Disaster, Population and Poverty Dynamics Among Bangladeshi Household

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Introduction

South Asia has the largest concentration of the worlds' poor, with over half a billion people surviving on less than a dollar a day. One of the Millennium Development Goals (MDG) is halving the proportion of the world's people whose income is less than one dollar a day and the proportion of people who suffer from hunger by the year 2015 (OECD 2001). The success of poverty alleviation programs in South Asia is critical if this MDG is to be met. Within South Asia, Bangladesh has the highest incidence of poverty and only India and China have larger numbers of poor people. Given that poverty alleviation is one of the most important challenges faced by the international community today (ILO 2003), an understanding of the dynamics of poverty is critical to the formulation of appropriate policy[1]. Also, households in most developing countries face a high level of income variability due to factors beyond their control, and their poverty makes them particularly vulnerable to shocks. Common shocks such as floods are experienced by everyone in the population. However, some households or individuals are affected more than others.

The poor can be divided into those who remain poor continuously over time and those who enter and exit poverty from time to time. A large proportion of the poor include people moving into and out of poverty (Baulch and Hoddinott 2000). The poor are the most vulnerable to health hazards, economic downturns, natural catastrophes, and even man-made violence (World Bank 2001). The World Bank defines vulnerability as the likelihood of being affected by shocks, which have negative impacts on the income and consumption levels of poor households. Depending on how well households are able to cope, they could

[1] Poverty dynamics is defined as the movement into and out of poverty (Baulch and Hoddinott 2000).

remain in poverty or may be able to move out of poverty following the shock (Baulch and Hoddinott 2000). The coping strategies that result in consumption smoothing in response to a shock reflect poverty dynamics. Recent advances in computation coupled with the more frequent collection of panel data at the household level have contributed to the study of both the dynamics of poverty and the coping strategies that households use over time as they attempt to escape poverty. Recent studies of poverty, a topic widely covered in the literature, have focused on the dynamics of poverty, including what it means to be in poverty for the long term versus in the transient poverty state.

Given this perspective, this paper proposes to analyze issues relating to chronic and transient poverty following a negative income shock due to floods using a short panel of household data from Bangladesh. The first objective of the study is to identify those who experienced poverty following the 1998 flood and those who did not. The second objective is to determine the differences between those among the poor who are able to eventually escape poverty following the flood (the transient poor) versus those unable to leave poverty (the chronic poor). Attempt will be made to examine the determinants of chronic and transient poor and to study factors that enabled some households cope better than the others. Such an analysis would help in targeting the vulnerable and designing better poverty polices. This desegregation of the population will bring into focus and refine policies that are implemented to tackle the problem of acute poverty in Bangladesh. The analysis will also help in widening our knowledge of as to why some households perform better than others in terms of recovering from a shock.

Shocks in Bangladesh

The World Bank defines vulnerability as the likelihood of being affected by shocks, which have negative impacts on the income and consumption of poor households. Further,

households in most developing countries face a high level of income variability due to factors beyond their control, and their poverty makes them particularly vulnerable to shocks.

In 1998, Bangladesh experienced one of the largest floods of the century, which covered more than two-thirds of the country and caused a loss of 2.04 million metric tons of rice crop (Del Ninno *et al.* 2001). While the overall economic impact of this flood was less severe than previous flood occurrences and caused less damage than anticipated (Benson and Clay 2002), the floods significantly damaged the crops and other productive assets and further contributed to underemployment. Fortunately, trade liberalization in the early 1990s made large-scale private food imports possible, and government food transfers and non-governmental organization activities averted a major food crisis in Bangladesh.

In Bangladesh, the agricultural sector and the labor market were the most negatively affected after the 1998 flood. Households coped by growing alternative crops and feeding alternative feed to livestock, and by finding alternative employment opportunities. Private borrowing, used mainly for buying food, was the most widely used coping mechanism relied on by Bangladeshi households (del Ninno et al. 2001). Subsequent food insecurity resulted in households buying food on credit, reducing food consumption, and borrowing money to buy food. The resulting changes in food consumption had health implications, especially among children: an increase in stunting and wasting among Bangladeshi preschoolers was observed (del Ninno et al. 2003).

