Ten Years Of 'Q-Squared':
Are Two Disciplines Better than One?

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Abstract

Over the past decade, there have been a number of initiatives to promote a more systematic integration of 'quantitative' and 'qualitative', or 'Q-Squared', approaches to poverty analysis in the Global South, and a large body of literature had emerged. The objective of the article is to present a (selective) review of this empirical work with a view to determine 'if two disciples are better than one.' Emphasis is placed on examples of value-added for understanding who are poor (the Identification Stage) and why they are poor (the Causal Stage). The core conclusion is that good examples of value added associated with Q^2 approaches abound in the literature. The main challenge in the years ahead is to maintain the momentum of the past decade in favor of mixed method approaches.

Key words **-** poverty, methods, social welfare, welfare measures

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1. INTRODUCTION

The past decade has seen a flourishing of mixed method research across the social sciences. This trend is evidenced by the emergence of journals specializing in mixed methods including the *Journal of Mixed Method Research* and the *International Journal of Multiple Research Approaches*, the publication of first and second editions of the *SAGE Handbook of Mixed Methods in Social and Behavioral Research* (Taskahkkori and Teddle (Eds.), 2003 and 2010), the convening of (seven) annual international conferences on mixed methods (http://www.healthcareconferences.leeds.ac.uk/conferences/), and so forth. According to Brannen's (2005, p. 4) review paper, over the past decade "mixed methods [have been] in the ascendancy."

The renewed focus on mixed method inquiry has been equally evident in development studies, and in particular, poverty analysis.[1] There have been a number of initiatives to promote a more systematic integration of 'quantitative' and 'qualitative', or 'Q-Squared', approaches to poverty analysis in the Global South. Examples include research programs or activities of the *BASIS Collaborative Research Support Program* (www.basis.wisc.ed), the *Chronic Poverty Research Centre* led by the University of Manchester and the Overseas Development Institute (http://www.chronicpoverty.org/), the *Global Poverty Research Group* at the Universities of Oxford and Manchester (http://www.gprg.org/), the International Food Policy Research Institute, the *Livelihoods and Diversification Directions Explored by Research (LADDER)* research project at the University of East Anglia, the *Wellbeing Research in Developing Countries (WED)* project at the University of Bath (http://www.welldev.org.uk/), the World Bank, in particular their *Moving out of Poverty* studies, the *Young Lives* project led by the University of Oxford, (http://www.younglives.org.uk/), the *Stages of Progress approach* pioneered by Duke University's Anirudh Krishna and colleagues (http://sanford.duke.edu/krishna/), among others.

Another initiative in this same tradition was the 'Q-Squared' research program which led to conferences at Cornell University (2001), the University of Toronto (2004) and the Vietnamese Academy of Social Sciences (2007), resulting in an edited monograph (Kanbur (Ed.), 2003) and Special Issues of *World Development* (Kanbur and Shaffer, 2007) and the *International Journal of Multiple Research Approaches* (Shaffer et. al., 2008). With support from Canada's International Development Research Council (IDRC), the Q-Squared project developed a training program and a website which housed the *Q-Squared Working Paper Series* (presently on-line at www.trentu.ca/ids/qsquared.php). Close to a decade ago, Ravi Kanbur, who founded the Q-Squared initiative, issued the following challenge: "the pragmatic answer, to how to get cross-disciplinarity going ... is to advance through the analysis of concrete issues and problems ... demonstrating how two disciplines are better than one" (Kanbur, 2002, p. 484). Ten years on, there is now a sizeable body of empirical literature on Q-Squared poverty analysis. The time is ripe to revisit Kanbur's challenge and assess whether, in fact, two disciplines are better than one.

The objective of the present article is to present a (selective) review of the empirical literature on work completed in the Q-Squared tradition over the past decade. There is no attempt to provide an exhaustive treatment of this body of work. The focus is on examples of value-added, for understanding and explaining poverty, of the use of multiple methods in poverty analysis. Specifically, examples are chosen which represent innovative attempts to better determine who are the poor and why they are poor.

In terms of selection criteria, five main considerations guided the choice of materials covered. There is a focus on: i) the Global South; ii) poverty; iii) published sources; iv) empirical findings; v) recent results, i.e. within the past decade. Accordingly, the following contributions, with relevance to Q-Squared, but not meeting the selection criteria, are not covered: i) the large literatures on happiness (Layard, 2005) and human well-being (McGillivray, 2007); ii) theoretical/methodological debates concerning structure/agency and methodological individualism in poverty analysis (e.g. du Toit (2009), Green (2009) and Harriss (2009))[2]; iii)

analyses of theoretical underpinnings (Ruggeri Laderchi et. al., 2003; Stewart et. al., (Eds.), 2007) or conceptual foundations (Grusky and Kanbur, 2006) of approaches to poverty; iii) mixed method studies dealing with related, but distinct, issues such as the Commons (Poteete et. al. (2010)), social capital (Grooetart and Narayan, 2004), microfinance (Collins et. al (2009)), HIV/AIDS (Seeley et. al.), and diverse issues in the 'new' economic sociology (Granovetter, 2005).

The format of the paper is as follows: Section 2 addresses conceptual and definitional issues about the qualitative/quantitative distinction and mixed method research designs. Section 3 reviews empirical studies relating to the Identification Stage of poverty analysis, which asks who are the poor and what are their characteristics. Empirical work on the Causal Stage of poverty analysis, which addresses the determinants of poverty, is reviewed in Section 4. Section 5 concludes.

2. THE QUAL/QUANT DISTINCTION & MIXED METHOD DESIGNS

There are a number of competing definitions of the terms 'qualitative' and 'quantitative' with emphasis placed on data, methods or broad traditions of inquiry (Teddlie and Tashakkori, 2003b). One such typology was proposed by Ravi Kanbur (2003b) at the initial Q-Squared Conference at Cornell University, and distinguished between types of: population information; population coverage: population involvement; inference methodology and disciplinary framework. The typology is useful in that it is explicit about dimensions of difference. The problem, however, is that the categorical distinctions in such typologies are often hard to sustain in light of empirical counter examples (see Shaffer, 2005). For example, in the case of population coverage, fixed response household surveys may be conducted in one village only, while some participatory poverty assessments have national scope (e.g. Rwanda, discussed in Section 3).

