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Parallel realities: exploring poverty dynamics using mixed methods in rural Bangladesh

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What is Chronic Poverty?

The distinguishing feature of chronic poverty is extended duration in absolute poverty.

Therefore, chronically poor people always, or usually, live below a poverty line, which is normally defined in terms of a money indicator (e.g. consumption, income, etc.), but could also be defined in terms of wider or subjective aspects of deprivation.

This is different from the transitorily poor, who move in and out of poverty, or only occasionally fall below the poverty line.

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Abstract

In this paper we explore the implications of using two different methodological approaches to study poverty dynamics in rural Bangladesh. Using data from a unique mixed-methods longitudinal study of rural households, we focus on how different methods lead to very different assessments of socio-economic mobility, in particular movements into and out of poverty. We discuss the reasons why qualitative and quantitative assessments of poverty dynamics for the same households differ and suggest five ways of reconciling these differences: using assets in addition to expenditures, considering proximity to the poverty line, and examining non-monetary aspects of well-being, household division, and qualitative recall errors. Using assets in addition to expenditures and taking account of proximity to the poverty line resolves three-fifths of the qualitative and quantitative mismatches we observe, with the other three explanations accounting for another eighth of the mismatches. Finally we discuss how the validity and reliability of the empirical findings from poverty dynamics research can be improved by using an integrated mixed-methods approach.

Keywords: poverty dynamics, chronic poverty, mixed methods, Bangladesh

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Contents

1 Introduction

Recent research into assessing the poverty status of people in developing countries has drawn attention to the way that different methods often lead to different findings (Chambers, 1997; Laderchi *et al.,* 2003; McGee, 2004; Stewart *et al.,* 2007). In this paper we extend this discussion to poverty dynamics: the assessment of poverty transitions over time. We draw attention to the way that qualitative research (mainly in the form of life-history interviews) and quantitative research (in the form of a household panel survey) produce very different assessments of poverty transitions for the same households. We approach these differences neither as a cause for alarm, nor as an excuse to debunk one methodological approach from the vantage point of another; but rather as an opportunity to learn more about the complex reality of poverty by combining qualitative and quantitative methods in an integrated and sequenced manner. Our findings draw renewed attention to the need to study poverty dynamics using mixed methods, and demonstrate that contrasting findings from different methods can open up new avenues of learning about poverty, with implications for improved anti-poverty interventions.

Mixed-methods research into poverty dynamics, sometimes referred to as 'q-squared' research is currently rare. Shaffer (2006) distinguishes between two types of q-squared studies, which he labels 'putting together' and 'methodological integration'. Internationally, 'putting together' studies are much more common than 'methodological integration', which can involve either undertaking qualitative and quantitative fieldwork simultaneously, or planning and sequencing qual and quant field studies with integrated analysis and write-up. Some leading examples of methodologically integrated q-squared studies include Devereux *et al.* (2003) in Ethiopia, Parker and Kozel (2005) in India. In Bangladesh, some examples of 'putting together' q-squared studies include Greeley (1999), Hallman *et al.* (2007), Kabeer (2004), and Sen and Hulme (2006). However, as far as we are aware, a fully 'methodologically integrated' and sequenced longitudinal study has not been attempted in Bangladesh before.

In section 2 below we explain the way this particular longitudinal mixed-methods study has evolved leading to the three phases of its 2006-07 round. In section 3 we describe the quantitative and qualitative methods used to assess poverty transitions, before presenting the contrasting findings on poverty transitions they produce in section 4. We then explore, and attempt to reconcile, these contrasting findings in section 5, focusing on five main plausible explanations for the mismatches between the qualitative and quantitative assessments. This leads to section 6 where we draw lessons from our experience of integrating qualitative and quantitative findings and discuss implications for further studies of poverty dynamics.

2 The CPRC-DATA-IFPRI Bangladesh longitudinal study

The longitudinal study on which this paper is based builds on three surveys conducted by the International Food Policy Research Institute (IFPRI) and associates in Bangladesh to evaluate the short-term impacts of microfinance (MFI) (1994), new agricultural technologies (AT) (1996-97) and the introduction of educational transfers (ET) (2000 and 2003). These are described in Zeller *et al.* (2001), Hallman *et al.* (2007) and Ahmed (2005), respectively.

The original evaluations surveyed 1907 households and 102 villages located in 14 of Bangladesh's 64 districts. These districts and villages were selected to span the range of agro-ecological conditions found in rural Bangladesh and, while the sample cannot be described as nationally representative, it does broadly characterise the variability of livelihoods found in rural Bangladesh (see Appendix 1 for a map showing the location of the survey villages by intervention). In designing the original evaluation surveys, careful attention was paid to establishing both intervention and comparison/control groups so that single-difference estimates of short-term project impact could be derived.

After these evaluation surveys were conducted, the sample households were re-surveyed on one or more occasions over subsequent years. In order to obtain information on micronutrient deficiencies, the agricultural technology households were surveyed on four occasions between 1996 and 1997. In addition, in 2000, IFPRI and Data Analysis and Technical Assistance Ltd., Dhaka (DATA) conducted a follow-up survey in one of the three agricultural technologies sites (in Manikganj District) as part of a study on linkages between agriculture, nutrition, and women's status. This quantitative resurvey was followed by qualitative focus-group discussions and semi-structured interviews with women and men in 2001 in all of the agricultural technology sites (as part of a study on the social impact of agricultural technology).[1] Then in 2003, a follow-up study was conducted in eight of the 10 educational transfer villages, as a part of a wider evaluation of the shift from food to cash for education. Thus by the time the households were resurveyed in 2006-07 a rich set of historical data on the households was available.

In 2006, IFPRI, DATA and the Chronic Poverty Research Centre (CPRC) began a major study to resurvey all the households surveyed in all three of the evaluations. While the focus of this study was on understanding of the drivers and maintainers of chronic poverty in rural Bangladesh, the intervention-comparison groups were maintained from the previous study. In addition, children who had left the original household and set-up their own households were tracked as long as they had not migrated outside their home district. The 2006–07 resurvey had three sequenced and integrated phases:

[1] See Hallman *et al.,* (2007)

Phase I was a qualitative phase designed to examine perceptions of changes (and why these had come about) from women and men in a sub-sample of our survey communities. This phase involved focus-group discussions with four groups (of poor and better-off women, plus poor and better-off men) in each village. The focus groups aimed to elicit perceptions of changes, group members' perceptions of the interventions under study, and the degree to which these interventions affected people's lives (compared to other events in the community). A total of 116 single-sex focus group discussions, evenly divided between treatment and control villages, were conducted in 11 districts in July and August 2006. The findings from these focus group discussions are described in Davis (2007).

Phase II was a quantitative survey of the original households and new households that had split off from the original households but remained in the same district. The household survey took place from November 2006 to February 2007, the same agricultural season as the original surveys, and covered 2,152 households, of which 1,787 were core households that took part in the original survey, and 365 were 'splits' from the original households.[2] The household survey questionnaire was designed to be comparable across sites and with the original questionnaires from the evaluation studies. The overall attrition rate across the three interventions was 6.7 percent (120 of the 1,787 core households) across the three interventions, with attrition being highest (7.1 percent) in the agricultural technology and lowest (6.0 percent) in the microfinance sites.[3] An econometric investigation of the pattern of attrition, using probit regressions, in these panels suggests that it is mostly random (Quisumbing, 2007). Note that as were able to track 365 of the 485 (75 percent) the new households, the total number of households in the panel grows over time. The panel data was analysed using Stata 10, and is publically accessible in both Stata and SPSS formats by writing to IFPRI.

[2] A community-level questionnaire was also administered to key informants at this stage to obtain basic information on each village, and changes since the last survey round. GPS coordinates for all sample households and village facilities were also collected.

[3] This level of attrition is comparable to the 6 percent attrition rate for the first two rounds of the Indonesia Family Life Survey (Thomas *et al.*, 2002). It is significantly better than the 16 percent attrition between the first and second rounds, and 38 percent attrition between core households in the first and third rounds, of the Kwazulu-Natal Income Dynamics Study (KIDS) in South Africa (Agüero, *et al.*, 2007). See Alderman *et al.* (2001) for a systematic analysis of patterns of attrition in KIDS and two other developing country panels. Other panel studies in Bangladesh that have tracked household splits include the Bangladesh Nutrition Survey (Rosenzweig, 2003) the BIDS village panel (Rahman and Hossain, 1995; Sen, 2003) and the Matlab Health and Demographic Survey (Razzaque and Streatfield, 2002).

