

The impact of BRAC on Poverty Dynamics and Poverty Transition: Results of Panel Data Analysis

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Abstract

This paper looks into the issue of economic graduation of the poor and tries to finding out the impact of BRAC's Rural Development Programme (RDP) on it. Economic graduation is defined by the upward mobility of the poor along the poverty-pyramid into non-poor status and the ability of the vulnerable non-poor to sustain their position. Here both the expenditure and perceptual methods are considered in defining poverty. For the analysis of impact a panel data set on 419 RDP members and 81 comparable non-RDP households collected twice in 1997 and 2001 were used. Results show that when poverty among non-RDP comparison households increased from 68% to 73%, it declined from 59% to 52% among RDP member households. Poverty gap also declined sharply among the latter group. Regarding poverty inequality a declining trend was observed for both of the groups. RDP made significant contribution in the upward mobility of the poor. The extreme poor RDP households did quite well in terms of upward mobility. Although the rate of overall downward mobility among RDP members was relatively less than the rate among comparison households, almost half of the RDP's initial non-poor slipped into poverty. Results of multivariate analysis show significant positive association of poverty graduation with households' initial wealth base and changes in village level infrastructure which indicate that for making significant change in the lives of the poor necessary steps should be taken for strengthening household's physical asset base and also for providing rural infrastructure.

Introduction

Poverty graduation is not just only about having adequate income or expenditure above the poverty line but is also the ability to sustain a specified level of well being. The economic graduation of the poor, therefore, can be thought of as the upward movement of the extreme and moderate poor along the poverty-pyramid into non-poor status, and the ability of the vulnerable non-poor to sustain their position. There can be many obstacles in the process of economic graduation. Some are related with structural factors, the others related with crisis. This paper looks into the issues of poverty graduation and tries to find out the impact of BRAC's Rural Development Programme (RDP)¹ on it. For the analysis of impact both the 'with and without' and 'before and after' approaches have been used.

Looking at poverty dynamics by using repeated cross sectional data is a common practice that serves the purpose of monitoring poverty at the aggregate level. It gives a one-shot picture about the poverty status at a given period of time. But poverty is quite often a transitional phenomenon. Anyone can fall into poverty at a certain period of time due to temporary shocks. Results of longitudinal surveys in different industrialized and even in developing countries prove this hypothesis (see Duncan, et al, 1993; Waker and Ryan, 1990; Ravallion and Jalan, 1996 Baulch and McCulloch 1998). The conventional way of looking the issue by using the cross sectional data does not address the question of poverty transition. Moving in and out of poverty by an individual household can be tracked only if some panel data can be generated. For example, Walker and Ryan in their work in eight villages in southern India in the late 1970s and early 1980s found that around a quarter of poor households moved out of poverty from year to year. Similar results have also been observed in four villages in rural Pakistan by Adams and He and in four provinces in southern China by Ravallion and Jalan and Gaiha in India by using a sub-sample of the All India National Household Sample Survey. Baulch and McCulloch, for example, by investigating poverty dynamics in rural Pakistan using a five year panel data came up with findings that out of the total 686 sample households 58% have some experience of poverty over this period. However, a quarter were only in poverty for one year whilst over a third are in poverty for two or more years. Only 3 percent of the sample households had incomes below the poverty line in all five years of the panel. The BIDS study on analysis of Poverty trends in 62 villages resurvey show that 18% of the poor escaped their income-poverty trap during 1989/90-1994 period another 17% fall into poverty. The reasons behind upward and downward mobility was directly linked with household income growth. A negative or declining income growth is associated with downward mobility and vice versa. The other factors influencing the mobility were highly related with technology, infrastructure, schooling and the level of household's human and physical initial endowment (Sen, 1996).

As said in the above the upward mobility is highly linked with income growth. For the poor rural households employment is the major source of income. Since one of the major objectives of BRAC's development programmes is creation of new employment opportunities, it is expected that providing of credit access to the poor in times of emergency needs would help to ease the burden of the shocks which can ultimately prevent the risk of income erosion and therefore, can make an impact to halt or slow down greater downward mobility.