Admittedly, shocks are an integral part of a developing economy and policies should be geared towards equipping the poor to cope. The standard policy prescriptions aimed at poverty reduction typically focus on ways to improve the mean utility of a poor household. In contrast, policies that reduce the variance of households' well-being over time are becoming increasingly popular. Here a distinction is being made between policies aimed at reducing chronic poverty and those to reduce transient poverty. The World Bank (2002a)

recommends a social protection strategy that extends "beyond the traditional poverty reduction measures, to focus on creating opportunities for households to manage risk better, primarily through a variety of instruments that perform the role of safety nets" (World Bank 2002a p. vi).

Poverty in Bangladesh

Bangladesh is the eighth most populous country in the world with a total population of 135.7 million persons and a population growth rate of 1.7 percent per annum in 2002 (World Bank, 2004). It is a small country covering 144 thousand square kilometer (as of 2001) with a population density of 1024 per square kilometer (as of 2002). Looking at Table 1.1 shows that Bangladesh has a higher population density and total fertility rate than India.

Table 1.1: Country Profile

Country	Total Population	Population Density (annual %)	Fertility (births per woman)
Bangladesh	135.7 million	1.7	3
India	1 billion	1.6	2.9
Pakistan	144.9 million	2.4	4.5

Source: World Development Indicators database, April 2004.

It is recognized as one of the most disaster-prone countries in the world (Benson and Clay 2002). These factors make Bangladesh one of the most vulnerable societies in the world. From the time of its independence in 1971, Bangladesh has made considerable progress on all fronts (World Bank 2003b). The country has achieved commendable reductions in population growth rates, child mortality and child malnutrition (World Bank 2002b). There has also been successful disaster management, increasing emancipation of women and growth of grass-root activism through Non-government Organizations (NGOs) and Community-based Organizations (CBOs) (World Bank 2003b).

There has been a reduction in both 'income poverty' and 'human poverty' in Bangladesh since independence. Human poverty in Bangladesh has declined at a faster rate

than income poverty in the past two decades but income poverty reduction has been faster in the 1990s compared to the 1980s. Overall income poverty has declined at the rate of 1 percent per annum (World Bank 2003b). Despite this progress, there has also been an increase in inequality, both income and gender, during this period. The difference in poverty between the poor and the poorest group is stark, where 45 percent of the poor live in extreme poverty. Further, extreme poverty is higher among female-headed or female-managed households. Table 1.2 shows that while all poverty measures declined from 1991-92 to 2000, the Gini index of inequality index indicates an increase in income inequality in Bangladesh (World Bank 2003b).

Table 1.2: Trends in Poverty and Inequality in the 1990s in Bangladesh.

	1991/92	2000	Change per year (%)
Headcount Rate			
National	58.8	49.8	-1.8
Rural	44.9	36.6	-2.2
Urban	61.2	53.0	-1.6
Poverty Gap			
National	17.2	12.9	-2.9
Rural	12.0	9.5	-2.5
Urban	18.1	13.8	-2.8
Squared Poverty Gap			
National	6.8	4.6	-3.8
Rural	4.4	3.4	-2.7
Urban	7.2	4.9	-3.8
Gini Index of Inequality	0.259	0.306	2.1
National	0.307	0.368	2.3
Rural	0.243	0.271	1.4
Urban			

Source: BBS, Preliminary Report of Household Income and Expenditure Survey 2000, Dhaka, 2001 and World Bank, op.cit.(World Bank 2003b).