Phase III consisted of a qualitative study based on life histories of 293 individuals in 161 selected households in eight of the districts in the original quantitative study.[4] The aim of this phase was to understand the processes and institutional contexts which influence individual and household livelihood trajectories. The eight districts were selected to represent a wide range of environments in rural Bangladesh and include sites from each of the evaluation studies. In each district, we selected two villages from the quantitative survey, and in each village 10 households were selected on the basis of poverty transition matrices constructed using per capita expenditure from the quantitative household survey and the Bangladesh Bureau of Statistics' (BBS) upper poverty lines (see below). Thus the life-history households were a sub-sample of the larger quantitative sample. All interviews were digitally recorded, written-up by the researchers and analysed using QSR NVivo 8. Fieldwork for this final phase of the study was undertaken between March and October 2007.[5] Preliminary findings from the life history interviews are discussed in Baulch and Davis (2008) with further details in Davis (forthcoming).

3 Methods used to assess poverty transitions

In this section, the quantitative and qualitative methods we apply to assessing poverty transitions using the CPRC-DATA-IFPRI Bangladesh longitudinal study are described. The quantitative method used to identify poverty transitions is based on a standard expenditure based 'spells' approach, which is now pretty well established in Bangladesh and elsewhere. The qualitative methods draw on a life histories approach developed by Davis (see Davis 2005, 2006, 2009), which is relatively new to Bangladesh although well-established for poverty research in other countries.

3.1 Expenditure-based poverty transitions

Quantitative poverty status and transitions using the household survey data were determined by comparing per capita expenditures with the BBS upper poverty lines, which vary according to year and division (Table 1). The expenditure variable was constructed from the food and non-food modules of the household survey questionnaires, with own-consumed items being valued at local market prices. Following current best practice in computing expenditures from household surveys (Deaton and Zaidi, 2002), our expenditure aggregate *excludes*: (i) dowry, wedding, pilgrimage (*Haj*), and funeral costs; (ii) durable goods; (iii)

[4] Of these eight districts, six were in districts where Phase 1 focus groups had been carried out.

[5] During 2007 rice and other basic commodity prices were increasing rapidly. Since the life history research was carried out several months after the household survey, it is possible that differences between quant and qual assessments may have been influenced by this (see Section 5.2 below).

housing, and housing repairs; (iv) health and medical expenditures; and, (v) costs of legal and court cases.[6] The BBS upper poverty lines are themselves based on a cost of basic needs methodology, which estimates the expenditure required for a person to acquire 2,212 kcals per day plus a modest allowance for non-food expenditures (BBS, 1998 and 2006). To reflect differences in their price levels, the BBS's poverty lines vary between Statistical Metropolitan Areas (SMA), urban, and rural areas, although all our survey sites lie in rural areas.

Table 1: BBS poverty lines by division (Taka per person per month)

Division	1994	1996	2000	2007
Dhaka-Rural	547.4	618.1	650.7	877.4
Khulna-Rural		550.6		773.8
Rajshahi-Rural	501.0		597.6	798.7
Chittagong-Rural			733.1	928.7

3.2 Life-history based transitions

The life-history interviews were carried out in the selected households with, where possible, one man and one woman interviewed separately. Each participant was interviewed by two researchers of the same sex as the participant. Participants were often husband and wife, but in some cases, such as when one partner had died, we interviewed one parent and their son or daughter. We tried to interview people who were older than 25 and used historical markers (such as the 1971 war of independence or the 1988 floods) to determine the years particular events described by the participants occurred. At the end of each life-history interview, the researcher who facilitated the interview drew a diagram of the life history from the time-line of events that he or she had drafted during the interview, with the help of the participant. On these diagrams, the level of well-being (or 'life condition' – *obosta* in *Bangla*) at different points in the life trajectory was indicated using a scale of one to five using the categories described in Table 2, based on life-conditions described by the participant. These levels were finalised after a focus-group discussion with local people who knew the households well, followed by a group discussion of the researchers who had carried out the

[6] Most of these expenditure categories are 'lumpy', infrequent expenditures financed from savings or sale of assets. Baulch and Davis (2008), shows these expenditures are often linked to declines in well-being. See Quisumbing (2007) for further details on how the expenditure aggregate was constructed.

life-history interview. These discussions were also audio-recorded.[7] The levels of well-being are holistic – they take into account subjective and multiple dimensions – and had some future orientation associated with anticipated vulnerability to harm from commonly experienced shocks. The 'very poor' of well-being level 1 were identified as those who were going without food and suffering serious harm due to poverty. People at level 2 were generally not going without food due to poverty but were seen as vulnerable, with few buffers (assets etc.) available if a crisis occurred. People at level 3 were more secure and were judged to be less vulnerable in the face of commonly-occurring crises. There was therefore a relative as well as absolute element to the qualitative well-being assessments. Nonetheless, we consider the difference between level 2 and level 3 to roughly correspond with the BBS's upper poverty line, and also the difference between those locally considered to be 'poor' (or *gorib* in *Bangla*) and those who were seen as 'medium' (*madhom* in *Bangla*).

Table 2: Qualitative well-being levels for individuals[8]

Level	English	*Bangla*	Guideline
1	**Very poor or destitute**	khub gorib, na keye chole	Suffering tangible harm to health because of poverty, generally due to insufficient food. Tend to be landless or near landless.
2	**Poor**	gorib	Very vulnerable but eating reasonably well. Could easily move into level 1 due to a common shock. If land is owned, it usually less than an acre for a medium sized household.
3	**Medium**	madhom	A common shock would not result in tangible harm or going without food. Have household assets, or generate household income, equivalent to between one and two acres of land for a medium sized household.
4	**Rich**	dhoni	Hold household assets or generate household income equivalent to that generated by two to ten acres for a medium sized household.
5	**Very rich**	khub dhoni	Hold household assets or generate household income equivalent to that generated by ten acres or more for a medium sized household.

One key methodological difference to note is that the life histories were case studies of individuals within households rather than households as a unit. Well-being levels derived were attributes of individuals, rather than of households as was the case in the expenditure-based poverty transitions.

[7] Note that this method of ranking well-being resembles Krishna's stages of progress methodology (Krishna, 2004 and 2006) but reverses the order in which the group and household level discussions occur. See also Cantril (1965).

[8] These levels appear on the trajectory diagrams in boxes 1–5 below.

Finally, it should be noted that although households for the life history interviews were selected randomly from the four categories in each village's transition matrix (see above), it is necessary to calculate and apply sampling weights when calculating transition matrices for the life history sub-sample. The sampling weights used to do this were derived by first calculating the probability of a village being selected and then calculating the probability of a household within a village being selected. To calculate the village weights, the number of villages in each site is divided by the total number of villages surveyed in each intervention (47 for Agricultural Technology sites, 48 for Educational Transfer, and seven for Microfinance sites). Then to calculate the household weights, the number of households included in the life history interviews in each poverty transition category was divided by the total number of households (including household splits) surveyed in each quantitative transition category, on village by village basis. The village weights were then multiplied by the household weights and scaled so that the weights sum to one. These sampling weights are used to weight the results presented in Tables 6 and 7 below.

4 The magnitude of poverty transitions

Longitudinal studies often present information on poverty dynamics using transition matrices, which show the poverty status of the same households (or individuals) in two (or more) different years. Such studies show that many more households move in and out of poverty between survey years than the change in the poverty headcount between years would suggest. In situations in which the number of households moving out of poverty exceeds the number of those moving into poverty, the poverty headcount falls (as in Bangladesh). Conversely, in situations in which the number of households moving into poverty is less than the numbers moving out of poverty, the poverty headcount will rise. In this section, we describe the magnitude of the poverty transitions measured using the quantitative (expenditure based) and qualitative (well-being based) methodologies outlined in the previous section.

4.1 Findings from quantitative assessments

Transition matrices using per capita household expenditure from the Phase II household survey for the Bangladesh study sites are shown in Tables 3 to 5 below. Separate transition matrices are shown for each of the study sites because the baseline surveys in these sites are for different years (1994, 1996 and 2000 respectively). The results show a trend of declining absolute poverty in Bangladesh, which is broadly consistent with the trend recorded by the national representative surveys conducted by the BBS (BBS 1998, 2006). However, the number of households moving out of poverty is much higher in the Agricultural Technology than the other sites. This probably reflects the closeness of the Agricultural Technology sites (in particular Manikganj) to Dhaka.