The Data set

One of the objectives of BRAC's Impact Assessment System was to create a panel data for measuring the impact over time. It should be noted here that in all the three round surveys conducted in 1993-94, 1996-97 and 2001 we did not follow the same methodology regarding sample size and the volume of information collected. The 1993-94 survey carried out over 1500 BRAC member and 750 non-member comparison households. In the 1996-97 survey we retained only one third of BRAC and comparison households of IAS-I, and added another 750 BRAC households for representing BRAC's current outreach (for detail please see Husain (ed.), 1998). In the last survey conducted in February-March 2001 we decided to restrict only on the IAS-II sample. At the same time it has been decided to replace those who

dropped out from BRAC RDP membership with other current BRAC members of similar membership length². For the comparison households we retained the pure comparison group and replaced the dead, migrants, unsuccessful cases and those who already joined other NGOs with the households of similar socio-economic condition, living in the same villages but not members of any NGO. In terms of indicators, in the IAS-I we collected expenditure and income data for the last one week preceding the interview that cannot address the question of seasonality. Regarding expenditure there are everyday items which are being purchased most frequently whereas the items like clothes, repairing of houses or like paying of taxes are not done most frequently and not also in any time during the year. For example, house repairing or construction is made in the dry period of the year. Payment of school fees are also made in a certain period of the year. The expenditure for treatment also varies due to variation in the prevalence of illness across season. Taking into consideration all the shortcomings in the questionnaire of IAS-I we made necessary modification in the questionnaire that had been used in the second IAS survey. In the third IAS survey we retained all the questions of the second survey but added questions like income and employment, which were excluded in the previous one. For the analysis of impact on poverty dynamics over time here we use those information from the second and third survey that can be comparable. The sample considered here were visited twice once in 1996 and latter in 2001. It has been found that a total of 419 BRAC member and 81 non-BRAC households were visited in both of these two periods and information were collected on them. Analyses in this paper have been restricted only to those households. Here poverty is defined by expenditure scale based on cost of basic needs approach. The absolute poverty line expenditure for the second and third IASs were Tk. 7,019 and Tk. 7,328 respectively. The calculated extreme poverty line expenditure for these two periods were Tk. 4,723 and Tk. 4,829 respectively. It should be mentioned here that data on poverty perception based on food deficit status during the last one year preceding the interview were collected in all the three IASs. Results of such data would be presented in the respective section to show the long-term impact.

Trends in poverty

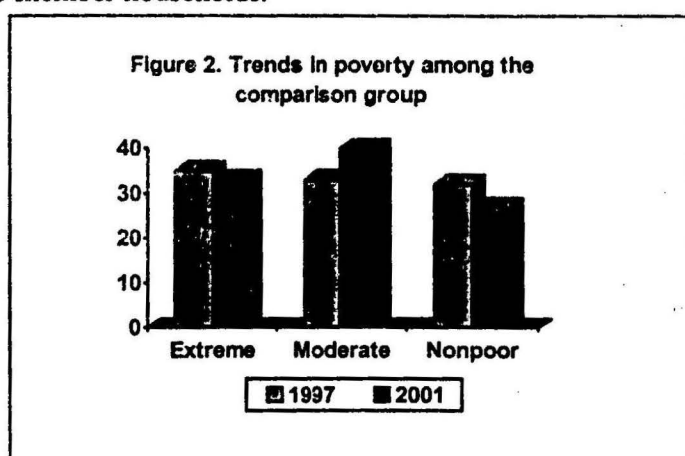
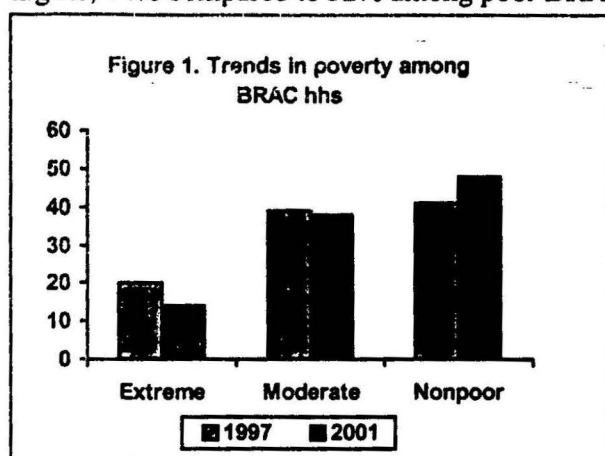
The overall poverty among all sample households during the last four year period has reduced from 61% to 56%. The annual rate of poverty reduction was 1.25%. The extreme poverty has also reduced from 23% to 17%, i.e., 1.5% annually (Table 1).

Poverty among BRAC households has declined from 59% to 52% i.e., 1.75% annually. Their extreme poverty has also reduced by six percentage points, from 20% to 14%. The incidence of poverty among non-BRAC comparison households has increased by five percentage points from 68% to 73%. Although the extent of their extreme poverty declined slightly (from 35% to 33%), it was nearly two and a half times higher than the extent of extreme poverty among BRAC and around two times higher compared to the mean for all (Figures 1 and 2 and Table 1).

