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Dynamics of Poverty in Rural Bangladesh: A Research Framework

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Abstract

Much has been written about the impact of various interventions, including microfinance, on poverty in rural Bangladesh, and yet many issues still remain poorly understood. The main analytical problem is that in order to appreciate the impact of interventions, it is first necessary to understand the nature of poverty dynamics i.e., the nature of trajectories along which the incomes of various groups of the poor (as well as the non-poor) are evolving over time; and the dynamics of poverty can only be discerned from longitudinal studies involving repeated surveys of the same sample of households at several points in time, but such studies are rare in Bangladesh. In order to fill this lacuna, the Institute of Microfinance intends to undertake a longitudinal study on poverty dynamics in rural Bangladesh, and the present paper lays out an approach towards such a study. The paper first develops an analytical framework for understanding the dynamics of poverty, and then presents a number of research questions that can be addressed through this framework. These research questions are derived from an analytical review of the existing literature focusing mainly on the few longitudinal poverty studies that exist but to some extent also on some cross-sectional studies that are relevant for the present purpose. The paper concludes by making some general remarks on the empirical methodology to be employed.

JEL Classification: I32, I38, O12, O16, O20

Key Words: Poverty Dynamics, Longitudinal Study on Rural Poverty, Impact Assessment

I. Introduction and Rationale

The economy of Bangladesh has achieved a respectable, though not spectacular, rate of growth in the last two decades. Per capita income has risen by more than 3.5 per cent per annum between 1990 and 2010, which is a significant improvement over the 1.5 per cent rate at which it had grown in the preceding two decades. Not surprisingly, poverty has also come down at a faster rate during the last two decades compared to before; overall poverty fell from 59 per cent in 1991/92 to 40 per cent in 2005, according to official estimates. Apart from faster economic growth, various kinds of targeted programmes, including the explosion of microfinance in rural Bangladesh, have also played a role in bringing poverty down, although the relative contributions of all these factors cannot be precisely ascertained.

Despite these achievements, however, poverty remains very high, especially in rural areas, where some 44 per cent of the population were counted as poor in 2005. Obviously, there can be no room for complacency when close to half the population still keep labouring under absolute poverty. More worryingly, evidence is emerging from field surveys that the proportion of rural population who may be characterised as chronically poor—those who cannot even occasionally move above the poverty line—has remained stubbornly unchanged at around 30 per cent over the last two decades.¹ These numbers are not precise, but they are large enough to warrant serious concern among both the academic community and policymakers of Bangladesh.

Empirically relevant policies can only be made, however, on the basis of a clear understanding of the underlying nature of the problem. Why is poverty falling so slowly, why is it that some of the poor manage to escape poverty while many more remain stuck, what are the socio-economic forces that propel different segments of the poor along different life trajectories, which of these forces are amenable to policy intervention, and what kind of interventions will be most useful? These are all relevant questions, which the research community must answer first before it can recommend appropriate interventions to the policymakers. It is against this background that the Institute of Microfinance (InM) has decided to undertake a research project to study the dynamics of poverty in rural Bangladesh, and the present paper provides a research framework for this study.

Poverty is, of course, not just a rural phenomenon. Despite the apparent glamour of urban life, considerable urban poverty still exists; in 2005 almost 28 per cent of urban people lived in poverty according to official estimates. Clearly, careful study is needed to explain such a high prevalence of poverty amidst plenty. Nonetheless, the proposed study chose to focus just on rural poverty for a couple of reasons. First, there are good *a priori* reasons to believe that the nature and dynamics of urban poverty are likely to be very different from rural poverty, so that the instruments of enquiry—such as questionnaires—would have to be significantly different for rural and urban samples. This would complicate the task enormously, in addition to adding to the cost in terms of time and resources. Second, the Institute of Microfinance already has a number of projects that could deal with at least some aspects of urban poverty. For instance, there is a specialised project on urban microfinance and there is also a large-scale longitudinal study on access to finance which covers both

¹ The relevant evidence is discussed in section III below.

rural and urban areas. In view of these considerations, the proposed study decided to focus on rural poverty in the first phase. The case for adding an urban component would, however, be reviewed at the time of preparing for the subsequent phases.

The project envisages a longitudinal study—one that is based on repeated surveys on the same panel of households (and their offshoots) over time. According to the current plan, the repeat surveys will be conducted every three years, with the benchmark survey being carried out in 2010. Exactly how many times the survey will be repeated remains open at the moment. It will depend primarily on the availability of funds, but the intention is to carry on with the repeat survey for as long as possible. Meanwhile, every time the survey is conducted (including the benchmark survey of 2010), the data generated will be analysed with the highest level of rigour and professional expertise so that the InM panel survey becomes one of the most reliable and respected sources of knowledge about poverty dynamics in rural Bangladesh.²

Section II develops the conceptual framework that the study will use to analyse the dynamics of poverty in rural Bangladesh. Section III undertakes a thematic review of the literature on the existing poverty studies in Bangladesh, focusing especially on those that have used panel data. The objective of this exercise is to distil what is known and what is not known or not clearly understood about the dynamics of rural poverty with the aim of deriving a set of research questions that could be addressed by the present study. These research questions are listed in section IV. Section V sets out the empirical methodology of investigating those research questions. A brief description of the existing panel studies on rural poverty in Bangladesh is provided in the Annex.

II. Poverty Dynamics: A Conceptual Framework³

The conceptual framework developed here is meant to serve two distinct but inter-related purposes. The first purpose is to find a way of distinguishing different segments of the population who differ radically from each other in their poverty dynamics. In static analysis, it is customary to distinguish between the poor and the non-poor, and to subdivide the poor further into moderate poor, extreme poor, ultra-poor, etc. These categorisations are done with reference to the depth of poverty at a point in time. In the dynamic context, a different kind of categorization is needed, based on the time path or the trajectory of poverty. Concepts such as chronic poor, transitory poor, never poor, etc., are typically used for this purpose. We call them dynamic poverty categories. Our first objective is to make these categories analytically precise, because they are the main building blocks of a dynamic analysis of poverty. In view of the centrality of the nature of poverty trajectory in distinguishing the dynamic categories, we try to formulate a precise definition of the trajectory as a dynamic equation.

The second objective is to provide a broad analytical framework for thinking about the causal processes that underlie the trajectories of poverty. What we propose here may be described as the 'assets-returns' framework. The basic idea is quite simple—the trajectory of poverty will depend on the accumulation (or depletion, which from a formal point of view is

² The justification for opting for a longitudinal study, as opposed to a one-shot cross-sectional study, is provided in section IV on empirical methodology.

³ The conceptual framework developed below builds upon the framework presented in Osmani (2009) for defining and characterising chronic poverty. While the earlier framework focussed exclusively on the chronic poor, the present one is general enough to encompass all categories of poor as well as non-poor.

simply negative accumulation) of assets and the evolutions of returns to assets. Assets here must be interpreted very broadly to include physical, financial, human and social capital. It is the manner in which the combination of assets and the returns to assets evolves over time that would determine the trajectory of a person's income and hence her dynamic poverty status. Any empirical study of poverty dynamics must, therefore, focus on the determinants of the process of asset accumulation on the one hand and the determinants of the time path of the returns to assets on the other.

We start by characterising the dynamic poverty categories. Let the income of a person (or a household) at any point in time t be denoted by Y_t , which depends on two sets of factors:

- (a) A set of observable individual-specific variables such as age, gender, assets, education, skills, etc. and observable household-level variables such as the number of dependents, the size of household labour force, etc. We may call it the endowment set of the individual and denote it by D_t .
- (b) A set of observable variables exogenous to the individual and the household. These could be village-level or community-level or national-level or even global-level variables that affect the income of the person one way or the other. These exogenous factors also include public intervention of various types, for instance, targeted programmes for the poor, social safety net, and so on. Denote this set by X_t .

Some of the endowments (D) may be time invariant (e.g., gender), others may have a deterministic time trend (e.g., age), while yet others may be amenable to choice on the part of the individual (e.g. example, education, physical assets, financial assets, skills, etc.).⁴ The endowments that are amenable to choice will in general depend upon three sets of factors: the value of all the endowments inherited from the preceding time period (D_{t-1}), income of the preceding period (Y_{t-1}) and the set of exogenous factors (X_t). The income generation process over time can then be described by the following recursive system of dynamic equations:

$$Y_t = F(D_t, X_t) + e_t \quad (1)$$

$$D_t = G(Y_{t-1}, D_{t-1}, X_t) + \varepsilon_t \quad (2)$$

where, F is the income function, with endowments and exogenous factors as its arguments; G is a vector of functions—with one function for each element of D_t ; and e_t and ε_t are error terms⁵, which serve to introduce stochastic variation in the income generation process.

⁴ A point should be made here about how to think about the two-fold classification of variables between D and X . Consider, technology, for example. The menu of available technologies is an exogenous variable captured by X , but the particular technology chosen from this menu by an individual is an element of D . Again, the availability of interventions such as credit from microfinance institutions (MFI) is an element of X , but the membership of MFI as well as the amount of credit taken is an element of D .

⁵ Note that these error terms are not necessarily classical in nature (with zero mean and constant variance), because they may include some unobservable characteristics of the individual (as they are unobservable they cannot obviously be included in D) that may have non-zero mean and may even be serially correlated over time. If, as is likely, these unobservable characteristics happen to be correlated with some of the choice variables belonging to D , this might raise serious methodological problems in estimating the impact of those variables on a person's income trajectory—for example, while assessing the impact of membership of MFI. Much of recent econometric literature on impact assessment has been concerned with the ways and means of dealing with these problems. For excellent overviews of these econometric issues, see Ravallion (2008) and Todd (2008).

These equations define the trajectories along which the income of an individual will change over time, and these trajectories in turn can be used to characterise various dynamic categories of individuals depending on their poverty status. Five such categories may be distinguished:

1. 'Chronic poor': their trajectories always stay below the poverty line;
2. 'Fallers': their trajectories start from above the poverty line but falls below it at some stage never to rise above it again;
3. 'Transitory poor' (or, 'Churners'): their trajectories keep fluctuating around the poverty line;
4. 'Movers': their trajectories start from below the poverty line but rises above it at some stage not to fall again; and
5. 'Never poor': their trajectories always stay above the poverty line.

It should be noted, however, that because of stochastic variation almost any one may move in or out of poverty from time to time, and even a chronically poor person may occasionally rise above the poverty line or even a normally non-poor person may occasionally fall below it. What nonetheless distinguishes the dynamic categories from each other is on which side of the poverty line they reside more often than not. The expression 'more often than not' is obviously rather vague, but there are several possible ways of making it precise. One simple way of doing so is to think in terms of expected income $E(Y_t)$. For example, if the time path of expected income is such that it always stays below the poverty line, then we would expect a person's actual income to be below the poverty line more often than not. We may describe such a person as chronically poor, and similarly for all other categories.

Following this approach, the dynamic categories can now be defined more precisely. Let τ denote the point in time at which the categorisation is being done and L denote the end-point of a person's working life. If the exogenous variables obtaining at time τ were to remain unchanged over the remainder of a person's working life—denoted by the interval $[\tau, L]$ —then the income generation process can be expressed as:

$$Y_t = F(D_t, X_t) + e_t \quad \text{for all } t \in [\tau, L] \quad (3)$$

$$D_t = G(Y_{t-1}, D_{t-1}, X_t) + \varepsilon_t \quad \text{for all } t \in [\tau, L] \quad (4)$$

Note that while taking expectation of income Y_t , conditional on D_t and X_t , would eliminate the stochastic variation arising from different realisations of e_t , there would still remain an element of stochastic variation arising from ε_t , which would operate through D_t . In order to eliminate this element of variation as well, we shall have to work with expectation of D_t rather than particular realisations of D_t . In other words, we shall have to think in terms of

expectation of income conditional on X_τ and the expectation of D_t . Let $D_t^* = E(D_t)$. Then the criterion by which we can identify the dynamic categories is the time path of $E(Y_t/D_t^*, X_\tau)$.

Let Z stand for poverty line income, τ denote the point in time at which the categories are defined and recall that L denotes the end-point of a person's working life. The formal definition of the dynamic categories can now be given as follows.

Definition D.1: A person is:

- Chronically poor, if $E(Y_t/D_t^*, X_\tau) < Z$, for all $t \in [\tau, L]$;
- Never poor, if $E(Y_t/D_t^*, X_\tau) > Z$, for all $t \in [\tau, L]$;
- Transitory poor (churner), if $E(Y_t/D_t^*, X_\tau) \approx Z$, for all $t \in [\tau, L]$;
- Faller, if $E(Y_t/D_t^*, X_\tau) > Z$, for all $t \in [\tau, T]$ and $E(Y_t/D_t^*, X_\tau) < Z$, for all $t \in [T, L]$; where $\tau < T < L$ (T is the point of transition between non-poor and poor status)
- Mover, if $E(Y_t/D_t^*, X_\tau) < Z$, for all $t \in [\tau, T]$ and $E(Y_t/D_t^*, X_\tau) > Z$, for all $t \in [T, L]$, where $\tau < T < L$.

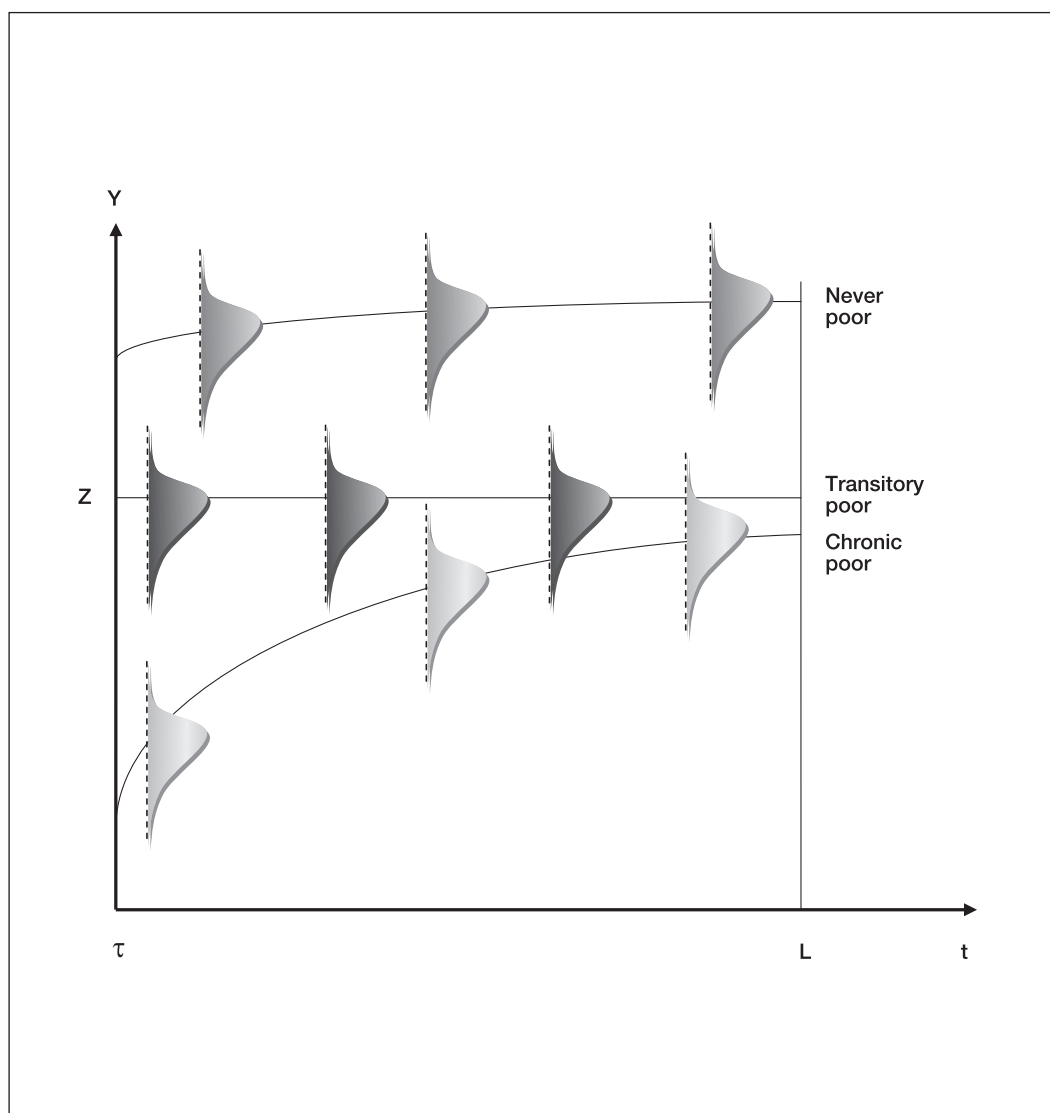
Graphically, the trajectories all these categories are shown in Figures 1A and 1B. Several implications of this characterisation of dynamic poverty categories are worth pointing out as they are important for the causal analysis of poverty dynamics.

First, recall that D_t^* contains two types of variables. There are some on which a person has no control, such as gender and age; these can be seen as part of a person's initial conditions. There are other variables on which she does have a degree of control such as accumulation of different types of assets and skills, size of the household, labour force participation and so on. The time paths of the latter group of variables are determined by the person herself, operating within some kind of optimizing decision framework under the constraints imposed by the initial conditions of Y and D and the status of exogenous variables X prevailing at the time of observation (τ). Thus considering both types of variables, the evolution of D_t^* as a whole can be seen to depend on the initial conditions (including preferences which guide the optimisation process) and the state of the exogenous variables prevailing at the time of observation. This, in turn, implies that the evolution of the time path of the conditional expectation of income $E(Y_t/D_t^*, X_\tau)$ also depends solely on the initial conditions and the state of the exogenous variables prevailing at the time of observation.