Table 3: Transition matrix for the Microfinance sites

1994	2006–07		
	Poor	Non-Poor	Total
Poor	66	180	246
Non-Poor	20	138	158
Total	86	318	404

Table 4: Transition matrix for the Agricultural Technology sites

1996	2006–07		
	Poor	Non-Poor	Total
Poor	198	674	872
Non-Poor	30	329	359
Total	228	1003	1,231

Table 5: Transition matrix for the Educational Transfers sites

2000	2006–07		
	Poor	Non-Poor	Total
Poor	130	227	357
Non-Poor	16	131	147
Total	146	358	504

It should be noted that these transition matrices include household splits but are not weighted.[9]

4.2 Findings from qualitative assessments

In order to derive qualitative poverty transitions, the levels of well-being (from 1 to 5) from the baseline surveys (in 1994, 1996 and 2000) and the latest round (2006–07) were compared, using the trajectory diagram and the well-being levels assigned to it.[10] From these levels we

[9] Households which split between the baseline and 2006–07, were assigned the per capita expenditures of corresponding to their parent households at baseline.

[10] We added well-being scores to the trajectory diagrams in such a way that an estimate of well-being could be made at any time in the life trajectory.

were able to compare qualitative assessment of levels and direction of well-being with the quantitative expenditure-based assessment of poverty transition for each household in the qualitative subsample. The qualitative assessment of the baseline level was derived from an examination of the life history over the entire trajectory using the life-history diagram and other information collected during the interviews. In addition, because we had a very detailed knowledge of this subsample of 161 households and 293 individuals[11], we were able to establish on a case-by-case basis the most plausible reasons for mismatches between the qualitative and quantitative assessments when they occurred (see Section 5).

Table 6: Transition matrix for the life-history sub-sample

First round (1994,1996, 2000)	2006–07		
	Poor	Non-Poor	Total
Poor	170 (187)	14 (8)	184
Non-Poor	23 (19)	86 (78)	109
Total	193	100	293

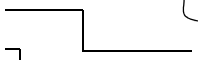
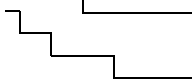
Note: weighted values in brackets

From the life history diagrams we were also able to categorise life trajectories according to the main patterns and directions found. These patterns illustrate that over longer periods improvements tend to happen slowly and in many peoples' lives gradual improvements are often interspersed with more abrupt declines in, what we refer to as, a 'saw-tooth' pattern. There were very few cases that show abrupt improvements in people's lives.[12] The overall direction of the trajectory (upward or downward) also depends both on the severity of impact of downward shocks and the ability to recover between them. A better understanding of these processes in people's lives helps us explain how interventions, such as those aimed at social protection, can both reduce vulnerability and strengthen resilience over the long term.

[11] Peter Davis visited and participated in interviews in all of these households during the 2006–07 research; this personal interaction with participants was a valuable part of this evaluation process.

[12] A small number of abrupt improvements were associated with marriage: for a woman when the move to her husband's household was an improvement and for a man following receipt of dowry. However the benefits of dowry are not equal to its cost, as dowry is often used to pay for the wedding expenses and new household establishment. In general, the great majority of improvements we observed in people's lives were due to the gradual accumulation of income and assets.

Table 7: Conceptualisation of common life trajectory patterns

Direction	Pattern	Depiction	Number of Cases	Weighted Percent of Cases
Stable	Smooth		8	1.47
Improving	Smooth		3	1.43
Declining	Smooth		2	0.36
Stable	Saw-tooth		135	44.98
Improving	Saw-tooth		76	26.15
Declining	Saw-tooth		30	6.90
Declining	Single-step		2	0.48
Declining	Multi-step		37	18.22
Total			293	100

5 Towards integration: learning from reconciling qualitative and quantitative findings

A comparison of the expenditure-based transition matrices in Tables 3 to 5 show many more poverty transitions (particularly out of poverty) than the life-history-based transition matrix in Table 6. As the life histories sub-sample is nested within the larger household panel survey, it is possible to compare quantitative and qualitative assessments of poverty transition on a case-by-case basis. Table 8 is a combined transition matrix which shows the initial agreements and disagreements between the qualitative and quantitative assessments of poverty transitions observed between the baselines and 2006–07 for the same 293 individuals (161 households). The shaded diagonal indicates individuals where qual and quant data agreed on poverty transition status (97 out of 293 cases). Most agreements occur where no poverty transition was seen to take place: in the NN and PP categories (PP=poor both rounds; NN=not poor both rounds). However in the transition categories (PN=poor round 1 but not poor in 2006–07; NP=not poor round 1 but poor in 2006–07) a large number of disagreements (or mismatches) appear. Overall the quantitative and qualitative assessments of individual poverty transitions disagree in two-thirds (66.9 percent) of cases.

Table 8: Combined transition matrix for the life-history individuals compared with quantitative expenditure-based assessments of their households

Quantitative expenditure-based categories	Qualitative well-being-based categories (numbers of individuals)				
	PP	PN	NP	NN	Total
PP	50	3	4	9	66
PN	74	3	13	31	121
NP	20	0	2	4	26
NN	26	8	4	42	80
Total	170	14	23	86	293

Note: PP=poor in both rounds; PN=poor in round 1 but not poor in 2006–07; NP=not poor in round 1 but poor in 2006–07; NN=not in poor both rounds

From a case-by-case re-examination of the qualitative data (e.g. life history texts, life history diagrams, focus group discussions, and video footage of the household) and the quantitative data (indicators of welfare and household dynamics) we identified a set of plausible reasons for the observed disagreements. The five most important of these are listed below.

(a) Cases where per capita expenditure does not accurately reflect the economic wealth of the household.

(b) Cases where households' expenditures are close to the poverty line in either, or both, survey rounds.

(c) Cases where some aspect of well-being or ill-being (such as the impact of domestic violence, disability, illness, or vulnerability) was not detected by expenditures or other measures of wealth.

(d) Cases where a change in household size (often associated with a division of the household) led to changed per capita expenditures with little corresponding change in perceived well-being.

(e) Cases where recall error affected the assessment of poverty, particularly for the qualitative assessments recalling the circumstances at the time of the baseline surveys.

In the remainder of this paper, we discuss each of these plausible reasons and discuss the implications of these for poverty dynamics research.

5.1 Cases where per capita household expenditure does not accurately reflect the economic wealth of the household

One of the standard criticisms of expenditure-based poverty measurement is that expenditures are not a good measure of the long-term welfare of a household (Deaton, 1997; Ravallion, 1998). Carter and Barrett (2006) have, for example, argued that asset-based measures of poverty dynamics are more robust to measurement error than conventional expenditure or income-based measures of poverty.

Since land is the most important non-labour asset for most rural households in Bangladesh, we identify the asset poor as those with less than 50 decimals (approximately 0.2 ha) of land.[13] This is the same criteria used by many Bangladeshi researchers (e.g. Hossain, 2007; Sen, 2003) to identify the functionally landless. In the life history sub-sample, 46.7 percent of households owned less than 50 decimals of land at baseline compared to 62.5 percent in 2006–07. Using this land threshold to identify households' poverty status in the initial and final years resolves no less than 43 percent (125 of the 196) disagreements in Table 8.