Accordingly, in the present article, the qualitative/quantitative terminology is largely eschewed in favor of discussion of the actual methods, data or disciplinary orientations that are being mixed. Typically, however, a core axis of differentiation is between poverty analysis in the applied micro-economic tradition grounded on consumption expenditure, fixed response household surveys and statistical analysis on the one hand, and poverty analysis in the traditions of applied social anthropology or participatory rural appraisal, which rely heavily on dialogical techniques such as focus group discussions or semi-structured interviews, on the other.

As with the qual/quant distinctions there are many typologies of mixed method research design which focus, *inter alia*, on the sequencing of methods, the priority afforded either or both, the purpose of study and/or the underlying theoretical perspective (Teddlie and Tashakkori, 2003b, Creswell et. al. (2003)). Such typologies are useful for certain purposes, such as clarification of research methodology and organization of subject materials. Nevertheless, as above, we refrain from using such typologies in favor of an organizing framework based on specific issues and challenges found within the Identification and Causal Stages of poverty analysis.

3. IDENTIFICATION: POVERTY MEANINGS AND CORRELATES

As mentioned above, the Identification Stage addresses two main questions: 'who are the poor' and 'what are their characteristics'. It entails: a) specifying dimensions of poverty; b) outlining their relative weights (if more than one dimension are selected) and c) determining an appropriate poverty cut-off or threshold[3]. Q-Squared has made contributions to all three of these issues by addressing four key challenges for the analysis of poverty in the Identification Stage.

The first challenge concerns the imperative of using 'locally meaningful' categories of poverty. Otherwise stated, conceptions of poverty should correspond to people's understanding of the term. There are at least three key arguments in support of this proposition. First, from a philosophical perspective, some argue that social phenomena are 'intrinsically meaningful', in

the sense that their significance and/or existence depends on the meanings ascribed to them.[4] Understanding a concept such as 'poverty', entails a 'double hermeneutic' of interpreting a concept which is pre-interpreted by social actors (Giddens, 1976, p. 162). Failure to do so may lead to analytical biases and blind spots: 'we interpret all other societies in the categories of our own' (Taylor, 1985, p.42). A second, related argument, from social anthropology, is that concepts such as poverty, should bear a close relationship to local categories of social differentiation (Green, 2006, 2009). Otherwise, 'we' are imposing analytical categories with little local relevance.[5] Third, modern (neoclassical) economics rests on a 'subjective' conception of value in that is based on individual preferences, as opposed to its predecessor in economics, the labor theory of value (Dobb, 1973). Following this logic, one might expect that a similar 'subjectivity' should apply to the valuation of dimensions of poverty. In light of the above, it would be odd if local conceptions of poverty didn't figure *at all* in poverty analysis.

While there are good reasons to incorporate locally meaningful categories in poverty analysis, immediate problems pose with respect to consistent interpersonal comparisons which are often required for policy purposes. First, if the dimensions of poverty, the 'basket', differ over the range of the comparison, one is not comparing 'like with like'. Heretofore, we refer to this challenge as 'basket' consistency. Second, even if the 'basket' is the same, perceived levels of fulfillment, or adequacy, of that 'basket', or its commodity requirements, may systematically differ across population groups.[6] One example is that the poor often fare worse than the non-poor in self-reports of morbidity because they employ a higher bar of what constitutes illness (Sen, 2002). 'Levels' consistency will be the term used to refer to this challenge, which also refers to the level at which the poverty threshold is set. The fourth challenge involves extrapolating results spatially or temporally, i.e. establishing external validity, which, once again, may be required for policy purposes.

Table 1 combines the three elements and four challenges of the Identification Stage. It presents the main categories of Q-Squared contributions, empirical examples of which are discussed in turn in the following subsections.

Table 1 Poverty Identification: Empirical Contributions

	Desirable Properties			
	Meaningful	Basket Consistency	Levels Consistency	External Validity
Identification				
Dimensions/Metric				
i Comparing Local Definitions and I/C Poverty	x			
ii Including Locally Meaningful Definitions in a Survey	x	x		x
iii Poverty Correlate/Dimension Mapping	x	x	x	x
iv Statistical Adjustment & Vignettes	x		x	x
Weighting				
i The Indirect Approach	x	n/a	n/a	x
ii The Direct Approach	x	n/a	n/a	x
Cut-Off				
i Data Discontinuities	x	x		
ii Conceptual thresholds	x	x		x
iii Consumption Adequacy Question	x			x

x - denotes that these issues are addressed (more or less successfully) by at least some of the empirical examples which fall under the headings.

(a) Dimensions/Metrics of Poverty

A core aim of Q-Squared poverty analysis is to identify locally meaningful definitions of poverty and address ensuing difficulties for interpersonal comparisons and external validity. In this context, at least four types of contributions have been made by Q^2 analyses, namely: i) comparing local definitions and income/consumption poverty; ii) including locally meaningful definitions in a survey; iii) poverty correlate/dimension mapping and iv) statistical adjustment and use of vignettes. Empirical examples of each are presented below.

(i) Comparing local definitions and income/consumption poverty

The 'first generation' Q-Squared analyses sought to determine if local definitions of poverty systematically differed from income or consumption-based ones. In modern poverty analysis, the latter are typically anchored on adequate dietary energy intake (calories) with an allowance for other basic goods and services (Lipton, 1997). Many of these initial Q^2 studies examined if local conceptions and income/consumption poverty identified the same individuals/households, or characteristics of individuals/households, as poor, and/or if they were generating similar findings with respect to poverty levels and trends.

