Share of income of the TUP households from non-farm wage employment was found to be higher in the STUP II areas. This is expected because non-farm wage employment was more pronounced in the STUP II areas.

TUP households obtained a certain proportion of their income from members working as housemaid, but the proportion was higher in the STUP II areas. Incomes from farm self-employment of the TUP households in both geographical areas were very limited, due to their fragile asset base such as land, livestock and poultry. Non-farm self-employment appears to be a reliable source of income, which accounts for a good proportion of income of all wealth groups in both geographical areas. As expected, non-poor households' income was obtained from there main sources: farm self-employment, non-farm self-employment and non-farm salaried employment.

Figure 6. Share of income of different sources



Number of income sources

Diversification of income sources play a key role to raise households' income and to cope with seasonal food insecurity. Figure 7 shows number of income

sources of different wealth groups in two geographical areas. It appears that the number of income sources exhibit a decreasing pattern as we move down through the wealth groups. This pattern was observed in both geographical areas. However, it is interesting to observe that compared to the STUP I areas, the number of income sources were lower in the STUP II areas for each of the comparable wealth groups. As will be discussed later in this section, in general per capita income in the STUP II areas was higher than that of the STUP I areas. This indicates that compared to the STUP I areas, the earning from per income source was higher in the STUP II areas.

How did STUP II households obtain more income from each source compared to the STUP I households? Did the earners in the STUP II areas work more hours in each of the earning activities? Table 9 shows mean hours of working in per earning activity of different wealth groups of households. It appears that mean hours of working in per earning activity was significantly higher in the STUP II areas for each wealth group, suggesting that income sources in the STUP II were likely to be more stable than that of the STUP I areas. This suggests that along with diversification of income sources, stability of the income sources is also important to secure income earning and eradicating poverty.

Figure 7. Number of income sources

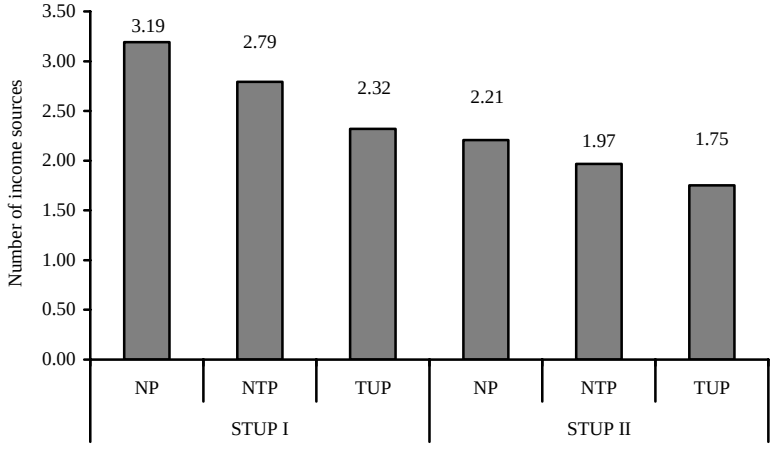


Table 9. Mean hours of working in per earning activity

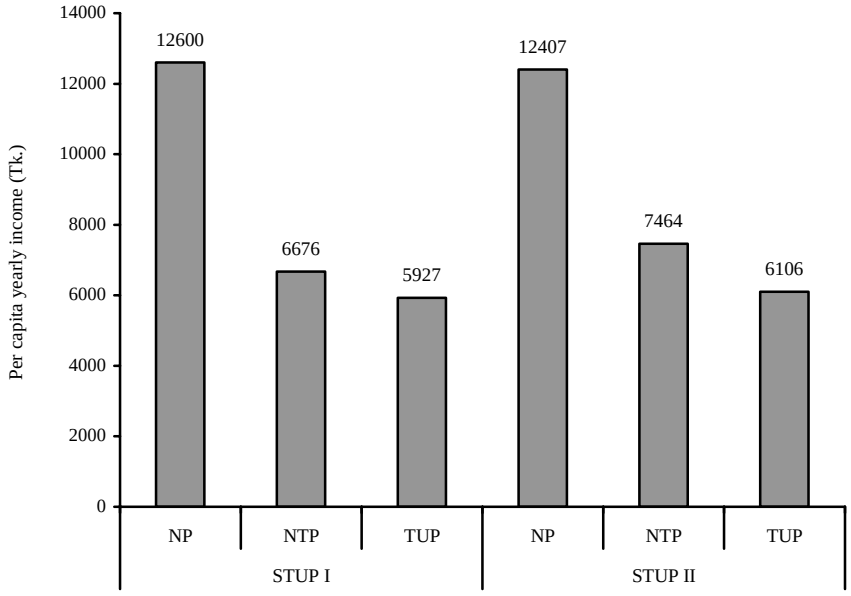
	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
Mean hours of working in per earning activity	1348	1372	1415	2057	2015	1928	<0.01	ns	<0.01

Note: ns=not significant at the 10% level

Per capita income

Analysis of per capita income of different wealth groups reveals expected pattern, that is, as we move down through the wealth groups, per capita yearly income decreases (Figure 8). For the TUP households, per capita yearly income was Tk. 5927 in the STUP I areas and Tk. 6106 in the STUP II areas. However, the difference is statistically insignificant (Annex 3). Per capita income of the NTP households in the STUP II areas was found to be statistically significant higher than that of the STUP I areas. In general, per capita income in the STUP II areas was found to be higher than that of the STUP I areas.

Figure 8. Per capita yearly income



Internationally, dollar-a-day equivalent level of income is considered as the benchmark for extreme poverty. In purchasing power parity terms, the cut-off point is equivalent to Tk. 8160 person/year in 2007. The average level of per

capita income of the TUP households was found to be below the dollar-a-day level of income. Based on dollar-a-day cut-off mark, 79% of the TUP households in both STUP I and STUP II areas fall below poverty line.

What are the factors associated with per capita income? It is well known that land, other productive assets and earning members are the key factors influencing per capita income of the households. Additionally, the number of income sources, level of human capital (education), the household size and household headship may be also associated with per capita income. A regression analysis here was carried out and presented in Table 10. As expected, coefficient of log of ratio of earning members bears positive sign and it is statistically significant at 1% level of significance. A one percent increase in the ratio of earning members is likely to raise per capita income by 39%. Number of income sources bears positive coefficient and statistically significant. However, the interaction variable (income sources and STUP I dummy variable) has a positive coefficient and it is statistically significant. It thus appears that number of income sources have positive impact on per capita income but the impact is higher in the STUP I areas. CFPR aims to diversify income sources of the targeted households. It is thus expected that programme participation will raise income of the households. As the coefficients of number of livestock and number of hens/ducks were found to be positive and statistically significant, ownership of livestock and poultry can be said to be very important to raise per capita income. CFPR provides assets to the TUP households including, among a number of others, livestock and poultry which is thus expected to raise per capita income of the TUP households. The coefficient of average years of education of the earning members was found to be statistically significant and with the expected sign.

Female headed households were found to be more vulnerable than the male headed ones as the coefficient of dummy variable “female headed household” was found to be negative and statistically significant. The regression results also reveal that an increase in household size reduces per capita income. Coefficient of dummy variable STUP I bears negative sign and it is statistically significant, indicating that per capita income in STUP I areas is higher than that of the STUP II areas.