Second, the characterisation presented above involves a prediction about the future course of income, but it is important to bear in mind that this not a prediction about how income will **actually** change over time. It's a **conditional** prediction based on the assumption that the state of exogenous variables prevailing at the time of observation will remain unchanged for the remainder of a person's working life. In other words, it's a statement about the income dynamics that can be expected to emerge if nothing happens to alter the current state of exogenous variables. In reality, the exogenous variables might change, either autonomously or through policy intervention, which will alter the time path of expected income, and this will result in a divergence between expected and actual trajectories. For

this reason, we need to make a distinction between *ex ante* and *ex post* characterisation of dynamic categories.

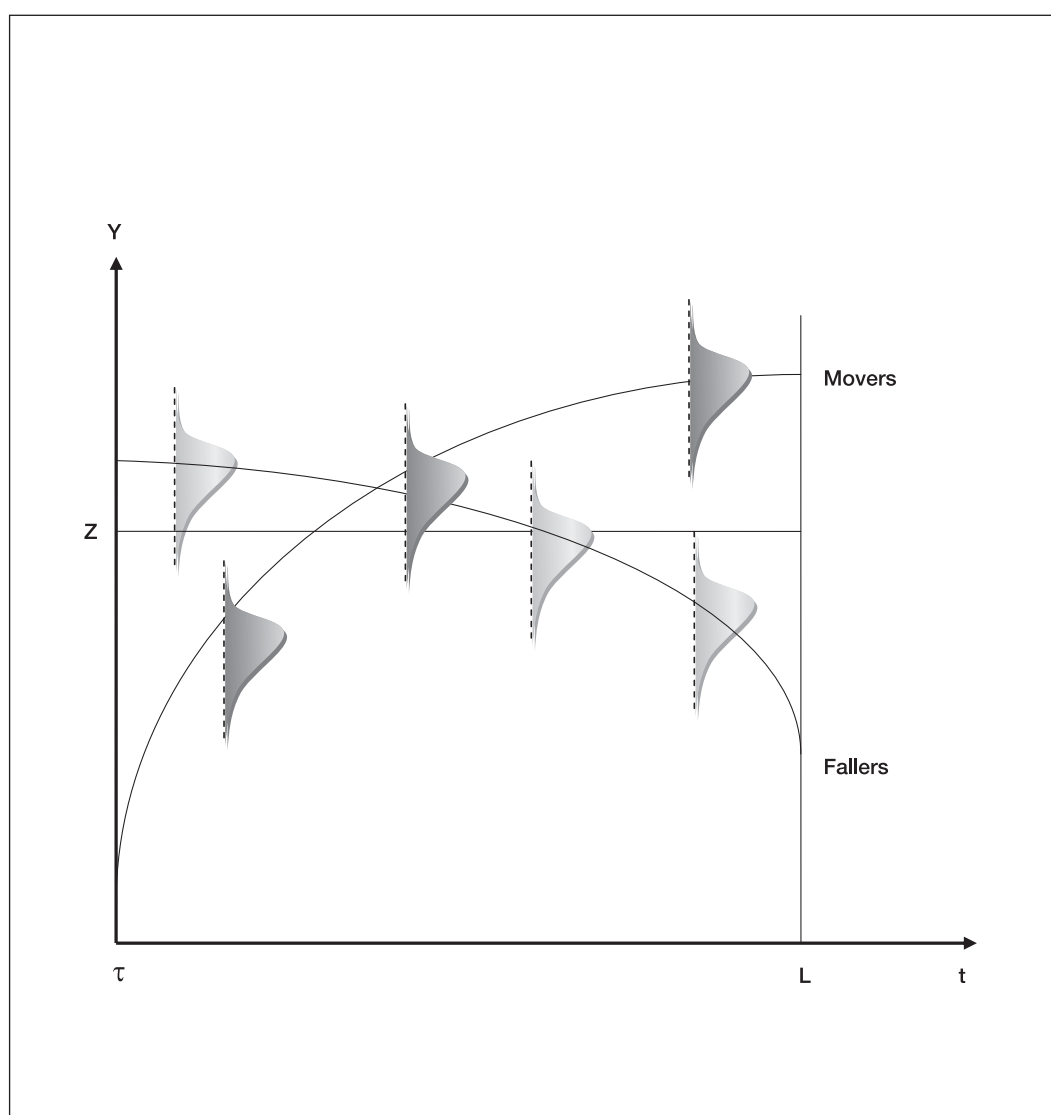
Fig. 1A: Dynamic Poverty Categories



What we have presented above is an *ex ante* characterisation, given the situation prevailing at the time of observation. The *ex post* characterisation may be different because the exogenous factors X prevailing at the time of observation might change. Indeed, one might suggest that the whole point of policy intervention is to create a divergence between *ex ante* and *ex post* characterisations—for example, by taking steps so that those who are characterised as 'chronic poor' *ex ante* turn out to be 'movers' *ex post*. Thus, the objective

of the *ex ante* characterisation of trajectories presented above is not to predict how the future will unfold but to draw attention to the conditions of those whose future needs to be changed through appropriate policy intervention.

Fig. 1B: Dynamic Poverty Categories (contd.)



Third, although it has been suggested above that the trajectories of income would emerge out of a process of constrained optimization on the part of individuals, there is no reason to interpret it as a narrowly 'economistic' process in which broader non-economic considerations are not allowed to enter. There are two distinct channels through which what

are normally considered to be non-economic factors will enter the process. One obvious channel is the set of exogenous factors X , which will determine the nature of constraints faced by the optimizing individuals. These factors might include such non-economic factors as the quality of governance, access to justice, rural power structure, scope for participation in the public sphere, norms of gender role, etc., which will circumscribe the opportunity set within which an individual can afford to optimize. The second route is via the preference structure. When an individual chooses her actions in an optimizing framework, she need not be assumed to be guided simply by the desire to maximize her narrow self-interest alone; instead she might weigh up her self-interest against other concerns which she also values in the process of making a choice. For example, while considering how to respond to labour market changes, a woman may weigh up income earning opportunities against the effect on 'caring' for children and other dependants in the family before deciding what her 'optimum' choice would be. The framework presented here is thus general enough to take due cognizance of the fact that trajectories of income that characterise the dynamic categories of individuals will in reality be shaped by a whole range of non-economic forces, some operating through the constraints and some through the preference structure.⁶

Fourth, it is evident from the equations of income trajectories that the dynamics of income (and hence the dynamics of income poverty) would depend primarily on the trajectories of two sets of factors—viz. assets, broadly defined to include physical, financial, human and social capital (as captured by D) and returns to assets (as captured by the coefficients of D in function F). Given the initial endowments and exogenous factors, the optimising behaviour of individuals would determine the allocation of current income between current consumption and asset accumulation (or asset depletion, as in the case of defending current consumption in the event of shocks). These decisions would determine the future trajectory of assets. The trajectory of returns to assets would depend on (a) the structure of assets—in particular, the extent of complementarities that might exist between different types of assets, (b) other initial endowments⁷ (both observables that are included in D and unobservables that are merged into the error term (e), and (c) the set of exogenous factors X . These two trajectories—of assets and returns to assets—would together determine the income trajectories that define the dynamic categories of individuals in accordance with the conditions set out in definition $D.1$. This suggests that any study on poverty dynamics must focus on the evolution of assets as well as returns to assets and try to understand the forces that shape their evolution.

Fifth, a large part of the theoretical literature on poverty dynamics—especially the part that deals with the idea of 'poverty traps'—tend to focus primarily on the paucity of assets as the key to persistent poverty (giving rise to the phenomenon of chronic poverty).⁸ The essential idea is that below a minimum threshold of assets the returns may not be large enough to

⁶ Certain types of non-economic factors, such as social norms, can be thought to operate either through the constraints or through the preference structure. Analytically the two routes are equivalent in the sense that they will lead to the same optimum choice. There will be a slight difference, however, if one wants to analyse the impact of changes in these factors on the trajectories of income. If one thinks of such factors as taking the form of constraints, then it would be enough to focus only on the changes that are taking place in the set of exogenous factors X , but if they are thought to operate through the preference structure then one must also consider the possibility that the functions F and G (in equations (1) to (4)) might themselves change.

⁷ Endowments might include both stock-type variables (such as land ownership or years of schooling) and flow-type variables (such as amount of credit taken or land rented for cultivation in a year). We refer to stock-type variables as assets and flow-type variables as other endowments.

⁸ This literature originally emerged in the context of explaining persistent poverty of economies as a whole and was subsequently adapted to the poverty of households and individuals. For a sample of this literature, see *inter alia*, Azariadis and Stachurski (2005), Carter and Barrett (2005), Bowles *et al.* (2006), and several papers in Addison *et al.* (2009).

allow asset accumulation on a scale that would take the resulting income trajectory eventually above the poverty line. Only when the size of assets happens to lie above the threshold that the returns are large enough to allow asset accumulation on a scale that would raise the income trajectory sufficiently to get out of the poverty trap.

This 'threshold' view of assets as the key to poverty dynamics has its merit, but an exclusive focus on it is analytically inadequate. In the first place, the concept of threshold ignores the fact that assets are valuable only to the extent of the return they yield and the return to any asset would vary depending on factors that might themselves vary over time and space—for example, the nature of the external environment (as determined by the variables in X), and the extent of complementarity between different types of assets. With variable returns, a threshold of assets cannot be unambiguously defined. Furthermore, even if a threshold could be unambiguously defined, to take it as the centrepiece of causal analysis is to take too limited a view of poverty dynamics, for one could in principle explain both the persistence of poverty and escape from it without invoking the idea of thresholds.

One possibility is to recognise that poverty can be persistent if there exists a persistent mismatch between endowments and opportunities. For example, if the opportunities for productive employment created by the evolution of the external environment (as determined by X) is higher in the non-farm sector as compared with the farm sector but if employment in the non-farm sector requires some education, then a person with a lot of land but little education may face persistent poverty. The problem here is not one of paucity of assets as such; the problem lies in a mismatch between the structure of assets one has and the structure of opportunities that are open to him. Similarly, if social norms dictate that the productive employment opportunities that are emerging in the market are of a kind that are traditionally seen as men's jobs rather than women's jobs, there is again a mismatch between opportunities and endowments (in this case, one's gender) that may subject women to persistent poverty. The critical issue in these cases is not threshold but mismatch; and in the event of a mismatch it's not so much the size as the structure of endowments that matters for determining the dynamics of poverty.⁹ The conceptual framework developed here is broad enough to accommodate both the 'threshold' view and the 'mismatch' view of poverty dynamics. The relative importance of the two effects is left as an empirical matter.

Sixth, dynamics of poverty depends not just on what happens in a person's own lifetime but also on how different generations are linked together in various ways to create 'inter-generational transmission' of poverty. There are several possible transmission mechanisms—for example, the children of landless parents may find it extremely difficult to acquire land assets in view of the well-known thinness of rural land market (linked to imperfections in the credit market); less educated or uneducated parents tend on the whole to give less importance to educating their children so that when they grow up as adults they start their own life with the handicap of low human capital that is extremely difficult to overcome in the adult life; the children of poor undernourished mothers tend to be undernourished themselves, which again poses a handicap in engaging in productive activities in adult life. These and other transmission mechanisms can create a special kind of poverty trap, known in the literature as inter-generationally transmitted (IGT) poverty traps. Although, the equations of income dynamics presented above do not explicitly bring in the inter-generational dimension, the formal extension of the framework that would be needed to

⁹ For further analysis of the causes of mismatch between endowments and opportunities and its consequences for the evolution of poverty as well as its policy implications, see Osmani (2006, 2009).

bring it in is quite straightforward. The empirical study of poverty dynamics to be undertaken in this project will take due cognizance of inter-generational transmission processes by recognising that a person's initial endowments did not just emerge out of nothing; they do have a history that may go back to earlier generations.

Seventh, although the conceptual framework has been developed above entirely in terms of income poverty, the study is mindful of the importance of taking a broad multi-dimensional view of poverty. At the conceptual level, there is no difficulty in applying the proposed framework to other dimensions of poverty. Formally, all this involves is interpreting the variable Y in equations (1)-(4) as representing the relevant dimension (say, health status, education, etc.) instead of income. The non-income dimensions of poverty will be accorded due attention in the empirical part of the study.

III. Poverty Dynamics in Rural Bangladesh: A Thematic Literature Review

This section offers a brief overview of what is already known, but more importantly, what remains to be known and understood about poverty dynamics in rural Bangladesh. There is no dearth of poverty studies in Bangladesh, but most of them use data that are cross-sectional in nature, based as they are on household data for one period of time. Carefully analysed, cross-sectional surveys can shed some light on the underlying dynamics, but they are not ideal for the purpose. By its very nature, dynamics involves change over time and hence one needs data over different points in time. One possibility is to use pooled cross-section data—for example, one can combine successive rounds of the *Household Income and Expenditure Surveys* (HIES) carried out by the Bangladesh Bureau of Statistics (BBS). But, as discussed in section I, the fact that different sets of households are surveyed in different rounds has the potential to create serious methodological problems. The best solution is to use panel surveys, in which the same set of households (and their offshoots) is surveyed more than once.

Not surprisingly, panel data studies on poverty in rural Bangladesh are very limited in number. The ones that exist can be classified into two broad categories: studies based on general purpose surveys and studies focussing on the impact of some targeted programmes for the poor.¹⁰ Among the general purpose surveys, by the far the biggest and covering the longest time span is the 62-village surveys that was started in 1987 by the Bangladesh Institute of Development Studies (BIDS)—henceforth referred to as BIDS 62-village surveys. Five repeat surveys have been carried out so far—in 1990, 1994, 2000, 2004 and 2007. A fairly large body of literature has emerged out of these surveys—e.g., Hossain et al. (1990) looking at the data from 1987 and 1990 rounds, Rahman et al. (1996) covering the period 1987 to 1994, Sen (2003) covering the period 1987 to 2000 (but only for a subset of the villages), and Hossain and Bayes (2009) and Nargis and Hossain (2009) covering the full sample for the whole of the time span between 1987 and 2007. The last two mentioned studies are especially valuable as they provide a detailed picture of changes in the structure of poverty over exactly two decades in a nationally representative sample from rural Bangladesh, and the literature review in this section draws heavily on them. A new panel data set is currently being created by BIDS in collaboration with the Chronic Poverty

¹⁰ A brief description of the objective, sample size, geographical coverage, and time span of these studies is given in the Annex.

Research Centre (CPRC) of the University of Manchester. At present, data are available for 2005 and 2010 and some preliminary work has already been done with this data (Sen *et al.* 2010). Other general purpose studies include Kabeer (2009) based on a repeat survey of two villages, and Rahman (2009), which uses a special kind of panel data based on memory recall.

In the context of assessing the impact of targeted programmes, four major panel data sets have been created so far. Three of them relate specifically to the impact of microfinance—one sponsored jointly by BIDS and World Bank, another by the *Palli Karma-Shahayak Foundation* (PKSF) and a third by the Research and Evaluation Division (RED) of the famous non-governmental organisation BRAC. The BIDS/World Bank survey was conducted in 1991 and 1998 covering 87 villages, and the results are analysed in Khandker (2005). The PKSF study covered the years 1998, 1999, 2000 and 2004 in a sample spread over 91 villages. Zohir *et al.* (2001) presents analysis of the data for the first three years and Rahman *et al.* (2005) does so for the entire time span from 1998 to 2004. The BRAC-RED survey focussed specifically on the ultra-poor households served by BRAC's own microfinance programme and used panel data sets for the years 2002 and 2005 and the analysis is presented in Emran *et al.* (2010). The fourth panel data set, sponsored by the International Food Policy Research Institute (IFPRI), concerns the impact of three targeted interventions in three different locations in rural Bangladesh and covers the period from 1994 to 2007. One of the three sites had a project in microfinance, another had an educational transfer scheme, and third had an intervention in irrigation technology. The results of the panel data from all three sites are analysed in Quisumbing (2007), Quisumbing and Baulch (2009) and Davis and Baulch (2009).

Since the present study also proposes to use the panel data approach, the following literature is based primarily on the panel studies mentioned above, supplemented wherever possible by comparison of cross-section data at more than one point in time (especially, the two rounds of HIES in 2000 and 2005). Two features of this review should be highlighted.

First, we undertake below what might be termed a thematic review. We have picked up eleven themes that seemed to stand out from our reading of the literature. On each of themes the existing studies offer some 'stylized facts' about some important dimension of the poverty scenario in rural Bangladesh. The studies themselves do not always offer adequate explanation of these facts, although some of them do offer interesting insights. Building on these insights, we have tried to speculate on the possible explanations, wherever possible.

Second, the main objective of this review is to separate out what we know from what we don't about poverty dynamics in rural Bangladesh so that future investigations, such as the one proposed by the present study, can focus on the issues that are crying out to be investigated. There are several categories of such issues: (a) quite often there is more than one possible explanation of the already known 'stylized facts' and future research needs to sort out which ones are empirically relevant, (b) the existing studies sometimes throw up apparently contradictory facts and future research needs to resolve these contradictions, and (c) certain important issues have not been researched as much as they deserve and they should be high on the agenda for future research. In other words, we have structured the literature in such a way that it enables us to draw up a list of empirically relevant research questions that would serve as a menu from which the proposed study could choose a subset for rigorous investigation.

Change in Rural Poverty Over Time: Long Term Decline

The panel surveys reveal a long-term declining trend of rural poverty, confirming the findings of the official *Household Income and Expenditure Surveys* (HIES). From around 60 per cent at the beginning of the 1990s, the rate of income poverty in rural Bangladesh came down to around 43-44 per cent by the mid-2000s. This trend seems pretty robust since the longitudinal surveys of Hossain and Bayes (2009) and the HIES data (World Bank 2008) yield very similar numbers in this respect (Table 1). Other studies, giving figures for some intermediate points in time, also reveal a declining trend. Despite this robustness of the broad trend, however, there are a couple of discordant features of the trend that are worth mentioning.