The poverty gap index³ describing depth of poverty has reduced by 2.4 percentage points for BRAC, whereas for comparison group it has increased by 0.4 percentage points. Changes in the Foster Greer Thorbecke (FGT) index⁴, describing the severity of poverty among the poor show some declining trend for both BRAC and comparison groups. For BRAC the FGT index declined from 5.4% to 4.4% which means that in the last four-year period the inequality among BRAC poor member households has reduced at least one fifth. For comparison group the cumulative reduction over this period was only two percent.

There are also other indicators used in the poverty analyses. The most commonly used indices are income gap ratio, Gini coefficient, Sen and Kakwani indices describing mainly the inequality of poverty. Details on these measurements are given in Appendix 1. Results show an overall declining trend in the income gap ratio for BRAC and comparison households. For BRAC the gap was reduced by two percentage points whereas for comparison households it was about five percentage points. Although the rate of reduction was significantly higher for comparison households, the initial dispersion in income range

among the poor comparison households was much higher and still in the year 2001 the gap was much higher, 44% compared to 32% among poor BRAC member households.



Results of Gini coefficient show significantly higher income inequality among comparison households in both of these two periods of time. Over the last five year period inequality among BRAC poor households increased slightly. For comparison households even though its present value is more than three times higher than BRAC, it has reduced significantly compared to its initial value. Results of Sen and Kakwani indexes show an overall-declining trend both for BRAC and comparison households, but the rates of reduction were significantly higher for BRAC. Higher value of Sen and Kakwani indexes in both of these two periods indicate existence of higher inequality among the comparison poor.

Table 1. Analysis of poverty trends for 1997-2001

Indicators	BRAC		Comparison	
	IAS-II	IAS-III	IAS-II	IAS-III
Headcount index (%)				
All poor	59	52	68	73
Extreme poor	20	14	35	33
Moderate poor	39	38	33	40
Poverty gap	15.2	12.8	22.2	22.4
FGT index	5.4	4.4	9.0	8.8
Income gap ratio among the poor	0.34	0.32	0.49	0.44
Degree of inequality among the poor (% share)	1.42	1.49	5.51	4.41
Sen index	.21	.17	.35	.34
Kakwani index	.21	.18	.37	.36

Changes in poverty transition/ Movement in and out of poverty

Although poverty graduation is the ultimate goal of all development initiatives, available literature reveal that poverty graduation is a long-term process. Other factors remaining the same with an annual growth rate of 4% the crossover period for an extreme and moderate poor households were about 23 and 13 year respectively (Sen, 1997). If so this is too early to expect that all the poor will cross the poverty line during the last four year period. There can be some qualitative shift towards the better. Higher rate of reduction in poverty and its inequality among BRAC compared to the non-BRAC households and the nation average (one percent annual as mentioned in Rahman et al, 1996) indicates that BRAC's development initiatives made some positive impact towards the better.

Poverty is also a temporal phenomenon highly correlating with externalities. Any sudden shock can for a nonpoor to move down. One of the other objectives of BRAC's development initiatives is to reduce t

vulnerability by increasing the capacity to cope with any crisis. If so, the rate of downward mobility among BRAC would be lower.

Table 2 presents movement in and out of poverty of different poverty groups during the last four-year period. According to table, 25% of BRAC households who were extreme poor in the base year could escape their poverty during the spell and another 49% shifted to moderate poverty group. Only 26% remained in the same group. Among the comparison extreme poor households the rate of graduation was four percentage points lower than that of BRAC (21%). The rate of moving from extreme to moderate poverty group was almost double among BRAC households. The rate of graduation from moderate poverty was also 21% points higher for BRAC. On the other hand the retention rate of non-poor households in the same category was significantly higher for BRAC. Fifty six percent of BRAC households who were non-poor in 1997 stayed in the same category in 2001 compared to 35% among the comparison households. One-third of the non-poor slipped down to the extreme poor category, another 40% moved towards moderate poverty category. The rate of downward mobility towards extreme poverty among BRAC's initial nonpoor was significantly lower compared to its rate among the initial nonpoor comparison households (8.8% vs 26.9%).

