Working Paper

Chronic Poverty

Research Centre

Casting the net wide *and* deep: lessons learned in a mixed-methods study of poverty dynamics 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 reflect on lessons learned in developing a mixed-methods approach to the study of poverty dynamics in a three phase qual-quant-qual study of poverty dynamics in rural Bangladesh. We argue that a sequential but integrated approach has a number of advantages over single-method approaches or non-integrated studies. In particular, mixed-methods research strengthens our ability to make more reliable causal inferences, both in individual life trajectories, and in collective trends. We also examine how integrating qualitative and quantitative methods raises important issues for poverty dynamics research, including the way that concepts are developed and deployed, how field research is designed and conducted, how causation is identified, and how findings are analysed and presented.

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

Acknowledgements

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1   Introduction

In recent years, mixed-methods research in the social sciences has undergone a revival as researchers recognise how different approaches can complement each other in explaining the social world.[1] In poverty studies in developing countries, which more often employ either quantitative or qualitative rather than mixed methods, the potential for combining and integrating both quantitative and qualitative methods is also now much better recognised.[2] However the methodology of integrating qualitative and quantitative methods is still not particularly well developed and tends to be *ad hoc*.

In this paper we reflect on methodological lessons learned from a mixed methods research project on poverty dynamics in rural Bangladesh which combined researchers and methods from a quantitative 'economics' tradition (which we will refer to as 'quant') and a qualitative 'sociology' tradition (which we will refer to as 'qual').[3,4] From the earliest stages of this study we were committed to integrating qualitative and quantitative methods to make our combination worth more than the sum of the parts. We believed that each side of the artificial, and increasingly redundant, qual-quant divide could learn from the other, and, in the end, enhance the overall validity, reliability, and policy relevance, of our findings.

In addition to reflecting on practical methods in researching poverty dynamics in this paper, issues of ontology and epistemology also arise, although they are often 'glossed over' by field researchers. We see the opportunity to critique and refine concepts and indicators as an important part of empirical poverty research.[5] Critical evaluation of concepts as they are operationalised in the field provides feedback for further conceptual development. Mixed-methods work is well positioned to foster a critical, rather than a mechanical, approach to poverty dynamics studies, and thus contribute to both conceptual and substantive research outcomes.

In the next section, we reflect on lessons learned in formulating research aims and choosing key concepts and indicators in our project. In Section 3, we then describe our research design and fieldwork methods before moving on, in Section 4, to discuss lessons learned

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[1] This revival is illustrated by the appearance of a number of key books and academic articles exploring the potential of mixing methods. These include Brewer and Hunter (1989) Creswell (2003), Greene, Caracelli, and Graham (1989), Johnson and Christensen (2004), Newman and Benz (1998), Reichardt and Rallis (1994) and Tashakkori and Teddlie (2009).

[2] See Carvalho and White (1997); Hulme and Toye (2007); Kanbur and Shaffer (2007) and the Q-Squared Working Paper Series (www.q-squared.ca).

[3] See Quisumbing (2007) and Davis and Baulch (2009) for a description of this research.

[4] We recognise that there is a rich quantitative tradition in sociology. However sociological, and particularly anthropological, research in developing counties has tended to be more qualitative and 'small-*N*' in nature. Quantitative sociology, using large household surveys for instance, tends to be a much stronger tradition in social policy studies in 'developed' countries. Large household surveys in developing countries have usually been conducted by economists and medical researchers rather than sociologists.

[5] See Gerring (2001: 359) who argues that 'concept formation lies at the heart of social science endeavour'.

from combining medium and large-N studies. This then leads to Section 5, which reflects on attributing causation, before we describe our approach to data analysis and presentation of findings in Section 6. Throughout, we attempt to draw out lessons from our experience so that this paper may be of practical relevance for other researchers.

2 Lessons learned in formulating research aims and choosing concepts and indicators

The study was concerned with exploring poverty dynamics in rural Bangladesh. The main aims were concerned with identifying and investigating the most important causes of decline or improvement in people's lives – including declines or escapes from poverty – over the medium to long term. Previous research has suggested that there have been significant declines in headcount poverty rates in Bangladesh in recent years, including in rural areas (see Sen and Hulme, 2006; World Bank, 2008). However, there have been few studies investigating how this is experienced within the life trajectories of the rural poor, or what socio-economic characteristics and processes help explain why some people move out of poverty while others stay poor (or become poorer). In addition, our study was also concerned with evaluating the medium to long-term impact of a set of development interventions. A clearer understanding of the long-term impact of development interventions and patterns of socioeconomic mobility can help in the formation of social and public policy aimed at reducing chronic poverty. Because the study was necessarily longitudinal, exploratory, and concerned with evaluating the impact of interventions, it ideally lent itself to a mixed methods approach.

Poverty, as a state that a person, a household or wider group, can experience, was a key concept for both sides of our study. In quantitative research, poverty tends to be seen in monetary (expenditure or income) terms. This is not because quantitative researchers do not recognise the importance of non-monetary contributors to wellbeing at the conceptual level, but because welfare measures like expenditure or income are more easily quantified than many other contributors to wellbeing, and therefore suit specialised forms of statistical analysis.[6] In developing countries, expenditure tends to be used in preference to income as the welfare measure as it is usually easier to measure and less subject to variation than income (Deaton, 1997). However, inevitably the idea of poverty (as a concept) becomes closely tied to the way it is measured (using indicators). Researchers sometimes need to be reminded that an indicator and a concept are not the same thing. For example, when we talk about households moving across poverty lines, we must remember that the experience of the household may differ from those suggested by values of the welfare measure.[7] A mixed

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[6] In recent years there are attempts to develop multi-dimensional indicators of poverty (Alkire and Foster, 2008) but attempts to operationalise these in empirical research are still rare.

[7] A household may have a per-capita monthly expenditure measured in one month which places it just below the poverty line but in another month slightly above the poverty line (perhaps due to measurement error). An

methods approach provides a constant reminder of the limitations of using simple indicators to analyse complex phenomena such as poverty.

The established method of measuring poverty in most developing countries involves household surveys and most often uses per capita household expenditure as the welfare measure. Poverty lines are typically determined from national data calculated on the basis of an inflation-adjusted cost of a bundle of goods that can fulfil basic needs. Most national statistics offices produce a set of official poverty lines based on the cost of acquiring a minimum level of calorie requirements (the food or 'lower' poverty line) plus a modest allowance for non-food expenditures (to give the total or 'upper' poverty line) (Ravallion, 2010). The lower and upper poverty lines are adjusted for regional differences in price levels, which are updated regularly, and used to calculate and monitor national poverty on a consistent (if uni-dimensional) basis. For example, the Bangladesh Bureau of Statistics (BBS) produces lower and upper poverty lines by division and across urban, rural and statistical metropolitan areas (SMA). Table 1 shows the BBS 'upper poverty lines' used in our quant analysis of poverty dynamics. Note that our survey sites were in rural areas in the following Divisions with initial surveys in 1994, 1996 and 2000 and the most recent qual-quant-qual mixed methods round in 2006-07.

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

Division	1994	1996	2000	2006-07
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

Household expenditure data are useful for measuring broad poverty trends (such as whether headcount poverty ratios have declined or not) across a large population. However they are not so useful for identifying causes of mobility or accurately tracking individual households,

unsophisticated quantitative analysis might conclude that the household is moving in and out of poverty when in reality nothing much has changed.

which have many idiosyncratic characteristics and life-course phases. In a previous paper (Davis and Baulch, 2009), based on data from this study, we illustrated how, in monitoring small numbers of households, household expenditure should be supplemented by other measures (in particular assets), in order to avoid reaching erroneous conclusions about the socioeconomic mobility of particular households.

In qualitative research, poverty is usually defined in more multidimensional terms with dimensions such as social status, exclusion, power, and political participation, more prominent. However these dimensions are less amenable to quantification. Concerns for these aspects of welfare are reflected in recent prominent conceptual approaches to poverty, such as in the social exclusion, participation and capabilities literature (see Stewart *et al.*, 2007) but methods for empirical investigation of these dimensions of poverty are weakly developed. As a result qualitative research on multidimensional poverty is often exploratory with definitions of poverty seen as much a research output than a starting point.

In our qualitative work, poverty was initially loosely defined because the research was exploratory in nature: we were interested in a multidimensional view of a person's well-being, within the temporal context of their life stories, and in the social context of their families and communities. In the life history interviews, we used the Bengali word '*obosta*', which roughly translates as 'life condition', to describe a range of influences on a person's wellbeing in initial within-case analyses. This loose definition had advantages and disadvantages. The lack of imperative to quantify allowed a range of monetary and non-monetary dimensions of a person's wellbeing to be explored.[8] However, it meant that poverty status was judged by assessing a number of non-measured characteristics which could vary from researcher to researcher within the team. We mitigated this by allocating overall poverty levels on a five point scale[9] (see Table 2) after a focus group discussion with local people who knew the individuals well, and finally in group discussions involving all the qual researchers. We asked focus groups to place households into categories according to well-being levels at the current time and ten years earlier and to discuss why. This allowed us to cross-check life history information. We then assigned well-being levels, drawing from these discussions and the life history interviews, in a further group discussion among the research team, including the supervisor/qualitative analyst. This was done at the end of the life history research in each village before we moved to the next site while the life history interviews were fresh in our memories. This process allowed us to move from within-case analysis to between-case analysis and to comparison with quant findings from the same households.

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[8] See Stewart (2007) for an excellent discussion of a range of conceptual approaches in poverty research.

[9] We do consider this technique to be precise enough to warrant more points.

Table 2: Qualitative well-being levels for individuals[10]

Level	English	Bengali	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.

While qualitative and quantitative researchers often hold similar views on the nature of poverty, the types of indicators used affects the way each group thinks about poverty. Thus our epistemological approach, in practice, affects the ontological idea. Quantitative researchers tend to think about poverty in relation to poverty lines and in money-metric terms; qualitative researchers are drawn to exploring poverty in less measurable multidimensional and contextual terms.[11] An integrated approach encourages both groups of researchers to consider tacitly held assumptions associated with their particular approach to poverty, particularly when disagreements arise over the assessments of poverty status of particular individuals or households.

From our experience we propose an approach to ontological and epistemological differences which is pragmatic: a mix of methods should be applied to do something, in this

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[10] These levels appear on the trajectory diagrams in Appendix 4.