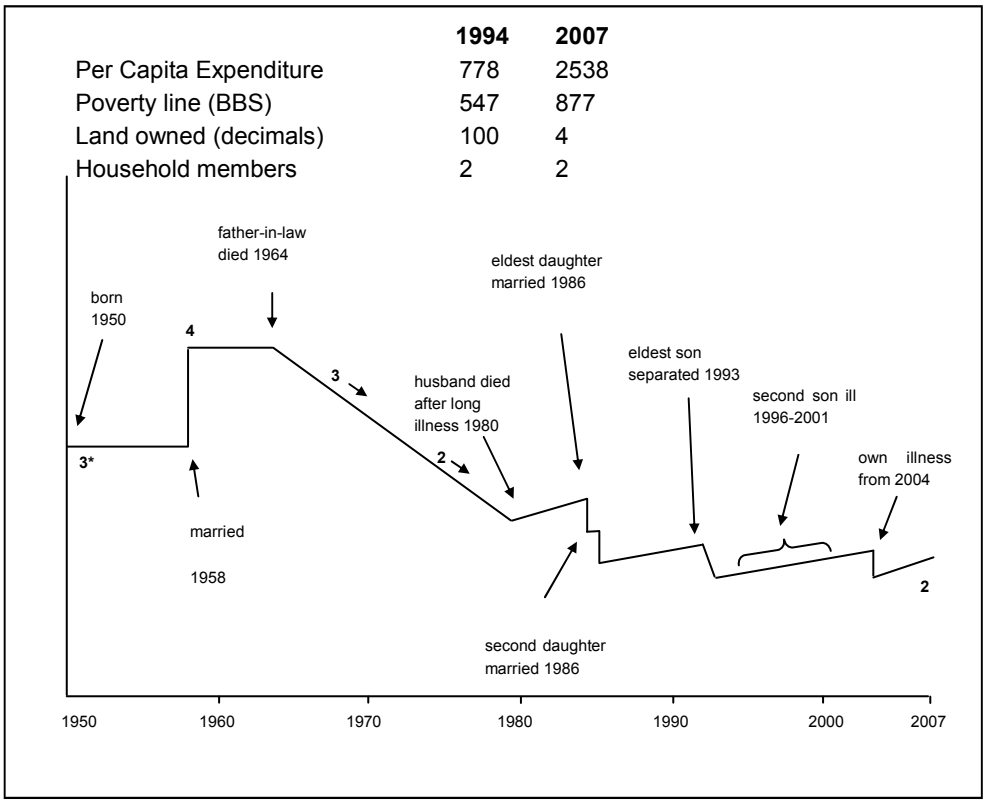
As information on the value of a household's non-land assets (including agricultural implements and machinery, non-farm productive assets, consumer durables, jewellery, and livestock) were collected in all survey rounds, it was also possible to calculate alternative thresholds based on the total value of the households assets expressed in Taka terms. However, unlike land (whose average area declines marginally between the baselines and 2006–07), the value of non-land assets fluctuates substantially both across categories and across sites (Quisumbing and Baulch, forthcoming). So it was unclear where to draw the asset-based poverty line given the large number of disagreements and the weak relationship between the value of assets and expenditures. We therefore conducted a simulation exercise in which the asset distribution was divided into percentiles, and each of these percentiles iteratively used as the asset poverty line. Using a poverty line set at the 80th percentile of the asset distribution, resolves the most (104 of the 196) mismatches. However, this is less than the mismatches resolved using the simpler land-based poverty line, so we focus on land assets as a proxy for total household assets in our subsequent analysis.

Box 1 provides an illustration of the case of a mismatch between a quantitative expenditure-based assessment of a household as 'never poor' (NN) compared to a qualitative assessment of the same household being chronically poor (PP). The household consisted of two people: the life-history respondent, a widowed 57 year-old woman, and her 29 year-old son. Her husband died in 1980 after a long period of illness and her well-being, as assessed in the qualitative study, had declined from above the poverty line to below it before the first

[13] Note that 100 decimals equals one acre. Households owning exactly 50 decimals of land are included among the non-asset poor.

round of the quant study had taken place. The life-history narrative led qualitative researchers to conclude that the decline into poverty had occurred before 1980 when her husband died. The assessment also noted that household land ownership declined from 100 decimals in round one to four decimals in 2007, and also that the woman had suffered chronic illness from 2004. A land asset-based quantitative assessment removed the quant-qual mismatch for 2007 to place the woman in the poor category because at this time only four decimals of land remained owned.

Box 1: Expenditure as an imperfect indicator of wealth (57 year-old woman) (quant NN, qual PP)



** indicates qualitative well-being level as outlined in Table 2*

Box 2 illustrates the same category of mismatch but the other way round. It shows the qual assessment of the male household head (aged 67) as never poor (NN) while the expenditure-based quantitative assessment of his household as chronically poor (PP). Again a land-based asset assessment removes the mismatch. Remittance income from sons working outside the village also had an impact on the present level of well-being. The life-history interview revealed that as the man grew older he had transferred wealth from land to his sons, with expectations of reciprocal care in old age.

Box 2: Expenditure as an imperfect indicator of wealth (67 year-old man) (quant PP, qual NN)

	1996	**2007**
Per Capita Expenditure	507	628
Poverty line (BBS)	618	877
Land owned (decimals)	250	60
Household members	12	10

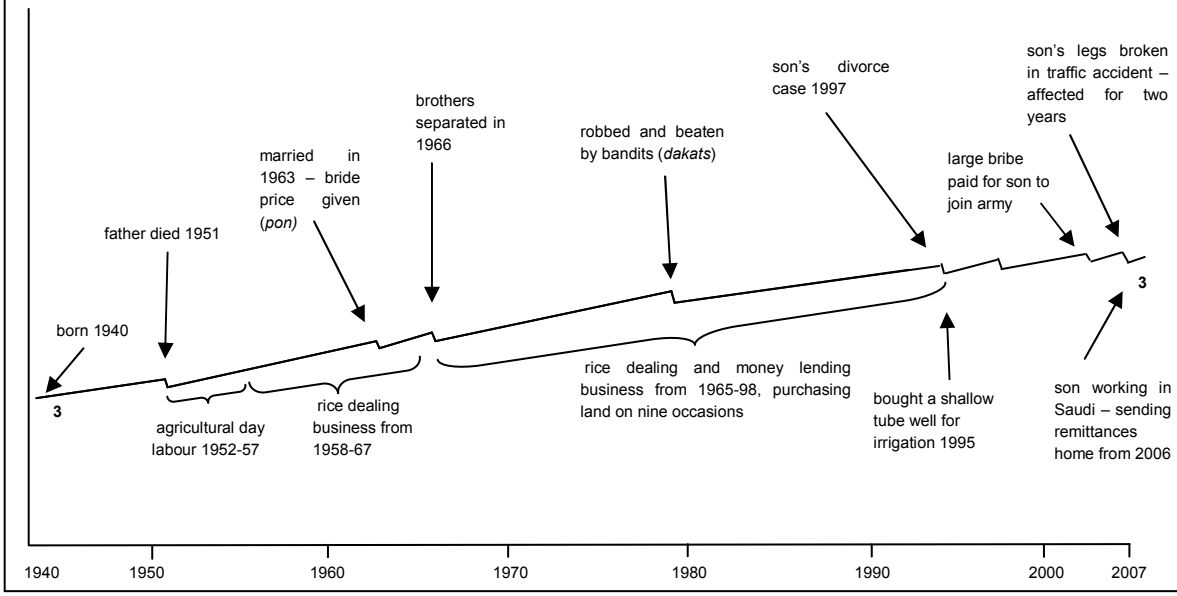


Table 9 shows that the majority of mismatches removed by using an asset-based rather than an expenditure-based assessment, were those in the expenditure-based 'move up' (PN) category. Sixty-eight of these cases moved into the 'chronically poor' (PP) category in the asset-based as well as qualitative assessments. Different possible explanations arise from this: it is possible, for example, that welfare for households with declining assets had improved because of a trend of improved returns from assets, thus providing more disposable income, and improved welfare. However it is also possible that the poverty lines used were underestimating the current cost of basic needs – and this would correspond with the more pessimistic qualitative assessment. The next sub-section examines the importance of poverty lines in more detail.