Table 2. Poverty trend analysis by member category among the panel hhs (% of row total)

IAS-II Status			BRAC (IAS-III)			Comparison (IAS-III)		
Poverty status	Sample		Extreme Poor	Moderate Poor	Non-poor	Extreme Poor	Moderate Poor	Non-poor
	BRAC	Comparison						
Extreme Poor	85	28	25.9	49.4	24.7	53.6	25.0	21.4
Moderate Poor	163	27	14.1	34.4	51.5	18.5	55.6	25.9
Non-poor	171	26	8.8	35.7	55.6	26.9	38.5	34.6
Total	419	81	14.3	37.9	47.7	33.3	39.5	27.2

Figures in parentheses indicate number of households

Table 3 gives the overall picture on poverty fluctuations by classifying the entire sample into four mutually exclusive categories. The categories are i) those who could stay above the poverty line during the spell; ii) those who could escape poverty; iii) those who recently became poor and iv) those who continued to stay poor. As shown in the table during the spell 23% of BRAC and 11% of comparison households could halt their downward poverty movement and stayed above the poverty line in 2001. One-fourth of BRAC poor households escaped their poverty and graduated to the non-poor group. For the comparison households the rate of graduation was 16%, i.e., 9% lower than BRAC. About one third of BRAC and half of the comparison households stayed poor during the spell.

It is important to mention here that one-fifth of BRAC and 46% of comparison households who could manage to escape their poverty came from the extreme poverty group. On the other hand, among those who stayed poor during the spell, only a part was the initial extreme poor households. Among those 18% of BRAC households who fall into poverty only one-fifth of them became extreme poor. The rate of downward mobility among the comparison households was 21%, i.e., three percentage points higher than BRAC. The rate of downward mobility to the extreme poor group also higher for comparison group (41% vs. 19%).

From the above discussion several points can be made. Those are as follows:

- Poverty among BRAC households has reduced seven percentage points from 59% to 52% during the last four years. The rate of reduction of poverty among BRAC households was 1.75% annually;

- When poverty among BRAC households reduced significantly an increasing trend in the incidence of poverty was observed among non-BRAC comparison households;
- BRAC made significant impact in the upward mobility of the poor. It also helped to halt downward mobility of the non poor;
- Percentage of households who remained poor (both extreme and moderate) at both times was significantly higher for the comparison group;
- The extreme poor group, especially the BRAC extreme poor households has done quite well in terms of upward mobility. The rate of upward mobility was 28 percentage points higher for BRAC.

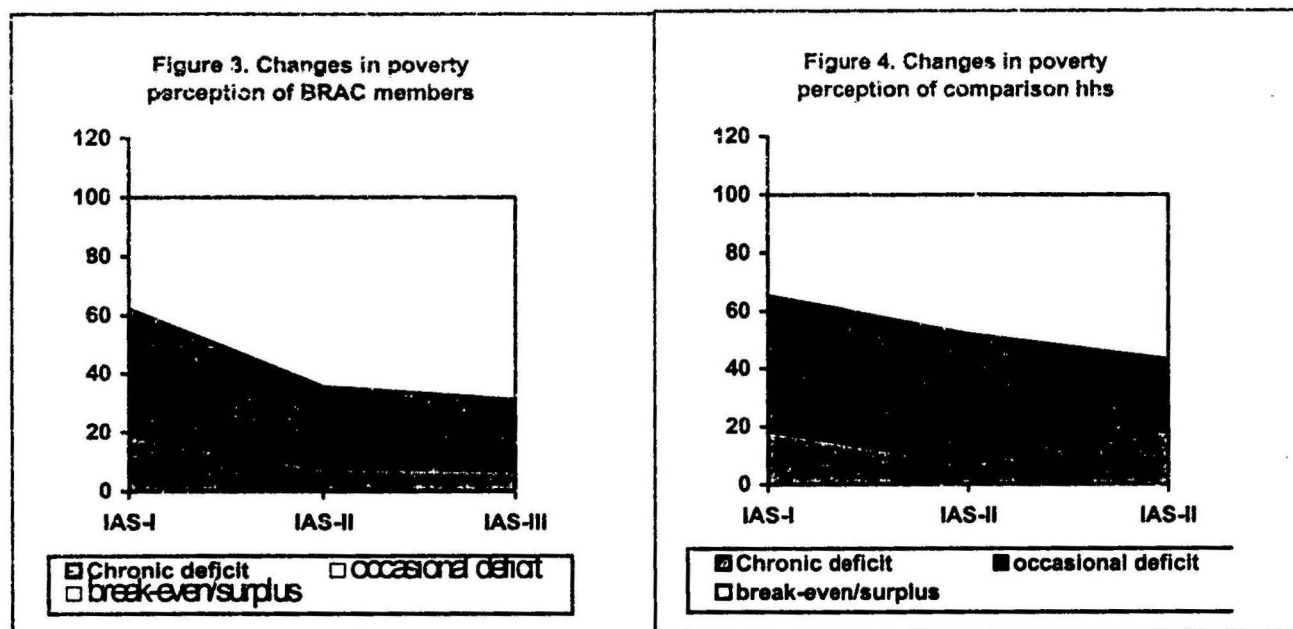
Table 3. Movement in and out of poverty among the panel households by membership category (% of all households)