Table 1: Trend of Poverty in Rural Bangladesh
(percentage of people below the poverty line)

Sources and Years	Overall poverty	Extreme poverty	Moderate poverty
<i>Hossain and Bayes (2009)</i>			
1987	60.3	33.6	26.7
2000	46.9	20.1	26.8
2004	42.9	16.9	26.0
2007	47.3	16.2	32.1
<i>Rahman et al. (1996)</i>			
1987	57.5	25.8	31.7
1989-90	59.3	30.7	28.6
1994	51.7	22.5	29.2
<i>Rahman et al. (2005)*</i>			
1998	74.7	62.9	11.8
2004	63.9	50.8	13.1
<i>World Bank (2007); HIES</i>			
1991-92	59.0	44.0	15.0
2000	52.3	37.9	14.4
2005	43.8	28.6	15.2

Notes: (1) Hossain and Bayes (2009) and Rahman *et al.* (1996) define extreme poverty line at a level of total expenditure that is just sufficient to obtain 1800 calories, whereas Rahman *et al.* (2005) and World Bank (2007) define it as food poverty line, i.e., the level of total expenditure that would be just sufficient to buy the basic food bundle giving adequate calories, if the budget were spent entirely on food.

(2) Rahman *et al.* (2005) considers only at land-poor households

First, when the longitudinal data of Hossain and Bayes (2009) are extended beyond the mid-2000s, one finds that that contrary to the long-term trend there was actually an increase in poverty between 2004 and 2007—from 43 per cent to 47 per cent. The authors attributed this deterioration to the exceptionally large increase in food prices that occurred in 2007 in the wake of global food inflation and natural calamities in that year. This explanation sounds plausible, especially since there is also some independence evidence on how the food price inflation of 2007 exacerbated poverty in that year.¹¹ An important question is whether the long-term trend of has resumed since 2007. Not a great deal is known about it because no survey results are available for recent years. The present study as well as the ongoing HIES of BBS will be able to shed light on this matter in due course. Meanwhile, an ongoing study at BIDS based on a sub-sample of the 62 villages covered by Hossain and Bayes (2009) has found that subjective poverty, as measured by the respondents' own perception of how their access to food has changed over time, has indeed gone down between 2005 and 2010. This suggests that after the aberration in 2007 poverty may have resumed its long-term course of a declining trend.

Second, although HIES and panel data are broadly consistent with each other as regards the long-term trend in poverty, there is an importance difference between them on the relative pace of decline in the sub-periods. According to the HIES, poverty declined much faster in the 2000s compared to the 1990s, so much so that the amount of poverty reduction that took place in the five years between 2000 and 2005 was more than the reduction that occurred in the whole of the 1990s. This pattern is of course consistent with the acceleration of economic growth in the present decade compared to the preceding one. However, the panel data shows the very opposite. Even if one leaves out the unusual year of 2007, and compares between 2000 and 2004 one finds that the rate of poverty reduction in this period was much slower than in the 1990s.

Whether this discordance is due to differences in methodologies (for instance, different ways of adjusting the poverty line for increases in the cost of living), or differences in terminal points (e.g., year 2004 used by panel data was a year of abnormal flood while the year 2005 used by HIES was normal), or because of differences in sampling (HIES is after all a much bigger survey) remains to be determined. Once again, the present study as well as the ongoing HIES of BBS should be able to lend some clarity on the issue of what exactly has happened to the pace of poverty decline in the present decade.

Extreme and Moderate Poverty: Disparate Trends

One rather surprising aspect of the trend of rural poverty presented in Table 1 is the disparate nature in the movements of extreme and moderate poverty. Despite their methodological differences, all the studies have the common finding that it is extreme poverty rather than moderate poverty that has declined over time. Thus in the panel data of Hossain and Bayes (2009) extreme poverty was exactly halved—falling from 34 per cent in 1987 to 17 per cent in 2004, whereas moderate poverty stayed practically unchanged at 26 per cent. Thus the entire decline in overall poverty observed in the decade and a half since the beginning of the 1990s was accounted for by decline in extreme poverty alone. For the HIES data, World Bank (2007) adopts a very different methodology for defining the extreme

¹¹ See, for example, the findings of a rapid survey carried out by the World Bank as reported in Ahmed *et al.* (2009).

poverty line¹², and yet the basic pattern remains the same—while extreme poverty declined sharply (from 44 per cent in 1991/92 to 29 per cent in 2005) moderate poverty remained stagnant at around 15 per cent.

These results may seem counter-intuitive at the first sight. One would have thought that the growth process of the Bangladesh economy, whose acceleration has generally been credited for sustained reduction of poverty since 1990, would favour the moderate poor more compared to the extreme poor because the former are supposed to have more of the assets and skills required to benefit from the growth process. Why then did extreme poverty decline so much faster than moderate poverty (which in fact declined hardly at all)? We do not have an answer yet, mainly because this aspect of poverty trend has not received much attention in the literature. In principle, there are several directions—mutually non-exclusive ones—in which one would look for an explanation.

First, over the years both government and non-governmental organisations (NGOs) have undertaken a large number of targeted anti-poverty programmes, aimed mainly at the people residing at the bottom end of the income scale, described variously as extreme poor, ultra-poor, hard-core poor, chronic poor, etc. Micro-credit is perhaps the biggest of such programmes, but there are many others. One could ask whether these programmes have really had more success than they are usually given credit for, resulting in sharp reduction in extreme poverty while the moderate poor have suffered by neglect. If the answer to this question is found in the positive, it would have profound policy implications, for it would mean that the targeted programmes for reducing poverty rather than the generalised effects of economic growth have been the main driving force behind the long-term declining trend of poverty noted earlier.

Second, remittances have played an increasingly significant role in the Bangladesh economy in the last two decades. A large number of rural households have benefitted from the remittance sent by migrant workers. The panel data study by Hossain and Bayes (2009) shows that the number of rural households with at least one member working abroad has gone up from 4 per cent in 1987 to 33 per cent in 2007. In addition, another 17 per cent of the households had at least one member working away in urban centres within the country. These figures suggest that half of the rural households have been potential beneficiaries of remittances in recent years.¹³ The direct contribution made by these remittances to household income has been enormous. Thus one finds from Hossain and Bayes (2009) that in year 2000 remittance accounted for as much as 45 per cent of the income of rural households with at least one foreign migrant and 13 per cent of the income of households with at least one domestic migrant. The direct poverty impact of remittance on such a huge scale must be quite pronounced. Therefore, the distribution of remittances among different segments of the population is likely to have a strong effect on the relative pace of poverty reduction.

This raises the question: is it possible that the extreme poor have benefitted from remittances proportionately more than the moderate poor (relative to their respective

¹² The estimates of extreme poverty are much bigger and those of moderate poverty much smaller than the corresponding estimates of Hossain and Bayes (2009) because of differences in the definitions of the extreme poverty line. In this respect, the estimates of Rahman *et al.* (2005) are closer to the pattern of HIES than to Hossain and Bayes (2009) or Rahman *et al.* (1996), because Rahman *et al.* adopt similar methodology to HIES to define the extreme poverty line.

¹³ HIES reports somewhat lower figures—around 30 per cent in 2000 and 2005, but even these figures are quite substantial.

incomes), providing at least part of the explanation of why extreme poverty has declined so much faster than moderate poverty? Conventional wisdom would tend to suggest otherwise. There is a general perception that it is the better off among the poor who can afford the expenses that need to be incurred in the process of migrating abroad. HIES data seem to support this view: households in the bottom deciles had far fewer members working abroad than the average household in Bangladesh (Serajuddin *et al.* 2009).

But evidence such as this cannot be taken as conclusive, for it is conceivable that most of the households in the bottom deciles who have had the privilege of sending a worker abroad have subsequently moved up the income scale so that such households are no longer found at the bottom of the pile. In that case, the scenario of remittances benefitting the extreme poor more than the moderate poor would be entirely consistent with the empirical observation that fewer migrants are found among the extreme poor households as compared with the moderately poor households. What one really needs here is longitudinal evidence on what happens to a household when it begins to receive remittance income—how far up the income scale they are able to move up, if at all, and at what pace different types of household move up the income scale. These issues are still unresolved; the present study would be able to throw light on the matter once the repeat surveys begin to be undertaken, but for the present one cannot rule out differential effect of remittances as one possible explanation of the disparate trends in extreme and moderate poverty.

Third, another possible explanation lies in what is known as the 'catching up effect'. This effect refers to the phenomenon that when the growth paths of households (or nations) at different levels of prosperity are compared with each other those who were worse off to begin with are found to perform better than those who were better off at the starting point. We shall discuss the catching up effect more fully below because it is an issue deserving of a separate treatment of its own. For the moment, we simply note that the presence of this effect can also explain why extreme poverty might decline faster than moderate poverty.

The fourth and final explanation is a very special one. All the preceding explanations relied on some mechanism whereby the extreme poor could be improving their incomes faster than the moderate poor. By contrast this last explanation suggests that even when both categories of poor are performing equally well over time, one could still observe stagnation in the rate of moderate poverty co-existing with decline in the rate of extreme poverty. This could simply be a consequence of the fact that households move into and out of different income groups over time. A precise demonstration of this proposition would require some algebra, but an intuitive explanation can be given as follows.

Divide the entire population into three groups—extreme poor (P^e), moderate poor (P^m) and non-poor (N). Households move in and out of these groups under two kinds of forces—a secular trend associated with economic growth and a random factor associated with temporary shocks—some positive shocks lifting the incomes of some people temporarily and some negative shocks depressing the incomes of others. Assume for the moment that there are no random shocks, only a secular trend lifting the income of everyone in every group in the same proportion. Then there will be a movement out of P^e —a leakage, which will reduce the rate of extreme poverty. As for P^m , there will be two movements instead of one—a movement out (into N), which is a leakage, and a movement in (from P^e), which is an injection. If the leakage and injection balance each other (which they very well could under plausible conditions), then the size of P^m would remain constant—i.e., the proportion of moderate poverty would not change. Even if the two do not exactly balance each other, the very fact that there are two offsetting forces operating on P^m , while there is no such

offsetting effect on P^e , implies that moderate poverty will decline more slowly than extreme poverty. We could thus have a scenario where extreme poverty has been declining sharply but moderate poverty is falling only slowly, and perhaps not at all, even though everybody's income is rising in the same proportion.

Now superimpose on this scenario the effect of random shocks. This will complicate the picture a little bit by creating further channels of movement—some in the form of leakage and some in the form of injection. Given the randomness of shocks, however, the leakages and injections will offset each other to some extent¹⁴, so that the scenario described above will still obtain in a large measure—the more so if the trend effect dominates the random effect. Therefore, the observed disparate movements in the rates of extreme and moderate poverty do not necessarily indicate that the moderate poor have failed to raise their incomes as much as the extreme poor.

We do not know which of these four explanations are at work in rural Bangladesh and what their relative contributions are in explaining the observation in question. Knowing the correct answer is important, however, from the policy point of view and should constitute an important research question for the future.

Chronic Poverty: Those who Never Escape

The most fundamental concern in any study of poverty dynamics is how the poverty status of households change over time—some households move out of poverty (movers), some of them descend into poverty (fallers), some keep falling into and out of poverty (churners), others never escape poverty (chronic poor), and yet others never experience any poverty at all (never poor). The manner in which the proportions of these sub-groups of households change over time, and why, is key to understanding the dynamics of poverty. Such information can only be provided by panel data i.e., information on the same set of households surveyed at different points in time. As noted earlier, the largest of such panel data for rural Bangladesh have been generated by the BIDS 62-villages surveys at different points in time, and subsequently by BIDS-CPRC 64-village surveys. Table 2 presents available evidence on the change over time in the frequency distribution of different categories of households based on these data sets.¹⁵ Some clarificatory remarks ought to be made, however, before commenting on the evidence.

The first point to note is that households have been categorised in this table by comparing their poverty status at the beginning and at the end of a period (called a 'spell') and we don't know what their poverty status was at different points in time within the spell. This means that the category of transitory poor ('churners')—those who move in and out of

¹⁴ Even if the shocks are entirely random, the leakages and injections will not exactly cancel each other if the household groups differ in size. For example, if P^m is larger than P^e , then even if the rate of leakage is equal to the rate of injection, the size of leakage from P^m to P^e will be larger than the size of injection from P^e to P^m .

¹⁵ In addition to the studies from which data have been presented here, there are other studies as well that also try to quantify the dynamic categories, e.g. Sen (2003) and Kabeer (2009). Sen (2003), however, uses a sub-set of the sample on the basis of which the data for the spell 1987-2000 have been presented here, and is not therefore reported in this table. Kabeer (2009) uses a sample drawn from just two villages, and as such would not be comparable with the large-scale surveys that have some claim to be representative of rural Bangladesh.

poverty—is not identified here; they are merged with other sub-groups. Thus, it is possible, for example, that those identified as chronically poor during a spell may include households who had moved out of poverty at some point during the spell but fell back into it before the terminal year, in addition to those who never moved out of poverty at all during the spell.

Table 2: Dynamics of Poverty in Rural Bangladesh: 1987-2010
(percentage of households)

Dynamic categories	1987-90	1990-94	1987-00	2000-07	2005-10
Never Poor	24.5	27.6	29.0	36.1	32.0
Movers (from poor to non-poor)	20.1	18.0	29.2	17.8	21.1
Fallers (from non-poor to poor)	16.2	16.7	12.0	17.6	15.1
Chronic poor	39.2	37.7	29.8	28.4	31.8
Total	100.0	100.0	100.0	100.0	100.0

Sources: 1987-90 figures are from Rahman and Hossain (1995), 1990-94 figures are from Rahman *et al.* (1996), 1987-2000 and 2000-2007 figures are from Hossain and Bayes (2009), and 2005-2010 figures are from Sen *et al.* (2010).

Next, the data for the final, and the most recent, spell in the table (i.e., 2005-2010) are based on subjective judgements of the respondents, unlike all other spells in which actual data on income and expenditure have been used to identify the groups. In this sense, the final spell is not strictly comparable to the preceding ones. Finally, there are other factors compromising strict comparability between the spells, such as differences in the definition of poverty lines and choice of sample households, etc. For all these caveats, the data presented in Table 2 are the best that is available for rural Bangladesh. A number of observations stand out from these data.

First, the evidence reveals a high degree of mobility of households between poor and non-poor status. Over different spells in the last two decades, at least one-third of the households changed their poverty status—some escaping from poverty, some descending into it. *Second*, in general those who escaped poverty outnumbered those who descended into it.¹⁶ This is of course what lies behind the long-term declining trend of poverty. *Third*, currently slightly less than one-third of the rural population can be characterised as chronic poor, those who could not escape from the clutches of poverty during a spell. A broad generalisation would be that the rural population of Bangladesh are roughly equally divided into three groups—chronic poor, never poor, and sometimes poor, each of which accounts for roughly one-third of the population. *Fourth*, the data from various spells seem to indicate that the magnitude of chronic poverty declined from close to 40 per cent in the early 1990s to close to 30 per cent by the year 2000, but has remained static since then.

¹⁶ The only exception is the spell 2000-2007 during which the movers and the fallers were equal in size, but recall that 2007 was a particularly bad year for the poor because of a spiraling food price inflation.

These findings have serious implications for both analysis and policy. In particular, the observation that after declining in the 1990s chronic poverty has remained static in the 2000s poses a serious puzzle in the face of the official HIES evidence that overall poverty has been declining much faster in the current decade as compared with the 1990s. The observation is of course consistent with the panel data evidence we have presented earlier which seemed to show that, contrary to HIES evidence, the pace of poverty reduction had slowed in the present decade (Table 1), but we have argued earlier that there are good reasons not to accept this evidence at the face value.

There is a further problem here. The evidence for the early 1990s was based on much shorter spells (3-4 years) than the subsequent ones (7-13 years). And it is to be expected that in the presence of trend improvement in poverty (which has been the case since around 1990) more people would have the opportunity to escape poverty over a longer spell than over a shorter one. In other words, chronic poverty would be expected to be higher in shorter spells simply on account of the time factor alone (in the presence of trend improvement). Therefore, the data presented in Table 2 cannot necessarily be interpreted as demonstrating that chronic poverty fell from the early 1990s to the end of the decade and then stayed constant for the next decade. Comparing only the two long spells 1987-2000 and 2000-2007, one could actually make a case that the magnitude of chronic poverty hardly changed at all over the last two decades.

Thus, as with the issue of overall poverty so in the case of chronic poverty the question of how the situation has changed in the recent years remains unresolved. The ongoing HIES may help to resolve the matter to some extent as regards overall poverty, but the question of chronic poverty can only be resolved by further panel studies of the kind that used the BIDS 62-village surveys. For the future, the present study would provide an independent panel data base which could help chart out the course of chronic poverty in rural Bangladesh.

Whichever way the issue is resolved, however, the fact that roughly one-third (close to 30 per cent) of the rural population are chronically poor, and have probably have remained so for a while, is in itself a matter of serious policy concern. The poverty rate in rural Bangladesh has come down in each of the last two decades—falling from 59 per cent in 1991/92 to 44 per cent in 2005 (according to HIES data). Further reduction is expected since 2005 on account of both economic growth and targeted policies for the poor. But if chronic poverty has remained stubborn at around 30 per cent, it means the progress made in poverty reduction in the recent years will soon hit a bottom with a large number of people still stuck in poverty, unless some means is found to address the problem of the chronically poor.

Occupation Shift and Poverty: The Vanishing Tribe of Agricultural Wage Labourers

There have been some profound changes in the occupational distribution of rural households which have far reaching implications for the dynamics of poverty. Successive labour-force surveys carried out by the Bangladesh Bureau of Statistics reveal that the share of agriculture in rural employment, and not just in national employment, has been falling over the years, and the panel surveys being reviewed here confirm this trend. Thus

the BIDS 62-village surveys show that the proportion of households with agriculture as the primary occupation has gone down from 71 per cent in 1987 to 56 per cent in 2007 (Table 3).