[11] See Stewart *et al.* (2007) for an excellent discussion of different approaches to measuring poverty in development contexts.

case to explore a complex problem like the assessment of socioeconomic mobility, so that usable policy-relevant knowledge is generated. We found that the most useful debates occurred when the research team was solving concrete and practical research problems, rather than engaging in detached hypothetical or abstract discussions.

3 Lessons learned in the field: research design and fieldwork methods

In this section we describe the nature of our particular research design, field methods adopted, and lessons learned in the field. We must acknowledge that collaborative research projects of this kind inevitably involve require a lot of learning on the job, with adjustments being made in the field as particular problems arise. The more innovative the research project, the more room is needed for adapting methods on the ground. Rather than providing a 'how-to' set of guidelines for this research, we discuss what we tried to achieve, what obstacles we faced, and the measures we took in overcoming them.

The overall panel of households we used in this research was created from three, initially separate, evaluation studies. The previous studies were three commissioned evaluations 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. 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. It is important to note that the sampling frames used by these studies, which required households to have at least 50 decimals of land in the microfinance sites and at least one child of primary school age in the education transfer sites, affects the representativeness of the panel survey that was developed from them.

After these initial 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[12] conducted a follow-up survey in one of the three agricultural technology 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

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[12] Data Analysis and Technical Assistance Ltd. (DATA), Dhaka.

(as part of a study on the social impact of agricultural technology).[13] Also, in 2003, a follow-up study was conducted in 8 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 the study we focus on here, to resurvey all the households surveyed in all three of the evaluations. The three original evaluations surveyed a total of 1907 households and 102 villages located in 14 of Bangladesh's 64 districts and we combined these households from these studies to create a larger panel with a wealth of historical data available from all the households (see Appendix 2 for a map showing the location of the survey villages by intervention). The districts and villages 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. The focus of this study was on understanding what causes people's lives to either improve or decline in rural Bangladesh, and the intervention-comparison groups were maintained from the previous studies so that the long-term impact of these interventions could also be assessed. In addition, children who had left original households and set-up their own households were tracked as long as they had not migrated outside their home district. The 2006-07 research had three integrated phases in a qual-quant-qual sequence. We refer to these as Phases 1,2 and 3.

3.1 Phase 1: focus-group discussions

Phase 1 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. In each site, separate focus group discussions were conducted with each of the following categories of people: poor women, poor men, non-poor women and non-poor men. These were carried out in 29 sites across a total of 11 districts in rural Bangladesh, with the objective that findings might guide the subsequent phases of the research project. The focus groups were organised and facilitated by field researchers from DATA Bangladesh cooperating with village leaders and locally knowledgeable people. Poor households were defined as those that had suffered food shortages due to poverty at some time in the previous year, and were selected during initial discussions with key informants. The focus groups had from five to ten participants and were exploratory in nature. A total of 116 single-sex focus group discussions, evenly divided between 'treatment' and 'control' villages, were conducted in July and August 2006. Findings from these group discussions are described in Davis (2007).

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[13] See Hallman *et al.* (2007).

Groups were first asked to list the main causes of decline in people's lives (using the word Bengali word '*obosta'* which roughly translates as 'life condition'). Participants were then asked to choose the three most important of the causes of decline discussed. A similar process was conducted for improvements in well-being, and for the causes of remaining in poverty. This process allowed an initial open brainstorming discussion to take place followed by a consensus-finding exercise where the three most important causes of decline, improvement or stagnation were chosen by the group.

These group discussions were carried out partly as a piloting exercise to inform the design of the following phases, although they also provided information for the World Bank's Bangladesh poverty assessment which utilised the initial findings of the study (see World Bank, 2008). The findings from these discussions helped to formulate new aspects of the 2006-07 quantitative household survey, in particular the modules of the survey where respondents were asked to report on particular shocks or positive events they had experienced over the previous ten years, and to report on household links to officials, politicians and leaders.

The large number of focus group discussions was unusual and occurred largely as a result of the decision taken early on in the project to conduct four FGDs in each village with, respectively, poor women, poor men, better-off women and better-off men. In addition, there was interest in including villages from each of the control and intervention sites for the three interventions. As a consequence many more discussions were conducted than would have been necessary if their only purpose had been to probe perceived reasons for socio-economic mobility in a piloting study.

In this phase of the research, analysts did not accompany the field researchers in the field and this proved to be a shortcoming. The pattern of research where there is a division of labour between field researchers and analysts is common in quantitative research, where data tends to be 'collected' in the field and analysed by different groups of researchers. In qualitative research this mode results in the loss of important learning because the main data sources are in narrative forms and are created in the form of notes on discussions, including the reflexive learning of discussion facilitators. This was corrected in Phase 3 when the main analyst was a part of the field research team for much of the field research and was able to learn with, and advise the team more effectively.

3.2   Phase 2: household survey

Phase 2 was a quantitative survey of the original households and new households that had split from the original households but remained in the same district. This household survey was conducted by teams from a local survey company (DATA Ltd) from November 2006 to February 2007, the same agricultural season as the original surveys, and covered 2,152 households (of which 1,907 were core households that took part in the original survey, and

245 were 'splits' from the original households).[14] The household survey questionnaire was designed to be comparable across sites and with the original questionnaires from the evaluation studies. See Table 3 for a description of the modules in the questionnaires for the 2006-07 survey. The overall attrition rate across the three interventions was 6.3 percent (120 of the 1,907 core households) or 0.8 percent per year across the three interventions, with attrition being lowest (0.4 percent per year) in the agricultural technology and highest

(2.0 percent) in the educational transfer sites.[15] An econometric investigation of the pattern of attrition, using probit regressions, in these panels suggests that it is mostly random (Quisumbing, 2007; Baulch and Quisumbing, 2010). Note that as the field researchers were able to track around three-quarters (365/485) of the household splits, the total number of households in the panel increased over time. The panel data was analysed using Stata 10, and is publically accessible in Excel, Stata and SPSS formats via the IFPRI website.[16]

Before the household survey, 'pre-testing' of the household and community questionnaires was conducted in similar villages that were not part of the sample. Analysts (both qualitative and quantitative) and the field team worked together in field-testing modules of the household survey and then as a group discussed each aspect of the survey to check and change any parts that had caused problems.[17] Once this was done, the household and community survey questionnaires were revised and a nine day training course held for the interviewers and supervisors who would be involved in the quantitative survey. The first five days of this training involved introducing and discussing the 18 core and four additional modules of the household survey questionnaire. This was followed by a practice day in which all the interviewers had an opportunity to practise administering the questionnaires in non-survey villages. The last two-and-a-half days of the training involved feedback and modification of the questionnaires in the light of the practice day, together with final instructions from the survey managers. Additional training was provided to the survey supervisors concerning the administration of the community questionnaires.

Following the training, seven survey teams were formed with five members per team (including survey supervisors) in the Educational Transfers and Microfinance sites and seven

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[14] 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.

[15] This level of attrition is comparable to the six 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 per cent attrition between the first and second rounds, and 38 per cent attrition between core households in the first and third rounds, of the Kwazulu-Natal Income Dynamics Study (KIDS) in South Africa (Agüero *et al.*, 2008). 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).

[16] See http://www.ifpri.org/dataset/chronic-poverty-and-long-term-impact-study-bangladesh

[17] As many of the modules had been used in previous waves of the evaluation surveys, it was not necessary to pilot all of the modules of the questionnaires, but only those which had been redesigned or were new (for example, the shocks, perceptions of poverty and well-being and the links with influential people module).

members per team in the agricultural technology sites. In total, there were 34 enumerators and seven field supervisors, all of whom had undergraduate level qualifications in the social sciences or statistics. The seven field supervisors had all worked on previous rounds of the survey, and had strong survey facilitation skills.

Table 3: Modules in the 2006-07 questionnaires

Core Household Questionnaire (All Sites)

- Identification and Tracking
- Household Composition and Education
- Employment
- Social Assistance, Transfers and Savings
- Access to Facilities
- Food Consumption
- Non-Food Consumption
- Assets
- Land Ownership
- Housing and Sanitation
- Perception of Poverty and Wellbeing
- Health Status and Morbidity
- Anthropometry
- Group Membership
- Family Background (administered separately to men and women)
- Household Links with Leaders, Officials and Politicians
- Shocks
- Positive Economic Events

Addition Modules in Agricultural Technology Sites

Male Questionnaire

- Agricultural Land and Production Patterns
- Aquaculture
- Credit
    Female Questionnaire

- Food Consumption in the last 24 hours

Community Questionnaire

- General Village Characteristics
- Important Events since 1995
- Agricultural Activities
- Agricultural Practices
- Infrastructure
- Access to Health Care and Health Care Facilities
- Education Facilities
- Informal Credit Sources
- NGO Development Programs

The survey itself was conducted by seven teams of experienced enumerators from DATA Bangladesh between November 2006 and February 2007.[18] Median interview times were two-and-a-half hours for households in the educational transfer and microfinance sites, and five-and-half hours for the households in the agricultural technology sites (in which additional 24 hour food recall, agricultural production and aquaculture modules were administered, and blood haemoglobin levels were measured using the hemocue finger prick technique).[19] GPS coordinates for survey households and facilities (health clinics, markets, schools) in the villages were also collected using handheld Garmin eTrex units.[20] In the course of the two or three days, which the survey teams spent in each village, the survey supervisor also interviewed key informants (such village leaders, school teachers, health clinic staff or NGO workers) to complete the different sections of the community questionnaire. All the household questionnaires were checked i*n situ* by the field supervisors, and where responses were found to be incomplete or improbable, the household was revisited. Second visits were necessary for approximately 19 percent (427) of households, and were most frequent (because of the length of the additional modules) in the agricultural technology sites.

Although the research analysts were not able to accompany the survey teams to the villages for the main survey (as distinct from the pre-test), they stayed in regular contact with the progress of the fieldwork throughout the survey period. The field survey went smoothly and the quantitative resurvey data is felt to be of high quality, largely because of the considerable experience and expertise of the survey company (DATA Ltd). Nevertheless there were a few things which, in retrospect, would have been improved upon. These included: collecting GPS coordinates for all facilities (banks, clinics, local government offices, schools etc) whether or not they were in the survey villages; consistent spelling of village, union and upazila names; and recording the ages of children in months and years in both the household roster and anthropometrics modules. For analysing poverty dynamics and economic mobility more generally, it would also have been extremely useful to have tracked members of core panel households who had moved outside their original districts—but this was not possible due to financial constraints.