The core conclusion of this body of literature was that systematic differences did in fact exist on all counts.[7] The overlap between populations identified as 'poor' according to different definitions has tended to be quite modest, and large discrepancies exist concerning poverty levels and trends. Some of the reasons for these discrepant finding include 'well-being reducing' increases in consumption expenditure, e.g. on alcohol, medical expenses (McGee, 2004) which will figure positively in consumption based aggregates[8], omission of other important dimensions of well-being related, say, to public service provision (Kanbur, 2001) vulnerability (Chambers, 1997), fatigue or social standing (Shaffer, 1998), as well as different population coverage, reference periods and so forth. Recent contributions broadly confirm these earlier findings.[9]

For example, Levine and Roberts (2008) compared data on levels and trends of poverty using data from national income/expenditure surveys and Participatory Poverty Assessments (PPAs). As above, these two set of data came to starkly different conclusions. Data from the Namibia Household Income and Expenditure Survey suggest that poverty incidence fell from around 38% to 28% between 1993/4 and 2003/4. A much more negative picture, concerning both levels and trends, emerged from the PPAs conducted in three northern regions. The authors explain the latter findings in terms of three factors which do not necessarily map onto income or

consumption poverty, namely, a deterioration in asset holdings, reduced access to and quality of basic services and increasing vulnerability related to food insecurity and AIDS.

Similar results are presented in Lu's (2010, 2011) work from Yunnan Province, China, where four approaches to poverty - the official identification method (based on low income households identified by village officials), Participatory Poverty Assessment (PPA), consumption poverty and a multidimensional poverty index (MDI)[10], were applied to the same population. Only 4 of 473 households were identified as 'poor' by all approaches though 303 of 473 households were so identified by any one approach. In addition, characteristics of the poor varied by approach. Those households with higher numbers of children in school and more sick members were not disproportionately poor according to the consumption approach, given that higher expenditures on education and health figure positively. By contrast, PPA and MDI show such households as poorer.

In a recent paper on poverty dynamics in rural Bangladesh by the Chronic Poverty Research Centre, Davis and Baulch (2011) take the above type of analysis one step further by attempting to systematically explain why findings about expenditure and life-history based poverty transitions differ. The life-histories, which drew on a subsample of households from the a household survey, found many fewer transitions, in particular escapes from poverty, than the expenditure-based approach. In reviewing these contrasting findings on a case-by-case basis, the authors concluded that the vast majority of the discrepancies could be attribution to the following four factors: i) cases where expenditure is a poor proxy of household economic wealth (tested by substituting landholdings for expenditure); ii) cases where expenditure were very close to the poverty line, and accordingly, poverty transitions reflected very small changes in expenditure which could likely be attributed to measurement error; iii) cases where other aspects of well-being (including violence, disability, illness or vulnerability) were not captured in the expenditure aggregates and iv) cases where a change in household size affected per capita expenditure with little effect on perceptions of well-being (due to the effects of household economies of scale in

consumption). Individually, the percentage of discrepant cases explained by these factors were 43%, 30%, 15% and 11%, respectively. In summary, reliance on different dimensions of poverty, as represented by the first and third explanations, accounted for over half of the contrasting findings between the two approaches.

These first-generation Q^2 studies have succeeded in establishing the importance of locally meaningful definitions by showing how poverty is defined matters for estimates of poverty levels and trends. By and large, however, they do not address issues of 'basket' and 'levels' consistency nor external validity.

ii) Including locally meaningful definitions in a survey

A next step in the evolution of Q^2 has been to incorporate locally meaningful definitions in the analysis while addressing consistency requirements of interpersonal comparisons, as well as external validity. One approach is to standardize locally meaningful definitions and include them in a survey applied to a probabilistically sampled population.

An example is provided by Barahona and Levy's (2007) evaluation of the targeting efficiency of Malawi's Targeted Input Program (TIP) which aimed to distribute small amounts of seed and fertilizer to the poorest rural households. The key research question was to determine the coverage of poor households, and leakage to the non-poor, in the targeted distribution scheme. Prior PRA wealth rankings, conducted as part of the TIP evaluation highlighted the centrality of food security as a dimension of poverty in rural Malawi. Based on the detailed narrative information in the PRA, three categories of food security were distinguished: i) households that have enough to eat throughout the year (*food secure*); ii) households that have enough food from harvest to Christmas[11] but not after (*food insecure*); iii) households that have a longer period of not having enough to eat (*extremely food insecure*). Food security, so defined, was subsequently included in a survey instrument administered to all households in villages and regions sampled probabilistically. While the authors acknowledge that such a poverty definition is 'not perfect'

they maintained that it was meaningful to participants, easy for households to self-identify into one of the categories, and capable of distinguishing well-being groups of relevance to the study.

This example is partially successful in meeting 'basket' consistency, in that the definition of one locally relevant dimension of poverty, food insecurity, has been standardized and included in a survey instrument administered to a broader population. There is a conceptual uniformity in the idea of 'having enough to eat', though the associated commodity or resource requirements of may differ.[12] In terms of 'levels' however, there may be systematic differences in terms of both what is perceived to be 'enough' as well as the associated commodity requirements. The implicit assumption appears to be that, across rural Malawi, the population is similar enough to allow for consistent comparisons. External validity is achieved through the use of probabilistic sampling which allows for the calculation of standard errors.

A second approach adds another layer of 'local input' into the determination of the definition of poverty (or well-being) used. The *Wellbeing Research in Developing Countries (WED)* project, mentioned in the Introduction, developed a Quality of Life (QoL) questionnaire which attempted to integrate standardized instruments, such as those in the World Health Organizations' QoL surveys, with open-ended, individualized questionnaires, such as the Global Person Generated Index (Camfield et. al., 2009, Gough and McGregor (Eds.), 2007). As an example, the development of the WEDQoL questionnaire in Thailand, (Woodcock et. al., 2009), began with a preliminary phase in which respondents from rural and urban communities were asked 'Describe a time when you felt very happy, giving reasons'. The results were codified into 51 items in the WEDQoL questionnaire, such as 'having sufficient food every day, water, friends, good relationships, public transport etc.' Respondents rated these items with respect to their contribution to happiness and their level of satisfaction. The mean or median of such scores provides an indication of the relative importance and attainment of dimensions of poverty/wellbeing overall, while disaggregation allows for sub-population specific assessment.