Table 10. Determinants of per capita income: OLS regression results

Regressors	Coefficient	t-value
Log (ratio of earning members)	0.388*	18.28
No of income sources	0.036**	2.40
Average years of education	0.062*	18.99
Female headed household=1	-0.477*	-15.19
Has cultivable land=1	0.144*	7.67
Number of livestock	0.017*	4.79
Number of duck/hens	0.001*	3.50
Household size	-0.042*	-6.61
STUP1=1	-0.397*	-7.23
STUP1* Income sources	0.052*	3.10
Constant	9.112*	152.80
F- value	282.54*	---
R-squared	0.17	---
n	30850	---

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

Seasonality of income earning

Seasonal variation in income is a well known phenomenon in Bangladesh, particularly in the five northern districts of the country (Rangpur, Kurigram, Gaibandha, Nilphamari and Lalmonirhat). The STUP I baseline survey areas include, among others, these five districts. The seasonal food insecurity in these five districts occurs mainly during the September-October period. We have analyzed self perceived seasonality in income of the female respondents and the household heads (Figure 9 and 10). It appears from Figure 9 that in STUP I areas a larger proportion of cases reported that income was lowest in Bangla month of *Aswin* (September-October) compared to other periods. It was also revealed that a smaller proportion of cases reported that income is at its lowest in *Agrahayan* (November-December) and in *Jaishta* (May-June) compared to other periods. These two periods are the *amon* and *boro* harvesting seasons in Bangladesh, when demand for agricultural day labor is high. When we analyze seasonality in income of the household head in STUP I areas, similar patterns of seasonality in earnings were observed (Figure 10).

In contrast, analysis of self perceived seasonality in earning of main female and household head in the STUP II areas reveals that a higher proportion of cases reported that income was lowest in the Bangla month of *Shraban* (July-August) which is the rainy season of Bangladesh. However, as was in the STUP I areas, a lowest proportion of cases reported that income was lowest in the month of *Agrahayan* (November-December) which is the harvesting season of *amon*.

Figure 9. Months with lowest earning of the respondent females

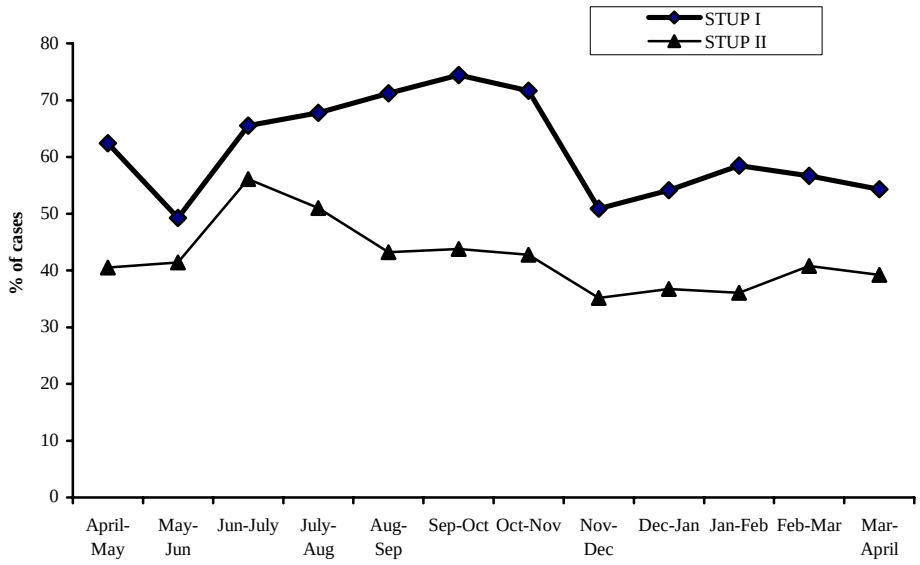
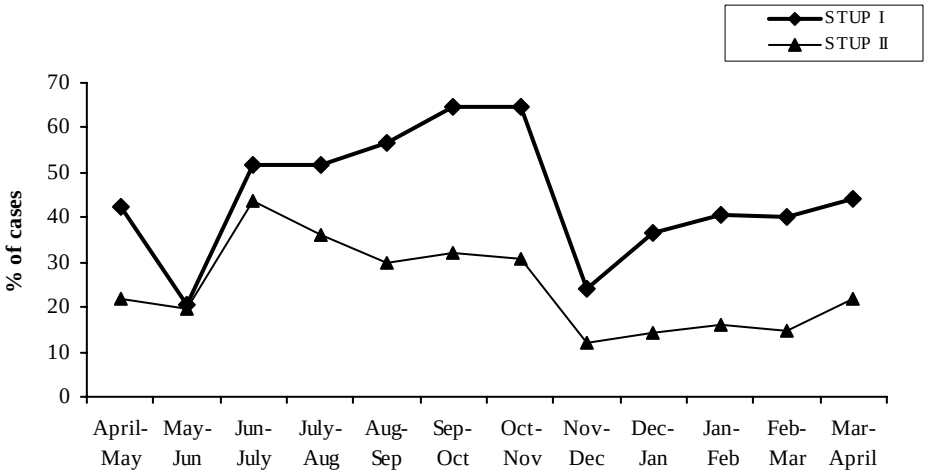


Figure 10. Months with lowest earning of the household heads



CONCLUSION

This chapter analyzed employment and income of different wealth groups of households. It was found that day labor was predominant livelihood strategy among the working aged TUP males in both geographical areas. However, compared to the STUP II areas, agricultural day labor was more pronounced among the males in the STUP I areas. Though household core was predominant

among the women of all wealth groups, it was relatively less pronounced among the TUP women. A significant proportion of the TUP women were found to be engaged in agricultural day laborer and working as maids. Both agricultural and non-agricultural wage rates in the STUP II areas were found to be higher than that of the STUP II areas.

Engagement in earning activity of the old-aged members of TUP households was found to be higher in the STUP I areas. Engagement in earning activities by the old-aged members was also prevalent among non-poor and NTP households. However, the earning activities of the TUP households were mainly related to wage employment and pitiable occupations like begging. In contrast, earning activities of old-aged members of the better off households were mainly self-employment. A significant proportion of children in all the wealth groups were found to be engaged in work without going to school but the proportion was higher among the TUP households. Beside economic factors, non-economic factor such as education of household head was found to be associated with prevalence of child labor. It might be one explanation of why child labor was prevalent among the non-poor households as well.

It was found that there is no statistically significant difference between per capita income of TUP households in the STUP I and STUP II areas. But, in general, per capita income was found to be higher in the STUP II areas. Although there is no difference between per capita income of two groups of the TUP households, TUP households in the STUP I areas were more likely to earn through engaging children and old-aged members in earning activities.

Nutritional status of the workers was found to have significant implication on their productivity. Earning of a malnourished worker was found to be about 7% lower than that of the worker who is not malnourished. Years of education of the workers was found to have positive impact on their earning. This indicates that investment in education among the poor in Bangladesh will contribute to achieve sustainable poverty reduction as well as to boost economic growth of the country.

It was found that the number of income sources in the STUP II areas were lower than that of the STUP I areas for all wealth groups. One reason for this was because of more stability of the income sources in STUP II areas. However, it was found that the number of income sources were higher among better off groups of households, irrespective of geographical areas. The number of income sources were also found to be positively associated with per capita income in both geographical areas although the association is stronger in STUP I areas. It thus appears that diversification of income sources might be an important way to increase income of the TUP households, which is one of the primary objectives of the CFPR.

ANNEX

Annex 1. Description of activities of the children (5-14 years old) who are working

Occupations	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 6
Farm self-employed (%)	63	45	26	41	20	6	<0.01	ns	<0.01
Wage employed (%)	3	10	11	5	10	18	ns	ns	ns
Non-farm self-employed (%)	9	13	15	15	24	20	ns	ns	ns
Salary employed (%)	4	4	3	6	14	6	ns	ns	ns
Household chores (%)	18	19	25	29	27	29	ns	ns	ns
Working as housemaid (%)	3	8	20	4	5	21	<0.01	<0.01	ns

Note: ns=not significant at the 10% level

Annex 2. Agricultural and non-agricultural wage rates (Tk.) by sex (with food)

	STUP I			STUP II			p-value		
	NP	NTP	TUP	NP	NTP	TUP			
	(1)	(2)	(3)	(4)	(5)	(6)	2 vs 3	5 vs 6	3 vs 7
Agricultural wage rate									
Male	70	70	67	83	82	79	<0.01	<0.05	<0.01
Female	-	49	47	-	43	48	<0.01	ns	ns
p-value	-	0.00	0.00	-	0.00	0.00	<0.01	-	
Non-agricultural wage rate									
Male	88	84	73	110	95	89	<0.01	ns	<0.01
Female	-	49	44	-	48	68	ns	ns	<0.01
p-value	-	0.00	0.00	-	0.00	0.01	-	-	-

Note: ns=not significant at the 10% level

Annex 3. Per capita yearly income (Tk.)