Roughly, half of Bangladesh's population still lives in extreme poverty (World Bank 2002b). Poverty declined by 9 percent over 1990-2000 but the absolute number of poor remained stable because of population growth. There have also been changes in the

structural composition of the Bangladeshi economy. During the 1990s, the share of agriculture in the Gross Domestic Product (GDP) declined and that of the service and manufacturing industry sectors increased. Structural adjustments in terms of trade liberalization since the 1980s brought about macroeconomic stability, improved fiscal and monetary management and encouraged private sector investment in the economy (Benson and Clay 2002). The question becomes, given these important changes in Bangladesh, how the vulnerability of these households can be reduced so as to better adjust to exogenous shocks. Among Bangladesh's poor, this is a critical question.

Poverty dynamics

The traditional method of measuring poverty is to use the consumption or income concept (defined as income poverty). An individual is deemed poor if his/her consumption or income falls below the set minimum. The poverty line sets this minimum standard specific to each society (Lipton and Ravallion 1995). According to Hulme and Shepherd (2003), policy makers often define the poor as those individuals who have not been integrated into the market economy and policy goals often tend to view the poor as belonging to a single homogeneous category. Further, policy makers tend to focus on only those poor whom the market can help (Hulme and Shepherd 2003). Poverty measures such as the head count ratio[2] are static measures that are useful for gauging the prevalence of poverty but do

[2] The most basic measure of poverty is the head count, which is the count of the poor below the poverty line. The head count index is the head count of those in poverty as the fraction of the total population. Other measures are the poverty gap index and the squared poverty gap index (Ray 1998). The depth of poverty is measured by the poverty gap index that calculates the average income shortfall from the poverty line. The squared poverty gap index measures the severity of poverty taking into account both distance separating the poor from the poverty line and income inequality (Ray 1998). These measures can be represented using the following equation where z is the poverty line, y is per capita expenditure and N is population size (World Bank 2002b):
$P_\alpha = \Sigma\, [(z-y)/z]^\alpha / N$ with $\alpha = 0$, 1 or 2, where $\alpha = 0$ gives the head count index, $\alpha = 1$ gives the poverty gap index and $\alpha = 2$ gives the squared poverty gap index.

not indicate the severity of poverty or fluctuations in economic welfare indicators over time including (but not limited to) income and consumption.

A large proportion of the poor include people moving into and out of poverty (Baulch and Hoddinott 2000). The coping strategies that result in consumption smoothing in response to a shock reflect poverty dynamics. It is important to disaggregate the poor to understand their circumstances and dynamics. It is critical to understand the differences among the different types of households and individuals within households who are classified as 'poor'. One salient difference is the difference between those households and individuals who move into and out of poverty versus those who fail to move out of poverty across time. This calls for incorporating a dynamic perspective in poverty analysis, with differentiation between the chronic and transient poor.

Households who experience poverty and deprivation for prolonged periods are defined as *chronically poor* and those who move into and out of poverty (temporary) are the *transient poor* (Hulme and Shepherd 2003). These two types of poverty require different policy measures. Chronic poverty eradication measures include long-term investments such as increasing human and physical capital and the returns to assets. On the other hand, policies to help the poor cope with idiosyncratic shocks are appropriate to tackle the problem of transient poverty. Understanding factors affecting poverty dynamics help in designing safety net policies and, most importantly, help to target the vulnerable (Baulch and Hoddinott 2000).

Data

This paper proposes to use the International Food Policy Research Institute's Food Management and Research Support Project (IFPRI-FMRSP) longitudinal household survey of Bangladesh for the years 1998-99. The households were interviewed in three waves

including approximately 750 households in seven flood-affected thanas (administrative units). The fact that these data were collected immediately after the 1998 floods makes the dataset unique for analyzing the effects of the flood as a shock event. The first round of the survey was administered between the 3rd week of November to the 3rd week of December 1998, and the second round between April and May 1999. Finally, the third round of the survey was conducted exactly a year after the first round (November-December 1999). A multiple-stage probability sampling technique was used to randomly choose the households to be included in the survey. Detailed household-level data were collected on household expenditures, land use at the plot level, the household's labor market participation, the ownership and loss of assets, borrowing strategies of the household and anthropometric measures. Retrospective questions on situations before and during the flood were asked. The community-level questionnaire focused on agricultural production, labor market and other economic conditions at the union level and at village level, during and after the flood (del Ninno 2001).