Table 3: Change in Occupational Distribution in Rural Bangladesh: 1987-2007
(percentage of households)

Sector and occupation	Primary occupation		Primary plus secondary occupation	
	1987	2007	1987	2007
Agriculture	70.5	56	99.8	76
Self-employed farming	45	41	64.6	50
Other self-employed agriculture	2.7	1	5.2	4
Agricultural Wage Labour	22.8	13	30	20
Non-agriculture	29.5	46	45	53
Self-employment in business	9.5	13	14.1	17
Self-employment in services	11.8	18	13	19
Non-agricultural wage labour	10	14	17.8	17

Source: Hossain and Bayes (2009).

This is of course only to be expected since it is well-known that inter-sectoral shift of resources occurs in the course of economic growth, reducing agriculture's share of both employment and output. What is, however, particularly interesting in the context of rural Bangladesh is that this shift is not quite reflected among the households that are primarily self-employed in agriculture; it is mainly in the case of agricultural wage labour that the shift is pronounced. Thus, the share of employed farmers in total rural employment has gone down only marginally from 45 per cent in 1987 to 41 per cent in 2007—over a period of two decades this is a very slow decline indeed.¹⁷ By contrast, the share of agricultural wage labour has fallen drastically; it has nearly halved over the two decades—falling from 23 per cent to just 13 per cent between 1987 and 2007.

The implication of this shift in term of poverty can be appreciated from Table 4 which presents the poverty rates of different rural occupations in 2005 based on HIES data. Not surprisingly, agricultural wage labourers are at the bottom of the occupation rung, suffering from the highest rate of poverty among all groups—as high as 70 per cent as compared with an average of 44 per cent for rural population as a whole. Non-agricultural labourers, with a poverty rate of 60 per cent, fare only marginally better. By contrast, the extent of poverty

¹⁷ Among the self-employed farmers, a significant shift has occurred only among those who had farming as secondary occupation. This is evident from the fact that while the proportion of households with agriculture as the primary occupation has not declined much the proportion of those with agriculture as either primary or secondary occupation has fallen quite substantially—from 65 per cent in 1987 to 50 per cent in 2007.

among self-employed farmers is only 33 per cent, well below the rural average of 44 per cent, and, somewhat surprisingly, even lower than the poverty rate of 38 per cent among self-employed people in non-agriculture. These figures explain why it is the agricultural wage labourers rather than self-employed farmers who have changed their occupation. Since these labourers had the highest poverty rate of all, wherever they have gone, this shift must have contributed towards bringing the overall rate in rural Bangladesh.

Table 4: Occupation and Poverty: 2005
(percentage)

Dynamic categories	Poverty rate	Share in population
Self-employment in agriculture	33	29
Self-employment in non-agriculture	38	17
Salaried employment	27	10
Wage employment in agriculture	72	19
Wage employment in non-agriculture	60	12
None	30	13
Total	44	100

Source: Kotikula *et al.* (2009)

It is instructive to find out exactly where the wage labourers have gone. Panel data are particularly useful for this purpose and the information on occupational mobility based on the panel data of BIDS 62-village surveys are presented in Table 5. The table has two panels, the first panel showing the change of occupation between 1987 and 2000 and the second showing the change from 2000 to 2007.¹⁸

The first point to note from this table is that among those who were primarily employed as agricultural wage labour in 1987, less than 30 per cent remained so in 2000, and among them only 34 per cent remained in this occupation by 2007. Evidently, wage labourers are shifting in droves to other occupations. At the same time, there has been some inflow into the ranks of agricultural wage labour from other occupations, but these are mostly quite negligible. Therefore, it would not be too far-fetched to describe the group of agricultural wage labourers as a vanishing tribe in rural Bangladesh.

But where have they all gone? The answer to this question involves an element of surprise. Conventional wisdom would suggest that they would move out of agriculture altogether and perhaps work mainly as wage labour in non-agricultural sectors or engage in some petty self-employed activities. To some extent, they have done so—e.g., between 2000 and 2007, some 14 per cent of them turned into non-agricultural wage labour and another 15 per cent

¹⁸ The table should be read horizontally. Thus, in the first panel, out of all those who had self-employed farming as the main occupation in 1987, 70 per cent remained in the same occupation in 2000, 5.9 per cent became agricultural labourer, 9.7 per cent went into business, and so on.

Table 5: Occupation Mobility in Rural Bangladesh: 1987-2007
(percentage of households)

	Farming	Agri labour	Business	Services	Non-ag labour	Total
Occupation in 2000						
Occupation in 1987						
Farming	70.0	5.9	9.7	10.4	4.0	100.0
Agricultural labour	35.2	28.8	10.7	6.3	19.0	100.0
Business	32.5	5.8	37.3	18.6	5.8	100.0
Services	14.9	1.1	14.9	56.5	12.6	100.0
Non-agricultural labour	28.9	15.7	20.5	3.6	31.3	100.0
Occupation 2007						
Occupation in 2000						
Farming	77.2	5.5	4.7	10.0	2.5	100.0
Agricultural labour	37.0	34.3	6.3	8.5	13.8	100.0
Business	30.1	4.3	49.8	10.0	2.9	100.0
Services	18.8	1.9	6.5	69.5	3.2	100.0
Non-agricultural labour	21.4	14.8	8.1	12.4	43.3	100.0

Source: Hossain and Bayes (2009).

took up self-employment in business and services. But most of all they have become self-employed farmers—more than one-third of them have done so in each of the two spells.

That is quite a startling phenomenon. Since self-employed farming has, on the average, one of the lowest levels of poverty among all occupations and agricultural wage labour has by far the highest, the shift from wage labour to self-employment in the farm sector must have contributed to the reduction in rural poverty. But the more interesting question is: how did that happen?

Traditionally, the flow has occurred in the opposite direction. As small farmers became even smaller either by having to sell land under distress or because of division of land through inheritance, many of them were forced to give up own-account farming and join the ranks of wage labourers. Evidently, the flow has now completely reversed—more people are now moving from wage labour into self-employed farming than the other way round. Given the difference in poverty levels between the two occupations, one can of course understand why wage labourers would want to become self-employed farmers. But this incentive for changing occupation was always there, even in the olden days. So what exactly has changed between then and now? It should also be noted that it is not just agricultural wage labourers, many members of other occupations have also moved into self-employment in agriculture. Thus, when households involved in either non-agricultural wage labour or in self-employment in business and services chose to change occupations, their most favourite destination by far was self-employed farming (Table 5).

What has made this flow into farming a possibility for a wide range of rural population? This issue has not been investigated in the literature, so a definitive answer cannot be given at this stage. However, some plausible answers can be examined. The general point is that while wage labourers and poor non-farm households always had the incentive to become self-employed farmers they were prevented from doing so because of some constraint—primarily a resource constraint; they simply didn't have the funds to rent in land, let alone buy it, nor to pay for the working capital. If they are now moving into self-employment farming, this constraint must have softened somehow. There are several ways this might have happened.

One possibility is the explosion of microfinance in rural Bangladesh. The existing studies on micro-finance offer ample evidence that some of the borrowers are using their funds to rent in land, especially from larger farmers, many of whom either find wage labour too expensive or are moving out of agriculture altogether. The other possibility is the flow of remittance in the rural economy—both foreign and domestic remittance, but especially the former. The flow of remittances has injected a lot of ready cash in the hands of the rural people, and to the extent that wage labour households have gained from this flow they might have used it to overcome the resource constraint that has traditionally prevented them from becoming self-employed farmers. Finally, it is conceivable that the growth of non-farm employment opportunities have enabled some members of the household to bring in the cash that other members can use to engage in self-employed farming.

These explanations are not mutually exclusive; so all of them could be valid at the same time. But our current state of knowledge does not allow us either to discriminate between the alternative explanations, or, in case more than one explanation happens to be valid, to ascertain their relative importance in inducing the flow into self-employed farming. This issue ought to find a place in the future research agenda on poverty dynamics in rural Bangladesh, and the present study should be able to make a contribution in this regard.

Evolution of the Land Tenure System: The Rise of 'Pure Tenancy' under Fixed Rent

Access to assets is one of the most important determinants of rural poverty—all poverty studies, whether cross-sectional or longitudinal, clearly reveal that poverty is closely related to access to land. But those who are already poor can seldom afford to buy land as a means of escaping poverty; the most they can do is to rent in land from bigger landowners, cultivate it with own labour and earn a living from it. Traditionally, such tenant farmers have still been poor, but at least access to land through the rental market has given them a cushion and a ladder to climb up the income scale, making them better off than landless agricultural labourers. As a result, the nature of the tenancy market and its evolution over time has an important bearing on the dynamics of rural poverty.

At the onset of the Green Revolution in South Asia four decades ago, it was feared by many that tenant farmers would suffer as landowners, induced by the prospect of higher productivity of land, would begin to take back their rented out land in order to cultivate it under their own account. In practice, this fear turned out to be unfounded. In many areas, tenancy, especially in the form of share-tenancy, in fact increased rather than decreased, and there were good economic reasons why this was so (Osmani 1998).

The same thing happened in Bangladesh as well. However, the changes that have occurred in the land rental market in the last two decades are much more profound than anyone could have expected at the time the debate over the Green Revolution was rife—the market

for renting land has not only survived, it has grown leaps and bound beyond all expectations. Table 6 shows the extent and nature of changes in land tenure in the two decades between 1987 and 2007 based on panel data. In 1987, just about a quarter of total cultivated land was under tenancy, the rest was cultivated under own account. By 2007, the proportion of rented land had jumped to 40 per cent.

At the first sight, this would seem to be a positive development from the point of view of the rural poor because it means greater access to land for many who would otherwise not have the access. But one cannot be certain of that without further probing. The problem lies with a phenomenon known as 'reverse tenancy', whose emergence in rural Bangladesh has been noted by many observers. In a traditional rental market, land flows from large landowners to small farmers, but under reverse tenancy the flow is in the other direction—from small landowners to large farmers.¹⁹ It is, therefore, important to examine the nature of the recent growth in tenancy. The second panel of Table 6 throws some interesting light on this issue. A couple of features of the emerging land tenure system are worth noting.

Table 6: Changes in Land Tenure in Rural Bangladesh: 1987-2007

<i>Share of cultivated land by tenancy type (%)</i>	1987	2007
Own-account cultivation	76.6	60.0
Rented land	23.4	40.0
Share cropped land	17.0	6.0
Fixed-rent land	5.3	24.0
Mortgaged land	1.1	10.0
Total	100.0	100.0
<i>Share of farmers by tenancy type (%)</i>		
Pure tenants	13.6	25.8
Mainly tenant, partly owner	14.4	14.7
Mainly owner, partly tenant	15.7	7.8
Pure owner	56.3	51.7
Total	100.0	100.0

Source: Hossain and Bayes (2009)

First, if the farmers are classified according to whether they cultivate own or rented land or 'partly own partly rented land', then it is the category of 'pure tenants' i.e., those who cultivate only rented land, that has really expanded in the last two decades. Those who are

¹⁹ As landholding becomes too small to be economic, small farmers tend to rent out the remaining land to larger farmers who are keen to expand their landholding in order to reap economies of scale in the use of expensive irrigation equipment—this has been the main driving force behind reverse tenancy.

mainly tenants, but do have some lands of their own, have maintained their share; all other groups have either retained or lost their share. By contrast, the share of pure tenants among all farmers has gone up from 14 per cent in 1987 to 26 per cent in 2007. Looking at only the tenant farmers, pure tenants were clearly in a minority in the past, accounting for less than a third of all tenants, but they have now become the majority, accounting for over half the tenant farmers.

The second feature concerns the terms under which land is rented out. Traditionally, sharecropping has been the dominant form of renting and this was still true in 1987, when out of 23 per cent of total land that was rented out as much as 17 per cent was based on sharecropping arrangements and only 6 per cent was under cash-based arrangements such as fixed rent and mortgage. That ranking was completely reversed by 2007, when out of the 40 per cent land that was rented out as much as 34 per cent was under fixed rent and mortgage while only 6 per cent was under sharecropping arrangement. Thus, renting based on cash payment has clearly replaced crop-sharing as the dominant form of tenancy in rural Bangladesh.²⁰

Both these features—the rise of pure tenants and the rise of cash-based renting arrangements—mark a radical departure from the traditional land tenure system in rural Bangladesh. The reasons behind these departures and their consequences, especially for rural poverty, are yet to be explored systematically in the literature.

It is conceivable that the two phenomena are closely related to each other. The rise of pure tenants indicates that unlike in the past landless households are entering the rental market heavily now-a-days. This is perfectly consistent with the observation made earlier regarding occupational shift in rural Bangladesh—especially the conversion of agricultural wage labourers as well as some non-farm households into self-employed farmers. But the question that needs to be asked here is why do landowners increasingly prefer such landless tenants over those who are already cultivating some land of their own.

A plausible explanation can be given as follows. Existing theories of sharecropping suggest that landowners would normally prefer to give land under sharecropping arrangement to tenants who own some land in order to exploit the unobservable farming skills that such people are expected to possess.²¹ But these theories are all based on the assumption of a binding credit constraint, leading to a liquidity constraint, operating in the rural economy. If this liquidity constraint is somehow softened, the possibility of alternative arrangements based on cash payment would begin to open up. The process will be hastened if at the same time landowners move increasingly into non-farm activities in urban and peri-urban areas because they might then prefer cash to crop as the mode of payment.

There are reasons to believe that both these changes are occurring in rural Bangladesh—on the one hand, large landowners are increasingly engaging in non-farm activities, demanding more cash in the process, and on the other hand new cash is being injected into the rural economy through microfinance and remittances, which is softening the liquidity constraint faced by potential tenants and enabling them to offer cash in exchange of land. Cash-based transactions are thus being boosted from both demand and supply sides. This may explain

²⁰ The figure of 6 per cent under sharecropping in 2007 seems surprisingly low, but even after allowing for some error, the general point would still remain valid.

²¹ For an excellent discussion of this and other issues related to the theory of sharecropping, see *inter alia* Otsuka and Hyamail (1988) and Singh (1989).

the emerging dominance of cash-based renting of land by 'pure tenants' who may not have land of their own but have ready cash at their disposal. In this explanation, the emergence of pure tenancy and the dominance of fixed rents are joint outcomes of the same set of economic forces.

Plausible as it is, this explanation does not, however, yield an unambiguous implication for rural poverty. It all depends on who the new 'pure tenants' are, sitting pretty on ready cash. Are they mostly relatively poor households being served by various microfinance schemes, or are they relatively better off households reaping the benefit of remittances? And whoever they are, what is their relative economic position vis-à-vis the traditional sharecroppers who are evidently losing out in the competition with the new breed of tenants? Or, is it the same old-fashioned sharecroppers who are now transforming themselves into new-style cash-wielding tenants? Knowing the answers to these questions is important for understanding the dynamics of poverty in rural Bangladesh, because it will help identify the gainers and losers from the profound changes that are taking place in the land tenure system.

The Catching Up Process: Is the Bottom Rising Faster than the Top?

In our earlier discussion of the phenomenon that the proportion of extremely poor households seem to be declining faster than the proportion of moderate poor, we advanced the idea of 'catching up' as one possible explanation. The empirical growth literature of the last couple of decades has demonstrated that, other things remaining the same, poorer economies tend to grow faster than the richer ones—a phenomenon that has come to be known in the growth literature as 'conditional convergence'. Catching up effect is simply an implication of this phenomenon, and it can in principle apply as much to individuals and households as to economies as a whole.

In the context of whole economies, the logic behind the catching up effect rests on the principles of diminishing marginal productivity and technological diffusion. Economies that are poorer to begin with have a lower level of capital and hence higher marginal productivity of capital, which helps them to grow faster, other things remaining the same.²² At the same time, poorer economies can benefit at little cost from the diffusion of technologies that are created and experimented at great cost by the richer economies. Analogous arguments can be made at the level of individuals and households as well, with suitable modifications.²³ Indeed, evidence for the existence of catching up effect at the household level has been found in as diverse a set of countries as Indonesia, South Africa, Spain and Venezuela (Fields *et al.* 2003). But does the effect exist in rural Bangladesh and what are the implications of the effect, if it does?

Using the BIDS panel data for the years 1987 and 2007, Nargis and Hossain (2009) have demonstrated the existence of conditional convergence in rural Bangladesh as well. In a multivariate analysis of the determinants of household income, they included per capita income at the initial level (i.e., for the year 1987) as one of the determinants of final income (for the year 2007) along with other household level and village level factors that can potentially affect of a household's income. The regression estimates reveal that, after controlling for the effects other determinants, initial per capita income had a significantly

²² The clause of 'other things remaining the same' is very important here, as emphasized by the qualifier 'conditional' in the term 'conditional convergence'.

²³ At the level of households, one could also perhaps add the idea of entrepreneurial diffusion to that of technological diffusion.

negative effect on the final year income in the sense that those who had lower per capita income to begin with enjoyed a faster rate of growth than those who had a higher initial income—thus proving the existence of conditional convergence.

Note that the existence of conditional convergence does not necessarily imply that the poorer people are catching up in the sense of closing the gap with the rich, because 'other factors' might be working in the opposite direction—to widen the gap between the rich and the poor. For the gap to close, a necessary condition is 'unconditional convergence' i.e., the poor people's income must rise faster than that of the rich, even without controlling for other factors.²⁴ There is in fact quite a bit of evidence for such unconditional convergence as well.

HIES data presented in Table 7 shows that between 2000 and 2005 the bottom deciles of both rural and urban Bangladesh have on the average enjoyed a faster rate of growth in per capita expenditure than the average household—suggesting the existence of unconditional convergence. There are other pieces of evidence that corroborate this finding. Consider, for example, the information presented in Table 8 on the growth of various types of assets and amenities (such as livestock ownership, dwelling, electricity connection, ownership of TV, etc.) owned by households. For each of these items, poorer households are seen to have enjoyed faster growth than the average household between the years 2000 and 2005. Similarly, panel data from the BIDS 62-village surveys reveal that between 1987 and 2007 functionally landless households (those owning less than half an acre of land) accumulated both agricultural and non-agricultural capital at a faster rate than the average household (Table 9).