Table 9: Combined transition matrix for the life-history individuals compared with quantitative asset-based assessments of their households

Quantitative Asset-based transition categories	Qualitative well-being-based categories (numbers of individuals)				
	PP	PN	NP	NN	Total
PP	99	8	0	14	121
PN	6	0	3	6	15
NP	41	2	7	6	56
NN	24	4	13	58	101
Total	170	14	23	86	293

5.2 Cases where expenditures were close to the poverty line in either round

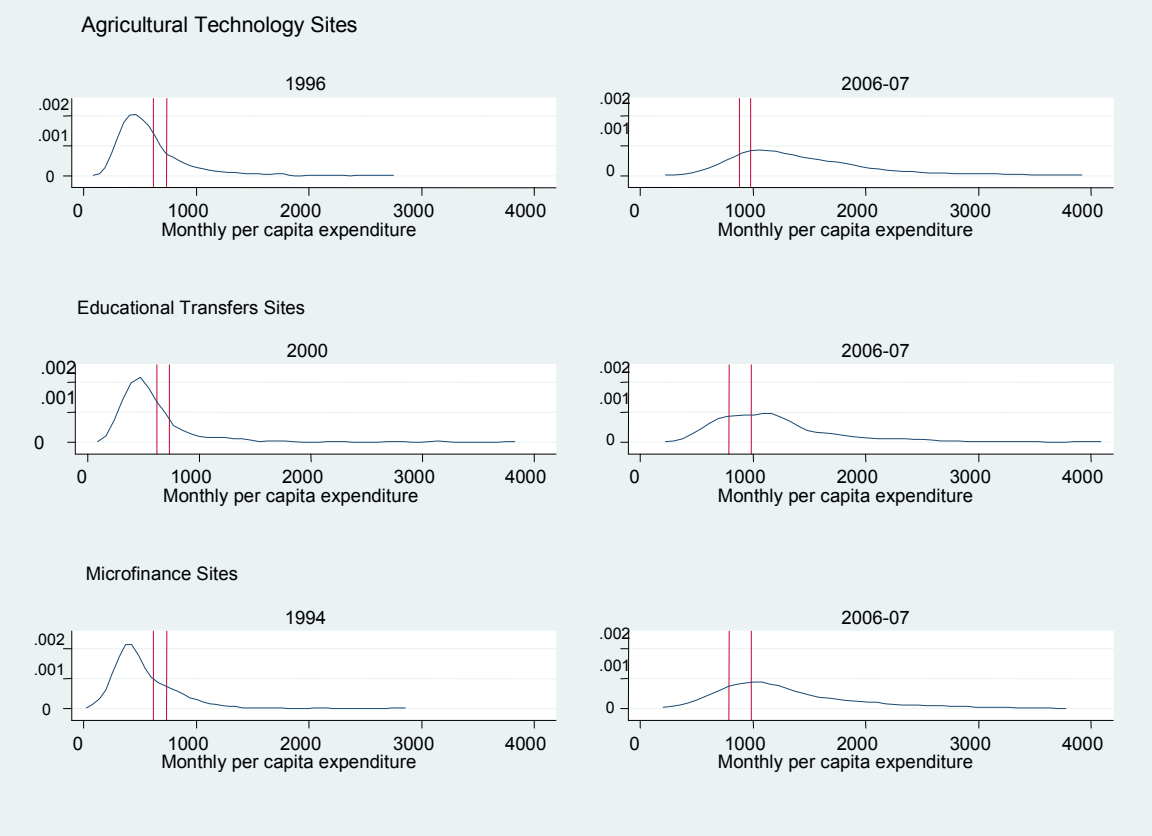
A second difficulty associated with expenditure-based transition matrices is that they do not tell us how near the poverty line the expenditures of our four categories of households are. This is a problem with many studies of poverty dynamics, as large numbers of households are typically clustered just below and just above the poverty line. This can be seen clearly in Figure 1, which shows the distribution of per capita expenditures in the three intervention sites relative to BBS poverty lines[14]. In all three groups of sites, the distribution of per capita expenditures can be seen to have moved to the right and become more dispersed over time. The mode of the distribution has also moved so that it is just above the highest BBS upper poverty line in 2006–07. This helps to explain both the dramatic reduction in quantitative

[14] Recall that the BBS poverty lines vary by division. Figure 1 therefore shows the range of the BBS upper poverty line corresponding to each intervention and survey year.

(expenditure-based) poverty estimates in the three sites, as well as the perceived vulnerability of their populations to shocks (see sub-section c below).

Across the three intervention sites, almost a third (30.4 percent) of individuals (89 out of 196 cases) live in households whose per capita expenditures are within plus or minus 10 percent of the BBS upper poverty lines. Furthermore, almost a half (49.5 percent) of individuals (148 cases) have per capita expenditures within plus or minus 20 percent of these poverty lines.

Figure 1: Distribution of per capita expenditure relative to the BBS poverty lines



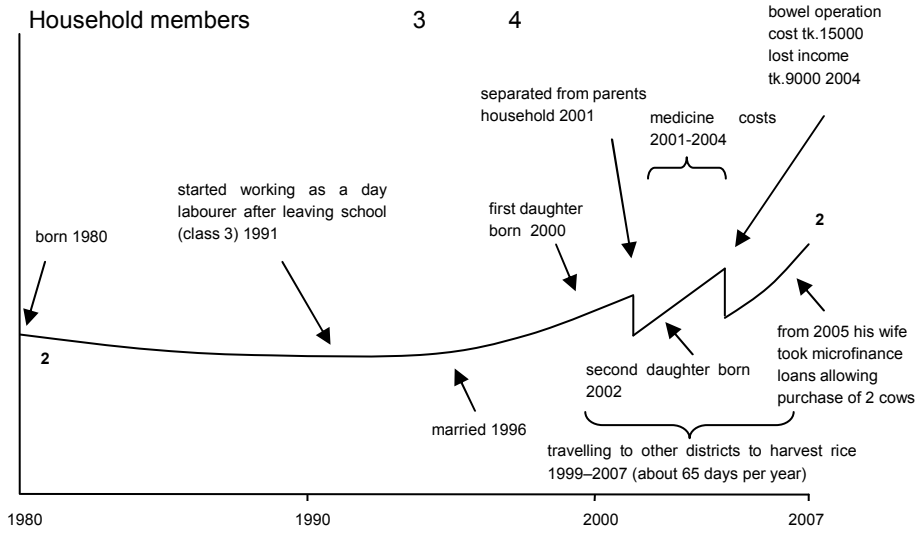
Another way to portray this sensitivity is in terms of contour plots (Appendix 2). In these plots, in which the heights of the contours represent points of equivalent frequencies in round 1 and in 2006–07, the peaks are located close to the BBS upper poverty lines. In the case of the agricultural technology and microfinance sites, the peak of the distribution lies in the moving-out-of-poverty quadrant of the contour plot, but only a little above the poverty lines for the baselines and 2006–07, demonstrating that large numbers of the sampled households are non-poor from an expenditure perspective, but are only a little above the poverty line. In the case of the education transfer sites, the peak of the expenditure distribution lies between the minimum and maximum poverty lines for 2006–07, indicating that quantitative classifications of household poverty status will be extremely sensitive to the position of the poverty line.

Box 3 illustrates a case where close proximity to the poverty line to some extent explains the qual-quant mismatch. Per-capita household expenditure declined from above the poverty line

in 1994 to below it in 2007 (NP). However an asset-based assessment and the life-history interview suggest chronic poverty (PP). However a number of complex changes to the composition of the household also occurred because the man left his parent's household. When expenditure levels are close to the poverty line the simple per capita expenditure measure is not sufficient to determine the level and direction of poverty status, especially if the composition of the household changes. The life history interview suggested ups and downs but all within a situation of chronic poverty. The decline in land assets recorded was due to the man splitting from his parents after marriage. His wife and two children were not present in the first round as he married in 1996, so the three adult household members in round one were himself and his parents. 2007 the four members were himself, his wife and two young children (aged seven and three). According to the life history his well-being declined to a low point in 2004 when he suffered a stomach ulcer which required expensive medication and surgery. With the help of neighbours and private loans from a money lender they were able to pay for the treatment, but they were left struggling financially. His wife then took out a microfinance loan to repay a high interest loan from a money lender, and was later able to purchase a cow. The family's income is now supplemented from sale of milk from the cow and their position has improved slightly. It seems that in a case like this, where the household is close to the poverty line, a per-capita expenditure measure is too blunt to accurately detect whether a poverty transition has taken place. It is also not precise enough to determine the direction of the current trajectory which, in this case, seems to be improving.

Box 3: Proximity to poverty lines (27 year-old man) (quant NP, qual PP)

	1994	2007
Per Capita Expenditure	796	690
Poverty line (BBS)	547	877
Land owned (decimals)	13	3
Household members	3	4



It should also be noted that the last round of the quantitative household survey took place over the winter of 2006–07, just before food prices in Bangladesh started rapidly increasing. The life history research started in March and continued until October 2007, and during this phase III research we were aware that rice and other basic commodity prices were increasing rapidly, putting increasing pressure on the stretched incomes of the poor. It is possible that even after this short period of time a number of households who would have been just above the poverty line in the household survey could have fallen below, what should be, a new (higher) poverty line as the prices of essential commodities rapidly increased – as some doubled within the space of one year.