Method

Definition of Chronic and Transient Poverty

It is widely accepted that the poor are a heterogeneous group. Studies of poverty dynamics generally treat a household as a single economic unit. Jalan and Ravallion (2000) define transient poverty as the poverty that is caused by variability in consumption overtime. A household with mean consumption below the poverty line across all periods is defined to be experiencing chronic poverty. Hulme and Shepherd (2003) define the chronically poor as those who experience poverty for a period of five years or more and transient poor as those who move into and out of poverty. They argue that five-year period is a significant length of time and studies show that individuals who are poor for five years or more have a high

probability of remaining poor for the rest of their lives. The chronic poor suffer from persistent deprivation. The chronically poor are also those who need external help to get out of the poverty trap and they remain poor despite implementations of policies to tackle poverty (Aliber 2003). Chronic poverty also is transmitted from one generation to another, and children within chronically poor households are more likely to be caught in the poverty trap and likely to remain poor the rest of their lives (Aliber 2003).

Characteristics of the Chronically Poor

Education is a powerful and important predictor of chronic poverty. Studies have found that an increase in number of years of education decreases the probability of being chronically poor (McCulloch and Baulch 1999, Jalan and Ravallion 1999; Aliber 2003, McCulloch and Calandrino 2003). Human capital accumulation in Bangladesh is an important form of asset holding for the poor, which equips them to participate in the growth process (World Bank 2002).

Larger households are more likely to experience chronic poverty. This is true among households that have limited access to resources and assets. McCulloch and Baulch (2000), Jalan and Ravallion (2000), Haddad and Ahmed (2003) and Aliber (2003) in their study of Pakistan, China Egypt and South Africa, respectively, found this to be true. Older household heads and female-headed households are also more likely to be chronically poor (Aliber 2003). All things equal, the same is true for households with a greater number of children, more members above the age of 60 and for households with more disabled members.

Place of residence determines the opportunities and facilities available to the households (McKay and Lawson 2002). Remote geographical locations are disadvantaged in terms of access to resources. The likelihood of being persistently or chronically poor in such

locations is higher. McKay and Lawson (2002) also find that chronic poverty is a major problem in rural areas because of lack of employment opportunities and resources.

Lack of physical assets is associated with chronic poverty (McCulloch and Baulch, 2000; Aliber 2003). Assets like livestock and land help poor households not only generate income but are also a form of investment. Poorer households commonly hold a greater share of their assets in the form of liquid assets such as livestock and financial assets (World Bank 2002a). The sector of occupation of the household head is very important in most studies. Haddad and Ahmed (2003), in their study of chronic and transient poor, report that being employed in the manufacturing, recreation or non-farm sector decreases the likelihood of being chronically poor as compared to being engaged in the agricultural sector. Seasonal, casual and retrenched farm workers are also vulnerable (Aliber 2003).

Characteristics of the Transient Poor

Some factors affect both chronic and transitory poverty but there are others that are associated with transient poor alone. Poverty levels in general decline rapidly with increases in education of the household head (World Bank 2002a). There is also a strong negative association between transient poverty and educational attainment (Haddad and Ahmed 2003; Jalan and Ravallion 2000). Jalan and Ravallion (2000) find higher transitory poverty among smaller Chinese households. Adoption of new technology and adverse price fluctuations can result in temporary poverty (McKay and Lawson 2002). The adoption of new agricultural techniques involves risk taking on the part of farmers, which, in turn, causes variability in their income. The study of Argentinean households by Cruces and Wondon (2003) found that the risk of running a business made employers vulnerable to transient poverty, and the provision of social security by the public sector made households engaged in this sector more resistant to transient poverty.