3.3   Phase 3: life history research

Phase 3 consisted of a qualitative study based on the life histories of 293 individuals, in 161 selected households, in eight of the districts of the original quantitative study.[21] These eight districts were selected to represent a wide range of environments in rural Bangladesh and to include sites from all three of the evaluation studies. The aim of this phase was to

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[18] All of the interviews in the Education Transfer sites were completed by December 2006, but the interviews in the agricultural technology and microfinance sites took longer because of the collection daily food recall data as well as blood haemoglobin.

[19] See http://www.nda.ox.ac.uk/wfsa/html/u13/u1305_01.htm.

[20] See https://buy.garmin.com/shop/shop.do?pID=6403&ra=true

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

understand the processes and contexts which influence individual and household socioeconomic mobility.

The life history households were a sub-sample of the larger quantitative sample. Once the household survey (Phase 2) was completed and the data was entered (using CSPro), poverty transition matrices were calculated comparing data from the 2006-07 household data with the 1994, 1996 and 2000 surveys[22]. Life history households were then sampled using these transition matrices. In each initial study site we selected two villages, which were located in different unions.[23] For each site (two villages), we randomly selected five households from each of the four transition matrix categories[24] (a total of 20 households), although in the ET sites (Nilphamari, Tangail and Cox's Bazar districts) there were only ten households per village in the initial study, so we had to sample all of these households to keep ten per village (or 20 per 'site').

Numbers of 'move down' households were fewer than the other categories, and in some sites there were fewer than five in this category. In these sites we selected all the available 'move-down' households. Some backup households were also randomly selected (in the ET sites these were households that had split from sampled households) to be used if the initial sampled household was not able to be located. These backups were rarely used. We were able to assign weights to households based on their probability of selection in this sampling framework because this subsample was nested in the larger quant sample. The use of variable sampling proportions was sometimes avoidable and complicated the computation of the sampling weights used to extrapolate from the life history sub-sample to the wider study.

The life history fieldwork was undertaken in the eight districts of Bangladesh listed in Table 1.

Table 4. Locations of the life history research villages

Intervention Type	District	Number of Villages
Microfinance (MF)	Manikganj	2
	Kurigram	2
Educational transfers (ET)	Nilphamari	2
	Tangail	2
	Cox's Bazar	2
Agricultural technology (AT): household-based fish	Mymensingh	1
	Kishoreganj	1

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[22] The initial surveys were conducted in 1994 for the microfinance (MFI) sites, 1996 for the agricultural technology (AT) sites and 2000 for the educational transfer (ET) sites.

[23] These 'sites' were located in the same district except for the Mymensingh/ Kishoreganj 'site' which included villages fairly near each other but spanning the district boundary. There were two 'sites' (four villages) selected in Manikganj district – two were MFI villages and two were AT villages.

[24] The four categories were move up, move down, chronic poor, and chronic not poor, across the time period between the baseline and 2006-07 with reference to poverty line levels calculated for the survey year in the relevant division.

farming		
Agricultural technology (AT): group-based fish farming	Jessore	2
Agricultural technology (AT): improved vegetables	Manikganj	2

In addition, a further problem arose because we decided to revise the expenditure aggregates after the life history sampling had taken place. We did this because we realised that some non-welfare enhancing lumpy expenditures (such as medical expenditures, festivals, funerals, weddings and other family events) had been included in the initial expenditure aggregates although best practice (Deaton and Zaidi, 2002) suggest they should have been excluded. Their exclusion from the expenditure aggregate at a later stage of the analysis affected the proportions of households in each cell of the transition matrix and the calculation of the life history sampling weights. In order to be able to identify the probability of selection, it was also vital for the qualitative team to document any modification they made to the sub-sampling plan when in the field.

At the start of the life history phase an initial workshop with training on life history interviews for poverty dynamics research was held in Dhaka in March to April 2007. At this three day workshop a check-list for the life history interviews was created in a participatory manner drawing from earlier learning from this and other research projects (see Table 5). The team, accompanied by the supervisor/analyst, then moved to the first site in Manikganj district to conduct pre-testing interviews on respondents who were not part of the sample but lived in a nearby area. After pre-testing a further debriefing session was held in a local NGO training centre where the interviews were discussed and further refinements to the approach were made.

Life history interviews were then conducted in the first two villages in Manikganj District. After the first two weeks of fieldwork a further 'debriefing' workshop was held in Dhaka where the lessons learned were discussed and refinements were made to the life history approach. We decided, for example, that women would only interview women and men interview men, based on our experience from Manikganj. We also refined the interview technique and our approach to assigning well-being levels to respondents based on focus-groups as well as on interviews. We also decided to purchase gifts (a bowl worth Tk 80) for each participating household to compensate for the substantial time needed for the interviews.

For the life history interviews we decided from the outset to interview, whenever possible, one adult man and one woman separately in each household. There were four main advantages from conducting two life history interviews per household:

1) It allowed immediate crosschecking (triangulation) of memories of key events. From the differences between the two accounts we got an idea of the accuracy of the

information. Some kinds of events were recalled more accurately by both respondents, other types of information were more reliably recalled by one person but not the other. One of the key problems was quality of recall, and this helped us to judge recall accuracy of details, particularly of dates and family events.

2) It gave a gendered perspective on events, episodes, and processes. We found differences in emphasis between what affects women's well-being and what affects men's well-being, together with respondent's perceptions of these. Women tended to remember more about children and revealed more about domestic tension and family relationships, while men gave more accurate information on land (areas, purchases and sales), some forms of household business, and village discussions and events that were more commonly attended by men then by women – such as village *shalish* (informal arbitration) meetings.

3) The life histories were case studies of individuals within their household or households. The unit of analysis (or case) was the individual and provided a useful contrast with the household survey where the household was the case. This helped to correct some of the biases introduced by using households as cases - e.g. towards seeing households as stable as long as the household head remained the same. It gave us an alternative view of instability, of household formation, growth, decline, splitting/dissolution, when we studied individuals within households and especially when we interviewed more than one individual per household. Parts of the life histories described life within a different household - for example when talking about a woman's life before marriage, or a man's life when he was single and possibly somewhere else.

4) Conducting two interviews per household was not necessarily twice the effort because a large part of the cost and time involved travelling, finding households, and arranging times to interview. If the team could interview two individuals in one household at roughly the same time, this was quicker and cheaper than interviewing two individuals in different households in different locations. In Bangladesh, where it is preferable for men to interview men and women to interview women, a mixed-sex team of two males and two female interviewers worked well for interviewing two individuals in one household at one time before moving to the next household. The mixed-sex team was also useful for the community focus group discussions.

After each life history interview had been conducted, interviewers wrote up the interview in Bengali on the same day, in a format that had been formulated in the initial workshop and refined in the field during discussions with the author. Interviewers also wrote about what they had learned during the interview in fieldwork diaries (in addition to the more formally agreed-upon write-up structure), including their reflective impressions and lessons learned about methods. These diaries were translated and became a part of the qualitative dataset.

All interviews and focus group discussions were recorded with small unobtrusive digital voice recorders, with the permission of the research participants. We did not attempt to write full transcripts; but the digital recordings were used for checking back on interviews for the initial same-day write-up in Bengali, for later analysis, and for the final anonymised write-up in

English.[25] Each life history was written as a chronological account of life events, identifying causal mechanisms and drawing from discussions that encouraged counterfactual thinking. The interviews did not intentionally focus on any particular development interventions; rather, the aim was to produce, as accurately as possible, the participant's perspective on his or her life trajectory, the causes behind improvement or decline in well-being, and how life could have been if the events that emerged—both positive and negative—had not occurred.

A cover sheet was used at the start of the interview for basic data (see Appendix 4). The coversheets included a consent form which was signed by the interviewer – we found it was not appropriate to ask participants to sign this form as it aroused suspicion, especially among those who could not read. At the start of the interview the purpose of the research and use of the data was clearly explained, and permission was sought to record the interview.

An interview guide/ checklist was developed during the initial training workshop and an English translation of it appears in Table 5 below.

Table 5: Interview guide/ checklist for the life history interviews

General topic area	Particular events and issues
Family life history	marriage dates (dowry, wedding costs), births (children etc), deaths (parents, siblings, children, spouse), separation of property.
Education and training history	own education, what level, reason for leaving education, sibling's education, children's education
Employment history	dates of jobs, who helped to get a job, business starting-finishing, assets bought or sold, how were assets bought (loans, savings, mortgage, sale of land etc), promotions, loss of job, migration for work (national, international)
Asset and loans history	land (bought, sold, lost, mortgage, leased); livestock; buildings (house, shop); pond; materials (bamboo, bricks, tin); trees (when sold and why); jewellery; furniture; cooking utensils; loans, savings.
Migration and place history	reasons for moving (marriage, employment, security, other), family members moving.
Health and illness history	chronic illnesses, illness before death of relatives, accidents, medical expenses
Identity and membership history	NGO samiti, ROSCA, neighbourhood groups, kinship (bangsho), religious groups, labour union, political group, who do they celebrate Eid or other festivals with, samaj, who are 'amader lok'?, who helps in times of crisis?
Crisis and coping history	Crises include: dowry, illness, flooding, crop loss, livestock losses, business loss, unemployment or job loss, divorce, court cases, land and property division, migration, death of family members, accidents, injuries, cheating, theft, violence, threats, intimidation, extortion, conflicts and disputes, loans. In these crises who helped and why? Coping: Forms: sales, loans, savings, labour, business, mortgage, informal help, local collections, religious charity, begging, common property, divorce, migration, marriage, child labour, sending children away, crime. Channels: own resources, kinship, friends, employers, neighbours, community groups, NGOs, public programmes, political leaders, mohajan, mastaans.
Opportunities and improvements history	job, land (bought, gift), dowry, remittances, loan, Govt. programme (VGD, VGF, boyoshko bhatta, bidhoba bhatta, mukti juddho bhatta) pension, provident fund, savings, son working, daughter working.
Additional contextual information to look for:	How social structures (roles, values, norms, sanctions) have constrained or enabled people's agency (choices, options, opportunities). How endowments and circumstances (economic, health, status, education,

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[25] Some annotated and anonymised examples of these life histories can be found at http://www.sdri.org.uk/bangladesh.asp. If funding allows, it is planned to add to these in the future.

	memberships) have interacted with events and episodes (crises and opportunities). How sequences or combinations of events have combined. How life cycle position is important.
Historical markers to use:	National events: 1947-partition, 1965-Indo-Pak war, 1971-Independence, 1975-Sheikh Mujib's death, 1981-Zia Rahman's death, 1988-flood, 1990-protest and end of Ershad era, 1998-flood. local events: floods, droughts, roads built, electrification, schools built etc.