	STUP I				STUP II				p-value			
	NP	NTP	TUP	All	NP	NTP	TUP	All				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	2 vs 3	6 vs 7	3 vs 7	3 vs 7
Per capita income	12600	6676	5927	7910	12407	7464	6106	8913	<0.01	<0.01	ns	<0.01

Note: ns=not significant at the 10% level

OTUP

Profile of the Other Targeted Ultra Poor

Narayan Chandra Das and Shaila Ahmed

INTRODUCTION

As was mentioned in the introductory Chapter, conventional poverty reduction programmes such as microfinance often bypass the ultra poor due to various structural shortcomings. One of the important factors is that the repayment condition of the microfinance typically requires payment on weekly basis as soon as the loan is taken. This often implies that repayment starts before any income has been generated by the investment of the loan. Thus, for households without having an assured repayment source, such as those dependent on manual labour, it becomes a risky venture. Often, NGO staff or other borrowers also discourage the poorer households to join credit programmes. Although, some of these households are destitute, many of them are economically active but unable to access the resources that have benefited the moderate poor.

BRAC, based on its three decades of experiences from working with rural poor initiated the CFPR programme with new livelihood security approach for the ultra poor. CFPR II works with the two groups of ultra poor considering the heterogeneity nature among them[1]: the specially targeted ultra poor (STUP) and the other targeted ultra poor (OTUP). The OTUP represents a group which is marginally less deprived than the STUP, but still firmly among the ultra poor. The OTUP may have some experience of NGO membership, which they have been unable to make adequate use of. To reflect differences within the group, including the result of economic context, the OTUP package is divided into two:

[1] For a brief overview on the CFPR programme please see the introduction chapter

OTUP I package and OTUP II package; OTUP I package is more intensive than the OTUP II package. OTUP participants are selected from the next 20 poorest districts of the 40 districts covered by CFPR II. STUP II participants[2] are also selected from these 20 districts.

Selection of OTUP members

OTUP participants are the ultra poor women who may or may not have been associated with BRAC VOs or other NGOs. They are selected as OTUP participants either because they have dropped out, or because they have been identified by field staff as being unable to make adequate use of the full range of services and inputs available to them, as a result of their extreme poverty and/or lack of confidence and experience. Besides the ultra poor from former and current BRAC VO members, the OTUP group also includes other disadvantaged ultra poor women in the community. In particular, OTUP members (both OTUP I and OTUP II) are selected from the households which meet at least three of the following five criteria: (i) owns no more than 30 decimals of land; (ii) the adult women is abandoned, separated or divorced; (iii) the adult male is disabled or infirm; (iv) depends on seasonal wage employment; (v) unable to make productive or effective use of NGO services.

Initially, BRAC VO members and other ultra poor women in the community along with participatory techniques help preparing a list of ultra poor households for OTUP membership. BRAC Programme Organizers (POs) then undertake a door to door survey of these households based on a standard questionnaire to check the eligibility criteria, and arrive at a primarily selected list of households. Then, BRAC Area Manager visits all the primarily selected households for a final round of verification to come up with the finally selected OTUP participants.

Support and services for the OTUP members

Both groups of OTUP participants receive enterprise development training. The objective is to provide OTUP participants with the skills and know-how to manage and protect their assets. Specific training programmes planned for OTUP participants include goat rearing, cow rearing, poultry rearing, beef fattening, vegetable cultivation and small business. This training programme involves participatory and needs-based approaches to enhance their technical, social and managerial skills to enable them to operate enterprises more profitably. The training programme provides: (i) 3-6 days of specialist classroom-based

[2] As was mentioned in the introductory chapter, STUP package is divided into two: STUP I package and STUP II package.

enterprise development training; (ii) weekly home visits, involving hands-on training; (iii) monthly, quarterly, and 6 monthly refresher courses.

OTUP I participants receive a subsistence allowance of Tk. 10 per day for a duration of eight months. The objective of this grant is to help them with their expenses till they start earning regularly from their enterprises on which they have invested. However, the OTUP II participants do not receive any subsistence allowance.

Both groups of OTUP members get loans from BRAC microfinance programme. However, compared to the regular microfinance programme of BRAC, OTUP I members get access to credit on a smaller amount and with lower interest rate. Loan repayment for OTUP I members is also subject to cash flow having been generated from the enterprises in which they invest their loans. Furthermore, OTUP I members get flexible saving products that would permit easy withdrawals.

Different kinds of health support are provided to both groups of OTUP members to prevent them from income-erosion due to health crisis. BRAC provides identity cards to the OTUP members to facilitate their access to Government hospitals. When referred the identity cards, OTUP members allow them to obtain free consultation and pathology tests at a subsidized rate. In some instances, BRAC provides medicine free of cost. BRAC also provides a health subsidy for severe morbidity cases of all members of OTUP households. This will go towards covering the costs of mild and severe morbidity, antenatal care, postnatal care, eye camps, tube-well and latrine installation. All OTUP members also receive health services through panel doctors of BRAC.

Social awareness training and education is a critical input for both groups of OTUP beneficiaries. This concentrates on imparting information and stimulating discussion about rights and entitlements related to social and health matters. The social awareness education is imparted in informal group discussions at the village level. BRAC also mobilises community support for the enforcement of poor women's legal rights through LCL (Local Community Leader) workshops.

Compared to the regular microfinance programme, supervision of OTUP members is more intensive. Staff to member ratio is 1:200 for OTUP I members and 1:300 for OTUP II members as compared to 1:400 in regular microfinance programme. Both groups of OTUP members also receive required inputs as grant for their respective enterprises such as cattle and poultry feed, seed, fertilizer, pesticides, chicks, ducklings and seedlings.

Objective of the present chapter

The primary objective of this chapter is to provide a baseline profile of the OTUP households. Specifically, this chapter has focused on the basic socio-demographic profile, assets holding, income and employment, financial market participation, vulnerability and history of microfinance involvement. A secondary objective of this chapter is to compare the OTUP I households with the OTUP II households on various socioeconomic dimensions to check for any fundamental differences between them or not. This is critical for programme design since the package differentiation assumes some structural differences between the two groups. In addition, this chapter attempts to compare attributes of the OTUP and STUP II households since both OTUP and STUP II packages are provided to the ultra poor of the same geographical areas. It is expected that the OTUP participants are better off compared to the STUP II participants as STUP package[3] was designed towards the poorest 8-10% households of the poorest districts of the country while OTUP package is targeted to the ultra poor who are relatively better off than the STUP II participants.

SOCIO-DEMOGRAPHIC PROFILES

The proportion of female headed households was found to be significantly higher among the STUP II households compared to both groups of OTUP households (Table 1). Proportion of female members was also higher among the STUP II households; this is due to mainly higher proportion of female headed households among the STUP II. However, proportions of working aged members was found to be higher among the OTUP I households. If we look into average age of the members, it was found to be higher in the STUP II households compared to the two groups of OTUP households. Average size of STUP II households was found to be significantly lower than that of both groups of OTUP households. This is also because of a higher proportion of female headed households among the STUP II households. As will be shown later in this chapter, female headed households were smaller in size compared to the male headed households. On the other hand, size of the OTUP I households has been found to be larger than that of the OTUP II households.

[3] As was mentioned in the introductory chapter STUP II package is more intensive than the OTUP package. STUP II package includes, among others, asset transfer and subsistence allowance.