Measurement of Transient and Chronic poverty

The present study follows the McMulloch and Baulch (1999) approach to categorize the poor into three mutually exclusive groups, which is based on average household consumption expenditure. The group includes: never poor, chronically poor and transitory poor:

Never poor	if $y_{it} > z$ for all time periods
Chronically poor	if $Et[y_{it}] < z$
Transitory poor	if $Et[y_{it}] > z$ but $y_{it} < z$ for some time periods

where y_{it} is the welfare measure such as consumption expenditure of the household which is corrected for differences in demographics and prices. $E_t[y_{it}]$ is mean income over the time period and z is the poverty line. The study uses region-specific cost-of-basic-needs (CBN) poverty lines calculated by the World Bank for Bangladesh for the year 2000[3]. Two types of poverty lines are used in the analysis: Upper and lower poverty lines[4].

According to McMulloch and Baulch (1999), a household is chronically poor if its mean expenditure is below the poverty line for all periods and transitory poor if its mean expenditure is above the poverty line but total expenditure is not above the poverty line for all periods. Households whose total household expenditure is above the poverty line in all rounds are deemed never poor.

Poverty Lines

The present study will use cost-of-basic-needs (CBN) poverty lines calculated by the World Bank for Bangladesh for the year 2000. Lower and Upper poverty lines were calculated by dividing the whole country into 14 geographical regions (nine urban and five

[3] The poverty lines were calculated by analyzing various Household Expenditure Surveys (HES) conducted by Bangladesh Bureau of Statistics (BBS) for the 1990s (World Bank 2002) and will be corrected for price change between 1998 and 2000.

[4] The lower poverty line allows for only minimum allowance for non-food goods as opposed to the upper poverty line where greater allowance is made for non-food goods in the calculation of the poverty line (World Bank 2002).

rural). The lower poverty line allows for only minimum allowance for non-food goods as opposed to the upper poverty line where greater allowance is made for non-food goods in the calculation of the poverty line (World Bank 2002b).

Real total household expenditure per month is the welfare indicator used in this study. The data used for the analysis was collected from the following seven regions: Derai, Madaripur, Mohamedp, Muladi, Saturia, Sharast and Shibpur. Each of these areas belonged to one of the regions for which the poverty line for 2000 was available. CBN poverty lines are available for the year 2000 and the data being used in this research was collected in 1998. Therefore, the poverty lines need to be corrected for price changes over the period 1998 to 2000 using the consumer price index. Table 1.3 gives the region-specific poverty line corrected for changes in prices for the year 1998 using both upper and lower poverty line. Once the poverty line is determined, poverty measures such as head count ratio, poverty gap and squared poverty gap will be calculated as a measure of the extent of deprivation.

Table 1.3 : CBN Region Poverty Lines

Region	Lower Poverty Line (2000)	Corrected for Price Change	Upper Poverty Line (2000)	Corrected for Price Change
Rural Dhaka	548	503.73	659	605.76
Rural Sylhet Comilla	572	525.79	738	678.38
Rural Noakhali Chhitagong	582	534.98	719	660.91
Rural Barishal Pathuakali	546	501.89	616	566.23
Rural Khulna Jessore Kushtia	527	484.42	624	573.59

Source: BBS and World Bank staff estimates. Amounts are in Tk.(taka) per person per month.

Estimation Techniques

Given the nominal categorization of the poor, multinomial logit model will be estimated to study the determinants of chronic and transient poor and also to see how households in different poverty categories differ from each other. We will use the values of

the variables in the initial time period (Round 1) for the analysis. This is done because the independent variables used in the analysis are time invariant.