In this phase, the research team spent about two weeks in each site. We located households first and checked availability of respondents. We then started interviewing with households where both members were available. It made sense to interview husband and wife separately at the same time, where possible, to avoid multiple trips to the same household. This was less disruptive for households and reduced travel time since the team used one vehicle. When only one member was available we left that household till later, finding out when both members would be available. When a household member wasn't available after a second visit – which was more often a man than a woman, especially during the main April-May rice harvest – or when only one member was an adult, we did one life history in that household. In the end we did 293 life history interviews in 161 households.

During the life history (Phase 3) fieldwork in each village, at least one (sometimes more) additional focus group discussion was carried out in order to map a history of the village. The 'development' of the village was mapped on a trajectory diagram similar to the individual life history diagram, recording important village events, periods of opportunity, perceived causes (new crops, irrigation, new roads, electricity etc.) and community level shocks (storms, floods, crop failure, fertiliser shortages etc.).[26] These discussions were usually held in a school building or near a village leader's house. We tried to have a Union Council (*parishad*) member and a number of elderly people in attendance. These focus group discussions tended to be dominated by men so in most sites the female researchers also facilitated separate focus groups with women to mitigate this male bias.

Appendix 4 contains examples of life history diagrams. On these diagrams, the level of wellbeing 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 respondent. These levels were checked during the final village level discussion with people who knew the households well, and then were finally written onto the life history diagrams during a further round-table discussion among the researchers who had carried out the life history interviews and facilitated the village discussion groups. In these final discussions all information about households and members was used, and levels of wellbeing were agreed

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[26] In the three agricultural technology sites a further study into episodes of collective action that had been identified during the life history work also took place (Davis, 2009a).

by consensus after discussion. These discussions were also digitally recorded – creating another data source about the households which could be coded and analysed in nVivo8.[27]

From the life history research the following types of data were created:

Table 6: Forms of data in the life history research

Text – in Bengali and translated	Life histories
	Field-work diaries
	Notes from the wellbeing-level focus groups
	Village histories
Diagrams	Life history diagrams
	Community/ village history diagrams
Audio, photos and video	Audio recordings of all the life history interviews
	Audio recordings of the village focus groups – which included household ranking exercise.
	Audio recordings of the team discussions where wellbeing levels were assigned to the households
	Photos of most household members and local places of interest
	Short videos showing household assets and a short discussion with respondents in many of the households.

The field researchers who carried out our qual study were postgraduate social science educated experienced researchers. Many skills from quant research – e.g. careful organisation of data, careful sampling – were applied to the qual study. Other skills which are more particular to qualitative research were also developed in training workshops and in the field. These included learning to follow interesting leads, fostering open discussion and reflection - in interviews and amongst the team in the field - writing up narrative accounts, keeping fieldwork diaries, drawing diagrams, and using recording equipment. We had a team of 4 interviewers, a supervisor and a driver. At night we stayed as close to the sites as possible, often in the accommodation rooms attached to NGO offices or government guesthouses. The qualitative analyst (Davis) supervised the team for the first six weeks (April to May 2007) and six weeks towards the end of the fieldwork (July to August 2007). This phase of the fieldwork lasted from March 2007 to the end of October 2007.

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[27] QSR nVivo version 8 allows coding of audio and video material. This method of ranking well-being resembles Krishna's stages of progress methodology (Krishna, 2004 and 2006) but reverses the order in which his village level and household level discussions occur.

We feel strongly that it is difficult to conduct qualitative research of this kind without research analyst/s spending significant time in the field. Even when an analyst is not a local language speaker (in our case he was) we would suggest an initial workshop, pre-testing exercises and set of first interviews with the analyst present. After the interviews have been completed with notes and diagrams translated, we found it was also useful for the analyst to revisit all households with interviewers. This allowed the most important points from initial interviews to be followed up with participants and allowed the original interview write-ups and diagrams to be checked (which is an added incentive for field researchers to accurately write up interviews). It also gave the analyst a feel for data quality and allowed participants to explain complex issues. These follow-up interviews included recording short videos which became part of the data set and were useful for memory jogging during later analysis and writing. If the analyst doesn't have personal knowledge of research participants, qual research loses much of its added value in mixed-methods work.

4   Lessons learned from combining medium-*N* and large-*N* studies: going for breadth *and* depth

One of the key differences between qualitative and quantitative research projects is the number of cases (*N*) selected for study. Quantitative research, with its reliance on statistical techniques to analyse data, typically requires large sample sizes and the analysis of a limited set of pre-defined attributes or variables.[28] Following Gerring (2005) we refer to these studies as large-*N* studies, although other writers such as Ragin (2004) also refer to such studies as 'variable-based'. In the quant part of our study we describe here, the cases (or units of analysis[29]) were 1907 core households in 102 villages located in 14 of Bangladesh's 64 districts, which is a large-*N* study allowing statistical analysis of variables and relationships between variables.[30] Large-*N* studies are particularly powerful because numerical data from a large number of cases can be analysed. They also allow inferences to be made from samples which are more representative of an entire population.

Qualitative research usually relies on smaller numbers of cases but with more scope for within-case exploration, and much greater flexibility in following interesting leads in the field when they arise. The smaller sample size in qual research allows researchers to carry out what Clifford Geertz referred to as 'thick description' (Geertz, 1973). Here we refer to this multidimensional stance and attention to context (both spatial and temporal) as 'depth'.

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[28] In quant studies, new variables can be created as indices, aggregates or classifications derived from of existing variables. However it is usually not possible to capture new basic variables once the fieldwork has commenced. In qual studies as new 'leads' arise they can be more easily followed.

[29] In quantitative studies 'cases' are often referred to as 'units of analysis'.

[30] Because households divided during the course of the study this number increased to 2152 in 2006-07. Cross-sectional household surveys conducted by national statistical agencies usually have much larger sample sizes than this. An extreme case would be the Susenas in Indonesia which surveys over 200,000 households every three years. Even in small countries, like Botswana, the HIES surveys 6,000 households.

'Cases' in our qual investigations were less exactly defined than in the quant survey because there were different phases in our qualitative work and the approach tended to be more exploratory.[31] Cases were groups from the communities in the study sites (Phases 1 and 3) plus individual people living within a subsample of the overall panel of households (Phase 3).

In the language of cases and variables, qual studies tend to allow the examination of a small number of cases, but the range of variables to be examined is left open, and analysis is usually both within, and between, cases. The number of cases examined is limited by resource constraints because interviews tend to take longer, fieldwork generates more information per case, and aggregation and analysis of this information is more challenging because it is (initially at least) non-numerical. Also the surrounding context of each case (spatial and temporal) tends to be explored more extensively. For poverty studies, this encourages a multidimensional approach within a contextual view of peoples' lives. Measurable variables and categorical attributes are not completely pre-determined, so the reduction of data to forms that allow comparison between cases (coding) can occur in an analysis phase much later in the research process than in quant studies. This also allows a certain flexibility and exploratory capacity that is denied quant studies.

In quant studies, even though a large number of variables can be recorded per case, it is impossible to introduce new variables once the fieldwork has started, although unexpected answers and a few free form response questions can be post-coded.[32] Thus, qual research can be useful for exploratory work, or for piloting before a quant survey, to make sure that all aspects of interest in a particular context are included in the quant survey. For example, in our study, the focus-group discussions were conducted at an early stage in order to explore perceived causes of impoverishment and improvement in rural Bangladesh. The findings from these discussions helped us refine the household survey in its design stage and reassure us that we were covering all important issues of interest that could arise.[33]

However integrated research has much more potential than using qual piloting/exploratory exercises to inform larger propositionally focussed quantitative surveys. In particular qual and quant research can complement each other in the challenge of attributing causative significance. Understanding causation is particularly important in poverty dynamics studies: we are not just interested in identifying movements into or out of poverty, but also in understanding why these movements have taken place – and ultimately in making informed decisions about what can be done in policy terms to support causes of improvement, and

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[31] Recall the overall (quant and qual) fieldwork was divided into three phases: phase 1 was an exploratory study using focus groups, phase 2 was a household survey, and phase 3 was a study of a sub-sample of household survey households with individual life-histories and focus groups.

[32] See footnote 26.

[33] See Davis (2007) for a description of this initial focus-group exercise.

protect from causes of decline. Here the iteration between qual and quant findings becomes particularly valuable. We take this up in more detail below in Section 4.

Many qual researchers prefer to talk about *creating* or *making* data, rather than *collecting* data due to the special nature of qual field research.[34] Richards (2005:37) explains that 'it [collecting data] carries the implication that data are lying around, like autumn leaves, ready to be swept into heaps'. She argues that qualitative researchers need to be more aware of their own role in creating data. We agree. Field researchers in qualitative studies need a higher level of guidance and training because the interviews and recording involve more discretion, sensitivity and creativity. Also a division of labour between field researchers and analysts is less likely to be as clearly maintained as is common in quantitative surveys. This has the advantage that qualitative analysts tend to be more familiar with research subjects and their contexts, although this can be expensive which makes large qualitative research projects difficult to fund.

In contrast, quant fieldwork can feel more like 'data collection' because most questions are predetermined, closed and standardised, so as to ensure consistency across the entire sample, making subsequent aggregation and analysis more straightforward. This highlights one of the differences in emphasis between quant and qual approaches: quant studies emphasise the need to prevent the introduction of bias by representative sampling and maintaining consistency between cases, while qual studies emphasise an openness and flexibility to new dimensions of enquiry as they arise in the field; they attempt to understand context and complexity in people's lives; and they explore the uniqueness of people's stories before they are aggregated into some kind of comparative form.