Table 7: Absolute Convergence in Per Capita Expenditure
(Taka per household in 2000 prices)

	2000	2005	Change (%)
All Bangladesh			
All households	1057	1183	11.9
Bottom three deciles	548	617	12.6
Bottom decile	432	495	14.6
Rural			
All households	963	1078	11.9
Bottom three deciles	536	603	12.5
Bottom decile	425	488	14.8
Urban			
All households	1431	1500	4.8
Bottom three deciles	611	675	10.5
Bottom decile	466	520	11.6

Source: Serajuddin *et al.* (2009)

²⁴ This is not a sufficient condition, however, because even with faster growth of income the poor may find that the gap with the rich is widening in absolute terms if their initial difference in incomes is very large while the difference in growth rates is not large enough to offset the initial difference.

Table 8: Convergence in the Ownership of Assets and Amenities: 2000 and 2005

Assets and Amenities	All households			Bottom 3 deciles		
	2000	2005	Change(%)	2000	2005	Change(%)
Average real value of livestock (Tk)	4280.0	5281.0	23.4	2623.0	3919.0	49.4
Livestock ownership (%)	35.2	40.3	14.5	31.6	42.5	34.5
Having cement/Cl sheet wall (%)	37.7	55.2	46.4	17.4	33.9	94.8
Having cement/Cl sheet roof (%)	76.4	89.9	17.7	64.5	81.6	26.5
Safe latrine use (%)	52.0	69.3	33.3	29.4	50.0	70.1
Electricity connection (%)	31.2	44.2	41.7	10.0	20.2	102.0
TV ownership (%)	15.8	26.5	67.7	1.8	6.7	272.2

Source: Kotikula *et al.* (2009)**Table 9: Convergence in Ownership of Capital**
(per capita in current US dollar)

	All households			Functionally landless		
	2000	2005	Change (%)	2000	2005	Change (%)
Agricultural capital	155	270	74.2	51	172	237.3
Non-agricultural capital	172	371	115.7	52	200	284.6
Total capital	327	641	96.0	161	372	131.1

Source: Hossain and Bayes (2009)

There is, however, also some contrary evidence that is not easy to reconcile with the idea of unconditional convergence in incomes (or expenditure). Consider, for example, the information presented in Table 10 on changes in poverty rates (between 2000 and 2005) for households classified in two different ways, based on HIES. The first classification is by the size of land ownership. As expected, households with less land had a higher level of poverty in the initial year. Under the convergence hypothesis, the poverty of such land-poor households should have declined faster than that of land-rich households, but the very opposite happened—the rate of decline in poverty was systematically lower for smaller land-ownership groups. The second classification is in terms of the educational level of the household head. In the initial year, higher education was systematically associated with lower levels of poverty. Under the convergence hypothesis, households whose heads had lower levels of education (and higher poverty) to begin with should have experienced faster reduction of poverty. The reality, however, was rather mixed—there is no evidence of convergence up to the secondary level of education, although there is some suggestion that it might exist beyond the secondary level.

The contrary evidence is particularly pronounced for the case of extreme poverty. Table 11 uses HIES data to present the rates of extreme poverty among households classified in three different ways—on the basis of land ownership, by the educational level of household head, and by occupation. Under each classification, households suffering from higher levels of poverty in the initial year systematically experienced lower rates of poverty reduction between 2000 and 2005. Thus, households with the least land had the highest level of

extreme poverty to begin with and they also had the lowest rate of poverty reduction among all land groups; households whose heads had no education at all had the highest level of poverty to begin with and they also managed to reduce their poverty more slowly than all other households; and finally, agricultural day labourers, who had the highest rate of extreme poverty among all occupation groups to begin with were also subject to the slowest rate of poverty reduction.

Table 10: Non-convergence by Land and Education Categories
(Poverty rates of all poor)

	2000	2005	Change (%)
<i>Land ownership</i>			
Landless <0.05 acre	63.5	56.8	-10.6
Functionally landless 0.05-0.5 acre	59.7	48.8	-18.3
Marginal 0.5-1.5 acres	47.2	35.1	-25.6
Small 1.5-2.5 acres	35.4	23.7	-33.1
Medium/large >2.5 acres	20.7	12.8	-38.2
<i>Education of household head</i>			
No education	63.2	54.7	-13.4
Primary	40.3	35.1	-12.9
Secondary	30.0	21.4	-28.7
Higher secondary	8.8	8.5	-3.4
Graduate and above	3.1	4.3	38.7

Source: Kotikula *et al.* (2009)

Several issues arise here that merit serious probing. First, if the poor households are raising their income or expenditure faster than the average household (as the evidence shows), what features of the poor are helping them to do so? After all, we have seen that when households are ranked by either land ownership or educational level or occupation, those who started off as poorer tend to experience a slower, not faster, rate of poverty reduction. Thus evidently the secret of the poorer households' ability to raise income faster lies neither in land, nor in education, nor in occupation. So, where does it lie? Or, is it simply an arithmetic artefact arising from the fact that growth from a lower base would tend to be faster, other things remaining the same?

Second, while the poor households may on the average be raising their income faster than the average household, we also learnt earlier that chronic poverty seems to have remained stuck at around 30 per cent over the last two decades. Clearly, a large number of poor households are not beneficiaries of the faster growth of the poor as a whole; only a subset is. What are the relevant characteristics of this subset that distinguish them from the chronically poor?

Table 11: Non-convergence by Categories of Land, Education and Occupation
(Poverty rates of the extreme poor)

	2000	2005	Change (%)
<i>Land ownership</i>			
Landless <0.05 acre	49.20	39.30	-20.1
Functionally landless 0.05-0.5 acre	42.20	32.70	-22.5
Marginal 0.5-1.5 acres	30.60	19.80	-35.3
Small 1.5-2.5 acres	22.90	11.70	-48.9
Medium/large >2.5 acres	11.00	5.90	-46.4
<i>Education of household head</i>			
No education	46.3	36.3	-21.6
Below class 5	27.6	19.5	-29.3
Class five	26.5	19.3	-27.2
Class 6 to 9	20.0	13.4	-33.0
Higher level	7.2	4.4	-38.9
<i>Occupation of the household head</i>			
Agricultural day labour	63.7	52.1	-18.2
Non-agricultural day labour	50.0	44.5	-11.0
Non-agriculture self-employed	29.7	24.3	-18.2
Agriculture self-employed	28.2	18.1	-35.8
Non-agriculture salaried	22.3	15.6	-30.0

Source: Serajuddin *et al.* (2009)

Third, cross-country analysis, from which the idea of income convergence first emerged, has also shown that when nations are ranked by poverty, not by income, one finds evidence of 'conditional divergence', i.e. those who started out with a higher rate of poverty tend to reduce their poverty slower, not faster, other things remaining the same (Ravallion). It is interesting to enquire whether the same phenomenon applies within nations as well. In other words, considering different regions of Bangladesh, is it true that the regions that started out poorer are experiencing slower rate of poverty reduction, thus leading to a divergence rather than convergence in regional poverty?

Education and Non-Farm Employment: Even A Little Learning Helps

It was noted earlier that education has a very close relationship with poverty—households whose heads have higher levels of education not only have lower levels of poverty, they are also able to reduce their poverty faster as compared with households whose heads have lower levels of education (Table 11). Schooling thus clearly pays in raising the living

standards. This is of course obvious enough, even from casual observation. What is more interesting to note, however, is that one doesn't have to have a lot of education to be able to earn a better living. Even those who have been to the school only up to the primary tend to have nearly one-third less poverty than those who have no education at all, and if they can somehow manage to acquire some secondary education poverty goes down by another one-third. There is no thus evidence of any threshold effect in the impact of education on poverty—even a little learning helps!

One of the mechanisms through which education helps is by enabling people to move from low paying activities in the farm sector to somewhat higher paying employment in the non-farm sector. This is evident from Table 12, which shows the occupational distribution of male labour force by levels of educational in 2004. Employment in agriculture falls systematically with the level of education and rises correspondingly in non-agriculture. Once the secondary level has been passed, only one-third of male workers stay in agriculture—two-thirds find employment in various non-agricultural activities. But the effect begins much earlier. With no formal education only 30 per cent can enter the non-farm sector, but even with some schooling up to the primary level the proportion of employment in non-agriculture rises to 46 per cent. This pattern is true for almost every sub-sector of agriculture and non-agriculture.

Table 12: Education and Rural Non-Farm Employment: 2004
(percentage)

	No formal education	Up to primary	Up to secondary	Secondary Passed
Agriculture	70.2	54.2	44.4	32.8
Crop farming	49.7	45.8	39.3	31.4
Other farming	2.9	0.4	1.0	0.6
Agricultural wage labour	17.6	8.1	4.1	0.8
Non-agriculture	29.8	45.8	55.6	67.2
Business	9.4	13.8	18.8	17.6
Services	3.3	10.7	21.3	46.3
Non-agricultural wage labour	17.1	21.3	15.5	3.3
Total	100.0	100.0	100.0	100.0

Source: Hossain and Bayes (2009)

Education turns to be important for wage labourers as well. Among those who have acquired schooling up to the primary level, only 8 per cent work as wage labour in agriculture whereas 21 per cent do so in non-agriculture; these proportions are respectively 4 and 16 per cent for those who have done schooling up to the secondary level, and 1 and 3 per cent for those who have passed the secondary level. Education thus opens the gateway to the non-farm sector even for wage labourers.

The role of education as the key to entry into the non-farm sector may be contrasted with that of land. Unlike education, which has a monotonic relationship with entry into the non-

farm sector, land ownership has a U-shaped relationship. As expected, people with less land tend to work more in non-agriculture. As land ownership rises, the share of employment in non-agriculture drops until the stage of large farmer at which it again rises (Table 13). This shows that unlike in the case of education, a pretty high threshold effect seems to operate in the case of land ownership. Thus, human capital, more than anything else, seems to be the key determinant of rural workers' access to non-agricultural activities.

Table 13: Land Ownership and Rural Non-Farm Employment: 2004
(percentage)

	Landless	Small	Medium	Large
Agriculture	47.1	58.8	68.1	60.5
Crop farming	27.9	56.2	66.4	59.2
Other farming	2.0	0.7	1.0	1.3
Agricultural wage labour	17.2	1.9	0.7	0.0
Non-agriculture	52.9	41.2	31.9	39.4
Business	15.9	12.1	10.1	15.9
Services	12.6	20.2	18.8	22.9
Non-agricultural wage labour	24.4	8.9	3.0	0.6
Total	100.0	100.0	100.0	100.0

Source: Hossain and Bayes (2009)

All this has important implications for the prospect for poverty reduction, since non-agricultural activities are not only more productive (and hence more remunerative) than agriculture, the scope of employment in non-agriculture is also expanding faster. The evidence on higher earnings from non-agriculture and on the links between education and earnings is quite unambiguous, as can be seen from Table 14. Even for wage labourers, earnings are considerably higher in non-agriculture—partly because wage rate per hour is higher and partly because there is scope for working longer hours, and higher earnings in turn are related to higher educational level of non-agricultural wage labourers.

Table 14: Earnings and Education by Occupation Groups: 2005

	Employment share(%)	Education (years)	Earnings (Tk/month)	Earnings (Tk/hour)	Hours worked per week
Agriculture					
Wage labourers in agriculture	16	1.3	1694	8.5	39.6
Farmers	27	3.7	2436	13.6	39.4
Non-agriculture					
Wage labourers in non-agriculture	16	2.3	2468	10.0	47.2
Salaried work	22	8.1	4502	13.9	55.9
Self-employed in non-agriculture	20	5.2	5469	13.9	54.6

Source: Sasin (2009)

Given the importance of education for poverty reduction through access to non-farm activities, it is disconcerting to note that poorer households are able to educate their children less, even at the primary level where education is supposed to be free. A recent study found that the net enrolment rate of the primary aged children significantly increased with the increase in household food security status. For instance, the enrolment rate was 78.1 per cent of the children of *always in deficit* households, 84.3 per cent of the children of *sometimes in deficit* households, 87.9 per cent of the children of breakeven households and 91 per cent of the children of *surplus* households (CAMPE 2009). The situation is worse at higher levels of education. Thus, quoting HIES data, Mujeri (2010, p.158) reports: "Although the disparity is less at the primary level, the gap is much wider at higher levels. For every two non-poor children, only one poor child is enrolled at the junior secondary level. Similarly, the non-poor to poor ratio is nearly four at the secondary level and close to six at the higher secondary level."

Moreover, children who come from poor families attend schools less frequently, have higher dropout rates, and have lower performance in achievement tests. As a result, the level of competencies achieved is significantly lower for children from poorer households. Controlling for other factors, the average level of competencies was found to rise monotonically from 17.7 (out of 27) among children from 'always in deficit' households to 18.1 in 'sometimes deficit' households, 18.7 in 'breakeven' households and 20 in 'surplus' households (CAMPE 2009).

There seem to exist two major factors behind the lower educational achievement of children from poorer households.²⁵ The first and the most obvious one is the cost of education—both direct and indirect costs. Although tuition and textbooks are free at lower levels of education are free at lower levels of education, there are other direct costs that are low but can still be quite a burden for very poor families; moreover, the direct costs rise rapidly with each grade. Besides there are the indirect costs—in the form of opportunity costs of child's labour—which can be quite substantial for poor households.

Secondly, an inter-generational effect seems to operate here. For example, statistically significant positive relationship between parental education and net enrolment is observed (CAMPE 2009). In particular, mothers with secondary or more education are more likely to send their children to school than those with primary and no education. Similar relationship also holds for father's education. And since less parental education is associated with less current income of the household, many of the poor households seem to be caught in an inter-generational poverty trap: children of poor and less educated parents receive less education and therefore earn low income when they grow up, thus perpetuating the flow of poverty from one generation to the next. An important research question here is whether public policy and general economic forces are succeeding in breaking down this inter-generational poverty trap over time, even if slowly. If so, how, and if not, what are the obstacles?

Shocks and Vulnerabilities: From Transient to Persistent Poverty

Exogenous shocks are an important determinant of poverty dynamics anywhere. They have both short and long run effects. Negative shocks—whether weather-related or market-related or social-political or very personal in nature—can not only depress immediate income

²⁵ For a fuller discussion of these issues, see CAMPE (2009) and Mujeri (2010).

and consumption, thereby pushing vulnerable people into deeper poverty in the short run, they can also lead to long term persistent poverty by depleting the resource base of the affected people depending on the coping strategies employed by them.

One of the factors that determine the extent to which shock of a given magnitude can harm people is how vulnerable people are, and one measure of vulnerability is how many people live just above the poverty line. It is a common observation in many developing countries that there is a large concentration of population just around the poverty line, making for a high degree of vulnerability to shocks. Bangladesh is no exception in this regard. A simulation with HIES 2005 data shows that a 5 per cent decline in consumption, distributed equally throughout the population, would increase the poverty rate by 16 per cent and extreme poverty by 11 per cent, raising the number of poor by 6.3 million and 5.7 million respectively (Ahmed *et al.* 2009). Even a 2 per cent shock to consumption, uniformly distributed, would raise extreme poverty by 6 per cent. And this is only the short run effect.

Not all households are equally vulnerable, however, even if they are equally poor in terms of current income. Initial endowments, which can be various kinds such as personal, social and geographical, as well as public policy, especially social safety net programmes, can create differences in both the degree of suffering in the short run and the persistence of the negative effect of shocks in the long run. Moreover, different types of shocks may impact on different types of households differentially. It is, therefore, important to understand (a) which segments of the population are vulnerable to what kinds of shock, (b) what factors determine the extent to which households are vulnerable to shocks in the short run, and (c) what factors determine the degree of persistence of the shock's effect in the long run, i.e., who can get out of the crisis easily and who fall deeper into crisis in the period subsequent to the shocks.

A recent study based on panel data from 102 villages in 14 districts of Bangladesh offers some insights into these questions (Quisumbing 2007). Repeat surveys were conducted on the same set of households (and their offshoots) in 1994 and 2007 at three project sites—one related to microfinance, another related to irrigation scheme, and the third to an education transfer scheme. The results show that more than half of the households had been affected by some shock or the other in the ten year period prior to the last survey (in 2007). The most frequently cited shocks were illness-related shocks (expenses related to treatment and/or foregone income), dowry and wedding related expenses, and floods. Illness-related shocks accounted for 22 per cent of most commonly reported shocks, dowry and wedding for 16-23 per cent and flood for 13 per cent.

Regarding the short run impact of shocks, the following findings are worthy of special note. First, illness-related shocks were not only the most frequent; they also had the most unambiguously adverse impact on consumption in the short run. Second, shocks were found to have different impacts on the households depending on their initial conditions. For example, in certain villages livestock death and division of property had a significantly adverse effect only when the household head had less than four years of schooling, not otherwise. Similarly, dowry and wedding related expenses had a greater negative impact for households whose land ownership was less than the average. These findings suggest that households with lower endowments could be more vulnerable to certain types of shocks.

Evidence on the long term impact yields some plausible results but also some puzzles and surprises. *First*, better schooling of the household head and greater ownership of assets (including land) help to attenuate the long run adverse impact of shocks. *Second*, illness shocks—in particular, the income foregone when the main income earner falls ill—have some

of the most serious adverse impact in the long term. *Third*, dowry and wedding related expenses can also have persistent effects in pushing households further down the income scale. *Fourth*, the long-term effect of shocks varies in different locations suggesting the importance of community-level effects in determining the post-shock trajectory of affected households. Fifth, and this is surprising bit, not all shocks seem to have long term adverse effects. These include loss of crops, illness-related expenditure (as distinct from illness-induced loss of income) and division of property.