The households have three alternative categories (Total poverty, chronic poverty and transient poverty) to be in where the categories are numbered 1 to 3. Pr (y = m|x) is the probability of observing m given x (Long 1997).

$$\Pr(y_i = m \mid x_i) = \frac{\exp(x_i \beta_m)}{\sum_{j=1}^{3} \exp(x_i \beta_j)}, \qquad j = 1, 2, 3 \qquad [3.3]$$

where x is the vector of individual, household and community variables, and β is a vector of coefficients.

Same set of independent variables will be used to estimate all poverty types. Independent variables to be used in the analysis are household size and composition, mean years of education of the household members and occupation of the household head, household asset ownership (land and livestock) and geographical location of the household.

Results

Table 1.4 categorizes the households into three distinct groups. The first group comprises of households that have per capita consumption below the poverty line in all three periods (always poor). The second group includes households with per capita consumption below the poverty line in even one of the three time periods (sometimes poor) and the final category includes households with per capita consumption above the poverty line in all three periods (never poor). It can be seen from table that of the 731 households in the panel 151 (20.66 percent) are chronically poor and 302 (41.31percent) transitorily poor if lower poverty line is used. It is also clear that using the upper poverty line, 208 (28.45 percent) and 321 (43.91 percent) households are chronically and transitorily poor respectively.

Table 1.4: Number of Poor in Bangladesh by poverty categories

Poverty Status	Lower poverty limit (ZL)	Upper poverty limit (ZU)
Always Poor	151(20.66)	252(34.47)
Sometimes poor	302(41.31)	311(42.54)
Never Poor	278(38.03)	168(22.98)
Total	731	731

Percentage in parenthesis

The results using the upper poverty line (lower poverty lines) are presented in Table 1.5 (table 1.6). Only the marginal effects of the multinomial logit model are reported and the never poor household is taken to be the base category. There are some factors that seem to be important in determining both kind of poverty. However, there are some distinguishing factors as well. Households containing more members in the age category of 15 are more likely to be chronically poor. More household members in the age category of 60 and above show a negative association with chronic poverty but positive association with temporary poverty. Older household heads are more likely to be chronically poor and less likely to be transitory poor. The results also indicate that the value of land owned by the household reduces transitory poverty and value of livestock owned by the household has negative impact on chronic poverty. The mean years of schooling of the household members is negatively associated with chronic poverty. Location has no association with transitory poverty but living in Shibpur decreases the probability of being chronically poor. Compared to households working on their own agricultural land those owning their own business are less likely to be poor in general and those engaged in the services sector are less likely to be transitory poor. None of the other occupations show any significant association with the any kind of poverty.

Table 1.5: Marginal Effects for Multinomial Logit model using Upper Poverty Line		
	Chronic Poor	**Transient Poor**
Household size	-0.0126	0.0026
	(0.8)	(0.16)
Number of household members below age 15	0.1000	-0.0268
	(4.96***)	(1.20)
Number of household members above age 60	-0.0941	0.0876
	(2.2**)	(1.96**)
Age of household head in years	0.0031	-0.0054
	(1.68*)	(2.70***)
Log area cultivated land owned by the household	-0.0078	-0.0156
	(1.10)	(2.00**)
Log value of livestock owned	-0.0193	0.0050
	(3.2***)	(0.65)
Household members, mean years of schooling	-0.0576	0.0099
	(6.8***)	(1.11)
Occupation (reference own agricultural land)		
Agricultural wage labor	0.0616	-0.0838
	(1.20)	(1.50)
Casual labor	0.0885	0.0124
	(1.44)	(0.2)
Services	-0.0261	-0.1782
	(0.4)	(2.60***)
Own business	-0.0895	-0.1178
	(1.80*)	(1.70*)
Other work	0.2338	-0.0793
	(1.12)	(0.4)
Region dummies (reference Derai)		
Madaripur	-0.0763	-0.0970
	(1.50)	(1.10)
Mohamedpur	0.0292	0.0205
	(0.41)	(0.25)
Muladi	-0.0316	-0.1296
	(0.5)	(1.50)
Saturia	0.0792	-0.0533
	(1.04)	(0.7)
Sharasti	0.0817	-0.1088
	(1.06)	(1.30)
Shibpur	-0.1515	-0.1251
	(3.70***)	(1.40)