Our view is that both sides of the qual-quant divide benefit from combining these priorities. In qual studies, it is often difficult to make general inferences about a population because cases are too few in number to be representative of the wider population and questions are not standardised. Quant researchers, on the other hand, need to recognise the limitations on grounded understanding and explanation imposed by predefinition of categories and numerical representation. The weaknesses on both sides can be ameliorated by their combination. In our study this process started by nesting qualitative subsamples within the larger quantitative sample survey of the population, so that information from each side could strengthen the findings of the other.

Overall we support Shaffer's (2006) call for more integration in mixed-methods studies. This includes exploiting mutual learning and synergy, which involves more than merely deploying quant and qual studies in parallel in the same project. However, we would supplement Shaffer's analysis by adding that planned sequencing of qual and quant investigations is often more productive than conducting them simultaneously. Our experience in Bangladesh

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[34] See Richards (2005) for a discussion on this aspect of qualitative 'data creation'.

suggests that considerable value is added when qualitative research phases inform, and are informed by, quantitative research phases.

In addition, before truly integrated mixed-methods research can become mainstream in development studies, researchers need to become more skilled in both qual and quant methods and analysis. Unfortunately, the qual-quant divide has been so entrenched in the social sciences until the recent past – including in development studies – that most researchers specialise in either quantitative or qualitative methods and have limited understanding the other. True integration will flourish when this unnecessary divide is breached and researchers become more skilled in both quantitative and qualitative methods together.

5   Lessons learned in exploring causation using mixed methods

We have already pointed out that qual research is particularly useful for exploratory studies, while the power of quant research lies in its ability to confirm or refute propositions drawing from larger, and potentially more representative, samples of a population. Of course this distinction is a matter of degree, but due to its more propositional, rather than exploratory stance, quant research tends to allow hypotheses and research questions to be more clearly defined and more able to be systematically verified or refuted. In our overall research project, our aims were both exploratory and propositional. We wanted to better understand the drivers (or causes) of improvement or decline in peoples' lives, but also the impact of three different categories of development intervention on poverty.

In poverty studies, qualitative research is often used to pilot, or provide illustrative examples for, what is seen as the more policy-relevant research, based on quantitative surveys. In this study, we recognised the potential for qualitative and quantitative research to complement each other in evaluating the causes that affect people's life trajectories, including the effect of development programs. However, it is useful to recognise that causation tends to be explored in different ways using qualitative and quantitative methods. Assessing causation is important in poverty dynamics studies, because we are interested not only in observing movements into or out of poverty but also in understanding why these movements take place—and, ultimately, in making informed decisions about what can be done, in policy terms, to support causes of improvement and protect from causes of decline.[35]

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[35] These interventions were microfinance, agricultural technologies (aquaculture and horticulture), and educational transfers (food and cash for education).

However, identifying the causes of decline or improvement in people's lives is difficult—some would even say impossible. Our position is a pragmatic one. We believe it is possible to identify causes by drawing from different approaches to causation across the social sciences, and that we can learn more about the effects of events or interventions on people's lives by using a mix of methods than by using one method alone. Table 7 outlines how the methods used in this study are linked to four different approaches to causation and helps illustrate how the approaches can complement each other.

Table 7. Different epistemological approaches to exploring causation in poverty dynamics research[36]

	Experimental	Statistical	Process Tracing	Counterfactual
Methods with comparative advantage	quasi or natural experiments comparing intervention with control/ comparison groups	statistical analyses (regression, correlation) examining relationships between variables in household panel data	analysis of sequences of events that trace primary causes through intermediate causes, or causal combinations	counterfactual thought experiments of closest-possible worlds, in which participants are invited to identify causes of change
Predominant view of causation	probabilistic or deterministic	probabilistic	deterministic, but contingent on causal fields	deterministic
Focus on causes or effects?	effects: focus on treatment's effects in experiments	causes: focus on dependent variable in regressions	causes: including intermediate sequences or combinations of causes	effects: would the effect have occurred in a different, closest-possible world without the cause?

In the natural sciences, a common way of exploring relations between cause and effect is by controlled experiments. The nearest analogies to this in the social sciences are randomised control trials (RCTs), in which a treatment or intervention of some kind (such as a conditional cash transfer) is randomly assigned to particular cases and withheld from others (controls). Although this is a common approach in studying health or education interventions in developing countries, the contexts in which such experiments are possible, or ethical, are

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[36] We draw here from Henry Brady's four theories of causality: neo-Humean regularity theory, manipulation theory, counterfactual theory, and mechanisms and capacities (Brady, 2002).

limited, particularly for the study of poverty dynamics and the impact of interventions.[37] Natural or quasi experiments, in which exogenous changes to a policy or institution creates intervention and comparison groups serendipitously, can also sometimes be used to study the effect of interventions (Meyer, 1995). In poverty studies, particularly when they are longitudinal, it is rarely possible, or even desirable, to have complete control over which treatments are applied to which cases. In these studies, matching techniques (including, but not limited to, covariate and propensity score matching) are often used as a way of making statistical comparisons between treatment and comparison groups (see Ravallion, 2008; Khandaker *et al.*, 2010).

While our three interventions had some features of a quasi experiment, it was generally difficult to maintain intervention and control groups in this study. In the microfinance and agricultural technology programs, for example, the interventions were more about having access to services that were exploited to varying degrees, while the educational transfers were benefits provided for families of poor, school-attending children. In addition, in the educational transfer sites, the benefits were rolled out over time to the control sites and were not under the control of the researchers. Over the same time period, microfinance became so ubiquitous in rural Bangladesh, that it was not possible to find households that had no access to microfinance services in the districts we worked in. Thus, though it may have been useful to distinguish between intervention and 'control' households in the initial evaluation studies, over the longer term, a purely experimental approach to causation became more and more problematic with time.

The statistical analysis of relationships among observed characteristics of cases (variables or attributes) without a randomised control trial, forms a second observational approach to identifying causal relationships, most commonly used in the analysis of survey data. This technique builds on the 18th Century philosopher David Hume's idea that causation involves regularity in relations among empirically observed entities. In this case, it is not necessary—or, some would argue, not even possible—to identify the causal mechanisms that underlie correlations between variables (Marini and Singer, 1988). This kind of approach observes covariation between 'causes' ($x_{1,2,...,n}$) and an 'effect' (y) and is usually expressed in the form of a regression equation. The logic which lies behind such statistical analyses uses correlations among variables as possible indicators of causation, without identifying precise causal mechanisms (see Abbott, 2001:132). Within econometrics and macroeconomics, an econometric time series x may even be said to 'Granger-cause' another series y if current and lagged values of x improve the predictability of y (Granger, 1969).[38]

Experimental and statistical approaches to causation (the two columns to the left in Table 7) underpin most quantitative impact evaluations. Qualitative studies, such as our life history

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[37] See Deaton (2009) for an illuminating discussion of the limitations of randomized control trials in development contexts.

[38] Of course, as is pointed out in most econometric textbooks, the Granger causality approach is no more than a statistical generalisation of the *post hoc ergo propter hoc* principle, and it is easy to think of situations when this principle is violated. For example, Christmas card sales regularly precede Christmas, but can hardly be said to 'cause' it!

study, are better suited to identifying cause-and-effect relations through process tracing and counterfactual thinking with research participants much more involved in the process (the two columns to the right in Table 7).

In the life histories we used process tracing to examine possible causal mechanisms in sequences of life events within cases by drawing on the participants perspectives.[39] The life history interviews also allowed us to encourage counterfactual thinking with participants regarding the effects of reported events on their lives, including what they thought could have happened without the events. We also put the counterfactual ideas into practice when we invited participants to discuss and rank the main crises and opportunities according to the effect they had had on their present circumstances. When participants identified events or episodes that had made a significant difference to their present circumstances, we then invited them to consider how things could have been if the particular event had not taken place. So, for example, a statement like, 'If I hadn't got the job, I wouldn't have been able to afford medical care for my mother, and she would have died,' illustrates a counterfactual thought experiment drawing on a participant's perspective of his or her own circumstances.

This kind of analysis also attempts to uncover the particular circumstances in which observed causal regularities are likely to recur. For example, a statistical correlation may be observed between low income and poor health. However process tracing may identify plausible mechanisms linking low income to ill health, for example, via malnutrition, poor housing, or poor access to clean water. It may also identify the circumstances in which the particular cause-and-effect relationship will occur, such as where cheap and effective health provision is not available. Certainly some intervening variables and contextual conditions can also be measured and covariations analysed statistically; however, plausible mediating links are usually identified through an examination of individual cases.[40]

An analysis of mechanisms may also uncover instances in which a causal relationship suggested by a correlation is reversed—for example, in some cases, poor health may cause low income due to physical weakness, inability to retain a job, or increased time spent on healthcare impeding income earning (Deaton, 2003).

To sum-up, we believe that within-case analyses of qualitative research (including participant insights), combined with the cross-case analyses of statistical regularities from quantitative research, provides the best chance of reliably uncovering causation in poverty dynamics research. Without case-based research, quant researchers rely on anecdotal 'plausibility stories' (see Abbott, 2001:132) to explain regularities between variables. This becomes more problematic in large-*N* quantitative studies when there is a division of labour between field

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[39] The term *process tracing* is used by political scientists (see, for example, George and Bennett 2005) to describe this kind of activity in political analysis; it refers to peering "into the box of causation" (Gerring, 2008: 1). Process and mechanisms are seen as the means by which a cause (X_1) is seen to produce the effect (Y).

[40] The statistical technique of multilevel analysis which has been used regularly by medical researchers for many years and is now being used more frequently in the social sciences, provides another way to 'tease-out' possible causal links between hierarchies of (possibly nested) variables (Hox, 2002).

researchers and analysts, with analysts often not familiar enough with local realities to be able to judge whether their explanations of mechanisms are realistic or not. Similarly, qualitative researchers often construct sophisticated theories of causal links from in-depth investigations of small numbers of cases, which may or may not be representative of the wider population. Combining within-case and cross-case analyses is therefore our preferred method for examining cause-and-effect relationships in poverty dynamics research.

6 Lessons learned in the analysis and presentation of findings

For the Phase 1 focus-group findings, notes from the focus groups were translated and typed up. These were coded in NVivo[41] looking particularly at reasons given for decline, improvement and remaining in poverty, and at the types of positive and negative impacts caused by the three types of development intervention. The analysis resembled an inductive, grounded-theory process, with categories emerging from the discussions themselves rather than being formulated in advance.