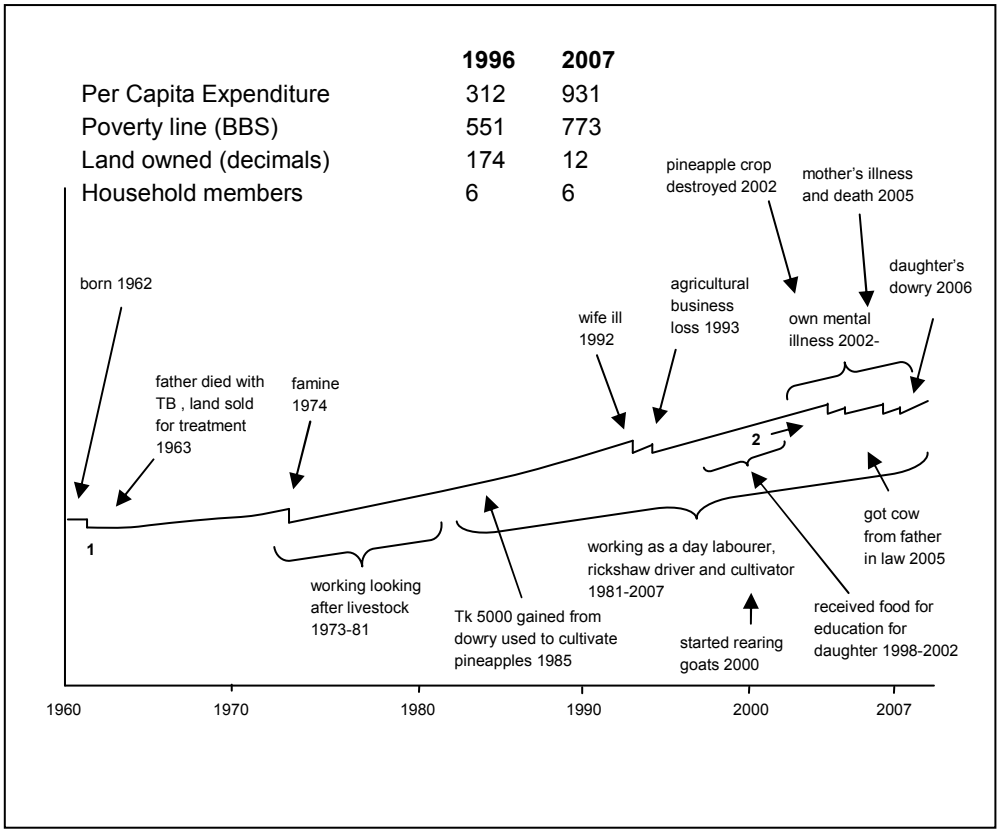
5.3 Cases where non-monetary aspects of ill-being were not detected in the expenditure-based assessment

The qualitative well-being level of an individual at points through the life-trajectory was based on an holistic and subjective assessment of the person's current economic, social, health and other circumstances, and was also influenced by perceptions of possible future insecurity (particularly when future vulnerabilities such as dowries, ill-health or the impact of disability) were foreseen by the participants and researchers. We estimate that 58 of the 196 mismatch cases are most plausibly explained by non-monetary aspects of ill-being which were not detected in quantitative expenditure-based assessments. The most common of these were ill-health, dowry pressures, disability, domestic violence and the vulnerability of female headed households.

This category of mismatch included 15 cases where the qualitative assessment was influenced by anticipated vulnerability to future shocks due to position in the life cycle (e.g. old age) or family circumstance (e.g. imminent dowries for daughters). These were not detected in the quantitative assessments except through possible indirect effects on their current expenditure patterns.

Box 4 summarises a case of a 45 year-old man where his household's per-capita expenditure increased over the study period but where chronic illness of more than one household member led to a qualitative assessment of slow improvement over time but not enough to allow the man above a level of vulnerability indicated by level 2. The man currently lives with his wife (36) and two daughters and two sons. He cultivates a small area of land and drives a flat-decked rickshaw (*van gari*). He has been chronically ill since 2002 and has one disabled daughter. Another daughter was married in 2006 with no dowry initially demanded but recently this daughter was sent home by her in-laws with Tk. 20,000 dowry demanded. This qual assessment includes anticipated future vulnerability due to chronic illnesses and further problems arranging marriages for his two daughters.

Box 4: Non-monetary aspects of ill-being not detected (45 year-old man) (quant PN, qual PP)



5.4 Cases where a change in household size (often due to a 'split') led to changed household economies of scale

In 33 cases (11.3 percent), a change in household size was the main reasons for the mismatch between the qualitative and quantitative assessment of poverty dynamics. Twenty-six of these cases involved individuals who moved out of poverty according to the expenditure-based assessment. Nearly all (23) of these individuals lived in households where the number of members declined by four or more between the first and last rounds of the quantitative survey due to a household split. We hypothesise that such large reductions in household size lead to the loss in household economies of scale in the purchase and preparation of food and other essential commodities.[15] However, such diseconomies of scale are not captured by changes in per capita expenditures, which therefore tend to overstate the

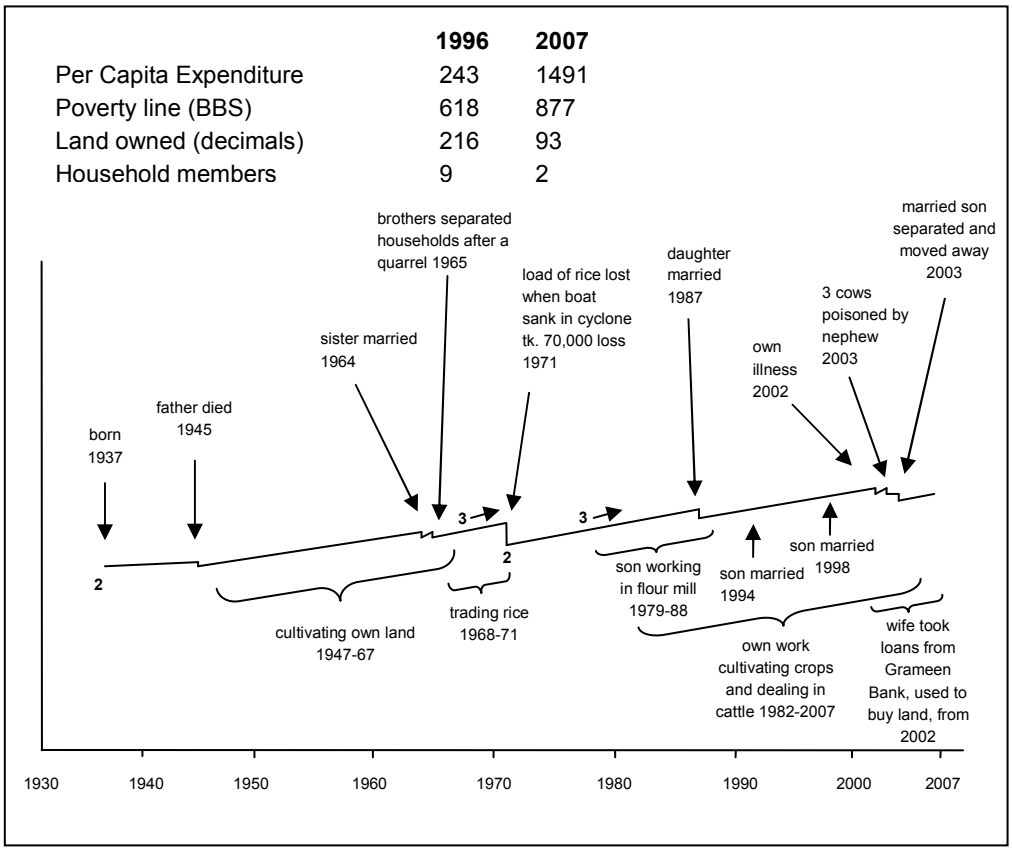
[15] It is also possible that large households are more likely to under-report food expenditures than smaller ones in quantitative recall surveys (Gibson and Kim, 2007). Household economies of scale could also derive from the consumption of indivisible durable items (Deaton, 1997). However, most rural Bangladeshi households possess few large durables of this type.

increase in welfare resulting from a reduction in household size. Indeed, in the 23 cases in which the number of members declined substantially, real household expenditures fell by 33 percent, while real per capita expenditures increased by 74 percent. In such circumstances, it is easy to see how quantitative assessments based on per capita expenditures and qualitative ones based in-part on the level of household expenditure might disagree.