Particulars	Spell 2: 1996/97-2001		
	BRAC	Com.	Total
A. Stayed nonpoor during the spell	22.7	11.1	20.8
B. Escaped poverty during the spell	25.1	16.0	23.6
Escaped from extreme poverty	5.0	7.4	5.4
Escaped from moderate poverty	20.1	8.6	18.2
C. Became poor during the spell	18.1	21.0	18.6
Became extreme poor	3.5	8.6	4.4
Became moderate poor	14.6	12.4	14.2
D. Stayed poor during the spell	34.1	51.9	37.0
Stayed in extreme poverty	5.3	18.5	7.4
Stayed in moderate poverty	13.4	18.5	14.2
Moving from extreme to moderate poverty	10.0	8.6	9.8
Sliding down from moderate to extreme poverty	5.5	6.2	5.6
E. Total (A+B+C+D)	419 (100)	81 (100)	500 (100)

Trends in poverty perception of the respondents

Besides traditional methods used there exists alternative ways of looking into poverty. One of the alternatives commonly used in the literature is using the notional concept of the perceptions of the respondents on their food deficit status during the last one-year period. The extreme poverty is defined as those who faced chronic food deficit during the reference period, moderate poor were the households who faced it occasionally. The non-poor households are those who were either in a break-even position or had surplus.

The perceived poverty of comparison households was significantly higher than that of BRAC, although a declining trend was observed for both of these two groups. Net reduction in overall poverty was higher for BRAC. The incidence of extreme poverty has increased slightly, only one percent among BRAC among the comparison the rate is very high, 11% (Table 4). Results of all three IASs where we could visit 138 BRAC and 81 comparison households show a sharp decrease in any type of poverty in the first spell and a relatively slowed trend in poverty reduction was observed in the second spell⁶ among BRAC households. Results of the comparison households also show an overall declining trend in poverty, but an increasing trend in extreme poverty was observed in the second spell (Figures 3 & 4).



Results of perceived poverty mobility in the second poverty spell presented in Table 5 shows similar trends of poverty mobility measured by expenditure scale. Here also trends of upward mobility was higher among BRAC households. Noticeable improvement was also observed among BRAC households who faced chronic deficit in 1997. Fifty-three percent of them could escape their poverty and another 27% shifted to moderate poverty group. Mobility of the extreme poor households was also very prominent but majority of them could shift to the moderate poor group. The rate of graduation from moderate poverty group was also very high among both of these two groups but relatively higher for BRAC. More than three-fourth of the BRAC nonpoor could retain their previous food security status and remain in the same group. Retention rate of comparison households to their previous non poor position was 54% that was 20 percentage points lower than the rate among BRAC non poor households. The rate of downward mobility was significantly lower among BRAC.

Table 4. Analysis of trends in overall poverty perception for 1997-2001 (percentage of column total)

Indicators	BRAC n=419		Comparison n=81	
	IAS-II	IAS-III	IAS-II	IAS-III
Chronic deficit	3.6	4.8	7.4	18.5
Occasional deficit	33.2	20.0	44.4	24.7
Total deficit	36.8	24.8	51.8	43.2
Break-even/surplus	63.2	75.2	48.1	56.8

Results of poverty mobility of households who were common in all three IASs presented in Table 6 show a very interesting dynamics of poverty mobility. According to the table, out of the total 219 sample households 183 (84%) experienced some kind of food deficit. Only 36 (16%) were either in a break-even position or had surplus.

Table 5. Movement in and out of perceptual poverty during IAS-II and IAS-III (percentage of row total)

IAS-II	IAS-III							
	BRAC				Comparison			
	Chronic deficit	Occasional deficit	Break-even /surplus	Total	Chronic deficit	Occasional deficit	Break-even /surplus	Total
Chronic deficit	20.0	26.7	53.3	100.0	16.7	66.7	16.7	100.0
Occasional deficit	4.3	23.0	72.7	100.0	19.4	13.9	66.7	100.0
Break-even /surplus	4.2	18.1	77.7	100.0	17.9	28.2	53.8	100.0

Figures in parentheses indicate number of households

Out of the total 41 households who were extreme poor facing chronic food deficit in 1993 only one stayed in the same group. Thirteen of them (32%) became nonpoor not facing any deficit in the year 2001. Among the moderate poor group only 10 out of 98 (10.2%) stayed in the same group during all the periods, 64 (65.3%) graduated to non poor group in 2001.