The WEDQoL example achieves 'basket' consistency by asking about the attainment of very specific dimensions of ill-being or wellbeing, along with their contributions to happiness. It does not explicitly address 'levels' consistency which could be violated if different referents are used to gauge levels of satisfaction with particular dimensions of ill-being and/or their contribution to happiness. External validity could have been addressed if the survey was administered to a probabilistically drawn sample though the present design did allow for a greater number of respondents than in typical small *n* studies.

iii) Poverty correlate/dimension mapping

This category is similar to the preceding one in that locally generated correlates or dimensions of poverty are used, rather than poverty rankings *per se*, to identify meaningful dimensions of poverty and to facilitate comparisons of like with like (and satisfy 'basket' consistency). The main difference is such correlates are 'mapped' onto existing survey data (to establish external validity), rather than included in a subsequent survey.

An example is provided by Howe and McKay's (2007) attempt to identify chronically poor households in Rwanda through combined use of 2001 Participatory Poverty Assessment (PPA) and 1999-2001 national household survey data. The methodology is innovative in its attempt to identify chronic poverty on a national level in the absence of panel data, but drawing on findings from a PPA with national coverage[13]. Three steps were involved. First, three categories of poverty, identified in the narrative findings from all 12 provinces of Rwanda, were considered as the source of most chronic poverty, namely: those in abject poverty (*Umutindi nyakujya*) who beg to survive; the very poor (*Umutindi*) who work for others; and the poor (*Umukene*) with small landholdings and no savings. Second, characteristics of these three categories associated with persistent poverty in the narrative information were mapped onto indicators contained in the household survey. Three core indicators of chronic poverty were identified: i) the household's main activity is own account agriculture or agricultural wage labor;

ii) the household cultivates less than 0.05 ha per adult equivalent; iii) the household does not own livestock. Third, descriptive statistical analysis from the household survey allowed for an estimate of national incidence of chronic poverty so defined along with the relationship between chronic poverty and other variables included in the survey.

As the authors acknowledge, there are certainly errors of exclusion and inclusion in this approach. Nevertheless, it makes a serious attempt at meeting the aforementioned challenges of the Identification Stage. First, it relies on definitions of poverty, and chronic poverty, based on locally generated definitions, aggregated across PPA cites with national coverage (locally meaningful poverty). Second, by relying on specific correlates of poverty, it allows for interpersonal comparisons of 'like with like' ('basket' consistency). Third, by choosing observable indicators of the chronic poverty correlates, levels of achievement can be measured intersubjectively ('levels' consistency). Fourth, the scope of the analysis is national by virtue of the fact that the PPA had national coverage and the household survey was nationally representative (external validity).

A second example involves an innovative, though somewhat complicated, methodology used in a participatory wealth ranking exercise in eight rural sites in Limpopo Province, South Africa (Hargreaves et. al., 2007). The authors used a five step methodology which entailed: i) ranking households into discrete well-being categories (e.g. very poor, poor, etc.); ii) assigning a numerical score to these ranking categories, between 0 and 100[14]; iii) coding and counting statements made in the wealth ranking about characteristics of these different well-being ranking categories, e.g. 'don't have soup', 'beg for food'; iv) multiplying the category score by the proportion of times that a statement was made with reference to the different well-being ranking categories (which generates statement scores);[15] v) generating a household wealth index based on the mean statement score of all statements made about the household's well-being ranking category.

The approach attempts to reconciling locally meaningful definitions with 'basket' consistency by relying on poverty correlates/characteristics rather than ranking results. As with other examples above, 'levels' consistency obtains only if the commodity or resource requirements of the different poverty correlates are quite similar. For some correlates such as 'don't have soup', 'no soap', 'has no place to sleep', this assumption seems quite reasonable. No attempt is made to establish external validity given the limited number of sites examined.

(iv) Statistical adjustment and use of vignettes

The next example takes a different approach to facilitating interpersonal comparisons. Rather than relying on specific correlates of poverty, the focus is on poverty rankings adjusted to take into account site-specific differences which could be driving results. An example is provided in Campenhout's (2006) attempt to increase comparability of participatory wealth ranking conducted in four villages in rural Tanzania. The methodology included the following three steps: i) First, village-specific well-being rankings were converted into scores, equal to the value of the wealth ranking category, divided by the number of categories. So, if 4 wealth categories were chosen, the poorest category (assigned a value of 1), would score 0.25. ii) Second, analysis of variance (ANOVA) was conducted which affirmed significantly different means and variances across the villages in question. iii) Third, scores were adjusted in two ways, to take into account village and sub-village specific effects which could be influencing subjective perceptions of well-being. First, household scores were subtracted from village and sub-village mean scores. The second entailed estimating a model with random intercepts for both village and sub-village scores. The (Bayesian) residuals in this model are subsequently used as the well-being measure, which has been adjusted to take into account village and sub-village effects.

The approach does not address the issue of 'basket' consistency, in that it relies on ranking results presumably based on different dimensions of poverty across different sites. Further, there is no attempt to establish external validity. Its core contribution is the attempt to

address 'levels' consistency on the basis of well-being ranking results. It does so by controlling for level differences between villages and subvillages and adjusting household rankings so that they become relative to overall village and/or subvillage levels. The core limitation of the approach is that the village or sub-village level rankings may themselves be subject to a 'levels' bias. For example, average levels in poor and rich villages may be identical yet reflect very different levels of achievement.