In the analysis, choices had to be made over which categories should appear. Some initial categories were merged with others if it seemed that they covered the same type of social phenomenon, others were separated out when they seemed to have distinctive elements, particularly if these distinctions seemed interesting. For example, 'crop damage' and 'flooding' were separated since crops were also damaged by hailstorms and other causes, and not just flooding, even though the biggest impact of flooding for many people was felt in terms of crop damage. In contrast, the categories 'lack of work' and 'low income' were eventually merged because they usually seemed to correspond to the same phenomenon when they were being discussed by participants. 'Business' and 'loans' were also overlapping categories in the improvements discussions but were left as separate codes. Thus the formation of categories required common-sense decisions with some overlap between categories being unavoidable. For a full discussion of the findings from these focus group discussions see Davis (2007).

The Phase 2 quantitative data from the household and community questionnaires were entered into machine readable format in the DATA office in Dhaka using their well-established procedures. These logged all questionnaires on arrival, assigning unique household identification codes for each wave of the survey, and double data entry using CSPro.[42] After primary cleaning in Dhaka, the data were transferred to IFPRI headquarters in Washington where expenditure aggregates, asset variables, nutrition indicators (such as height-for age and body mass index z-scores) and other variables were created using SPSS and Stata by an experienced Bengali-speaking research assistant. Variable labels and additional household identifiers (which allow households to be linked across different waves of the panel, and for households which split or merged from a core household to be identified) were added at this stage. A firm distinction between original and created data files was maintained, and the data was backed up regularly on the IFPRI servers. Consecutive versions of the data were clearly labelled, and sent to DATA and CPRC at regular intervals.

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[41] See http://www.qsrinternational.com/ for details of this qualitative data analysis programme.

[42] See http://www.census.gov/ipc/www/cspro/aboutcspro.html .

A team of economists from IFPRI and CPRC began working on the data in June 2007 and prepared a number of CPRC working papers, conference and seminar presentations.[43] A background paper on poverty trends and transitions was also prepared for the World Bank's Bangladesh Poverty Assessment (Quisumbing, 2007) together with two mixed methods papers (see below). The methods of analysis used in these papers ranges from simple descriptive statistics and reduced-form OLS regressions through contour and lowess plots, to more advanced techniques such as propensity score matching and instrumented panel data regressions. A dissemination and data release workshop was held in Dhaka in August 2008, at which the unit record data from the survey was made available to other researchers in SPSS and Stata format on CDs. Since the data is very detailed and long-duration panels are rare in developing countries, analysis of the quantitative data is continuing, much of it under a separate ESRC-DFID funded project on the long-term impact of anti-poverty interventions in Bangladesh.[44] We understand that several masters theses and at least one-doctoral dissertation are also being written using the quantitative survey data.

For the life history research (Phase 3) all data (life histories, fieldwork diaries, diagrams, coversheets, audio recordings, photos and videos) were either typed in, scanned or directly downloaded into a master data set. File names were assigned to each piece of data so that respondents can be immediately identified. These data were backed up on portable hard-drives in the field because of the large storage space needed. Text, audio, photos and diagrams were imported from this data set into nVivo 8. Coding was carried out on text and audio and annotations were added to photos and diagrams. Initial coding was descriptive (e.g. case attributes, life history categories) and topical (e.g. drivers of improvement or decline). From this coding some descriptive numerical data was produced. After initial coding more analytical coding took place exploring more abstract themes (e.g. vulnerability, graduation from poverty, the importance of assets, intergenerational transfers, social exclusion, social stigma, reputation, status etc.). Finally matrix-based analyses and more complex queries was undertaken – exploring, for example, themes across various categories of people (age, gender, location, wellbeing status).

Some integrated (with the quant data) analysis then took place, with more planned. Where the two sets of data disagreed, for example in differences in assessed wellbeing levels at different points in time, each case has been examined to try to determine the reasons for disagreement. Quant poverty levels have been based on per capita household expenditure whereas qual assessments are more subjective and holistic assessments of wellbeing which includes assessments of asset holdings, illness, disability, vulnerability and insecurity. As a result disagreements arise and are interesting to explore – with implications for the use of both types of approach. Throughout the analysis process we have considered instances of

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[43] See, inter alia, Quisumbing (2007), Baulch and Davis (2008), Quisumbing (2009), Quisumbing and Baulch (2009), Davis and Baulch (2009), Baulch (2010), Kumar and Quisumbing (2010, forthcoming).

[44] See: http://www.esrcsocietytoday.ac.uk

disagreement between qualitative and quantitative interpretations of the data as an opportunity for further learning.[45]

We found it was very important for the main qual and quant analysts to stay in touch and have regular face-to-face interactions. This allowed discussions to occur which allowed questions to be raised from one side of the study which could then be interrogated using data from the other side. Because the qualitative sample was nested in the quantitative sample, this quantitative data could be analysed alongside findings from the qualitative fieldwork. Often hypotheses raised based on the learning from this smaller sample were tested on the larger quantitative data. This has been useful in exploring the effects of phenomena such as dowry, health shocks, household economies of scale and household composition.

During the write-up and analysis phase of the study, we also discovered that quantitative and qualitative researchers tend to have different approaches to the issues of anonymity and the nature of informed consent. For the quantitative research team, obtaining the household's permission to conduct an interview (or reinterview) at the start of the interview and then anonymising the names of household members and villages from the data files was generally felt to be sufficient to preserve respondent confidentiality. In explaining the qualitative research, respondents were assured that their names and village names would not be disclosed to anyone outside the research team and that their anonymity would be protected. Due to the nature of the 'thick' descriptions in life history interviews, and the use of actual names in interview recordings, 'raw' data from the qualitative work could not be publically released. Individual life histories could therefore only be made public after they had been completely anonymised which was a relatively expensive and time consuming process.[46]

The use of household survey and life history teams also had rather different view regarding the use of photographs and other visual material in presentations about the study. The quantitative researchers tended to simply include any suitable photographs they had in their presentation, without worrying about whether the identity of the interviewees was revealed. In contrast, the qualitative researchers took pains to ensure that the faces of the life history respondents could not be seen in presentations and to anonymise the life history trajectory diagrams as far as was possible (by changing people's names and village names).

 Towards the end of the project, when the team was involved in making presentations to several large international conferences, the need for caution with regard to the inclusion of visual material in Powerpoint presentations become apparent. On one occasion, the organisers of a conference posted presentations on the web without first seeking the authors' approval! We were therefore glad that we had not included any potentially sensitive material in our presentation to this conference.

The short video that was prepared of the life history interviews raised even starker problems, since it was almost impossible to disguise life histories respondents' identities in such a

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[45] See Davis and Baulch (2010 forthcoming) for an example of further learning through the examination of disagreements.

[46] See http://www.sdri.org.uk/bangladesh.asp for a selection of annotated and anonymised life histories from the Phase 3 of the study.

medium. Despite several requests it was decided not to distribute copies of this video or place it on the CPRC website. Nonetheless the video proved a valuable resource for several workshops and training exercises held in other CPRC partner countries.

A final issue concerned the public release of the data collected by the project, which was a condition of the research grant made by the Chronic Poverty Research Centre. The quantitative team saw no special problem in making the unit record data of the household survey publically available, first in CD form and then via the internet, as long as the names of respondents and villages were removed from the relevant data files.[47] However, the time and cost involved in preparing the data for public release was under-estimated in the original proposal, and needed to be supplemented towards the end of the project. In contrast, the life history data posed more problems as release of the photographs, recordings, transcripts and trajectory diagrams would make it possible for respondents to be identified. Work on annotating and anonymising the life history interviews is therefore still ongoing.

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[47] See http://www.ifpri.org/dataset/chronic-poverty-and-long-term-impact-study-bangladesh

7   Concluding remarks

Shaffer (2006) distinguishes between 'putting together' studies which have little integration and 'methodological integration'. In poverty research, 'putting together' studies are much more common than 'methodological integration' of which there are only a few examples (KIDS-SEPPI in South Africa, Parker and Kozel in Bihar/UP, and the Destitution in Wollo study in Ethiopia).[48] While there are some examples of mixed-methods studies in Bangladesh (e.g. Kabeer, 2004; Hallman *et al.*, 2007 for our agricultural technology sample) full 'methodological integration' is surprisingly rare given the large number of poverty studies undertaken.

Qualitiative studies are often criticised for being 'interesting but anecdotal while quantitative studies are often criticised for being 'insufficiently grounded'. One of the principal advantages of nesting our qualitative life-histories sub-sample within the larger quantitative household panel survey is that the issue of generalisablity can be directly addressed. Although the baseline evaluation surveys on which the panel was based did not have nationally representative samples, the districts and unions in which they were conducted were selected in such a way as to broadly characterise the range of rural livelihoods in Bangladesh. Together with the substantial number of focus group discussions and life history interviews conducted, the nesting of the qualitative sample with the larger quantitative sample makes it relatively easy for the criticism of anecdotalism to be refuted by this study. Similarly, the understanding which the focus groups and life history interviews provided about the community context and individual motivations for taking certain actions provided a substantial grounding for the quantitative research.

Analysing quantitative and qualitative data side-by-side has also enhanced our understanding of poverty dynamics by throwing-up many issues (e.g., dowries, life cycle issues, insecurity, power-resource relations and the social context) that are often forgotten in quantitative analysis alone. The pairing of qualitative and quantitative data has also allowed us to go much further in probing causation than either the qualitative or quantitative data would in isolation. Adopting a deliberately mixed methods approach which, as explained in Section 5, combined four very different epistemological approaches to understanding causation, allowed us to make probabilistic statements about the poverty consequences of common sequences of events. Such statements are useful both in understanding the drivers of poverty dynamics and in the design of anti-poverty interventions and social protection measures.

To sum-up, we found that the integration of qualitative and quantitative approaches in this study achieved much more than if qualitative and quantitative research had been undertaken separately. The research findings, some which are still being prepared for publication, are based on a more robust and representative body of evidence than is usual, and which challenged the researchers to extend their skills beyond their familiar comfort zones. In the

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[48] See Parker and Kozel (2005), and Devereux *et al*, (2003). da Silva (2006) for an annotated bibliography of recent 'q-squared' analyses of poverty.

analysis it was particularly valuable to be able to interrogate the mixed set of data in order to formulate new ideas and test them based on all the evidence available. This kind of working-together requires an openness and a shared commitment to learning from all evidence, of whatever kind, and the ability to overcome entrenched disciplinary positions. Our hope is that sequenced and integrated mixed-methods research will eventually become mainstream in studies of poverty dynamics so that public policy can be based on a deep as well as a broad and wide body of knowledge.