Table 6. Analysis of trends in poverty perception for 1997-2001 (No of the households)

IAS-I	IAS-II	BRAC (n=138)				Comparison (n=81)				Total (n=219)			
		IAS-III				IAS-III				IAS-III			
		CD	OD	B/S	T	CD	OD	B/S	T	CD	OD	B/S	T
Chronic deficit													
	CD	1	1	3	5	-	2	1	3	1	3	4	8
	OD	2	2	5	9	1		4	5	3	2	9	14
	B/S	1	2	9	12	-	3	4	7	1	5	13	19
	Total	4	5	17	26	1	5	9	15	5	10	26	41
Occasional deficit	CD	-	1	3	4	1	1	-	2	1	2	3	6
	OD	-	5	13	18	4	5	12	21	4	10	25	39
	B/S	-	9	29	38	4	4	7	15	4	13	36	53
	Total	-	15	45	60	9	10	19	38	9	25	64	98
Break-even /surplus	CD	1	-	1	2	-	1	-	1	1	1	1	3
	OD	2	3	6	11	2		8	10	4	3	14	21
	B/S	3	10	26	39	3	4	10	17	6	14	36	56
	Total	6	13	33	52	5	5	18	28	11	18	51	80
Total		10	33	95	138	15	20	46	81	25	53	141	219

CD- chronic deficit, OD- occasional deficit; B/S -break-even/surplus

Fluctuations in overall poverty perceptions in two poverty spells presented in Table 7 show a higher rate of upward mobility of BRAC households in both of these two poverty spells. During the first poverty spell 28% of BRAC and 21% of comparison nonpoor households belonging to break-even/surplus group at the time of IAS-I survey could retain their position in the year 1997. The rate of retention among the BRAC and comparison nonpoor households has increased up to 46% and 26% respectively during the second spell. The net increase in this ratio in the second spell was 13 percentage points higher among BRAC. In terms of graduation from deficit to non-deficit group, a downward trend is observed for BRAC which was opposite for the comparison group. But if combined results of first two groups, i.e., those who did not face any deficit during the spells and those who graduated to non deficit group, the proportion was higher for BRAC in both of these two spells but the rate of increase in overall upward mobility trend for comparison households was double (8.8%) that of BRAC (4.4%).

The downward mobility trends, both for BRAC and comparison households has increased over time as shown in the table. In terms of movements between chronic and occasional deficit group results show that although percentage of households fluctuating between chronic and occasional deficit groups in the first poverty spell was slightly higher among BRAC, the rate declined significantly over time. In case of comparison households, an increasing trend was observed.

Table 7. Movement in and out of poverty among the panel households by membership category (results of self categorization% of all households)

Particulars	Spell1: 1993-94 - 1996-97			Spell 2: 1996-97-2001		
	BRAC	Com.	Total	BRAC	Com.	Total
A. Stayed in the break-even/ surplus group during the spell	28.3	21.0	25.6	46.4	25.9	38.8
B. Graduated to break-even/ surplus group during the spell	36.2	27.2	32.9	22.5	30.9	25.6
Graduated from chronic deficit	8.7	8.6	8.7	5.1	1.2	3.7
Graduated from occasional deficit	27.5	18.5	24.2	17.4	29.6	21.9
C. Slipped into deficit group during the spell	9.4	13.6	11.0	18.1	22.2	19.6
Slipped into chronic deficit	1.4	1.2	1.4	2.9	8.6	5.0
Slipped into occasional deficit	8.0	12.3	9.6	15.2	13.6	14.6
D. Stayed with deficit during the spell	26.1	38.3	30.6	13.0	21.0	16.0
Stayed in chronic deficit group	3.6	3.7	3.7	1.4	1.2	1.4
Stayed in occasional deficit group	13.0	25.9	17.8	7.2	6.2	6.8
Fluctuating between chronic and occasional deficit group	9.4	8.6	9.1	4.3	13.6	7.8
E. Total (A+B+C+D)	100	100	100	100	100	100

Determinants of downward/upward mobility in income poverty

We have been able to measure the state of poverty movement but could not explain the causes underlying these changes due to lack of information. This is an weakness of our analysis. Partial explanation is provided by an analysis using an income growth model.