A different way of addressing the 'levels' problem is based on the use of vignettes.[16] Vignettes are a series of hypothetical situations or questions which provide an inter-subjective referent used to anchor subjective responses on a range of issues. They were pioneered by the World Health Organisation's Global Programme on Evidence for Heath Policy in an attempt to improve the comparability of self-reported health outcomes in multi-country surveys (Salomon et. al., 2001) . They are designed to address 'levels' biases which may occur if say, poorer subgroups systematically overstate their wellbeing status relative to richer populations because their referents are lower.[17] Subsequently, they have been used to enhance comparability of self-reports of clinical competence of medical practitioners (Das and Hammer, 2005), job satisfaction (Kristensen and Johansson, 2008) and political efficacy (King and Wand, 2007).

In a recent World Bank study in Tajikistan, vignettes were applied to address potential 'levels' biases in interpersonal comparisons of well-being (Beegle et. al., 2009). Respondents in a multipurpose household survey were asked to locate themselves on a 6-step ladder, with the poorest and the rich occupying the first and sixth steps, respectively. Respondents were also administered four vignettes in which they were asked to situate four hypothetical families on this same scale. The family characteristics in the vignettes centered on the frequency of consumption of meat, the ability to heat one's home and afford secondary education for their children, the quality of clothing and land ownership.

The analysis sought to test for the aforementioned 'levels' bias, referred to as a frame-of-reference bias (FORB) in three ways. First, using an ordered probit model, the authors examined

if vignette responses were correlated with household characteristics, which would be expected if FORB existed (as noted above, one might expect lower income groups to assign higher ranks to each vignette in the six point scale). Second, vignette responses were included as dummy variables in subjective welfare regressions to purge the model of the 'levels' bias caused by the use of different scales. Third, responses to the above subjective welfare question were rescaled by taking into account the relationship between one's self-reported score and one's rating of the vignettes. The subjective welfare regressions were then re-run with the rescaled responses as the dependent variable. Interestingly, the analysis did not find a significant FORB effect.

This type of analysis is one of the few to attempt to systematically address the challenge of 'levels' consistency. 'Basket' consistency is not addressed in that subjective welfare is based on respondents' differing views of what constitutes poverty. Claims to external validity are based on the probabilistic sampling in the household survey which allows for standard error calculation.

(b) Weighting

The second broad issue in the identification stage of poverty analysis concerns weighting dimensions of poverty if more than one is selected. In the broader literature, there are three main ways to do this. First, one can assign weights arbitrarily, or normatively, drawing on the analysts' predilections. One example is UNDP's Human Development Index whose main component are weighted equally on grounds, *inter alia*, that all are equally important for human development (Anand and Sen, 1997).[18] A second approach is to apply forms of statistical analysis which assign weights based on the correlation structure between the various dimensions of poverty in question. Examples include the use of principal component analysis (PCA) (Filmer and Pritchett, 2001) and factor analysis (Sahn and Stifel, 2003). The third approach, where Q-Squared analyses have made important contributions, is to use 'locally meaningful' weighting schemes based on people's perceptions of the relative importance of different dimensions of poverty. Such analyses

employ either indirect approaches, which attempt to retrieve weights from correlates of poverty, or direct approaches, which simply ask people to supply the weights in question.

(i) The indirect approach

An example of the indirect approach involves attempts to 'back-out' weights through econometric analysis. One study of 37 villages in rural districts of Kenya, Malawi, Tanzania and Uganda drew on a dataset which combined wealth ranking results and household survey data based (Kebede, 2009). An ordered logit model was estimated with wealth rank (poor, middle, rich) regressed on household resources including income, assets, land, number of adults and housing characteristics. It is argued that the resulting coefficients (or elasticities) represent an approximation of the social value accorded to such resources, as determinants of wealth ranking categories (though the value of less visible resources will be biased downwards). The approach attempts to integrate statistical analysis of conditional relationships between variables, such as PCA and factor analysis discussed above, with locally meaningful definitions of poverty as reflected in wealth ranking results. The main assumption, which would seem to require further support, is that such variables were actually used by participants in the wealth ranking exercise. Nevertheless, it represents an interesting attempt to infer locally relevant weights from observable characteristics of well-being ranking groups.

(ii) The direct approach

In the direct approach to eliciting local weights, people are simply asked to rank dimensions of poverty or well-being in terms of their relative importance. An example involves the construction of a composite poverty index, the 'Human Vulnerability Index (HVI)', for the Maldives drawing on data from Vulnerability and Poverty Assessments (VPAs) carried out in 1997/8 and 2004 (de Kruijk and Rutten, 2007). The VPAs were nationally representative surveys which covered all 200 inhabited islands along with the capital city, Male. These surveys asked

respondents to rank twelve dimensions of well-being in terms of their perceived priority (with the highest priority assigned the value of 1). These 12 dimensions included indicators of: income poverty, electricity, transport, communication, education, health, drinking water, consumer goods, housing, environment, food security and employment. Rankings were averaged separately for men and women, though gender disaggregated results ended up being identical, and relative weights calculated for use in the HVI. Along with the WEDQoL discussed above, this is one of the few examples in the literature to elicit locally meaningful weights, often associated with ranking exercises in small *n* studies, with external validity.

(c) The Cut-off/Threshold

The third broad issue in the identification stage of poverty analysis concerns distinguishing between the poor and non-poor, i.e. drawing the poverty line. In the applied tradition of micro-economics, the line is typically set at some level of income or consumption expenditure corresponding to a basic amount of caloric intake plus an allowance for non-food consumption (Ravallion, 1994). The approach incorporates 'people's priorities' in a limited sense only, in that the poverty threshold is based on actual consumption behavior of households with respect to both food and non-food consumption.[19] Q-Squared approaches have attempted to set the poverty line at a point which more fully reflects locally meaningful poverty dimensions and thresholds. At least three broad approaches are found in the literature.