Table 1. Household characteristics

Characteristics	OTUP I	OTUP II	STUP II	p-value		
	(1)	(2)	(3)	1 vs 2	2 vs 3	1 vs 3
Female headed households (%)	15	16	48	ns	<0.01	<0.01
Proportion of female members (%)	51	52	63	ns	<0.01	<0.01
Average age (years)	25	23	26	<0.01	<0.01	<0.01
Ratio of working aged members (%)	61	58	57	<0.01	ns	<0.01
Average household size	4.72	4.49	3.38	<0.01	<0.01	<0.01

Note: ns=not significant at the 10% level

Proportion of single member households was found to be 14% for the STUP II households, while the corresponding proportions for the OTUP I and OTUP II households were 3% and 2% respectively (Table 2). Since only women are eligible for CFPR membership, all the single member households were obviously female headed. Larger size of household, for instance more than nine members, was found to be almost non-existent among the STUP II households while 0.9% of OTUP I and 1.4% of OTUP II households had more than nine members.

Table 2. Distribution of households by size

Household size	OTUP I	OTUP II	STUP II	p-value		
	(1)	(2)	(3)	1 vs 2	2 vs 3	1 vs 3
1	3	2	14	ns	<0.01	<0.01
2	7	9	20	ns	<0.01	<0.01
3	14	17	20	ns	<0.10	<0.01
4	22	28	21	<0.05	<0.01	ns
5	23	20	15	ns	<0.05	<0.01
6	16	13	6	<0.10	<0.01	<0.01
7	8	6	3	<0.05	<0.05	<0.01
8	4.1	2.7	0.8	<0.10	<0.01	<0.01
9	1.4	1.4	0	ns	<0.01	<0.01
9+	0.9	1.4	0.1	ns	<0.01	<0.05

Note: ns=not significant at the 10% level

Average size of the female headed households was found to be smaller than that of the male headed households (Table 3). As was mentioned earlier, a certain proportion of each group of TUP households had single member, all which were female headed. This is one of the reasons for female headed households being smaller in size. Information in Table 3 also reveals that size of female headed households for STUP II was smaller than that of the both groups of OTUP households; this is because of a higher proportion of single member households among the STUP II.

Table 3. Average household size by sex of the household head

Type of household	OTUP 1	OTUP II	STUP II	p-value		
	(1)	(2)	(3)	1 vs 2	2 vs 3	1 vs 3
Female headed household	3.5	3.3	2.5	ns	<0.01	<0.01
Male headed household	4.9	4.7	4.2	<0.05	<0.01	<0.01
All households	4.7	4.5	3.4	<0.05	<0.05	<0.05

Note: ns=not significant at the 10% level

Early marriage, particularly for girls, is more common among the poor in rural Bangladesh (UNICEF 2001, Pathfinder International 2006). However, an analysis of marital status reveals that prevalence of early marriage was relatively low for both males and females among the three groups of TUP households (Table 4). Even 10% of the males aged 21 years and above were found to be unmarried among the OTUP I households. However, the proportion of widow members was found to be significantly higher among the STUP II households compared to both groups of OTUP households.

Table 4. Marital status by sex

Martial status	OTUP I	OTUP II	STUP II	p-value		
	(1)	(2)	(3)	1 vs 2	2 vs 3	1 vs 3
Male (aged ≥21 years)						
Never married	10.0	6.2	4.9	<0.01	ns	<0.01
Divorced	0.3	0.2	0.0	ns	ns	<0.10
Married	88.3	92.2	93.7	<0.01	ns	<0.01
Separated	0.1	0.0	0.2	ns	ns	ns
Widower	1.2	1.4	1.0	ns	ns	ns
Male (aged 10-20 years)						
Never married	98.8	97.8	98.2	ns	ns	ns
Divorced	0.0	0.0	0.0	--	--	--
Married	1.2	2.2	1.8	ns	ns	ns
Separated	0.0	0.0	0.0	--	--	--
Widower	0.0	0.0	0.0	--	--	--
Female (aged ≥ 18 years)						
Never married	5.8	2.8	4.4	<0.01	<0.05	ns
Divorced	0.5	0.6	1.6	ns	<0.05	<0.01
Married	76.4	77.1	47.7	ns	<0.01	<0.01
Separated	2.7	4.9	11.1	<0.01	<0.01	<0.01
Widow	14.7	14.6	35.1	ns	<0.01	<0.01
Female (aged 10-17 years)						
Never married	98.0	96.3	97.1	ns	ns	ns
Divorced	0.0	0.0	0.0	--	--	--
Married	2.0	3.4	2.4	ns	ns	ns
Separated	0.0	0.3	0.5	ns	ns	ns
Widow	0.0	0.0	0.0	--	--	--

Note: ns=not significant at the 10% level

Heads of the STUP II households had a higher mean age compared to heads of the both groups of OTUP households (Table 5). It also appears that only 11% of the STUP II household heads were found to be literate, while the corresponding proportions among the OTUP I and OTUP II households were 30% and 19% respectively. A glimpse into the primary education level of the household heads also shows that a smaller proportion of the STUP II household heads had primary level education compared to both groups of OTUP household heads. Among the two groups of OTUP households, proportion household heads with primary level education was found to be higher for OTUP I. It was found that more than 95% heads of each group of households can count.

Table 5. Characteristics of household head

Characteristics	OTUP I	OTUP II	STUP II	p-value		
	(1)	(2)	(3)	1 vs 2	2 vs 3	1 vs 3
Age (years)	43	41	45	<0.01	<0.01	<0.01
Literate (%))	30	19	11	<0.01	<0.01	<0.01
Can count (%)	98	99	96	<0.10	<0.01	<0.05
Primary education (%)	23	17	10	<0.01	<0.01	<0.01

HOUSEHOLD ASSET

Limited access to land of the ultra poor in Bangladesh is well known. However, analysis of own land holding of the three groups of ultra poor reveals that 42% of the STUP II households were absolutely landless while the corresponding proportions among the OTUP I and OTUP II households were 20% and 27% respectively (Table 6).[4] If we look into cultivable land, it appears that a higher proportion of both groups of OTUP households had cultivable land compared to the STUP II households. However, difference between proportions of households having cultivable land of the OTUP I and OTUP II households was found to be statistically insignificant. On the other hand, compared to the OTUP II and STUP II households, a higher proportion of OTUP I households owned homestead land. Although size of homestead land holding was found to be lower among OTUP I households, no statistically significant variation in size of cultivable land holding was observed among the three groups of households.

[4] Absolute landless here is defined as neither having cultivable nor homestead/any other land

Table 6. Ownership and amount of land

	OTUP I	OTUP II	STUP II	p-value		
	(1)	(2)	(3)	1 vs 2	2 vs 3	1 vs 3
Proportion of HH						
Absolutely landless (%)	20	27	42	<0.05	<0.01	<0.01
Own cultivable land (%)	10	12	7	ns	<0.01	<0.10
Own homestead land (%)	79	70	57	<0.01	<0.01	<0.01
Own other land (%)	7	10	2	ns	<0.01	<0.01
Size of land						
Homestead land (decimal)	6	7	7	<0.01	ns	<0.01
Cultivable land (decimal)	27	32	26	ns	ns	ns
Other land (decimal)	3	7	8	<0.01	ns	<0.05
Total land (decimal)	10	13	17	<0.01	ns	ns

Note: ns=not significant at the 10% level

Livestock is the most important productive asset for rural households in Bangladesh. Number of livestock ownership is positively associated with the household income as was discussed in chapter 13. Analysis of livestock holding reveals that there is no statistically significant difference between proportions of households having cows/bull of the two groups of OTUP households; however, a smaller proportion of the STUP II households was found to have cows/bull (Table 7). On the other hand, a higher proportion of the OTUP II households was found to have goat/sheep, poultry and rickshaw/van compared to the OTUP I and STUP II households. Number of cows/bull and hens/ducks holding by the OTUP II households was found to be higher than that of the OTUP I households. Overall, the analysis reveals that OTUP II households had strong asset base compared to the OTUP I households.