In contrast, in the small number of cases (five) in which the number of household members increased, overall expenditures declined by eight percent while per capita expenditures declined by 77 percent. These five mismatches were associated with either children being born, or in one case, a household splitting and then merging again. Since per capita expenditure measures implicitly assume that a young child consumes the same share of household consumption as a fully grown adult, per capita expenditures also tend to overestimate the change in overall welfare due to young children being added to the household. To adjust for such changes in household composition (which are conceptually distinct from household economies of scale), we applied the equivalence scales for Bangladesh calculated by Ahmed and Sharma (1996). However, rather than reducing the extent of mismatches, as we had expected, the use of equivalised expenditures slightly increased the number of mismatches between the quantitative and qualitative transitions. We therefore conclude that it is loss of household economies of scale rather than failure to adjust for changes in household composition which seems to account for this category of mismatches.

Box 5 provides an example of how a mismatch can be attributed to a change in household size over the study period. In this case the life history interview reported a slowly improving trajectory for the man over the long term, particularly since about 1982 (when he started a successful cattle dealing business). At the time of the first-round quantitative interview in 1996, all the household's sons were working and contributing to the household. However, total household expenditure was divided by nine members (six of whom were adults) producing an unusually low per capita expenditure of Tk 243 per month, well below the poverty line. At that time the life history interview indicates that the family were doing quite well – as does the 216 decimals of land owned at the time. Although recall errors could be involved, in this case it is more likely that loss of economies of scale due to reduced household size better explains the mismatch.

Box 5: Mismatch caused by diseconomies of scale (70 year-old man) (quant PN, qual NN)



5.5 Cases where a recall error affected the qualitative assessments

The qualitative assessments of past well-being were reliant on recall (of dates, events and life-circumstances) and also on holistic subjective assessments of well-being from observers. As researchers we attempted to minimise this recall error by a well-developed approach to the life-history interviews combined with triangulation (between male and female participants interviewed separately, then through focus group discussions with other knowledgeable people in the community who commented on assigned levels, and finally in a group discussion among the researchers). However, at times it was still very difficult for participants to judge well-being at a distance in time and so inaccuracies and estimations inevitably occur. This is a plausible explanation for some cases, particularly where the assessments at the time of round one of the study differed.

By re-examining the life history interview materials on a case-by-case basis, we estimate that recall errors provide an explanation for disagreements in about 16 cases. This represents about 5.5 percent of the individuals for which the qualitative and quantitative assessment of

poverty transition differed. We consider this to be quite low because well-being levels were based on the entire life-history interview (rather than as isolated questions) and were triangulated with two separate interviews per household plus cross-checking in focus group discussions.

In two cases, a mismatch between quant and the qual assessment was due to the female life history participant having not been a member of the household at the time of the baseline survey. This illustrates a problem that frequently arises when using different units of analysis (individuals and households) when comparing the findings of qualitative and quantitative studies. The small number of mismatch cases caused by such recall errors may reflect the fact that women usually marry into families of similar socio-economic status to their parents.[16]

Recall errors are less likely to have affected the quantitative assessment of poverty transition, both because expenditures were collected within a few months of the end of the consumption year to which they refer, and because care was taken to ensure that the same list of items and recall periods were used in the quantitative questionnaires. Note also that the impact of seasonality was minimised by conducting the 2006-07 survey at the same points of the agricultural calendar as the previous surveys. Nevertheless, it is possible that some participants may have become confused with the recall periods specified for different types of expenditure items in the household survey.

5.6 Sequential reduction of mismatches

The five major explanations for the mismatches between qualitative and quantitative poverty transitions discussed above can obviously overlap. Furthermore, as illustrated by the boxes of individual life history cases, more than one explanation may apply for the same individual. Thus while a case-by-case and explanation-by- explanation approach highlights how important a multidimensional view of poverty is in assessing poverty transitions, it does not tell which aspects are the most important. Table 10 below therefore summarises and sequentially reduces the mismatches between the quantitative and qualitative poverty transitions we observe, starting with the most frequent of the plausible explanations examined above. Applying each explanation individually reduces between 127 and 16 of the 196 cases in which the qualitative and quantitative categories disagree, as shown in the first three columns of the table. The last two cumulative columns show that reducing the mismatches by applying these explanations sequentially reduces the number of mismatches from 196 to 42 cases. This corresponds to a reduction in the mismatches from 62.7 to 13.9 percent of all cases in the sub-sample when the life history weights described in Section 3 are applied.

[16] Note that in one of our two cases, a woman from a poorer family was able to marry ‘up’ into a wealthier family because her husband was disabled. The new household subsequently declined into poverty (both qual and quant), mainly due to the impact of her husband’s disability.

Table 10: Sequential reduction of mismatches

	Unweighted (cases)	**Weighted**	**Unweighted cumulative (cases)**	**Weighted cumulative**
Total mismatches	66.9% (196)	62.7%	66.9% (196)	62.7%
Land not expenditures	43.4% (127)	44.2%	35.2% (103)	34.4%
Close to poverty line	30.6% (89)	35.9%	23.5% (69)	22.6%
Well-being not expenditures	14.7% (43)	11.9%	20.5% (60)	20.2%
Changes in household size	11.3% (33)	11.9%	15.7% (46)	14.4%
Qualitative recall errors	5.5% (16)	4.6%	14.3% (42)	13.9%

Note: based on 293 matched household questionnaires and life histories. Row 2 classifies households with exactly 50 decimals of land as non-poor.

By using land assets to classify households, in addition to their per capita expenditures, more than a third (34 percent) of the mismatches are removed, while the closeness of per capita expenditures to the poverty line removes another 23 percent. When combined, these two factors, which may be seen as evidence of measurement error in the expenditure variable, resolve approximately three-fifths of the mismatches. Non-monetary aspects of 'well-being' account for 12 percent of mismatches individually but make a relatively small contribution to reducing the cumulative mismatches (of just over two percent). The diseconomies of scale associated with changes in household size which also account for 12 percent of the individual mismatches reduce the cumulative mismatches by almost six (i.e., 20.2 minus 14.1 percent) percent. Finally, likely recall errors in the qualitative data reduce the cumulative mismatches by about another half a percent.

6 Lessons from integration

It is not surprising that different ways of observing, assessing and measuring poverty yield quite different findings for the same households or individuals. The idea of poverty, is complex in the way it works out in people's lives. The difficulties which arise in assessing poverty status at one point in time, as illustrated in the studies of Laderchi *et al.* (2003), McGee (2004), Stewart *et al.* (2007), are magnified once assessments of poverty dynamics – the assessment of changes in poverty status over time – are attempted. Households change in composition – and therefore household members have different needs and aspirations – they accumulate or lose assets, members become indebted or ill, or insecure about the changing future world they will live in. All these complications are introduced when we move from a single point in time to change over time. One of the first lessons of this study then is that while the assessment of the complex experience of poverty is difficult at one point in time, it becomes much more so when we attempt to monitor changes in poverty status over time.

We also learn that while expenditure-based measures of economic well-being have become the 'gold standard' for poverty studies in developing countries, the shortcomings of expenditure-based measures are magnified in studies of poverty dynamics. The addition of an asset-based measure, such as land ownership, improves our ability to detect actual poverty transitions and therefore the reliability of the poverty assessments substantially in Bangladesh. Assets like land and livestock represent both accumulated past wealth and security in the future, and play a vital role in most household's strategies for accumulation and consumption smoothing. We would therefore suggest that expenditure-based measures should be supplemented at least by an asset measure in poverty dynamics research.[17]

Our study also highlights the way that a small shift in the peak of the expenditure distribution or of poverty lines, can lead to the impression of a large number of people moving out of, or into, poverty. Findings like this – which include recent reported poverty reductions in Bangladesh – should therefore be treated with caution. Our qualitative findings tend towards a much more pessimistic view of the tangible poverty reduction in rural Bangladesh over the last decade than have been published by other sources (e.g. BBS 1998, 2006). As large numbers of households can move above a poverty line due to increased per capita household expenditures without a perceived improvement in well-being, we should consider it possible that the reverse can easily take place with modest increases in food and other essential commodity prices. Poverty diagnostic studies in Bangladesh and elsewhere should report the percentage of the population whose expenditures are proximate to the poverty line

[17] Note that the use of assets alone would introduce a whole new set of mismatches – which we will not pursue here.

as a matter of course. In addition, research into the appropriateness and practicality of using fuzzy poverty lines deserves renewed attention.[18]

A critical examination of the mismatches between quant and qual assessments also draws attention to the extent of non-monetary ill-being in rural Bangladesh. Current poverty dynamics studies do not teach us much about the trends in the contribution of ill-health, dowry pressure, disability, domestic violence, social isolation or stigma to poverty dynamics. With declining average household size and increased life expectancy in Bangladesh, non-monetary ill-being among the elderly is likely to be making a greater contribution to this kind of poverty.