t-statistics in parenthesis

Table 1.6: Marginal Effects for Multinomial Logit model using Lower Poverty Line		
	Chronic Poor	**Transient Poor**
Household size	-0.0149 (1.6)	-0.0259 (1.50)
Number of household members below age 15	0.0558 (4.61***)	0.0747 (2.99***)
Number of household members above age 60	-0.0320 (1.2)	0.0450 (0.96)
Age of household head in years	0.0006 (0.6)	-0.0045 (2.10**)
Log area cultivated land that is owned by the household	-0.0072 (1.8*)	-0.0291 (3.4***)
Log value of livestock owned	-0.0097 (2.9***)	-0.0145 (1.8*)
Household members, mean years of schooling	-0.0316 (6.2***)	-0.0302 (3.2***)
Occupation (reference own agricultural land)		
Agricultural wage labor	0.0017 (0.06)	-0.0713 (1.20)
Casual labor	0.0572 (1.44)	0.0303 (0.45)
Services	-0.0403 (1.60)	-0.1805 (2.60***)
Own business	-0.0455 (2.00**)	-0.1648 (2.4**)
Other work	0.1555 (0.89)	0.1394 (0.8)
Region dummies (reference Derai)		
Madaripur	-0.0142 (0.5)	-0.1585 (2.00**)
Mohamedpur	0.0717 (1.3)	0.0121 (0.14)
Muladi	0.0388 (0.92)	-0.1535 (1.9**)
Saturia	0.1209 (1.83*)	-0.0226 (0.3)
Sharasti	0.0478 (0.99)	-0.0825 (1.00)
Shibpur	-0.0466 (1.90*)	-0.2883 (4.30***)

t-statistics in parenthesis

Conclusion

The United Nation's General Assembly declared 1996 as the International Year for the Eradication of Poverty. This was done "recognizing that poverty is a complex and multi-dimensional problem with origins in both the national and international domains, and that its eradication in all countries, in particular in developing countries, has become one of the priority development objectives for the 1990s in order to promote sustainable development." (United Nation's General Assembly Resolution 48/183 1993: p. 1). The World Bank Group defines poverty as a multidimensional phenomenon where to be poor not only means to be hungry and to lack access to shelter and resources but also means to be illiterate, have poor health, not receive adequate nutrition and be vulnerable to shocks, violence and crime. Not being in poverty entails individuals leading a life free from anxiety (World Bank 2001a, OECD 2001).

This paper attempts to identify those who experienced poverty following the 1998 flood and those who did not and then to examine the determinants of chronic and transient poor. The paper uses the data from the International Food Policy Research Institute's Food Management and Research Support Project (IFPRI-FMRSP) longitudinal household survey of Bangladesh for the years 1998-99. With reference to the lower poverty line (Upper poverty line) 20.66 (34.47) percent of the households are always poor and 41.31 (42.54) percent of the households are found to be sometimes poor. Recent advances in computation coupled with the more frequent collection of panel data at the household level have contributed to the study of chronic and temporary poverty. Some factors are found to affect chronic poverty more and also to have different impact on transitory poverty. Ownership of human and physical capital has been found to have negative association with chronic poverty. On the other hand only landownership seems to have negative impact on transitory poverty. Household composition such as age of the household head and number of members below the

age group of 15 increases the probability of the household being chronically poor. High percentage of chronic and transitory poverty calls for designing safety net policies and, most importantly, help to target the vulnerable especially after stressful times during and after the floods in Bangladesh. Continuous shocks as experienced in Bangladesh require setting up of consistent administrative approach to help the flood affected households to cope and not to fall into the poverty trap each year. Distinguishing the households as chronic and transitory poor would help the policy makers to target the households better and to establish coping mechanisms for the households.

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