(i) Data discontinuities

The first involves analysis of locally generated data on poverty correlates or characteristics to determine if there are natural breaks which distinguish population groups.[20] The above-mentioned study of Hargreaves et. al. (2007) provides an example. Pile Statements with their corresponding scores were listed in ascending order to determine if certain statements were overwhelmingly made with respect to either poor, middle or non-poor groups (e.g. 'begging', 'no

soap', etc.). By visual inspection, the authors identified such breaks in the data which were used to subsequently construct wealth bands (based on statement scores) distinguishing the poor from the other groups.[21] While more formalized statistical methods exist to detect structural breaks in the data, or population clusters with similar characteristics, visual inspection can be informative in cases of stark differences between groups. The approach combines a locally meaningful cut-off with 'basket' consistency, facilitated by the reliance on poverty correlates/characteristics rather than ranking results. It does not explicitly address 'levels' consistency which would result only if the commodity or resource requirements of the different poverty correlates are similar.

(ii) Conceptual thresholds

A second approach involves use of locally generated poverty definitions which incorporate a 'built-in' conceptual cut-off. The Barahona and Levy (2007) study, discussed above, is an example. The well-being measure used in their survey, derived from PRA studies, was food security, defined as 'not having enough to eat' over a specified period. The cut-off is locally meaningful in that it figured prominently in the narrative information in the PRA studies. The idea of 'having enough to eat' provides a conceptual foundation for 'basket' consistency though the associated commodity or resource requirements may differ. In terms of 'levels' however, there may be systematic differences in terms of both what is perceived to be 'enough' as well as the associated commodity requirements. External validity is achieved through the use of probabilistic sampling which allows for the calculation of standard errors

(iii) The consumption adequacy question (CAQ)

A third approach by Pradhan and Ravallion (2000) and colleagues at the World Bank (Lokshin, Umapathi & Paternostro, 2006) involves incorporation of a consumption adequacy question in households surveys, whereby respondents are asked if their level of consumption (food, housing, clothing, etc.) is more than, less than, or just adequate to meet family needs. By

regressing responses to the CAQ on consumption expenditure, along with other variables of interest, subjective poverty lines are calculated which reflect the level of consumption expenditure associated with perceived consumption adequacy. More specifically, an ordered probit model is run which estimates the probability of adequately meeting perceived consumption needs conditional on relevant household characteristics. Versions of the basic approach can be used to estimate food poverty and total poverty lines, though the latter entails inclusion of responses about the adequacy of non-food items, as well as the estimation of other components of non-food expenditure. The approach represents a systematic attempt to provide a locally meaningful threshold for a consumption definition of poverty. By definition, it does not address the 'basket' or 'levels' challenges, though the integrated database allows for an estimate of the magnitude of the latter. External validity is met by the probabilistic sampling structure of the household survey.

4. POVERTY CAUSES AND DYNAMICS

The present section focuses on the Causal Stage of poverty analysis. While the Identification Stage asks 'who are the poor', the Causal Stage addresses the question: 'why are they poor.' It entails analysis of the causes of one's poverty status, at one or more points of time, as well as causes of flows of households into and out of poverty (poverty dynamics). Q-Squared has contributed to the causal analysis of poverty, and poverty dynamics, by improving, and/or broadening, at least four aspects of the causal framework, namely, the causal variables, weights, mechanisms and the causal 'tree',[22] while also directing attention to issues of external validity.

Causal variables, as defined here, are events or facts which stand in a relationship of cause and effect to one another, i.e. the 'things' which do the causing or are caused. The causal tree, or diagram, represents the nature of the relationships amongst causes, and between causes and effects. Causal weights specify the relative importance of causes in producing effects. Causal mechanisms, which may operate at a macro or micro level, provide explanations of 'how' and

'why' causes have the effects they do.[23] In Q^2 analyses, this broadened causal framework has been applied to three main areas of causal analysis of poverty: the determinants of poverty status; the determinants of poverty dynamics and more generally, model specification. Table 2 situates the key Q-Squared empirical contributions in relation to these three areas of inquiry and the four aspects of the causal framework, which are discussed in turn in the following subsections.

Table 2 Causal Analysis: Empirical Contributions

	The Causal Framework				
	Variables	'Tree'	Weighting	Mechanism	External Validity
Causal Analysis					
Explaining the Determinants of Poverty					
i Combining Outcomes and Processes		x	x	x	x
ii The Rural Livelihood Approach		x		x	
Explaining Poverty Dynamics					
i Interviewing' the Transition Matrix	x	x	x	x	x
ii The Stages of Progress Approach	x	x	x	x	
Model Specification					
i Searching for 'Instruments'	x		x		
ii Selecting Variables and Uncovering Relationships	x	x	x	x	

x - denotes that these issues are addressed (more or less successfully) by at least some of the empirical examples which fall under the headings.

(a) Determinants of Poverty Status

(1) Combining Outcomes and Processes

> *Economics is mainly about outcomes… [not] about processes. Economists, of course, have models of perfect competition, or bargaining to reach a Nash equilibrium, or surplus extraction and use by the dominant class. But economists tests show only whether a modeled process is consistent with the measured outcomes … Only seldom does the economist empirically explore the processes themselves (Lipton 1992, 1541).*

As argued elsewhere, (Bardham and Ray 2006, Shaffer et. al., 2008), a major contribution of Q^2 analysis has been to combine analyses of outcomes and processes. Historically, this is one of the main ways that 'qualitative' and 'quantitative' approaches have been integrated, with many good examples in the literature (e.g. Frankel & Lehmann 1984, Francis & Hoddinott, 1993). I focus on two examples within this literature, both of which combine narrative information on processes with household survey results on outcomes.

The first example is a study conducted by IFPRI in rural Kenya on the impact of new agricultural technologies on the poor (Place, et. al., 2007). Panel data were collected in 2000-2001 on assets, expenditures, food consumption, technology use and assorted household characteristics. At the same time, ethnographies were undertaken in a subset of such households, over a six month period by researchers who resided in the villages. The ethnographies provided detailed narrative information on livelihoods, shocks, vulnerability, coping mechanisms, adaptations to technology, reasons for adoption of technology and so forth.