Overall, we contend that this approach to integrating qualitative and quantitative approaches using a 'medium N' sample shows that neither qualitative nor quantitative approaches alone can meet the difficult challenges of understanding and explaining poverty dynamics. Smaller samples of qualitative case studies can be effectively used to highlight the strengths and weaknesses of various quantitative strategies and large N quantitative studies can ensure generality and representativeness of findings. However quantitative and qualitative poverty research is generally still conducted separately in developing countries. With increasing attention being paid to the dynamics of poverty, there is a need to develop integrated mixed-methods approaches for researching poverty dynamics. We believe that integrating methods will contribute to policy-makers' needs of generality and representativeness, together with greater validity and reliability, so that public policy can be more effectively informed. In so doing the complex realities of peoples' experience of poverty can be better understood.

[18] See, for example, Shorrocks and Subramanian (1994) and Lemmi and Betti (2006).

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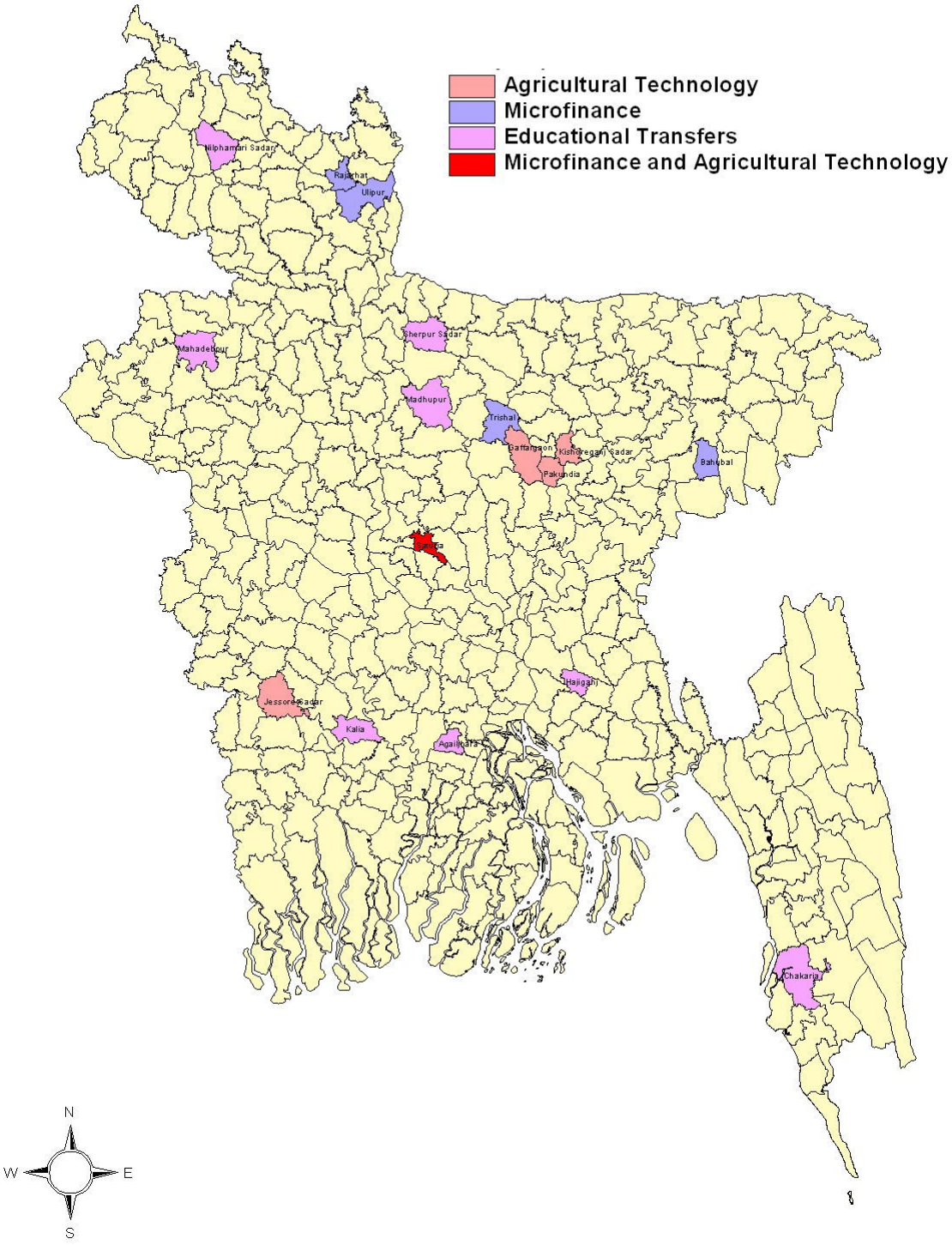
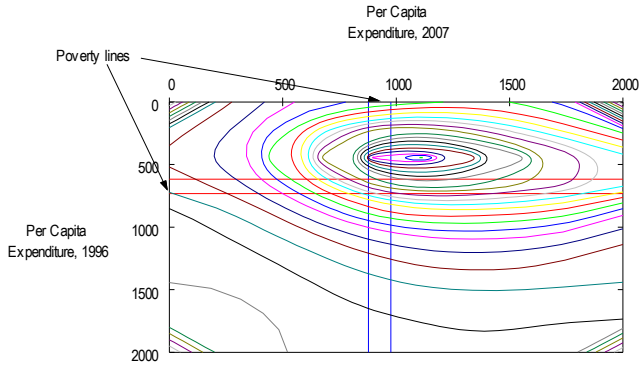
Appendix 1: Map of the Thanas/Upazilas surveyed by intervention



Appendix 2: Contour plots

Agricultural Technology Households



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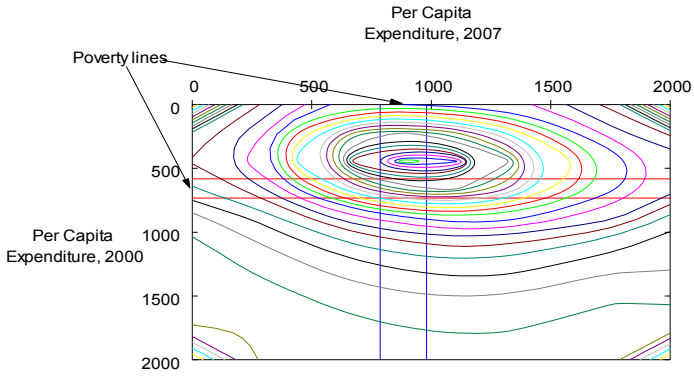
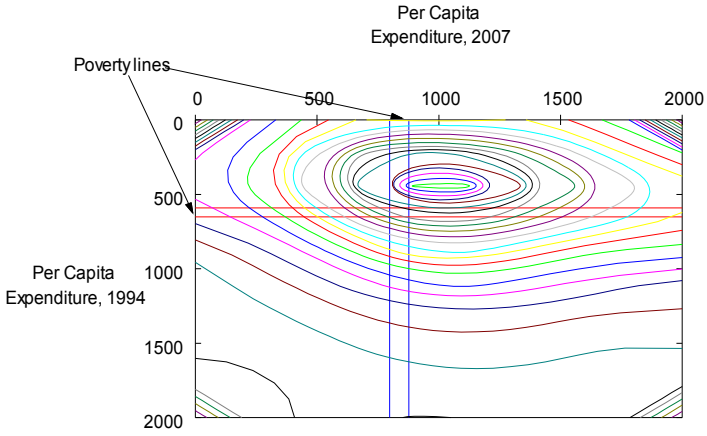


MFI Households



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