While insights are all valuable, further explorations are necessary to understand more fully the complex relationship that exists between shocks and poverty dynamics. In particular, one needs to take a fresh look at how, which, and when shocks become "binding crisis events" retarding income growth of the poor. Similarly, one may need to explore which assets are more important than others in offering a cushion against shocks and why. It is also possible that the poor and non-poor behave differently in different locations, suggesting the presence of "geographic poverty traps". Furthermore, it is necessary to understand why the relative magnitudes of short run and long run effects vary differentially for different types of shocks and different types of households. Finally, one needs to study the role of public policy in shaping the post-shock trajectory of poverty and, in particular, to examine how public policy ought to be conducted in a nuanced manner to meet the specific needs of different categories of households trying to cope with different types of shocks because the same remedy may not work under all circumstances.

Microfinance and Poverty Reduction: Where has All the Credit Gone?

From its modest beginnings in the 1970s, microfinance has now spread to almost 90 per cent of the villages of Bangladesh providing credit to at least 20 million households, accounting for more than half of the rural poor. At the same time, a huge explosion of academic and other writings on this subject has occurred, trying to discern the impact of microfinance in the rural life of Bangladesh. Yet, it is perhaps only a slight exaggeration to say that virtually none of the major claims of the microfinance literature appears to be settled beyond reasonable doubt to be considered under the group of "common knowledge". Even the conventional claim that members of microfinance institutions (MFI) are better off than their non-member counterparts from the same land-owning target group seem to suffer from lack of unanimity. Many observers are seriously questioning whether microfinance has made any perceptible contribution to the lives of the poor.

Part of the problem is methodological. There is no dearth of studies that have come up with findings of positive impact on various aspects of rural life—including income, consumption, assets, employment, health, education, social mobility, women's empowerment, and so on.²⁶ But most of the studies suffer from serious methodological problems resulting in their failure to disentangle the effects of microfinance from that of other factors. Assessment of a programme's impact on the target population is fraught with many conceptual and methodological problems—the most important of which go under the generic name of 'selection bias'.²⁷ These problems are especially acute in cross-sectional studies that are conducted at a point in time, which is the case with the vast majority of studies that have tried to assess the impact of microfinance. Panel data, by contrast, can help overcome

²⁶ For a sample of such studies in the context of Bangladesh, see Khalily and Osmani (forthcoming).

²⁷ Aghion and Murdoch (2010) offer a good technical dissection of these methodological problems.

many of these problems and offer more reliable estimates, provided proper statistical techniques are adopted. As discussed in Section II, a major advantage of panel data is that it allows the application of the difference-in-difference method which helps to get rid of most kinds of selection biases.²⁸ Accordingly, we shall focus here on the handful of panel data studies on microfinance that are currently available.

One of the most basic questions these studies address is: do MFI members exhibit greater exit out of poverty than the non-members? On the whole, the panel data studies support the claim that MFI members from the target group have enjoyed faster poverty reduction rate compared to the non-members belonging to the same target group (defined usually by the land-ownership status up to 50 decimals).²⁹ The method of arriving at this conclusion, however, differs considerably across the studies. As a result, the extent of income or consumption impact vary a great deal, so much so that it is difficult to reach any consensual conclusion regarding the extent of the poverty effects of microfinance.

Hossain and Bayes (2009) show a very upbeat picture regarding the role of microfinance in rural poverty reduction. According to this study, MFI member households experienced faster poverty reduction by nearly 7 percentage points compared to the non-member households from the same landholding "target" group during the period between 1987 and 2007.³⁰ Zohir *et al.* (2001) found a difference in the order of 3-5 per cent in the level of consumption between members and non-members, after controlling for household demography, household assets, and community characteristics (using the 1997/98 'initial' conditions and outcomes for the year 1999/00). This translates into annual 6 per cent drop in head-count index for the MFI participants from the "target group" and 3 per cent drop in the same for the non-participant target group. In contrast to these two studies, Rahman *et al.* (2005) gives a much more modest picture of comparative poverty reduction due to MFIs. During the period between 1998 and 2004, regular members of MFIs are found to have experienced poverty reduction of 10.2 percentage points as against 11.1 percentage points for occasional members and 10.8 percentage points for 'never participants' belonging to the same landowning group.

Apart from the uncertainties surrounding the actual magnitude of poverty reduction achieved by microfinance, there are several other issues that still remain to be resolved in the general theme of the impact of microfinance on the dynamics of poverty. Let us begin with an apparent paradox. Many panel surveys typically asked respondents about their perception regarding the direct causes of improvement/deterioration in their well-being

²⁸ Very few studies actually tried to implement the "difference-in-difference strategy" with the caution, consideration, and care that such a strategy deserves. One main drawback in the first generation of studies is that they relied heavily on the cross-sectional data (or on the first wave of the panel surveys) in making impact-assessment. The possibility of "non-random programme placement" has not been adequately addressed in most of the earlier studies. Some studies combined the so-called 'before-after' method with the "programme-control" method without, however, controlling for the possible programme selection biases (BIDS 1990). The much cited Pitt and Khandker (1998) study also suffers from the potential drawback associated with the use of cross-sectional data. Even the studies with access to several rounds of panel data did not always use the panel framework well. Within the panel data approach, only a few studies adopted a more nuanced stance by estimating a 'fixed effects' model by considering change in consumption/ income between the first and the terminal survey rounds as the dependent variable with other factors capturing either initial conditions or exogenous shocks along with a 'dummy for MFI membership' (e.g., Khandker 2005; Razzaque 2005).

²⁹ See, Zohir *et al.* (2001), Khandker (2005), Rahman *et al.* (2005), Hossain and Bayes (2009) and Hossain and Nargis (2009).

³⁰ This can be calculated by using "difference-in-difference" method from Table 13.21 in Hossain and Bayes (2009), p. 345.

experienced over the 'recent past' (where the reference period could range from one year to a decade). It is surprising how rarely MFI has been mentioned as a direct cause of improvement in these perception responses. This raises the important analytical question of how exactly has microfinance made an impact on the economic well-being of the borrowers, if it has at all done so. One possible interpretation of the evidence on perception is that social (i.e. "human development" and "empowerment") effects of MFIs may have been much more pronounced and more important to the MFI members than economic (income-augmenting, employment-generating, and asset creating) ones. However, the despite the perception, economic effects cannot be ruled out.

It is quite possible that the effects of MFIs actually percolate through indirect routes—working through interaction effects with other factors describing local growth conditions such as the level of development of farm and non-farm sectors, dynamics of labour and tenancy markets, status of human development and the presence of other "doorstep conditions" (North *et al.* 2009).

One such indirect route that needs to be explored more fully is the impact on the preservation of assets. In trying to cope with negative shocks, many poor households are compelled to sell off whatever meagre assets they have. This strategy may help them to maintain their current consumption or at least prevent it from falling precipitously in the face of shocks, but by eroding the erode base it may propel the household along a downward trajectory over the longer term. Microfinance might play the role of a substitute of 'asset sale' by providing an alternative means of consumption smoothing that does not erode the asset base and, therefore, prevents the household from sliding down the falling trajectory. In that case, the impact of microfinance will be felt not so much as increment in current income as in the dynamics of poverty over the longer term—by transforming a potential 'faller' into a 'mover' or at least a 'stayer'. At this stage, this is no more than a hypothesis, however. Future research ought to address the issue more systematically.

To the extent that microfinance also has a positive impact on current income, an issue that is not yet clear from the existing literature is whether higher income accrues more from higher returns in the activities that the borrowers had traditionally been engaged in or by enabling them to move on to new activities that yield a higher return. Resolving this question has important implications for understanding how microfinance interacts (or fails to interact, as the case may be) with broader economic forces that create economic opportunities differentially across economic sectors.

There are also unresolved issues regarding the possible size of the "spill-over effects" that arise from the MFI programs for non-members residing in 'treatment' and 'control' villages. The study by Khandker (2005), which presents estimates of changes in poverty between 1991/92 and 1998/99 for members and non-members residing in two groups of villages, is relevant in this context. The study shows that MFI members in the 'treatment' villages have experienced impressive decline in 'extreme poverty' by about 20 percentage points. However, target non-members residing in the 'treatment' villages also recorded impressive reduction in extreme poverty—about 15 percentage points. The interpretation of these results cannot be settled easily. Does this evidence indicate that the bulk of the poverty reduction would have taken place in any case due to overall growth of the rural economy during this period? Or, alternatively, does the almost equally impressive reduction of poverty in the non-member group actually indicate strong spill-over effects?

An important dimension of spill-over effects relate to non-income outcomes that encompass a broad range of achievements such as positive attitudes towards educating children,

especially girl children; better health and hygienic care practices, population control, better child nutrition, women's empowerment, formation of social capital, etc. The existence of such non-economic impacts of microfinance has been widely noted in Bangladesh. But their interactions with economic activities—both in the public and private spheres—have yet to be adequately explored. One such study, based on data from *Bangladesh Health and Demographic Surveys*, has shown that access to public service delivery is higher for MFI members compared to non-members (Dev *et al.* 2005). Much more work needs to be done in this area in order to get a better understanding of the dynamics of poverty that is generated by the interactions between the economic and non-economic impacts of microfinance.

Gender and Poverty Dynamics: We Ignore the Other Half at Our Peril

The significance of gender in the context of poverty (and economic development in general) has been noted in the development literature in two opposite forms, which constitute one of the most insidious contradictions in the development process: women are often found to contribute more to the development process, when they are given the opportunity to do so, and yet they are systematically discriminated against when it comes sharing the fruits of development.

The positive aspect—relating to women's contribution vis-à-vis men's—is clearly evident from studies on the impact of microfinance in Bangladesh. For instance, using cross-sectional data, Pitt and Khandker (1998) found that a taka of credit given to a female borrower yields a much higher return than a taka of credit given to a male borrower, other things remaining the same. A subsequent study, using panel data, showed that the return to credit given to a female borrower was somewhat lower than what was found earlier on the basis of cross-section data, but the general result that women were better users of credit than men remained valid (Khandker 2005). More strikingly, using another panel data set, Rahman *et al.* (2005) has found that it is only credit to females that yields a statistically significant positive impact on income; credit to men does not!

Yet another aspect of women's superior contribution to economic development relates to the formation of human capital. Numerous studies (in Bangladesh and elsewhere) have shown that when poor women earn income of their own and exercise greater control on household expenditure they spend relatively more on the education and healthcare of children, especially girls, than do men. Furthermore, mother's education is known to have a much bigger influence on children's education as well as health compared to father's education. Similarly, mother's health has a profound impact on children's health; undernourished mothers are known to give birth to low birth-weight babies, who grow up to be malnourished children and eventually disease-ridden adults, resulting in the weakening of human capital for future development. All this implies that women's ability to contribute to and benefit from the development process has a bearing not just on current well-being of the household but also on intergeneration transmission of poverty.

This is where the negative aspect of gender in development poses such a contradiction. Past studies have repeatedly demonstrated the existence of gender discrimination in health and nutrition in Bangladesh.³¹ BBS data from the *National Nutritional Survey* of 1995/96 showed that calorie intake relative to requirement was less for women compared to men.

³¹ Some of the pioneering studies on gender discrimination in health and nutrition in Bangladesh include D'Souza and Chen (1980), Chen *et al.* (1981) and D'Souza and Bhuyia (1982).

More recent data on intra-household allocation of food is not available at the national level, but other kinds of evidence suggest that despite a good deal of progress made in recent years in closing the gender divide, gender differential in health and nutritional outcomes still persists to some extent.³²

A closer look at child mortality reveals that discrimination against females start quite early in life. Table 15 breaks up childhood mortality into several time-spans—a namely, neonatal mortality (mortality within the first month of life), post-neonatal mortality (mortality after the first month but within first year of life), infant mortality (mortality within first year of life), child mortality (mortality between the end of the first year and the end of the fifth year of life), and under-five mortality (mortality within the first five years of life). It may be noted that neonatal mortality is distinctly lower for females, reflecting the natural survival advantage that females biologically possess in the absence of discrimination. However, soon after the first month of life this advantage begins to get eroded, with the result that the male-female gap is much lower in terms of post-neonatal mortality (and infant mortality) compared to neonatal mortality. Indeed, female advantage of early life completely disappears after the first year of life, with the result that child mortality turns out to be distinctly higher for females compared to the males. The overall under-five mortality figures are still lower for females, but this is so only because the advantage the females hold in the first year of life outweighs the disadvantage in the next four years. The evidence is thus quite clear that the female child is discriminated against soon after it is born. Recent surveys show that female disadvantage in child mortality has come down over the years, which suggests that the intensity of gender discrimination may be softening over time, but it has not yet disappeared.³³

So long as gender discrimination persists in any sphere of life—whether it is in healthcare and nutrition or in the labour market and income-generating process—it poses a problem not just for women themselves, but also for future population as a whole through the process of inter-generational transmission of poverty mediated through the weakening of human capital. Therefore, rigorous examination of the forces that determine whether the inter-generational poverty traps linked to gender discrimination are weakening over time or not should, form an important part of the research agenda for a study on poverty dynamics.

Determinants of Transition in Poverty Status: What Makes for Divergent Trajectories?

Earlier in this section, we discussed the issue of chronic poverty, focussing mainly on its magnitude and noting the stubbornness with which it has remained stuck at around 30 per

³² For a fuller discussion of and relevant evidence on this point, see Chowdhury and Osmani (2010).

³³ It may be noted here that unlike mortality data the data on child nutritional status do not immediately reveal any female advantage. The reason is that unlike mortality figures the published figures on nutritional status do not generally break up the picture into shorter time-spans. As noted in the text, mortality figures reveal gender discrimination only when the evidence after the first year of life is looked at separately. This suggests that in the case of nutritional status too one ought to look at the situation that obtains after the first year of life. In a recent study, Dancer *et al.* (2008) did just that. The study showed that while a male child does have a lower probability of survival in the first year of life, having survived the first year the male child enjoys a significantly superior nutritional status compared to the female child, confirming the existence of gender discrimination.

Table 15: Gender Differential in Child Mortality
(per '000 live births)

	Neonatal mortality	Postneonatal mortality	Infant mortality	Child mortality	Under-5 mortality
1993-94					
Male	71	37	107	47	149
Female	56	38	93	62	150
<i>Difference</i>	15	-1	14	-16	-1
1996-97					
Male	60	35	95	37	128
Female	49	35	84	47	127
<i>Difference</i>	11	-1	11	-10	1
2001					
Male	52	23	75	23	96
Female	42	26	67	29	94
<i>Difference</i>	11	-3	8	-6	2
2004					
Male	52	28	80	24	102
Female	40	24	64	29	91
<i>Difference</i>	12	4	16	-5	11
2007					
Male	42	19	61	16	76
Female	36	17	54	20	72
<i>Difference</i>	6	2	7	-4	4

Source: Chowdhury and Osmani (2010)

cent over the last two decades. While this focus on the chronic poor is important in its own right, there is a more general issue of poverty transition that needs to be addressed—i.e., why some poor turn out to be 'movers' and some become 'fallers', while yet others remain 'churners' (falling into and out of poverty). At a very general level, it is essentially the interactions between a household's initial endowments with changing external environment (both market environment and public interventions) that determine these divergent trajectories. At the level of empirically research, it is important to identify the particular configurations of 'initial conditions and external environment' that determine which trajectory a household is most likely to follow. Such knowledge would help, at the policy level, to decide what kind of interventions might be needed to convert an unfavourable trajectory into a favourable one.

Empirical research of this kind has only just begun to take place in Bangladesh, mainly because of the paucity of panel data without which the issue of trajectory cannot be addressed. Most of the panel data studies we have discussed above address the issue of divergent trajectories and their determinants in some form or another. Some of the major findings from these studies may be summarised as follows:

- 'Movers' have higher initial assets (land, savings, human capital, higher earning members) than the chronic poor. What is not clear, however, is whether this fact alone is sufficient to indicate the presence of an "asset poverty trap" (Sen 2003).
- Interestingly, 'fallers' also have higher initial assets than the chronic poor, but the main reason they have fallen into poverty is higher exposure to shocks (Sen 2003; Nargis and Hossain 2009).
- 'Movers' seem to be reporting similar or lower incidence of shocks than the 'fallers' and the chronic poor. This raises a tricky question: do the 'movers' do better than the rest because they have better ability to cope with shocks or are they simply lucky? In fact, how far luck plays a role in shaping the trajectories of transition has not been examined systematically in the literature. Luck may be important not just in avoiding shocks but also in determining who can and who cannot take advantage of the secular improvement in economic opportunities that is occurring over time. A household's endowments—in the form of physical, human and social capital—would certainly play a role here, but an element of randomness induced by luck cannot be ruled out altogether. The empirically relevant question is: how important is luck relative to endowments?
- 70-80% of chronic poor seem to be affected by parental conditions, indicating very high persistence of inter-generationally transmitted (IGT) poverty (Sen *et al.* 2010). The precise nature of inter-generational transmission of poverty, and how public intervention can be used to neutralise it, needs to be understood more fully.
- While most studies indicate the critical importance of initial assets in shaping the trajectories of transition, there remain some puzzling features. For example, the panel data based study of Quisumbing (2007) seems to show that assets are not always important for poverty dynamics. Thus education was found to be insignificant for the chronic poor and the 'fallers' in some villages and, more surprisingly, negatively correlated with 'movers' in all three schemes. Furthermore, access to land, which is

often counted as an important factor constraining upward mobility, seemed unrelated with poverty dynamics.

These rather disparate findings suggest that there is still a good deal to learn about the factors that determine the trajectories of transition, which is after all the principal concern for any study on poverty dynamics. One problem with most of the existing studies is that while they focus on endowments as determinants of the trajectories, they fail to pay adequate attention to the interactions between endowments and the external environment. Depending on the nature of the external environment within which a household operates and how this environment changes over time, the same endowment may conceivably lead to different trajectories, because the rates of return to the assets would depend very much on the environment.³⁴ This is what probably explains some of the contradictory findings mentioned above. Future research on poverty dynamics ought to pay more serious attention to this interaction.