It is assumed that fluctuations in poverty are mainly related with the changes in income. Positive income growth would lead to upward mobility and vice versa. Although household endowment is very important, there also are other macro factors relating to the income growth of a household. To explain variations in income growth among the panel households a micro income growth model has been adopted. The village level initial conditions and changes in village level economic vibrancy over the last four years are considered here to explain the subsequent growth rate of households over the four year period. Here dependent variable is rate of growth per adult annual expenditure during the spell.

Village level vibrancy is a composite variable created by aggregating individual scores of eight indicators to express accessibility of households living in the given villages to certain infrastructure. The scores ranked from zero to five. The higher the value the better the condition in terms of the access to infrastructure of the individual village. Village level data were generated through the village profiles. Household level initial condition variables include household physical initial net-worth, households' initial human wealth proxied by education and sex of household heads and the initial level of expenditure. To show the impact of BRAC length of BRAC membership is considered as a proxy for receiving BRAC

services. It is expected that increasing length of membership increases the probability for receiving higher amount of BRAC services.

Results of OLS estimates of the parameters of the income-growth model are presented in Table 8. Significant positive association between household expenditure growth and improvement in village level infrastructure is observed. Households' initial net-worth, i.e., is the summation of all assets and savings excluding current debt, is found to be the most significant influencing factor in income growth. Positive and significant association between village level changes and household expenditure growth and the second highest *t* value after net-worth indicate that improvement in village level infrastructure played second key role in household income /expenditure growth after household initial physical wealth. Household head's higher education level also played an important role to cope better with downward mobility. Negative but not significant coefficient of dummy for sex of household head (female=1) indicate lower but not significant association with income growth and sex of household heads. Signs of initial expenditure per adult, expenditure per adult square and expenditure per adult cube (negative, positive and then negative) indicate that distribution of income/expenditure growth is nonlinear.

Length of BRAC membership that is primarily taken as a proxy for BRAC's assistance influenced significantly in household's expenditure growth which is shown by positive and significant beta coefficient.

Results of multivariate analysis provide part of the explanation of the movement in and out of poverty. Positive relationship among expenditure growth, households' physical wealth and changes in village level vibrancy indicate higher probability of upward mobility for households living in villages where some structural changes have taken place. It also indicates that the upward mobility of a household can be expedited by strengthening its physical and human asset base. BRAC as a development actor also played a vital role in expenditure growth, which ultimately reduces the risk of downward mobility pressure.

Table 8. Determinants of Per Capita Rural household Expenditure Growth: 1996 and 2001 Panel Survey Data

Explanatory Variables	Dependent Variable: CHNG_R=Rate of growth in per adult annual expenditure of households			
	Beta Coefficients	Std. Error	t value	Sig.
(Constant)	242.432	44.476	5.451	.000
<u>Changes in village level condition</u>				
Changes in village level vibrancy	.508	.240	2.121	.034
<u>Households initial condition</u>				
Dummy for education of hh heads				
Primary	7.499	6.139	1.222	.222
Secondary or above	10.730	6.450	1.664	.097
Dummy for sex of hh head	-7.316	7.688	-.952	.342
Networth for IASII	.737	.264	2.797	.005
Per adult expenditure for IASII (taka)	-6.200	1.701	-3.645	.000
Per adult expenditure square for IASII	5.191E-04	.000	2.566	.011
Per adult expenditure cube for IASII	-1.631E-06	.000	-2.171	.030
<u>BRAC's assistance</u>				
Length of BRAC membership	.143	.046	3.123	.002
R square	.336			
Adjusted R square	.324			
F	27.52			
N	500			

Although households' poverty mobility is associated with income growth, there are other risk factors that may affect an individual household but may not be common for all. All the explanatory variables considered here could explain only about third of the variation in income growth rates at the household level.

The other factors relating to poverty mobility at the household level not considered here in the analysis might be many. The BIDS study found causes of downward mobility are of three types. First one related to shock-events associated with different crisis and natural calamities; second group of factors related with life-cycle factors, including increase in dependency, split in the family and the third group related with structural factors, including inflation, declining employment and earning opportunities, lack of access to capital and reduced entry to tenancy market etc. In upward mobility predominant role plays the structural factors like increase in the scope for employment and higher income, greater access to tenancy market and diversification of income sources.