The authors maintained that the Q^2 design significantly enriched research results in at least four ways, namely: i) the household survey data facilitated the distinction between outlier and tendency cases with respect to both adoption and benefits of the new agricultural technology (external validity); ii) the ethnographies uncovered the multiple forms of modification and adoption of new technologies among poor and non-poor groups which were missed in the household survey's 'technology' variable (causal variables). iii) the ethnographic data revealed varied reasons for adoption of technology, such as accessing wider social networks, which were unrelated to project objectives of income generation through increasing maize yields, (causal mechanism);[24] iv) the ethnographies allows for the explanation of certain counter-intuitive results from the household survey, in particular the lack of association between farm size and poverty, which was due to time and labor constraints which reduced the productive capacity of the land (causal tree and mechanism). To summarize, the Q^2 design enhanced or facilitated

understanding of the causal variables, tree and mechanisms and underpinned claims about external validity of ethnographic results.

The second example involves a study undertaken by Tassew Woldehanna and colleagues on child labor in Ethiopia as part of the *Young Lives* research project mentioned in the Introduction. A household survey was implemented in 2002 and subsequent econometric work undertaken to estimate correlates of child schooling and labor. This analysis was followed-up by semi-structured interviews conducted in 2005 with a view to provide a richer understanding of the econometric results. A number of interesting findings emerged.

First, econometric results suggested, somewhat surprisingly, that the probability of child labor (either alone or in conjunction with schooling) increased with maternal education. The semi-structured interviews provided an explanation. More educated women are more likely to work outside the home which increases the domestic work burden of children. Second, regression results found no statistically significant effect of the size of landholding on the probability of child labor. Information from the interviews suggests that the lack of significance of landholding may be the net effect of two on-going processes. Children in households with more land are frequently working (on the farm) *as are* children in households without land due to financial strains and natural disasters. Third, in the econometric results, the social capital variable, defined as the number of organizations from which one receives support, did not decrease the probability of child labor. A possible reason, according to the interviews, is that social support often involves food-for-work schemes in which children frequently work alongside their parents. In these examples, the key contribution of Q^2 has been to provide a more detailed account of likely causal mechanisms behind the observed outcomes, along with the interaction between variables (the causal tree).

(2) The Rural Livelihoods Approach

The above-mentioned *Livelihoods and Diversification Directions Explored by Research (LADDER)* research program, led by the University of East Anglia's Frank Ellis, used mixed methods to probe the determinants of rural livelihoods and poverty in select sites in Uganda, Kenya, Tanzania and Malawi (Ellis and Freeman, 2004).[25] The conceptual approach used by these studies was the sustainable livelihoods framework which has three main components: i) assets or capital, including natural, physical, human, financial and social; ii) mediating processes related to social relations, institutions, organizations, shocks and trends (concerning population, migration, technology, etc) and iii) ensuing livelihood strategies (Ellis, 2000).

Methodologically, the studies combined fixed response household survey questionnaires with Participatory Rural Appraisal (PRA) techniques including, wealth ranking, focus group discussions, institutional mapping, calendars and time lines. Household survey data provided information on assets, incomes, shocks and livelihood activities, which corresponds broadly to the first and third components of the sustainable livelihood framework. Information from the PRAs focused on the second component, mediating processes related primarily to institutions, while enriching the analysis of livelihood strategies. The use of mixed methods served to present a richer causal analysis and strengthen the causal claims made.

For example, one finding from the household survey concerns the close association of asset and income levels. While bivariate associations of this type are suggestive of causal relations, they are not conclusive for reasons related to third factors, reverse causation among others. In the studies, the causal claim was greatly strengthened by narrative information from the focus groups which outlined the processes behind the associated outcomes. In Uganda, for example (Ellis and Bahiigwa, 2003, 1004):

> *the picture that emerges [from the mixed methods] is that one or two key assets, for example education land or livestock, can provide the lead into a successful accumulation path. The poor are characterized by their inability to get an initial*

purchase on this upward process or by the occurrence of personal crises in which previous assets have been depleted to below the critical starting point.

Another key finding from the household surveys concerned the importance of non-farm income (wages, self-employment and remittances) to poverty reduction based on the association of sources and levels of income. A core contribution of the narrative information was to explain certain of the mediating processes which preclude such diversification among the poor. A number of institutional barriers were identified including payoffs to traditional leaders, burdensome licensing requirements, onerous taxes on crops and livestock and other official and unofficial roadblocks (causal mechanisms). Overall, the mixed method approach allowed for a stronger and richer causal picture to emerge by combining data on outcomes with information on the causal mechanisms and the causal tree.

(b) Determinants of Poverty Dynamics

As discussed above, poverty dynamics concerns the flows of households into and out of poverty. Analysis of flows, as opposed to stocks of poverty, allows one to distinguish at least four population groups, namely those who: i) remain poor; ii) escape from poverty; iii) enter into poverty; iv) remain non-poor. The first category is often referred to as chronic poverty while the second and third make up transitory poverty.[26] This basic categorization can be depicted in terms of a 2X2 poverty transition matrix which represents the flows of poor and non-poor households at two points of time. All of the Q-Squared studies discussed below have added value to the causal analysis of poverty dynamics by providing a fuller explanation, and better understanding, of the transition matrix.

(i) 'Interviewing' the Transition Matrix

There have been a number of recent studies which have combined panel data from household surveys with detailed studies of households who fall within different quadrants of the

poverty transition matrix[27]. Typically, the objective has been to supplement descriptive statistical or regression results from the panel data with a more detailed understanding of the processes generating outcomes. In terms of the above terminology, causal weighting is combined with a deeper understanding of causal variables, mechanisms and the causal tree.