Table 7. Ownership and amount of assets

	OTUP I	OTUP II	STUP II	p-value		
	(1)	(2)	(3)	1 vs 2	2 vs 3	1 vs 3
Proportion of HH						
Cow/bull (%)	23	26	4	ns	<0.01	<0.01
Goat/sheep (%)	21	30	11	<0.01	<0.01	<0.01
Poultry (%)	69	73	57	<0.10	<0.01	<0.01
Rickshaw/van (%)	10	16	3	<0.01	<0.01	<0.01
Boat (%)	4	2	1	<0.01	ns	<0.01
Size of asset (number)						
Cow/bull	1.39	1.66	1.30	<0.01	<0.01	ns
Goat/sheep	2.10	2.14	1.85	ns	<0.05	<0.10
Poultry	5.58	6.52	4.61	<0.01	<0.01	<0.01
Rickshaw/van	1.21	1.02	1.00	ns	<0.10	ns
Boat	1.06	1.00	1.00	ns	ns	ns

Note: ns=not significant at the 10% level

PRIMARY OCCUPATION OF THE WORKING AGED MEMBERS

Farm self-employment appeared to be a primary occupation for a small proportion of the working aged males in each group of households; however, the proportion was found to be smaller among the STUP II working aged males (Table 8). Farm wage employment, which is mainly known to be the primary occupation of the poor, was found to be more prevalent among the STUP II working aged males. Among the two groups of OTUP working aged males, farm wage employment was found to be more prevalent for the OTUP II. Non-farm self-employment appears to be a key livelihood strategy for the both groups of OTUP households. Nearly half of the both groups of OTUP working aged males were found to be engaged in non-farm self-employment, while the corresponding proportion among the STUP II working aged males was 30%. Salaried employment was found to be very limited among all three groups of working aged males as higher education is prerequisite for salaried employment which the ultra poor can rarely gain.

Table 8. Primary occupation of the working aged males (15-60 years old)

Occupation	OTUP I	OTUP II	STUP II	p-value		
	(1)	(2)	(3)	1 vs 2	2 vs 3	1 vs 3
Farm self-employed (%)	12	13	7	ns	<0.01	<0.01
Farm wage employed (%)	15	23	33	<0.01	<0.01	<0.01
Non-farm self-employed (%)	48	45	30	ns	<0.01	<0.01
Non-farm wage employed (%)	9	7	13	<0.10	<0.01	<0.05
Non-farm salaried employed (%)	6	3	4	<0.01	ns	<0.05
Student (%)	5	5	4	ns	ns	ns
Don't work (%)	4	4	7	ns	<0.01	<0.01
Begging (%)	0	0	3	ns	<0.01	<0.01

Note: ns=not significant at the 10% level

Household chore is known to be the primary occupation for most of the women in rural Bangladesh. However, what is apparent from the present analysis is that prevalence of household chore as primary occupation was lower among the STUP II working aged women compared to both groups of OTUP working aged women (Table 9). This is because the STUP II women were to engage primarily in various earning activities such as working as house maid. We observe that for 30% of the STUP II working aged women, house maid was primary occupation while the corresponding proportions among the OTUP I and OTUP II working aged women were only 2% and 5% respectively. Begging was found to be non-existent among both groups of OTUP working aged women, while it was primary occupation for about 5% working aged women in the STUP II households.

Table 9. Main occupation of the working aged women (15-60 years old)

Occupation	OTUP I	OTUP II	STUP II	p-value		
	(1)	(2)	(3)	1 vs 2	2 vs 3	1 vs 3
Farm self-employed (%)	4	5	1	ns	<0.01	<0.01
Farm wage employed (%)	1	2	1	<0.01	<0.05	ns
Non-farm self-employed (%)	7	6	4	ns	<0.05	<0.01
Non-farm wage employed (%)	1	1	2	ns	<0.05	<0.10
Non-farm salaried employed (%)	2	1	1	<0.05	ns	<0.10
Student (%)	6	3	2	<0.01	<0.10	<0.01
Don't work (%)	1	1	2	ns	<0.10	<0.05
Begging (%)	0	0	5	ns	<0.01	<0.01
Household chore (%)	76	75	51	ns	<0.01	<0.01
House maids (%)	2	5	30	<0.01	<0.01	<0.01

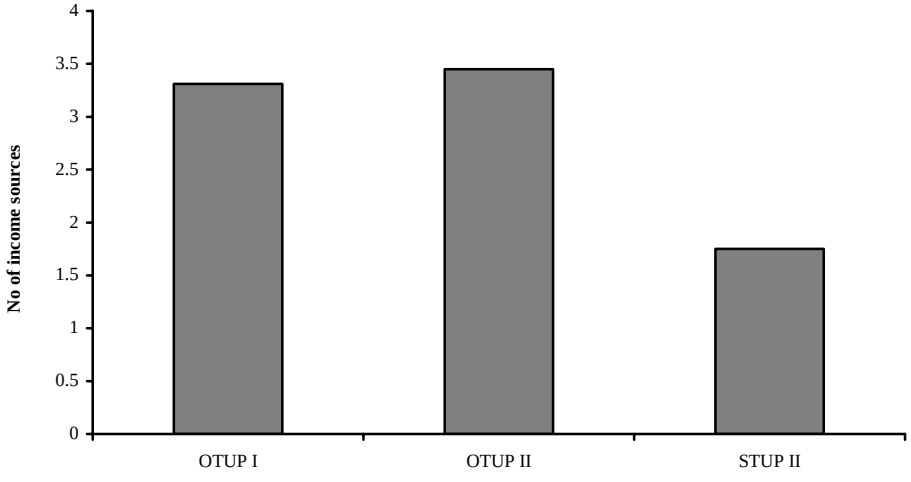
Note: ns=not significant at the 10% level

INCOME

Number of income sources

As was found in Chapter 13, diversification of income sources plays a key role to raise per capita income. One of the main objectives of the CFPR is to diversify the income sources of the participant households. Analyzing the number of income sources, it was found that number of income sources of STUP II households was significantly lower than that of both groups of OTUP households (Figure 1). Among the two groups of OTUP households, number of income sources seems to be marginally higher for OTUP II.

Figure 1. Number of income sources

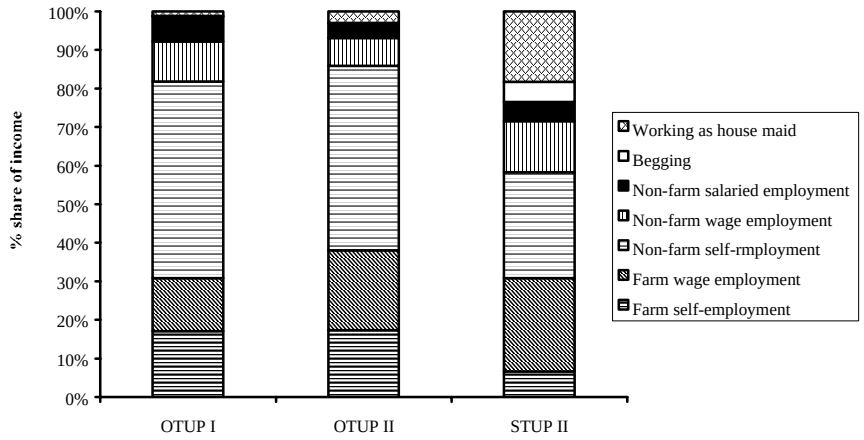


Main source of income

When we analyze distribution of household income by sources, it appears that compared to the STUP II households, both groups of OTUP households generate a higher proportion of their income from farm self-employment (Figure 2). This is because, as was mentioned earlier, OTUP households have more access to cultivable land compared to the STUP II households. Both groups of OTUP households were also found to be less dependent on day labour compared to the STUP II households. About half of the income of the both groups of OTUP households was generated from non-farm self-employment while this source accounted for about one-fourth income of the STUP II households. Compared to both groups of OTUP households, STUP II households were found to be more vulnerable—around one-fifth income of the STUP II households was generated from household members' working as house maids.