Key conclusions

Analysis of panel data covering 419 BRAC and 81 non-BRAC households presented in the chapter show that BRAC membership made significant impact in poverty graduation. It reveals that:

In the last four year period when the expenditure based poverty among BRAC households declined from 59% to 52%, it has increased five percentage points from 68% to 73% among the non-BRAC comparison households;

Poverty intensity and its depth among all poor have also reduced sharply but the rate of reduction was significantly higher for BRAC;

Results of income gap ratio, Kakwani and Sen indices indicating mainly inequality among the poor also show a declining trend irrespective of membership status. The rates of reduction were also significantly higher for BRAC households. High initial and present value of all indices for comparison households indicate current existence of higher inequality among them;

Results of Gini coefficient show a slightly increasing trend in income inequality among the BRAC poor households. For the comparison poor, even though their inequality reduced sharply compared to its initial value, it still remains many times higher than for BRAC;

Results of poverty mobility defined by both expenditure scale and perceptions on food deficit show significant positive impact of BRAC interventions enhancing upward mobility of BRAC households along the poverty pyramid;

Although BRAC made significant contribution in poverty reduction it is important to note that 46% of the BRAC's initial nonpoor members slipped into poverty. Although the rate of downward mobility among BRAC members was less than that of the comparison households, BRAC should think what could be done to reduce this trend further;

Significant positive association between income/ expenditure growth with households' initial wealth base defined by net-worth and changes in village level infrastructure indicate that to make significant change in the lives of the poor necessary steps should be taken for strengthening household's physical asset base and also in providing rural infrastructure.

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One of the most common measure of income inequality distribution is the Gini coefficient, which is based on the Lorenz curve. A number of gini-coefficient is available (in this study, the Gini coefficient of David Paris is used for measuring degree of inequality (in Anand 1983).

$$G = 2 / (n^2 \mu) [1y_1 + 2y_2 + 3y_3 + \dots + ny_n],$$

for $y_1 \leq y_2 \leq y_3 \leq \dots \leq y_n$

where:

G = gini coefficient

μ = mean of per capita expenditure

y_1, \dots, y_n = individual per capita income

Head count ratio (H) = q/N where q is the number of poor households having income no greater than the poverty line expenditure X (for IAS_II it was Tk. 7,019 and for IAS_III it was Tk. 7,328 and N is the number of total households

Income gap ratio (I) = $[X - M^*] / M^*$ where M^* is the per capita income of the poor

Sen index (Psen) = $H[I + (1-I)G^*]$ where G^* income inequality among the poor

Kakwani index = $(H/M)[X - M^*(1 - G^*)]$, where M is the per capita income of all households

$$\text{Foster - Greer - Thorbecke (FGT)} = \frac{1}{n} \sum_{i=1}^q \left[\frac{X - M^*}{q} \right]^2$$

$$\text{Poverty Gap ratio (PG)} = \frac{1}{n} \sum_{i=1}^q \left[\frac{X - M^*}{q} \right]$$

Endnotes

¹ BRAC's rural development programme (RDP) is part of today's BRAC's development programme (BDP), the latter includes activities in both urban and rural sectors. RDP was launched in 1986 by amalgamating the Outreach Programme and the Rural Credit and Training Programme (RCTP). Before 1999 it was mainly concentrated in rural areas. RDP targets mainly the rural poor women, organizes them through Village Organizations (VOs), provides them with credit, capacity development and awareness raising training, supply of inputs and other extension services to bring about positive changes in the quality of life of the poor. Savings mobilization, institution building, providing of essential health services also part of its service package.

More than one decade has passed after the inception of RDP. During this period of operation the programme has expanded all over 64 districts of Bangladesh. Growth of BDP since its inception was manifold. As of May 2001 number of programme participants increased from 0.12 million to 4.04 million. Out of the total 4.04 million participants, 3.03 million (75%) received credit and 2.49 million (61.6%) received any skill development training. During this period a total of Tk. 60,511 million were disbursed among all its borrowers. The outstanding loan of BRAC at the end of May 2001 was Tk. 8,300 million. Amount of savings accumulated by the programme participants through this period was Tk. 3,850 million that was about the half of their outstanding loan.

² As reported in different BRAC programme documents the annual dropout rate from BRAC RDP membership is about seven percent. The recent BIDS impact study on PKSF funded programme beneficiaries also show the same. If so, then it is expected that during the last five years after the first round of our second Impact Assessment Study survey conducted in September 1996 at least 35% of our BRAC sampled members would drop out.

³ Poverty gap index is defined by the mean distance below the poverty line as a proportion of that line (where the mean is formed over the entire population, counting the nonpoor as having zero poverty gap)

⁴ The FGT index or alternatively called as squared poverty-gap index is defined as the mean of the squared proportionate poverty gaps (again the mean is formed over the entire population, counting the nonpoor as having zero poverty gap)

⁵ first spell is defined as the period between IAS-I and IAS-II surveys

⁶ second spell is defined as the period between IAS-II and IAS-III surveys