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Appendix

Appendix 1: Decisions to be made during the planning of integrated qual-quant research

Aims and objectives

- How can interpretive or exploratory aims be combined with hypothesis-testing or propositional aims?
-

Sampling decisions

- What is the population to be sampled?
- Is a representative sample(s) desirable?
- Are clustered or stratified samples to be used?
- Is the qual sample nested in the larger quant sample?

Data 'collection', timing and sequence decisions

- Will the 'data 'collection'; be sequential, parallel or concurrent?
Sequential:
    - qual→quant
    - quant→qual
    - quant→qual→quant
    - qual→quant→qual
- Parallel:
    - quant and qual occurring at the same time but separately
- Concurrent:
    - quant and qual occurring at the same time in the same place (integrated fieldwork)

Data analysis decisions

- Can quant data be used in qual analysis, and vice-versa?
- Do analysts have the necessary skills to analyse both sets of data?
- Will quant data arise from qual interviews?
- At what stage should the qualitative and quantitative data be analysed together?

Presentation of findings and user engagement

- Are findings presented separately?
- What happens when qual and quant findings disagree?
- How is a reflexive attitude maintained in integrated research?

Ethical decisions

- Is there more risk of harming participants?
    - Can anonymity be maintained when 'thick descriptions' are part of the dataset
    - Will all data be release for other users, and if so is there any risk of harm coming to research participants?

Appendix 2: Map of the thanas/upazilas surveyed by intervention
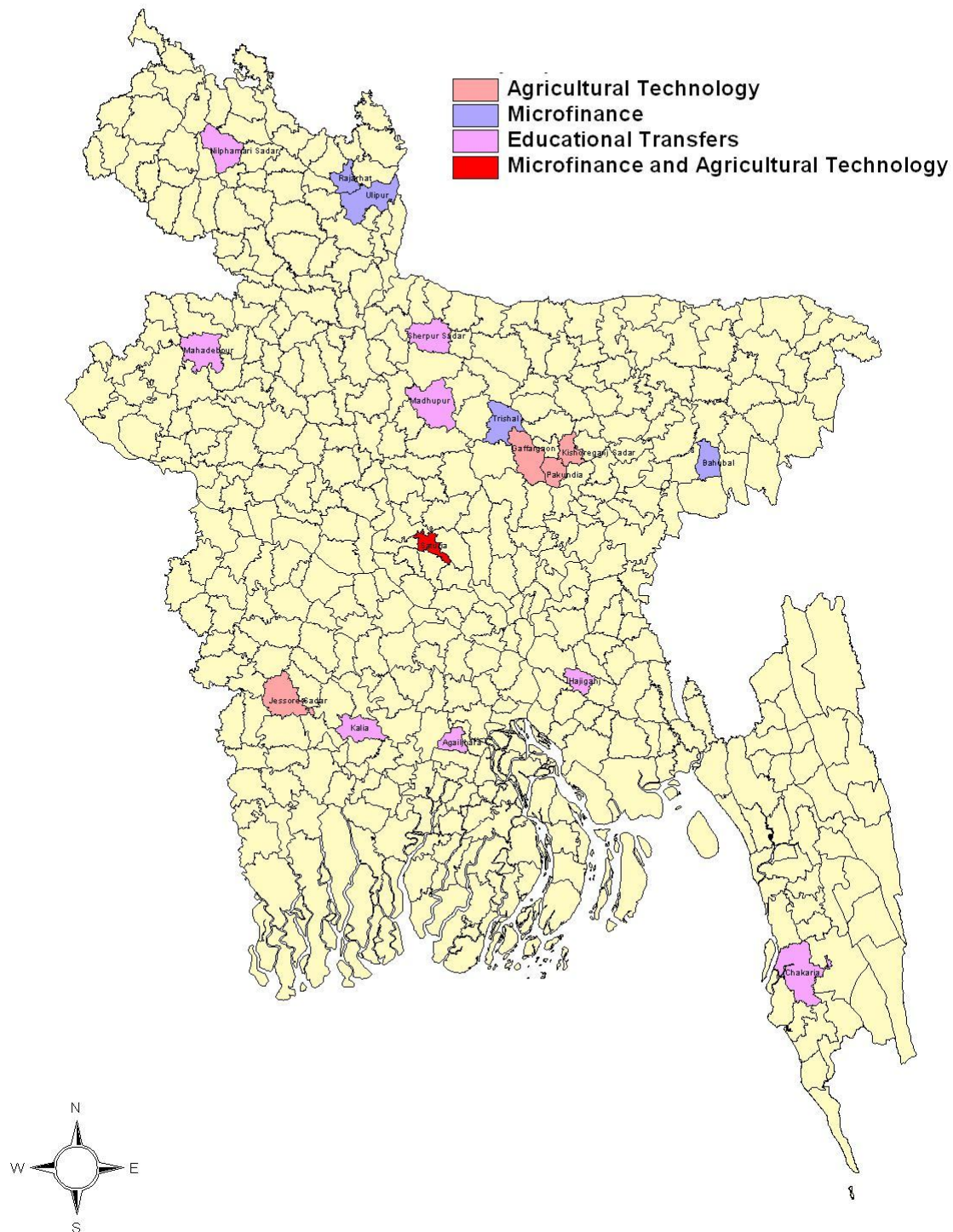
Appendix 3: Life history interview coversheet

Life history interview coversheet

Interviewer name		Date	/ /2007
Village		Union	
Upazila		District	
Household number		GPS	
Respondent's name		Husband/wife's name	
Relation to household head		Number of household members	
Sex 1. male 2. female		Age (year of birth)	( )

Religion
 	
   1.   Muslim
   2.   Hindu
   3.   Christian
   4.   Buddhist
   5.   Other
		Education	

Original Job		Job now	

Place of birth		Marital status
		
		   1. married
		   2. never married
		   3. divorced
		   4. abandoned
		   5. widow/ widower	

Total number of children (living)		Number of children living in household	
Matrix category 1.chronic poor 2.improving 3.declining 4.chronic rich		Wealth group 1. very poor 2. poor 3. medium 4. wealthy 5. very wealthy	
Recording dictaphone/file/number	/ /	Computer audio file number	

Consent for participants to be interviewed:

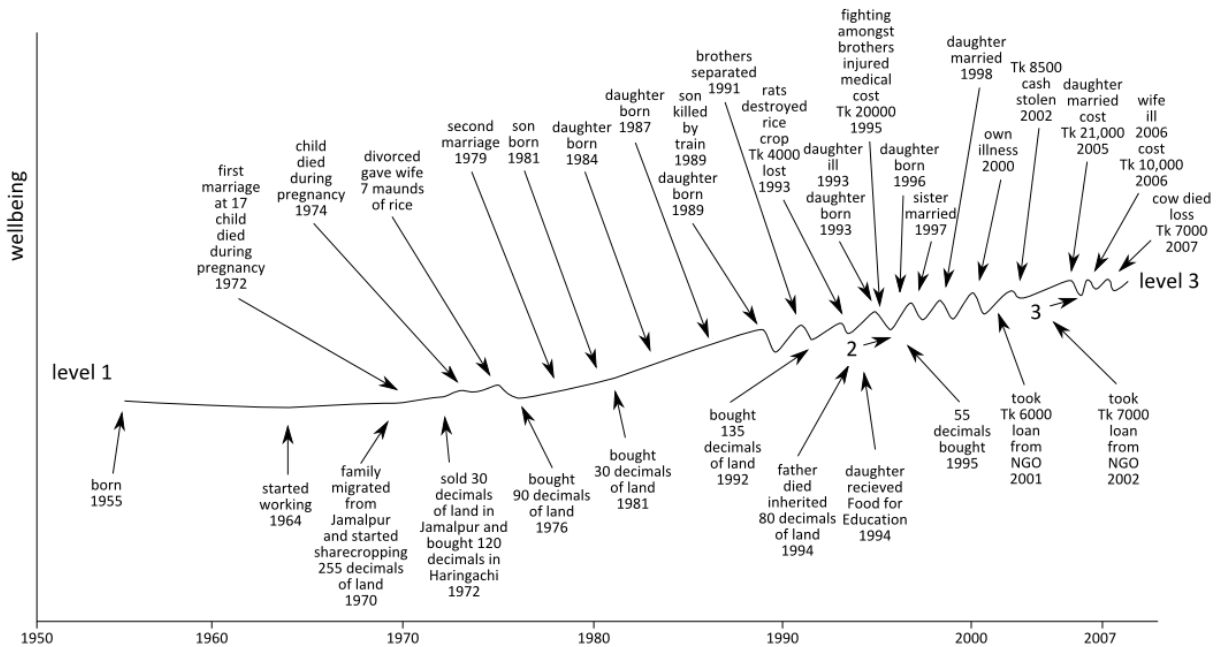I _____ have checked that the respondent:

- understands that this research is to gain a better understanding of the causes that lie behind the changes in levels of people's wellbeing in Bangladesh
- agrees to be interviewed by the researcher
- gives permission for the interview to be audio recorded
- agrees be available for a further interview if required
- understands names and identifying details (e.g. village name) will be changed and access to recordings and transcripts will be restricted to the researcher and supervisor to protect his/her identity from being made public
- understands that participation is voluntary and that he/she can choose not to participate in part or all of the project, and can withdraw at any stage of the project without being disadvantaged in any way
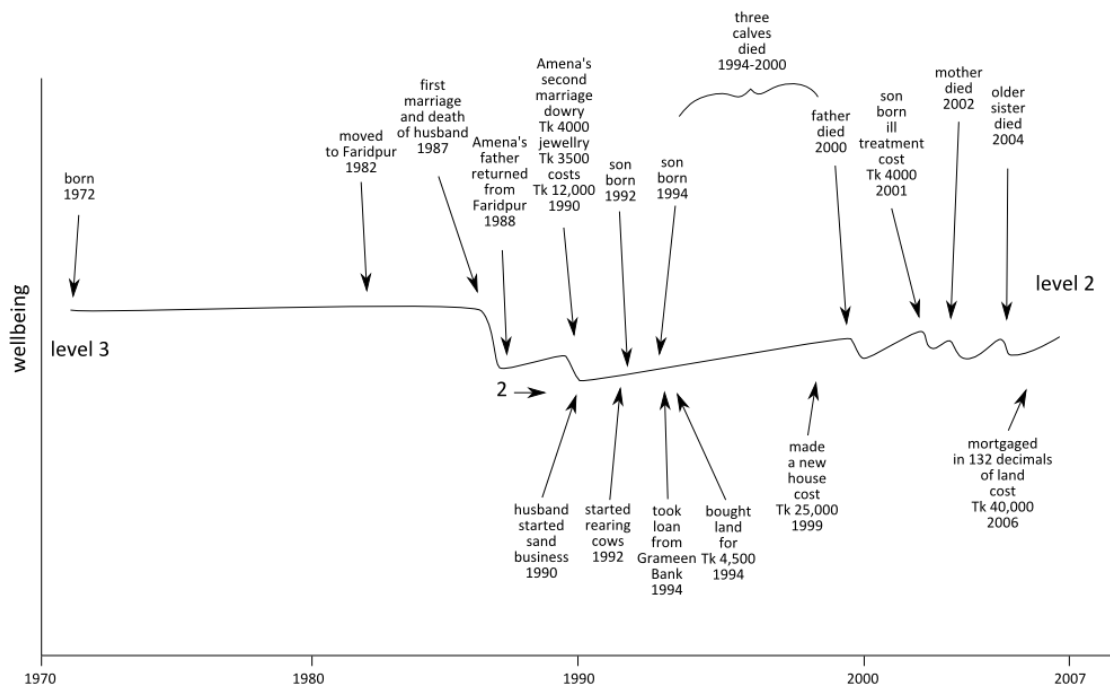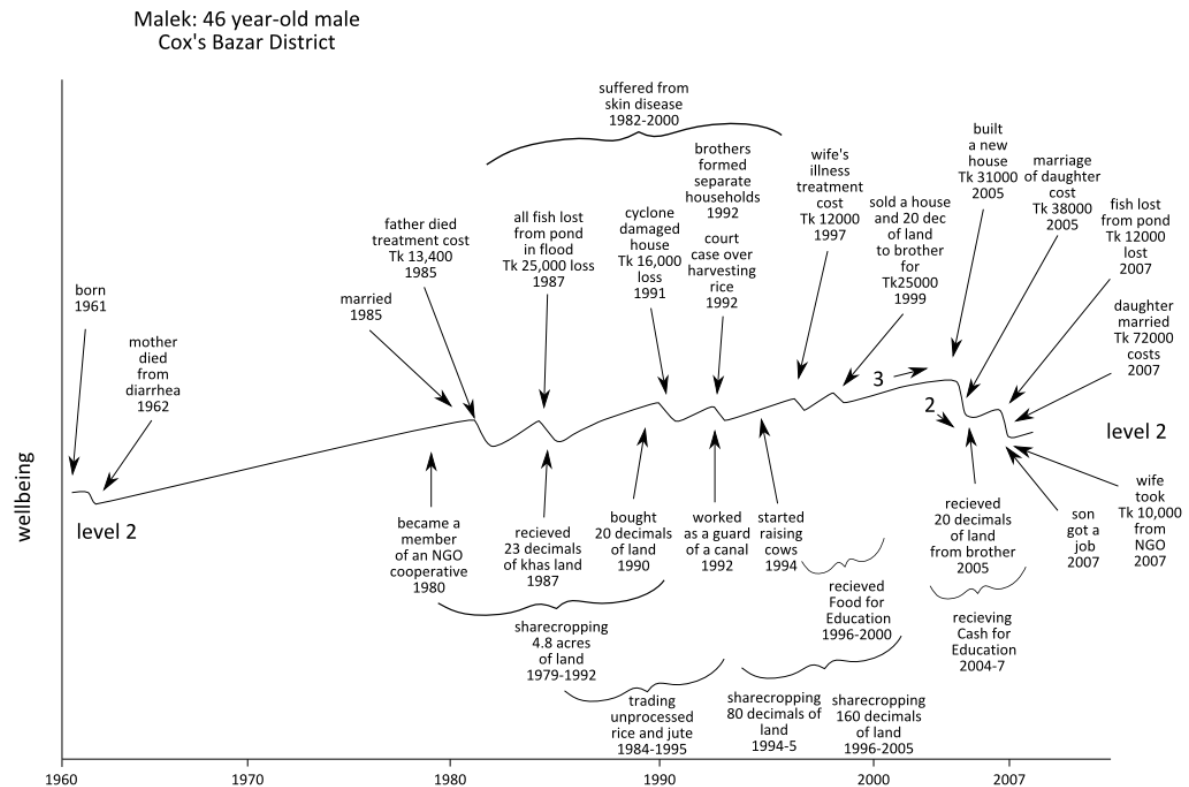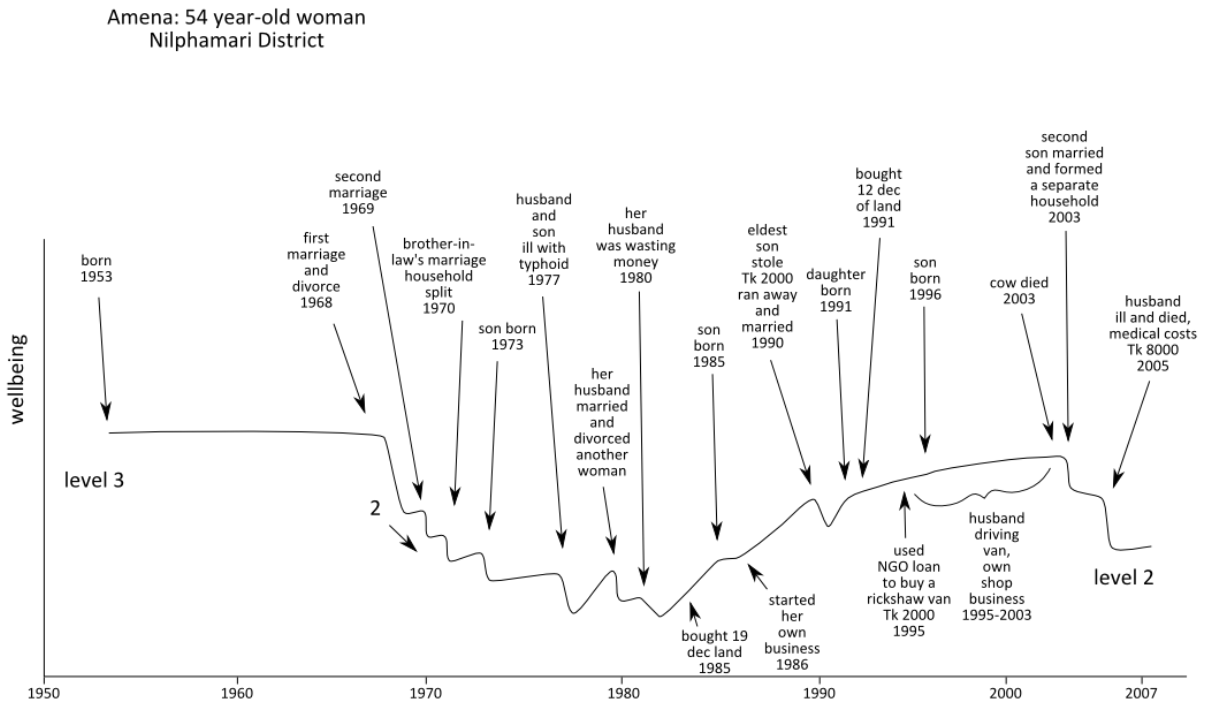
Signed (interviewer):

Appendix 4: Examples of life history diagrams

Habib: 52 year-old male
Tangail District

Amena: 35 year-old woman
Manikganj District

Amena: 54 year-old woman
Nilphamari District

wellbeing

level 3

born
1953

first
marriage
and
divorce
1968

second
marriage
1969

brother-in-
law's marriage
household
split
1970

son born
1973

husband
and
son
ill with
typhoid
1977

her husband
married
and
divorced
another
woman

her
husband
was wasting
money
1980

son
born
1985

eldest
son
stole
Tk 2000
ran away
and
married
1990

daughter
born
1991

bought
12 dec
of land
1991

son
born
1996

cow died
2003

second
son married
and formed
a separate
household
2003

husband
ill and died,
medical costs
Tk 8000
2005

2

bought 19
dec land
1985

started
her
own
business
1986

used
NGO loan
to buy a
rickshaw van
Tk 2000
1995

husband
driving
van,
own
shop
business
1995-2003

level 2

1950   1960   1970   1980   1990   2000   2007

Malek: 46 year-old male
Cox's Bazar District

wellbeing

born
1961

mother
died
from
diarrhea
1962

level 2

suffered from
skin disease
1982-2000

married
1985

father died
treatment cost
Tk 13,400
1985

all fish lost
from pond
in flood
Tk 25,000 loss
1987

cyclone
damaged
house
Tk 16,000
loss
1991

brothers
formed
separate
households
1992

court
case over
harvesting
rice
1992

wife's
illness
treatment
cost
Tk 12000
1997

sold a house
and 20 dec
of land
to brother
for
Tk25000
1999

built
a new
house
Tk 31000
2005

marriage
of daughter
cost
Tk 38000
2005

fish lost
from pond
Tk 12000
lost
2007

daughter
married
Tk 72000
costs
2007

3

2

became a
member
of an NGO
cooperative
1980

recieved
23 decimals
of khas land
1987

bought
20 decimals
of land
1990

worked
as a guard
of a canal
1992

started
raising
cows
1994

recieved
Food for
Education
1996-2000

recieved
20 decimals
of land
from brother
2005

recieving
Cash for
Education
2004-7

son
got a
job
2007

wife
took
Tk 10,000
from
NGO
2007

level 2

sharecropping
4.8 acres
of land
1979-1992

trading
unprocessed
rice and jute
1984-1995

sharecropping
80 decimals of
land
1994-5

sharecropping
160 decimals
of land
1996-2005

1960   1970   1980   1990   2000   2007

44