If we compare income shares of different sources between OTUP I and OTUP II households, it appears that OTUP II households were more dependent on farm wage employment. In contrary, OTUP I households were found to be more dependent on non-farm wage employment, although non-farm wage employment contributes only small proportion of income for both groups of OTUP households.

Figure 2. Distribution of income by main sources

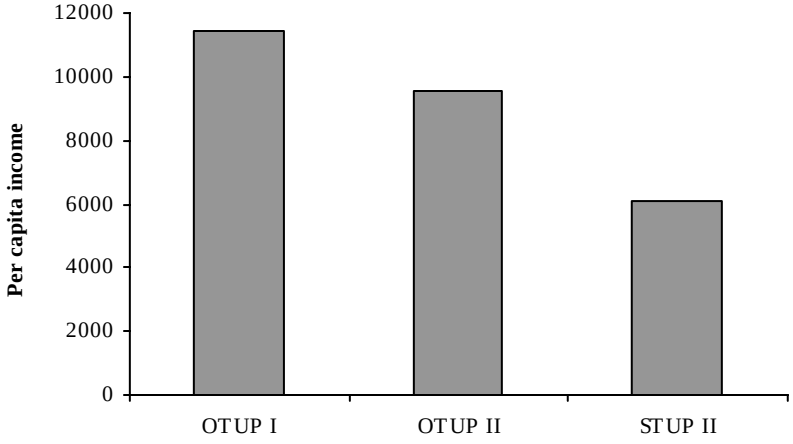


Per capita income

Figure 3 shows the per capita income of the three groups of TUP households. Per capita income of the OTUP households was converted at September 2007

constant prices using consumer price index (rural). This is because the STUP II baseline survey was conducted during June 2007 to January 2008 while OTUP baseline survey was conducted during June-July 2008. Expectedly, per capita income of the STUP II households was found to be lower than that of both groups of OTUP households. However, per capita income of the OTUP I households was found to be significantly higher than that of OTUP II households. The package differentiation between OTUP I and OTUP II assume some structural differences between them. Although per capita income was found to be higher among the OTUP I households, it should be mentioned here that the income based analysis might not provide the real picture of vulnerability of the surveyed OTUP I households. According to the WFP poverty mapping, per capita calorie intake in all upazilas of Chandpur[5] was found to be in the lowest range (1683-2154 kcal) (BBS and WFP 2004). On the other hand, more than 30% of the population in four upazilas of Chandpur district and 20-30% of the remaining three upazilas were found to consume 1805 kcal per day. WFP poverty mapping also shows that based on income poverty six upzilas of Chandpur district fall among lowest range of poverty incidence (0-25%) and the remaining one upazila falls in second lowest range of poverty (25-31%). Targeting of OTUP I was found to be better than that of the OTUP II—more than 62% and 29% of the OTUP I households were from poorest and 2nd poorest quintile respectively in OTUP I and for OTUP II the corresponding proportions were 44% and 39% (Sulaiman 2008).

Figure 3. Per capita income (Tk.)



[5] Baseline survey sites of OTUP I were Manikgonj and Chandpur districts.

VULNERABILITY AND HEALTH

Vulnerability

Crisis/shock is the outcome as well as determinant of vulnerability. Crisis/shock reduces the future welfare of the households. Overall, STUP II households were more likely to face crisis/events although no statistically significant difference was observed between OTUP I and OTUP II households (Table 10). Damage of dwelling and loss of livestock were found to be the most important crisis/shocks for all three groups of households. However, compared to the OTUP I and STUP II households, a lower proportion of OTUP II households experienced damage of dwelling. On the other hand, OTUP I households were less likely to face productive asset damage related shocks (loss of livestock) compared to the other two groups of households. For most of the other crises/shocks and events, we did not observe any statistically significant difference between the two groups of OTUP households.

Table 10. Incidence of specific crises or events in the last one year

Crisis/events	OTUP I	OTUP II	STUP II	p-value		
	(1)	(2)	(3)			
Faced at least one crisis (%)	51	50	59	ns	<0.01	<0.01
House severely damaged (%)	20	14	19	<0.01	<0.01	ns
Severe illness of earning members (%)	8	9	13	ns	<0.01	<0.01
Severe illness of other members (%)	6	8	13	ns	<0.01	<0.01
Loss of crops due to natural disaster (%)	4	5	2	ns	<0.01	<0.01
Death of earning member (%)	0.5	0.6	1.3	ns	ns	<0.10
Death of other HH member (%)	0.6	0.5	0.5	ns	ns	ns
Marriage in the HH (%)	3.3	1.9	1.2	0.10	ns	<0.01
Loss of livestock (%)	21	28	28	<0.01	ns	<0.01
Legal dispute (%)	0.6	0.4	0.6	ns	ns	ns
Theft in the HH (%)	2.0	1.9	1.2	ns	ns	ns
Other incidence (%)	1.3	0.8	2.8	ns	<0.01	<0.01

Note: ns=not significant at the 10% level

Health

Prevalence of morbidity was found to be significantly higher among the STUP II households compared to both groups of OTUP households (Table 11). On the other hand, among the two groups of OTUP households, prevalence of morbidity was found to be higher among the OTUP II households. If we look at the health seeking behaviour, it was revealed that 42% of the ill members among the STUP II households did not seek any treatment, while the corresponding proportion among the OTUP I and OTUP II ill members were found to be only 12% and 16% respectively (Table 12). Unqualified village doctor, qualified allopathic and drug seller were found to be most frequently sought after by the all groups of

households. Self-treatment was found to be higher among the OTUP I households.

Regarding loss of working days, we did not observe statistically significant difference among the three groups of TUP households. However, the average medical expenses for each ill member were found to be lower among STUP II households compared to both groups of OTUP households.

Table 11. Morbidity prevalence by poverty groups

Occupation	OTUP I	OTUP II	STUP II	p-value		
	(1)	(2)	(3)	1 vs 2	2 vs 3	1 vs 3
Experience any illness in last 15 days (%)	10.3	13.8	28.4	<0.01	<0.01	<0.01

Table 12. Health-seeking behaviour for recent illnesses (15-days recall)

	OTUP I	OTUP II	STUP II	p-value		
				1 vs 2	2 vs 3	1 vs 3
Types of health care sought						
No treatment (%)	11.9	16.4	42.2	<0.10	<0.01	<0.01
Self-treatment (%)	12.5	7.9	8.5	<0.05	ns	<0.10
Traditional (%)	1.6	1.7	1.8	ns	ns	ns
Homeopaths (%)	1.9	3.5	2.1	ns	ns	ns
Drug seller (%)	22.8	21.6	8.3	ns	<0.01	<0.01
Village doctor (%)	26.9	29.8	20.9	ns	<0.01	<0.05
Paramedics (%)	4.7	3.2	2.0	ns	ns	<0.05
Qualified allopathic (%)	17.8	15.9	14.1	ns	ns	ns
Others (%)	0	0	0.1	-	<0.01	<0.01
Mean duration of disruption of income-earning activities (days)	7.0	6.5	7.1	ns	ns	ns
Total mean expenditure due to illness in past 15 days in Taka	323	332	104	ns	<0.01	<0.01