³⁴ In the language of the conceptual framework developed in section XXX, the income generating function depends not just on the magnitude of endowments (D) but also on the exogenous factors (X) that have a bearing on the returns to the endowments.

IV. Research Questions

The literature review presented in the last section threw up a number of puzzles and ambiguities in our current understanding of poverty dynamics in rural Bangladesh. These gaps in our knowledge lead logically to a large number of research questions that need to be explored further by future research. Some of the more important questions are listed below.

(1) There is conflicting evidence on whether the pace of reduction in rural poverty has accelerated or slowed down in the 2000s as compared with the 1990s. BBS estimates based on HIES suggest a considerable acceleration from the year 2000 to 2005, whereas independent studies show a deceleration. Why do these estimates differ, and in any case, what has been the trend since 2005?

(2) Both HIES and independent studies reveal that the prevalence of extreme poverty has declined faster than moderate poverty in the last two decades. What does this evidence imply? Does it mean that public policy has failed to address the problem of moderate poverty as effectively as it has addressed the problem of extreme poverty? There are actually several possible explanations of this phenomenon and future research needs to sort out the right answer.

(3) While overall poverty has declined, albeit slowly, in the last two decades, the extent of chronic poor seems to have remained stuck at around 30 per cent during this time. Why hasn't chronic poverty declined in line with overall poverty—or, for that matter, in line with extreme poverty, which as we have noted has declined even faster than overall poverty? The disparate behaviour of extreme poverty and chronic poverty is a genuine puzzle that needs to be resolved.

(4) There is unambiguous evidence that the proportion of agricultural wage labour in rural labour force has declined drastically in the last two decades. Since these labourers are the poorest of all occupation groups, their shrinking numbers has obviously been one of the channels through which overall rural poverty has declined. Apparently, the largest proportion of the vanishing labourers has taken up self-employed farming. How has that happened? There are several possible explanations, including the possibility that microfinance has provided the capital with which erstwhile labourers are now becoming farmers by renting land from others. It is important to know the correct answers in order to gain a proper understanding of the dynamics of rural poverty.

(5) The land tenure system appears to be undergoing a radical change in rural Bangladesh. The system of sharecropping is being rapidly replaced by the fixed rent system in which the tenants are mostly landless people whereas the traditional sharecroppers mostly had some land of their own. What explains this rise in 'pure tenancy with fixed rent'? Where is the money coming from with which landless households are paying the fixed rent—microfinance, remittances, or some other source (e.g., non-farm income)? Furthermore, what is the relative economic position of the new breed of tenants vis-à-vis the traditional sharecroppers who are evidently losing out in the competition? Or, is it the same old-fashioned sharecroppers who are now transforming themselves into new-style cash-wielding tenants? Knowing the answers to these questions is important for understanding the dynamics of poverty in rural Bangladesh.

(6) There is some evidence of 'catching up' in the sense that poorer groups are raising their per capita expenditure faster than the better off groups. A number of research questions

arise in this context. *First*, what features of the poor are helping them to do the catching up? This question assumes significance when one looks at other evidence which shows that when households are ranked by either land ownership or educational level or occupation, those who started off as poorer tend to experience a slower, not faster, rate of poverty reduction. Thus evidently the secret of the poorer households' ability to raise income faster lies neither in land, nor in education, nor in occupation. So, where does it lie? *Second*, while the poor households may on the average be raising their income faster than the average household, we also noted earlier that chronic poverty seems to have remained stuck at around 30 per cent over the last two decades. Clearly, a large number of poor households are not beneficiaries of the faster growth of the poor as a whole; only a subset is. What are the relevant characteristics of this subset that distinguish them from the chronically poor?

(7) International evidence shows that the nations which started out poorer tend to grow slower than those started out with less poverty. It is interesting to enquire whether the same phenomenon applies within nations as well. In other words, considering different regions of Bangladesh, is it true that the regions that started out poorer are experiencing slower rate of poverty reduction, thus leading to a divergence rather than convergence in regional poverty?

(8) Access to non-farm employment provides an opportunity to the poor people engaged in the farm sector to raise their living standards, even if marginally. There is clear evidence, however, that some amount of education is essential to access employment in the non-farm sector. But at the same time there is also clear evidence that the children from poor families with uneducated parents have a handicap in receiving education. These three pieces of evidence together lead to the hypothesis that there exists an intergenerational poverty trap that prevents the children of uneducated parents from finding an escape route through the non-farm sector. Is this hypothesis valid? And if indeed there is such a trap, we need to know whether public policy and general economic forces are succeeding in breaking it down over time, even if slowly. If so, how, and if not, what are the obstacles?

(9) Exogenous shocks are an important determinant of poverty dynamics. But evidence from rural Bangladesh shows that not all shocks have a lasting adverse effect. This requires us to investigate which, and when shocks become "binding crisis events". Similarly, one may need to explore which assets are more important than others in offering a cushion against shocks and why. It is also possible that the poor and non-poor behave differently in different locations, suggesting the presence of "geographic poverty traps". Furthermore, it is necessary to understand why the relative magnitudes of short run and long run effects vary differentially for different types of shocks and different types of households. Finally, one needs to study the role of public policy in shaping the post-shock trajectory of poverty and, in particular, to examine how public policy ought to be conducted in a nuanced manner to meet the specific needs of different categories of households trying to cope with different types of shocks because the same remedy may not work under all circumstances.

(10) Most of the panel studies on the impact of microfinance reveal a positive impact on the income of poor borrowers. Yet, MFI is rarely mentioned as a direct cause of improvement in economic status when respondents were asked to identify the main factors behind recent changes in their economic conditions. Why is there such discordance between quantitative and qualitative responses? Even if it is accepted that microfinance has helped raise the incomes of the poor, there still remain some unresolved issues. In the first place, it is not clear from the existing literature whether higher income accrues more from higher returns to the activities that the borrowers had traditionally been engaged in or by enabling them to

move on to new activities that yield a higher return. Resolving this question has important implications for understanding how microfinance interacts (or fails to interact, as the case may be) with broader economic forces that create economic opportunities differentially across economic sectors. There are also unresolved issues regarding the possible size of the "spill-over effects" of microfinance programmes.

(11) Gender discrimination, besides exerting a negative impact on women's well-being, can also harm the population as a whole by creating intergenerational poverty traps through various routes. There is some evidence that gender discrimination may have lessened somewhat in recent years, at least in some dimensions, but a good deal of discrimination still exists. How exactly the nature of gender discrimination might be changing over time and what effects these changes might have on intergenerational poverty traps are important research questions for any study on poverty dynamics.

(12) In trying to explain the factors that shape the poverty dynamics in rural Bangladesh, the existing panel studies have come up with some surprising findings. In particular, it would appear that high value of initial endowments does not always help the poor to move along a rising trajectory—some types of endowments seem to help but others don't. Why is this so? One possible clue towards resolving this puzzle is that while most of the panel studies focus on assets or endowments as determinants of the trajectories, they fail to pay adequate attention to the interactions between assets and the external environment. Depending on the nature of the external environment within which a household operates and how this environment changes over time, the same asset may conceivably lead to different trajectories, because the rates of return to the assets would depend very much on the environment. This is what probably explains some of the contradictory findings regarding the impact of assets on poverty dynamics. Future research on poverty dynamics ought to pay more serious attention to the interaction between assets and the external environment.

Most of these questions will be taken up by the proposed study at some stage during the project's life time. It should be understood, however, that addressing some of these questions will require information over a much longer period than others. So the questions may have to be dealt with in a staggered manner, some being addressed sooner than others in the course of a longitudinal study on poverty dynamics.

V. Empirical Methodology

The empirical methodology of the proposed study is discussed below in two parts: (a) the methodology of data generation, and (b) the methodology of analysis.

Methodology of Data Generation

As mentioned in the Introduction, the fundamental methodological approach of the proposed study is to employ the technique of a longitudinal study, i.e. to generate a panel dataset by surveying the same sample of households repeatedly over a period of time. The rationale of undertaking a longitudinal study for the purpose of understanding poverty dynamics is both commonsensical at one level and somewhat technical at another.

Common sense suggests that if the life trajectories of the same panel of households are followed over time this will give a better insight into why and how some poor people graduate out of poverty while others remain chronically poor (and yet others keep falling in and out of poverty) than if they were studied only once or if different households were

surveyed at different points in time. In a one-shot cross-sectional survey it is still possible to gain some insight by comparing the poor with the non-poor, or the less poor with the more poor, and asking what are the essential differences between these groups that make some of them better off or worse off than the others. But these insights would be immeasurably sharpened if one could observe the lives of people in motion. For example, by tracing those who are actually moving out of poverty and by obtaining relevant information about them at different points in time, it would be easier to identify the forces that are propelling them out of poverty. By the same token, it would be easier to identify the forces that leave some households forever in a poverty trap.

At the technical level, the advantage of panel data lies in the fact that it allows a more reliable statistical assessment of the impact of various kinds of exogenous changes, including policy interventions, on the life trajectories of the poor. The point may be illustrated by comparing the use of panel data with other kinds of survey data for the purpose of assessing the impact of credit market intervention through microfinance institutions (MFI). If one were to undertake a cross-sectional study (i.e., a one-shot survey) and find that the MFI members have done better than non-members (who are otherwise similar to the members in terms of socio-economic characteristics), one cannot be sure whether this was because access to credit really helped the borrowers or because (a) the borrowers had some innate unobservable qualities that the non-members did not possess, or because (b) the borrowers lived in a better environment (in terms of, say, infrastructure, market access, geography, etc.) compared to the non-members since the MFIs might have chosen to focus on locations with better environment in order to enhance the probability of success of their credit operations.

In econometric jargon, this is known as the problem of identification—there is a problem in identifying the effect of credit intervention (or almost any intervention, for that matter) because it is not easy to separate out the effect of credit from other effects such as those related to innate qualities and locational advantage. There are roundabout ways of dealing with this problem with cross-sectional data by using an econometric technique known as 'instrumental variable estimation'. In this technique, one looks for variables—called instrumental variables—that, in our example, would be closely related to credit but not with the innate qualities or locational advantages whose effects we would like to separate out. In practice, however, suitable instrumental variables are very hard to find.

This is where the technical advantage of panel data comes of its own. Instrumental variables are not needed here because with data on the same sample for more than one point in time it is possible to cancel out the effects of innate qualities and locational advantages that do not change over time. This can be done fairly easily by applying standard econometric techniques for dealing with panel data. The resulting assessment of the impact of interventions would be much more reliable than anything that can be done with cross-sectional data.

In principle, there is another method—known as randomised experiment—which can also deal satisfactorily with the identification problem inherent in standard cross-sectional studies. In this method, the researcher randomly chooses a group to be the recipients of some intervention ('treatment' group) while another group is randomly denied the intervention ('control' group). The act of randomisation ensures that there will be no systematic differences between the treatment group and the control group in terms of innate qualities, locational advantage, etc. Therefore, comparison between the two groups would reveal the true effect of intervention.

The use of randomised experiment is quite common in biomedical sciences but its entry into in social sciences is very recent. There are still some unresolved issues regarding the merit of its use in social sciences, not the least of which is the ethical problem emanating from the fact that a group of people is deliberately denied an intervention that is believed to be potentially beneficial. In any case, there are more practical reasons why this method is not appropriate for our present purpose.

In the first place, this study is not designed solely, or even primarily, to assess the impact of interventions. The main objective is to trace the life trajectory of people from different walks of life and to understand the forces that shape those trajectories. Policy interventions are part of these forces, but there are also other forces emerging from the workings of the economy and the society in general that are not related to particular policy interventions. Furthermore, to the extent that the study would seek to assess the impact of interventions, it does not wish to focus exclusively on any specific intervention.³⁵ Even interventions that do not exist today but might be introduced in the future could become subjects of our enquiry. So the question of doing randomised experiment with a particular intervention simply does not arise in our context. A standard longitudinal study is, therefore, the most appropriate tool for our purpose.

The first round of the survey will be undertaken in 2010, and the survey will be repeated every three years for as long as availability of resources permits. One potential problem with the panel data approach is that with the passage of time some households split, migrate or otherwise become untraceable, so that it is often impossible to administer the repeat surveys on exactly the original sample. Some researchers deal with this problem of attrition by focussing only on the households that remain intact. In that case, either of two approaches can be employed. Either, only the households that remained intact at the end point will be picked from the data set of the earlier rounds for the purposes of analysis, so that exactly the same subset of households can be compared across time. Or, the original full sample will be compared with the subsequently reduced sample of intact households, giving rise to what is called 'unbalanced' sample, which can cause some problems of estimation but there are statistical techniques that can minimise these problems.

In either case, the migrating or otherwise untraceable households are ignored as are the offshoots of the original households that have been split during the study period, which is a pity because valuable information is lost in the process. Unfortunately, not much can be done about the households that have migrated or have become otherwise untraceable. But the split households can in principle be accommodated provided the offshoots continue to live in the same village or in close proximity. For analytical purposes, it could be very useful to keep the split households within the fold as splitting of households is itself an important life event that may have important consequences for poverty dynamics. For instance, division of property that accompanies the act of splitting can be a traumatic experience exerting a downward pressure on the income trajectories of both the original household and its offshoots. Conversely, splitting can be a liberating experience for some offshoots as they are relieved of the burden of looking after the dependant members of the original household or get an opportunity to explore new frontiers by break away from traditional occupations handed down through generations. The splitting of households should, therefore, be a subject of enquiry in itself in the context of poverty dynamics, and the present study proposes to collect information on split households to the extent possible.

³⁵ The study does have a particular interest in assessing the impact of microfinance, but not exclusively so.

The sampling methodology of the proposed study is designed with the twin objectives of (a) working with a representative sample of rural Bangladesh and (b) obtaining a large enough sample that would permit the analysis of a wide range of phenomena, many of which could be relevant only for a subset of households. For example, migration is relevant only for a subset of households, as are various safety net programmes targeted towards particular groups of the poor; similarly, only a small fraction of rural households will be directly affected by particular shocks such as climatic hazards, illness or death of the main earner of the household, sharp fluctuation in the prices of particular commodities, and so on. Only a large overall sample would permit statistically meaningful analysis of such phenomena by making the relevant subset large enough in absolute size to keep the sampling errors within tolerable levels. For this reason, the study proposes to obtain as large a sample as possible within the constraints of time and resources.

The sample will be drawn from all over Bangladesh by using a multi-stage sampling procedure. The first stage involves the choice of villages. For this purpose, the sampling frame developed by the Bangladesh Bureau of Statistics (BBS) for its household surveys will be used. The primary sampling units (PSUs) of this frame roughly coincide with village or *mouza*. For the present study, the PSUs will be selected through a stratified proportional random sampling procedure. Each of the six divisions of Bangladesh will be treated as a stratum for this purpose. From each stratum, a number of rural PSUs will be selected at random, and from each selected PSU a sample of households will be chosen on the basis of stratified random sampling. For the latter purpose, a complete census of all households will be carried out for each village during the course of which some basic information will be collected for each household, including their self-perception of their relative economic well-being. According to this self-perception, each village will be divided into three strata—upper, middle and lower—and a sample of households will finally be selected proportionately from the three strata. Once the sample is drawn, information will be collected at both household and village level, primarily with the help of structured questionnaires, but wherever appropriate case study methods and focus group discussions will also be used. The household-level questionnaire will elicit a wide range of information, including demographics, assets and liabilities, income, consumption, investment, employment, migration, access to credit, health, education, shocks, and access to social safety net.

Methodology of Analysis

Details of the methodology of analysis will vary depending on the particular questions being asked. Furthermore, our thinking about the kind of statistical and econometric analysis to be used for specific enquiries may itself evolve over time. At this stage, only a few general remarks can be made.

First, state-of-the art panel data econometrics will be used in order to take maximum possible advantage of the benefits that panel data permit. It is obvious, however, that the benchmark report based on the initial survey of 2010 will not be using any panel data econometrics, because panel data will emerge only with future rounds of the survey.

Second, the benchmark report will take several steps to provide as much causal analysis as possible within the limitations of a cross-section study. For instance, in the absence of panel data, the report will compare the findings of its survey with those of BBS's *Household Income and Expenditure Survey* (HIES) of 2000, wherever possible, in order to understand the changes that have occurred in rural Bangladesh over the last decade. Furthermore, the

analysis will compare the situations of different (static) categories of households—such as extreme poor, moderate poor, marginally non-poor, very well-off, etc., and try to see how the comparative situation of these categories has changed over the last decade and why.

Third, in consonance of the 'asset-returns framework' of dynamic poverty analysis proposed in section II, the causal analysis will attempt, wherever relevant, to separate out the effects of changes in the amount of assets (and endowments) from the effects of returns to assets in shaping the trajectories traversed by different dynamic categories of households. Suitably modified, such an exercise will be useful even for static analysis of the kind that the benchmark report will be obliged to undertake in the absence of panel data. For example, one may ask whether it is differences in the access to assets or in the returns to assets that are primarily responsible for differentiating various static categories of households—such as extreme poor, moderate poor, non-poor, and so on.

In order to carry out this exercise, the study will make liberal use of a statistical technique called the Oaxaca-Blinder decomposition method.³⁶ This technique has a variety of applications. In the present context, it can be explained as follows. Consider a regression exercise in which some dependent variable (say, income) is regressed on a set of explanatory variables that include assets. Then, the estimated coefficients of assets can be interpreted as returns to those assets. As a result, when the same regression is run for two groups of observations or for two points in time, one can estimate the effect of returns to assets by noting the difference in coefficients in the two regressions and the effect of the amount of assets by noting the difference in the size of assets in the two regressions and multiplying that difference with the value of the base coefficient.³⁷ Once these effects are separated out and their relative importance ascertained, the real economic analysis can begin to identify the forces that led to the observed changes (or, differences, in the case of static analysis) in the value of assets and in their returns.

³⁶ This method was first developed in the classic paper by Oaxaca (1973).

³⁷ For applications of this method to poverty analyses in Bangladesh, see Kotikula *et al.* (2009) and Serajuddin *et al.* (2009).

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ANNEX

A BRIEF DESCRIPTION OF SELECTED PANEL STUDIES ON RURAL POVERTY IN BANGLADESH

This Annex provides a brief description of the major panel studies carried out on rural poverty in Bangladesh. The description is confined only to the context, scope, coverage, time period, sampling procedure and sample size of the studies and does not attempt to summarize their findings. Some of the major findings that are relevant for the present study are, however, referred to in the text of the paper. The Annex is divided into two parts. Part I deals with general purpose poverty studies, while part II deals with the panel studies that focus specifically on microfinance.

I. Poverty Panel Studies

Hossain, M. and A. Bayes (2009), *Rural Economy and Livelihoods: Insights from Bangladesh*. AH Development Publishing House: Dhaka.

The study represents the longest panel in Bangladesh examining the dynamics of rural poverty between 1987/88 and 2007/08. Both long-term (such as between 1987/88 and 2000/01) and medium-term (such as between 2000/01 and 2007/08) welfare comparisons were made to study the poverty and livelihood dynamics. In 1987/88 (henceforth, 1987), a sample of 1239 households was drawn from 62-villages (one village drawn from each of the 62 districts—excluding 3 CHT districts—using multi-stage random sampling procedure.³⁸ The original sample was drawn in connection with a study entitled *Differential Impact of Agricultural Modernization supported by IRRI* and carried out by the Bangladesh Institute of Development Studies (BIDS). The same sample was studied in 1989/90 (henceforth, 1989), 1994/95 (henceforth, 1994), 2000/01 (henceforth, 2000), 2004/05 (henceforth, 2004), and 2007/08 (henceforth, 2007).

In 2000, the number of sample households was assessed at 1888. However, the above increase in the number of households from 1239 to 1888 during the period between 1987 and 2000 does not represent entirely the growth of the same households. This is because in the 2000 round new households were added to compensate for the households who permanently migrated out from the villages and hence, lost in the reference population (called the "attrition" biases). The attrition biases were considerable—12% in 1987-2000 spell, and 7% in 2000-2007 spell. The pace of formation of "split" households is also considerable: 18% of households studied in 1987 formed separate households by 2000; similarly, 8% of households studied in 2000 were found forming separate households by 2007. As a result of "splitting", "attrition", and addition of "new" households, the number of "non-split" households which were found common in both 1987 and 2000 rounds was 874, while the number of non-split households which were found common in both 2000 and 2007 rounds was 1604. The study did not perform analysis on the full sample that are common to all rounds and the number of common (non-split and split) households that are present in all the rounds is not known from the published study.

Rahman, H. Z. and M. Hossain (eds.) (1995), *Rethinking Rural Poverty: Bangladesh as a Case Study*. Sage Publications: New Delhi.

This study is based on a re-survey of the BIDS 62-village sample—as described by Hossain and Bayes (2009)—which was carried out in 1989/90. The analysis provides a comparative

³⁸ The total number of households studied in 1987/88 differs in Hossain and Bayes (2009). In one place, it is cited as 1145 (p.6), while in another place the number quoted is 1239 (p.467).

picture of 1987/88 (the benchmark year) and 1989/89 (the re-survey year). The total sample size was 1265 in 1989/90 up from 1145 in 1987/88. The sampling procedure is similar to what has been described by Hossain and Bayes (2009). The study was done under the auspices of the Bangladesh Institute of Development Studies under the *Analysis of Poverty Trends* (APT) project.

Rahman, H. Z., M. Hossain, and B. Sen (1996), *Dynamics of Rural Poverty: 1987-199*. (Mimeo.) Bangladesh Institute of Development Studies (BIDS): Dhaka.

This study is also based on a re-survey of the BIDS 62-village sample, described by Hossain and Bayes (2009), carried out in 1994/95. The analysis provides a comparative picture of 1987/88 (the benchmark year) and 1994/95 (the re-survey year). The total sample size was 1316 in 1994/95 up from 1265 in 1989/90. The sampling procedure is similar to what has been described by Hossain and Bayes (2009). The study was done under the auspices of the Bangladesh Institute of Development Studies under the *Analysis of Poverty Trends* (APT) project.

Kabeer, N. (2009), "Snakes, Ladders and Traps: Changing Lives and Livelihoods in Rural Bangladesh 1994-2001", *The Bangladesh Development Studies*, Vol. XXXII, No. 2, June, pp.1-48.

The study used data on the lives and livelihoods of rural households in a total of 4 villages drawn from two locations: Chandina *upazila* in Comilla district and Modhupur *Upazila* in Tangail district.³⁹ A panel survey on 1184 households was carried out in 1994 and 2001, and qualitative data were collected by the author at various points in time during the period covered by the study. Although the villages studied first in 1980s showed similar poverty rates their subsequent divergences in poverty outcomes—and the factors that led to such divergences—formed the focus of this micro study.

Quisumbing, A.R. (2007), *Poverty Transitions, Shocks, and Consumption in Rural Bangladesh: Preliminary Results from a Longitudinal Household Survey*. CPRC Working Paper 105, Chronic Poverty Research Centre, IDPM, University of Manchester, U.K.

Quisumbing, A., and B. Baulch (2009), *Assets and Poverty Traps in Rural Bangladesh*. CPRC Working Paper 143, Chronic Poverty Research Centre, IDPM, University of Manchester, U.K.

Davis, P., and B. Baulch (2009), *Parallel Realities: Exploring Poverty Dynamics using Mixed Methods in Rural Bangladesh*. CPRC Working Paper 142, Chronic Poverty Research Centre, IDPM, University of Manchester, U.K.

These studies have been produced under the *Chronic Poverty and Long Term Impact Study in Bangladesh* project, which focuses on approximately 1907 households drawn from 102 villages in rural Bangladesh. The panel survey component underlying these studies, however, builds on three different benchmark surveys carried out in different time-points in the 1990s to evaluate three anti-poverty interventions, respectively: (a) interventions related to consumption transfer, through the provision of Food or Cash for Education (FFE/CFE) to poor families; (b) production-related interventions, through the introduction of new agricultural technologies; and (c) microfinance-related interventions, through Non-Governmental Organizations (NGOs).

After initial community level fieldwork, approximately 1,907 core households, which were first surveyed in 1994, 1996, or 2000 ("year of the first survey" was different for different interventions), were interviewed again in late 2006 to ascertain how their living standards, endowments and other characteristics had changed over time and what role selected

³⁹ The study forms the sub-set of original 8 villages in these two locations with 5062 households. However, the panel information was used for households located in 4 villages only.

interventions have had on their welfare trajectories. The households who had split from their original households were also interviewed. Detailed life-histories were then collected from a stratified sub-sample of approximately 293 adult men and women living in 161 households in order to better understand which events, institutions and processes had trapped certain households in chronic poverty while allowing others to escape from it.

Each of the above intervention sites were, in turn, evaluated through specifically designed surveys and had its "own survey history", as discussed below. First, the Food for Education (FFE) survey was conducted in Bangladesh in 2000 and 2003 to evaluate the effect of a conditional transfer of food or cash to poor families, which was designed to increase school attendance. In 2000, the survey covered 600 households in 60 villages in 30 unions in 10 *upazilas*, and 110 schools in the same 30 unions from which the household sample was drawn. In 2003, two *upazilas* were dropped from the sample, reducing the sample size to 480 households and the number of *upazilas* to 8. In 2006/7, there were 511 households from 8 *upazilas*.

Second, the Micronutrients-Gender survey, also known as the Agricultural Technology Survey, was carried out in 1996-1997 to evaluate the micronutrient/gender impact of new agricultural technologies being disseminated by non-governmental organizations (NGOs) through a variety of targeting mechanisms in three sites in rural Bangladesh: improved vegetables (in *Saturia*); individual fishponds (in *Mymensingh*); and group fishponds (in *Jessore*). The survey covered 330 households in three categories in each site: NGO-member adopting households, NGO-member likely adopter households in villages where the technology was not yet introduced, and a sample of all other households in both types of villages to represent the general population.

Third, the Microfinance survey was conducted in Bangladesh in 1994 to analyze the determinants of the formation of and participation in group-based rural financial institutions and the effects of participation on household resource allocation, income generation, and food and nonfood consumption. The study included a 120-village community level survey, 128 credit groups, non-food and a household survey of 350 households in 7 villages. The study included credit groups formed by three non-governmental organizations (NGOs)—the *Association for Social Advancement (ASA)*, *Bangladesh Rural Advancement Committee (BRAC)*, and *Rangpur-Dinajpur Rural Services (RDRS)*. Household surveys were based on stratified random sampling, with household possession of land as the stratifying variable, irrespective of membership in NGO programmes.

Rahman, PK. M., N. Matsui, and Y. Ikemoto (2009), *The Chronically Poor in Rural Bangladesh: Livelihood Constraints and Capabilities*. Routledge: London and New York.

This is not a panel study in the strictest sense of the term, as survey data were not collected at more than one point in time. However, the study used "memory recall" to ascertain the poverty status of a household prevailing 10 years ago. Based on the perception about "change in the last 10 years", the study classified the households into 4 categories: (a) "chronically poor"—those who remained in poverty for more than 10 years; (b) "descending non-poor"—those who slipped into poverty at any point during the past 10 years⁴⁰; (c) "ascending poor"—those who moved out of poverty at any point in the last 10 years; and (d) non-poor—those who stayed out of poverty for more than 10 years. While the category (a) and (d) are strictly defined, the categories (b) and (c) demands more clarity since there can be ascent after descent or descent after ascent during the past 10 years.

A three-stage stratified random sampling design was followed for selecting the sample households. First, eight of the "least developed districts" were selected (two from each

⁴⁰ It is not altogether clear what is meant by the definition presented in the study: "if any household falls into poverty in one to ten years it is considered descending non-poor. Similarly, if any household moves out of poverty in one to ten years it is deemed ascending poor" (see, Rahman *et al.* 2009; p. 2; emphasis added).

administrative divisions) based on a composite index of development. These 8 districts are: *Sunamganj*, *Panchagarh*, *Kurigram*, *Satkhira*, *Madaripur*, *Khagrachari*, *Sherpur*, and *Borguna*. Second, from each selected district, four villages were selected with the probability proportional size (PPS) method. This yielded a set of 32 villages. Third, for each selected village, 10 non-poor, 7 descending non-poor, 7 ascending poor, and 16 chronically poor households were selected at random (the complete list of households in a village by category was treated as the sampling frame). A total of 1282 households were selected at random in the process among which 320 were non-poor, 225 were ascending poor, 227 were descending non-poor, and 510 were chronically poor. The first round of data—which forms the basis of the study—was collected during the period between December 1, 2004 and January 3, 2005. It was intended that more rounds of data would be collected between December 2004 and December 2010.

II. Microfinance Panel Studies

Khandker, S. R. (2005), "Microfinance and Poverty: Evidence Using Panel Data from Bangladesh", *World Bank Economic Review*, 19 (2), pp.263-286.

The study was jointly undertaken by the BIDS and the World Bank and was based on a panel of 1638 households in 1991/92 and 1998/99. Initially, a sample of 1,769 households was drawn from 87 villages in 29 *upazilas* in 1991/92. Eight programme *upazilas* were drawn randomly from each of BRAC, *Grameen* Bank, and BRDB's RD-12 project areas; 5 non-programme *upazilas* were also drawn randomly. Three villages were drawn randomly from each *upazila*, where the programmes had been in operation for at least three years. The survey was conducted three times during 1991/92, based on the three cropping seasons: round 1 during *Aman* rice (November-February), round 2 during *Boro* rice (March-June), and round 3 during *Aus* rice (July-October). However, because of attrition, only 1,769 households were available in the third round. Out of 1,769 households surveyed in 1991/92 by programme participation status, 8.5 percent were *Grameen* Bank members, 11.6 percent were BRAC members, 6.2 percent were RD-12 project members, 40.3 percent were eligible non-participants, and 33.1 percent were non-target households.

A follow-up survey of the same households was carried out in 1998/99. During the re-survey, the sample size was increased by including new households from the old villages, new villages in old *upazilas*, and three new *upazilas*, thereby increasing the number of sample households to 2,599.⁴¹ Naturally, not all of these households could form the panel that can be comparable with the 1991/92 survey. Thus, among the 1,769 households originally surveyed in 1991/92 survey, 131 could not be re-traced in 1998/99 because of attrition, leaving 1,638 households available for the re-survey. According to the re-survey, 14.3 percent households were *Grameen* Bank members; 9.3 percent BRAC members; 3.6 percent RD-12 project members; 11.1 percent other NGO members; 7.4 percent multiple programme members; 25.6 percent eligible non-participants; and 28.8 percent non-target households. Comparing the two surveys, the extent of programme participation among rural households was found to have increased from 26.3 percent in 1991/92 to 45.6 percent in 1998/99.

Zohir, S., S. Mahmud, B. Sen, M. Asaduzzaman, Md. J. Islam, N. Ahmed, and A. A. Mamun (2001), *Monitoring and Evaluation of Microfinance Institutions*. (Miemo.) Bangladesh Institute of Development Studies (BIDS): Dhaka.

This is a short-term microfinance panel study with three successive waves in 1997/98, 1998/99 and 1999/00. The study was sponsored by the *Palli Karma-Shahayak Foundation*

⁴¹ Because of household split-offs, 237 original households registered in 1991/92 split to form 546 households in 1998/99, resulting in **1,947 household counts from the original survey**. Added to them were **652 new households from the 1998/99 survey**, making total households to 2,599.

(PKSF). The surveys were carried out in 91 villages of 22 *upazilas* spread over 13 districts (*Panchagarh, Kurigram, Sirajganj, Meherpur, Madaripur, Barisal, Tangail, Netrokona, Satkhira, Munshiganj, Chittagong, Feni, and Bogra*). A three-stage sampling procedure was followed to select the villages under the study. First, 13 PKSF Partner Organizations (POs) were selected purposively so that they contained MFIs of different sizes (e.g., large MFIs known collectively as *Bipool* and small MFIs known collectively as *Oosa*), and different types (such as "credit plus" and "credit only"). Second, *upazilas* were selected purposively when there were more than one *upazila* covered by the POs. Third, within the selected PO areas (i.e. within the selected *upazilas*) all villages were grouped into 4 categories: (1) villages with no MFIs (control villages), (2) villages with PKSF supported POs only, (3) "mixed" villages with non-PO MFIs along with POs, and (4) villages with other MFIs, but without the presence of selected POs. Given the focus of the study on PKSF supported POs, the fourth category of villages was excluded from the sample. For each PO area, two control villages were to be selected from category 1. Control villages, however, could not be found in some of the study areas; as a result, only 11 control villages were finally included. Six programme villages were selected from the above set as defined by categories 2 and 3 (in one case, though, 8 programme villages in one of the 13 PO areas were selected).

The total number of sample households initially drawn for the 1997 round was 3026 (2735 from 80 "programme" villages and 291 from 11 "control" villages); however, record for all three rounds were available for only 2903 households (the discrepancy being accounted for by attrition). Out of these 2903 households, 2625 households are drawn from the "programme" villages (defined as villages with MFI presence), and 278 households are from "control" villages (defined as villages without MFI presence). In selecting the survey households, the universe of households in program villages, drawn from a prior "census", was grouped into four categories: eligible participants, eligible non-participants, non-eligible participants, and non-eligible non-participants. The criteria of eligibility, which varies across MFIs in reality, was standardized by the more commonly applied landownership criterion i.e. those owning 50 decimals or less cultivable land.

Based on the information of the three waves, the study analytically distinguishes several categories within the set of programme villages such as (a) regular MFI participants (40.4%), (b) occasional MFI participants (18.5%), (c) non-participants (28.3%), (d) complete drop-outs (2.9%), (e) recent drop-outs (7.9%), and (f) new participants (1.9%). This gives a richer mosaic of MFI participation dynamics compared to the conventional dichotomies of participants and non-participants.

Rahman, A., M. A. Razzaque, N. Nargis, M. Ismail Hossain, M. Nasreen, A. Islam, PK. M. Rahman, and M. A. Momin (2005), *Follow Up Monitoring and Evaluation System (MES) Study. Second Poverty Alleviation Microfinance Project.* (Mimeo.) Palli Karma-Sahayak Foundation (PKSF), HB Consultants Ltd: Dhaka.

This is a follow-up study based on pre-selected panel households that have been studied earlier by Zohir *et al.* (2001). The latter is called MES study since it was undertaken to study PKSF's *Monitoring and Evaluation System* (MES). Consequently, the follow-up study is called *Follow-Up Monitoring and Evaluation System* (FMES). Since the study was carried out in 2004 (December 2004-January 2005) on a pre-selected panel of MES households, the sample consisted of 3012 households compared to 3026 in the 1997/98 wave, which takes into account attrition and split-up (the attrition rate was higher than the split-up rate). For the panel analysis, the number of households which were common (including split and non-split households) to every round since 1997/98 was, however, 2729 which formed the basis for analyzing the dynamics of poverty and MFI participation.



Institute of Microfinance (InM)

The Institute of Microfinance (InM) is an independent non-profit organization established primarily to meet the research and training needs of national as well as of global microcredit programs. Initiated and promoted by Palli Karma-Sahayak Foundation (PKSF) on November 1, 2006, the Institute is principally funded by UK Aid, Department for International Development (DFID) through its Promoting Financial Services for Poverty Reduction Program (PROSPER). InM has an excellent team of professionals in research, training and knowledge management. The regular core research group comprises well coordinated and dedicated researchers with extraordinary expertise. Besides, InM draws research scholars from reputed universities across the world. The major services that InM provides are research on poverty, microfinance, enterprise development, livelihood promotion, climate change; and impact assessment, evaluation, training need assessment (TNA), curriculum & module development, training on capacity building, training of trainers, scheduled and tailor made courses, training evaluation, consultancy, and program management.

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