Note: ns=not significant at the 10% level

FINANCIAL MARKET PARTICIPATION

Savings

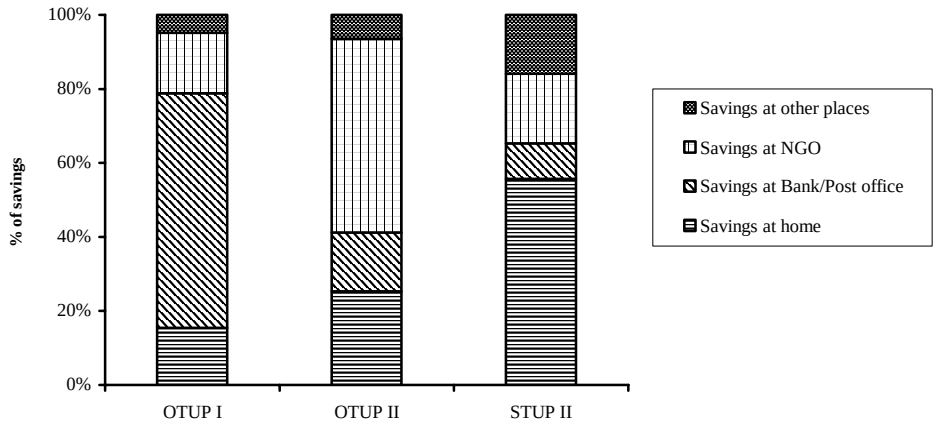
Saving is vital for forming business capital and coping with unexpected crisis. Analysis of saving behaviour reveals that compared to the both groups of OTUP respondents, a smaller proportion of the STUP II respondents had cash savings (Table 13). On the other hand, among the two groups of OTUP respondents, saving behaviour was found to be higher for the OTUP I respondents. Size of savings was also found to be significantly lower among the STUP II respondents. Among the two groups of OTUP respondents, size of cash saving was found to

be higher for OTUP I. STUP II respondents were mostly reported to save at home, indicating their limited engagement in formal savings institutions (Figure 4). Savings at bank/post office was predominant among the OTUP I respondents while savings at NGOs was predominant among the OTUP II respondents.

Table 13. Savings behaviour of the respondent females

	OTUP I	OTUP II	STUP II	p-value		
	(1)	(2)	(3)	1 vs 2	2 vs 3	1 vs 3
% of respondents with cash savings	57	49	40	<0.01	<0.01	<0.01
Size of savings (Tk.)	3181	1409	647	<0.01	<0.01	<0.01

Figure 4. Distribution of savings by sources



Credit market participation

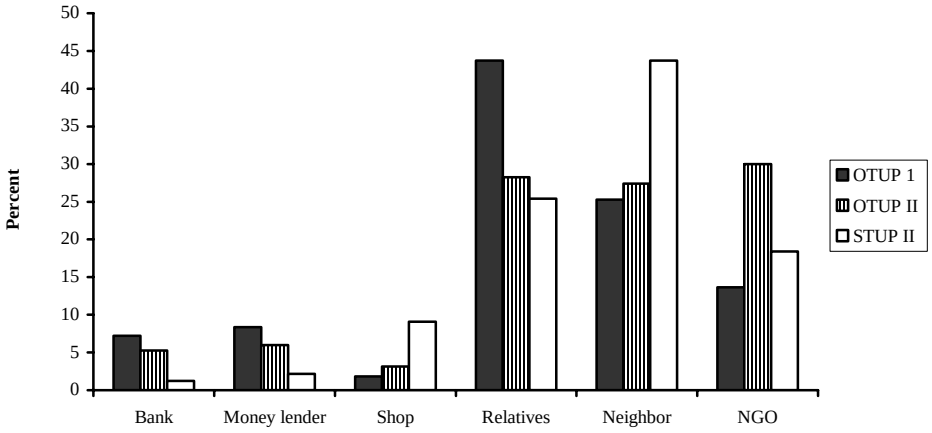
Access to credit is crucial for coping with unexpected crises and smoothing consumption in bad times. It is also important for capital formation to expand or initiate income generating activities. Analysis of outstanding loans reveals that compared to the two groups of OTUP households, a smaller proportion of STUP II households had outstanding loans (Table 14). Size of outstanding loans was also found to be significantly lower among the STUP II households. When we compare OTUP I and OTUP II households, it appears that the OTUP I households had greater credit market involvement.

Table 14. Outstanding loans of the respondent female and her husband

	OTUP I	OTUP II	STUP II	p-value		
	(1)	(2)	(3)	1 vs 2	2 vs 3	1 vs 3
% of respondents have outstanding loans	51	39	27	<0.01	<0.01	<0.01
Size of loans (Tk.)	13804	7526	3946	<0.01	<0.01	<0.01

Analysis of distribution of outstanding loans by different sources shows that relatives and neighbours were the most important sources of loans for each group of households (Figure 5). However, share of loans from relatives was found to be higher among the OTUP I households while on the other hand, share of outstanding loans from neighbours was found to be higher among the STUP II households. Although, share of bank loan was found to low among all three groups of households, it was even lower among the STUP II households. Share of NGO loans were found to be higher among the OTUP II households, accounting for about 30% of their total outstanding loan. Loan from shop which is mainly used for consumption purposes was found to be higher among the STUP II households.

Figure 5. Sources of outstanding loans



NGO PARTICIPATION HISTORY OF THE OTUP MEMBERS

The OTUP households represent a group which is marginally less deprived than STUP households, but still firmly among the ultra poor. As was mentioned earlier, the OTUP members are selected from existing/drop-out members of microfinance as well as other disadvantaged ultra poor women. Figure 6 reveals that around 20% of the OTUP participants were already enrolled in microfinance

during selection for this programme. In other words, around 20% of the OTUP members were selected from the existing VO members. However, proportion of this group of members was found to be higher among OTUP II. A significant proportion of the OTUP members were also selected from the drop-out clients of microfinance. Proportion of this group was found to be higher among OTUP I. Proportion of members never participated any NGO was found to be higher in OTUP II.

Figure 6. Distribution of OTUP members according to their earlier NGO involvement experience

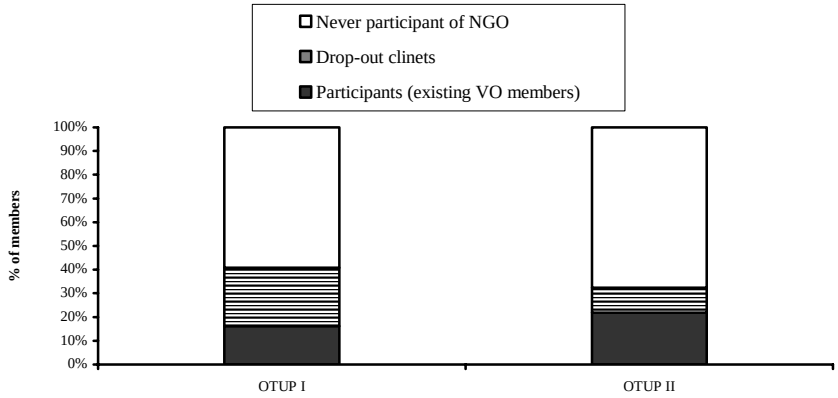


Table 15 shows the NGO participation characteristics of the OTUP members who were selected from existing VO members (participants) and drop-out clients of microfinance. Among those who were selected from existing VO members, the length of membership was found to be 3.92 years in the OTUP I and 3.22 years in the OTUP II, although difference was found to be statistically insignificant. Looking at the frequency of loans from microfinance institutions of this group of participants, it was found that average frequency of loan was 3.26 for OTUP I and 2.68 for OTUP II but the difference is statistically insignificant. However, size of loans was found to higher for OTUP I.

If we look into those OTUP members who were selected from drop-out clients of microfinance it appears that the length of membership as well as the frequency of loans does not show any statistically significant difference between OTUP I and OTUP II. In case size of last loan taken, difference between OTUP I and OTUP II was also found to be statistically insignificant.

Table 15. Characteristics of NGO participation of the OTUP members selected from existing VO members and drop-out clients of microfinance

	Existing VO members			Drop-out clients		
	OTUP I	OTUP II	p-value	OTUP I	OTUP II	p-value
Length of membership (years)	3.92	3.22	ns	3.93	3.52	ns
Frequency of loans	3.26	2.68	ns	3.16	2.89	ns
Size of last loan (Tk.)	10338	6227	<0.01	8235	7091	ns

Note: ns=not significant at the 10% level

Figure 7 shows use of last loan (taken from MFIs) of the OTUP members who were selected from exiting VO members of microfinance. Use of loan for productive purposes such as investing in business and purchasing productive assets was observed for both OTUP I and OTUP II households. However, use of loans for current family expenditure and repaying other loans was significantly observed for both OTUP I and OTUP II households; this probably indicates that they were unable to adequately use the services of conventional microfinance. When we analyze use of last loan (taken from MFIs) of the OTUP members who were selected from drop-out clients of microfinance, use of loans for current family consumption and paying other loans was also significantly observed (Figure 8).

Figure 7. Use of last loan (taken from MFIs) the OTUP members who were selected from existing VO members

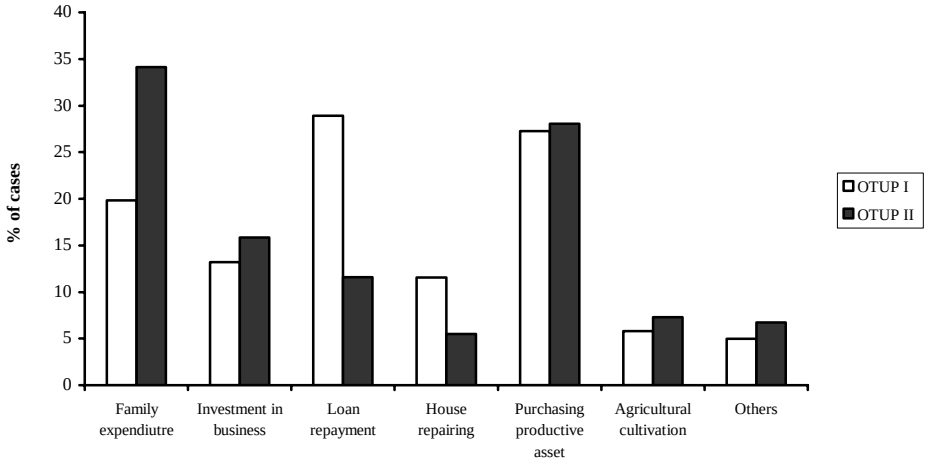
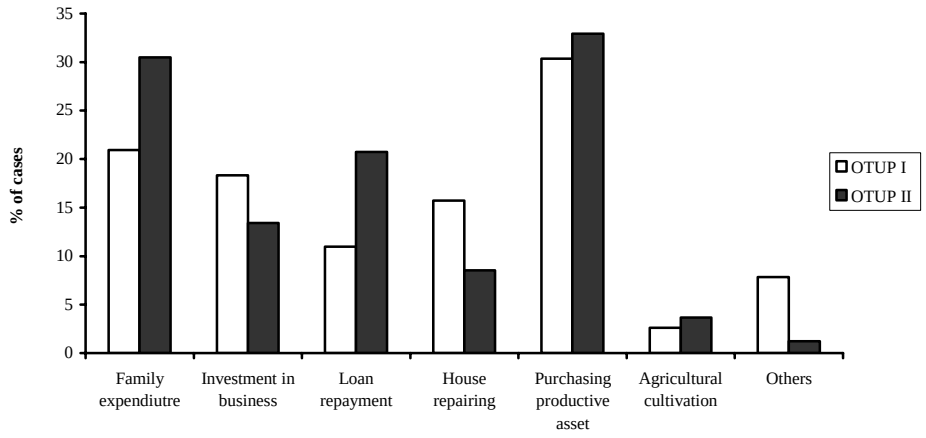


Figure 8. Use of last loan (taken from MFIs) of the OTUP members who were selected from drop-out clients of microfinance



CONCLUSION

The objective of this chapter was to analyze and compare the baseline profiles of the OTUP I and OTUP II households. Another objective was to compare the OTUP households with the STUP II households. Regarding the basic socio-demographic profile it was found that STUP II households were largely female headed compared to both groups of OTUP households although statistically significant difference was not found between the two groups of OTUP households. Proportions of female and widow members were also found to be higher among the STUP II households.

Expectedly, asset base of both groups of OTUP households was found to be stronger than the STUP II households. However, among the two groups of OTUP households, asset base including livestock, poultry, and van/rickshaw was found to be stronger for the OTUP II. Non-farm self-employment was found to be a key income source of both the groups of OTUP households, whereas agricultural day labour and working as house maid were the main sources of income of the STUP II households. Among the two groups of OTUP households, day labour was more prevalent among the OTUP II.

OTUP households had a greater number of income sources compared to the STUP II households. Per capita income was found to be higher among the OTUP I households compared to the OTUP II households although income poverty and calorie based poverty analysis provide mixed picture regarding vulnerability in the OTUP I survey sites. In the vulnerability context such as facing crisis and health seeking behaviour, although STUP II households were found to be more

vulnerable compared to the both groups of OTUP households, no significant variation was observed between the two groups of OTUP households.

It was found that more than one-third of the OTUP members were selected from existing VO members and drop-out clients from microfinance. Analyzing use of last loan (taken from MFIs) of this group of members, it was found that the loan was significantly used for repaying other loans and current family consumption. This is probably an indication that they have been unable to adequately use the services of conventional microfinance.

To summarize, in almost all socioeconomic indicators analyzed in this section both groups of OTUP households were found to be better of than the STUP II households. This is expected because OTUP package was designed for the ultra poor who are less deprived than the STUP. The package differentiation between OTUP I and OTUP II assumed some structural difference between them. Although the evidence was mixed regarding the difference between OTUP I and OTUP II, the OTUP II households were found to have strong asset base including livestock, poultry, and van/rickshaw.

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Acronyms

ANC	Anti natal care
BBS	Bangladesh Bureau of Statistics
BDHS	Bangladesh Demographic and Health Service
BDP	BRAC Development Programme
BMI	Body Mass Index
BRAC	Bangladesh Rural Advancement Committee
CBM	Cost of Basic needs
CDR	Crude Death Rate
CED	Chronically Energy Deficient
CF	Conversion Factors
CFPR I/II	Challenging the Frontiers of Poverty Reduction
CIDA	Canadian International Development Agency
DFID	Department for International Development
EHC	Essential Health Care
GANW	General Attitude Towards Man and Woman
GDBC	*Gram Daridro Bimochon* Committee
GLV	Green leafy vegetable
GQAL	Gender Quality Action Learning
HAZ	Height-for-Age
HCP	Health Care Provider
HDI	Human Development Index
HIES	Household Income Expenditure Survey
HKI	Helen Keller International
IFA	Iron folic acid
IGA	Income Generating Activity
MBBS	Bachelor of Medicine and Bachelor of Surgery
MDG	Millennium Development Goal
MFI	Micro Finance Institution
MUAC	Mid Upper Arm Circumference
NGO	Non-Government Organization
NGQAL	Non-GQAL

NP	Non-poor
NSUP	Non selected Ultra Poor
NTP	Non-Targeted Poor
OTC	Over the counter
OTUP I/II	Other Targeted Ultra Poor
PNS	Post natal care
PRA	Participatory Rural Appraisal
PSM	Propensity Score Matching
RCT	Randomized Control and Treatment
RDRS	Rangpur Dinajpur Rural Society
RED	Research and Evaluation Division
SD	Standard Deviation
SS	*Shasthya Shebika*
SSC	Secondary School Certificate
STUP I/STUP II	Selected Targeted Ultra Poor
TALC	Tape at low cost
TT	Tetanus Toxoid
TUP	Targeted Ultra Poor
UHC	Upazila Health Complex
UHFWC	Union Health and Family Welfare Centre
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organizations
VAW	Violence Against Woman
VGD	Vulnerable Group Development
VO	Village Organization
WAZ	Weight-for-Age
WFP	World Food Programme
WHO	World Health Organization