The first such example is the study by Barrett et. al. (2006) on welfare dynamics in rural Kenya and Madagascar as part of USAID's BASIS Collaborative Research Support Program, mentioned in the Introduction. The study applies the analytical and methodological framework of Carter and Barrett (2006) to determine if poverty traps exist. The approach distinguishes between the structural component of poverty, estimated based on asset holdings and return on assets, and its stochastic component, due to chance. In the present study, the authors searched for the existence of asset poverty traps, or thresholds below which households are unable to accumulate enough assets, or increase returns on existing assets, to escape poverty. The existence of such traps implies increasing returns to assets over some higher range of the income/consumption distribution as such groups have access to higher earning opportunities than those below.

The econometric component of the methodology drew on panel datasets, of various intervals, from northern and western Kenya and Madagascar. It entailed first, estimating expected structural income change as a function of asset holdings and, next, regressing expected structural income against beginning period income. If poverty traps exist, one would expect to see declining expected income for lower income groups which subsequently reverses as increasing returns set in. Non-parametric regression results do in fact reveal such a pattern.

The key contribution of the 'qualitative' component of the study was to explain why such a pattern emerges. Detailed case studies were conducted of select households who were situated within different categories of a well-being transition matrix. Oral histories were undertaken to uncover the reasons behind the well-being trajectories of particular households. Such information revealed at least three process which were consistent with the above finding of increasing local

returns to assets: i) capital constraints precluded the poor from meeting start-up costs associated with higher return activities including zero grazing dairy production with cross-bred cows and commercial tea cultivation; ii) lack of education and higher-level connections serve as barriers to more remunerative employment; iii) vulnerability to sharp falls in income, due to disease, theft, natural disasters, etc, consign many poor cultivators to lower risk, lower return activities. In terms of the above terminology, the Q^2 analysis allows for the combination of causal weights and mechanisms with a more detailed account of the causal tree.

A second example involves Baulch and Davis' (2008) work on Bangladesh, as part of activities of the *Chronic Poverty Research Centre*, already mentioned in Section 3. This study combined three waves of panel data, between 1996 and 2003, with life histories, conducted in 2006-07, of around 300 individuals in households selected to represent the categories in the panel data-based transition matrices. The panel data allowed for the presentation of descriptive statistics on poverty transitions along with subsequent econometric analysis on determinants of poverty transitions and, consumption expenditure per capita (Quisumbing, 2011). The life histories provided a much richer depiction of the nature of trajectories of change.

Specifically, four patterns of change emerged from the narrative information, namely smooth, saw-tooth, single step and multi-step. Of these, the vast majority (146 of 184 cases) were characterized by the saw-tooth pattern in which improvements and declines follow one another intermittently. Positive changes related to business income, land, livestock and employment trigger gradual improvements which are suddenly reversed by negative shocks associated with illness of injury, dowry/marriage, death of a family member and so forth. The frequency of such events and their varied nature, make them hard to capture in standard panel household surveys. In addition, the non-linear nature of the processes in question may be missed in (parametric) models which restrict the functional form of such relationships. Overall, the Q^2 analysis allowed for the

combination of causal weights from the econometric analysis with a rich depiction of the causal tree from the life histories.

A final example of this genre of research is a collaborative study conducted in KwaZulu-Natal, South Africa by the University of Natal, the International Food Policy Research Institute (IFPRI), the University of Wisconsin-Madison and the Catholic University of Peru (Adato et. al., 2006, 2007). The study employed a very similar methodology as that of Barrett et. al. (2006), discussed above. Two waves of panel data (1993 and 1998) from the KwaZulu Natal Income Dynamics Survey (KIDS) were combined with detailed case studies of households located at different quadrants in the poverty transition matrices. As with Barrett et. al. (2006) the econometric analysis found evidence of poverty traps for those households below a critical asset threshold.

The core contribution of the case studies, conducted in 2001, was to probe in greater detail the experiences of different household types with emphasis on the events precipitating downward and upward trajectories. One of the key findings to emerge involved the role of social capital, which was not included among assets used to estimate structural income in the econometric analysis.[28] The term itself was found to mask around 20 different ways in which social assets are used, including: assistance in looking for work, burial societies, cash, rotating savings and credit associations, community gardens, etc. Of central importance was assistance in finding employment which, however, is often unsuccessful given high rates of unemployment, in particular among unskilled workers. The findings are thus supportive of the underlying thesis about structural poverty, in that social capital is not a viable pathway out of poverty in the absence of access to other productive assets or work. In terms of Table 2, Q^2 allowed for a better understanding of causal variables, how they interact (the causal tree) and why (causal mechanisms).

ii) The Stages of Progress (SoP) Approach[29]

The SoP approach was developed by Duke University's Anirudh Krishna in 2002 and has been applied to over 35000 households in India, Kenya, Uganda, Peru and North Carolina. Results of these studies have led to numerous publications, recently summarized in Krishna (2010a, 2010b). The present focus will be on those studies which combined information on people's perceptions about reasons for escapes from, or descents into, poverty with various forms of statistical analysis. First, the methodology is outlined in brief.

For the present purposes, there are four important steps in the SoP methodology. First, local understandings of poverty are elicited by asking communities to identify what households do, in sequence, when they emerge gradually out from a state of acute poverty, (i.e. through which 'stages of progress' do they pass). Second, a poverty line is drawn based on local understandings of the stages associated with poverty and prosperity. Third, drawing on recall data, households are classified into one of four categories in the poverty transition matrix based on their poverty status in the past and present. Fourth, reasons for escape from, and descents into, poverty of particular households are elicited from focus groups and specific households. The first two steps concern the poverty identification stage discussed in Section 3[30], while the latter two concern causal analysis.

The selection of causal variables is based on people's perceptions of reasons for descents and escapes. In fact, the causal claim is based on local knowledge of the processes which have led to changes in one's poverty status. Such information allows for the compilation of lists of principle reasons for escapes and entries based on the percentage of households which identified them along with narrative information underpinning such reasons. Accordingly, poor health and health-related expenses were found to be the main reason for descents into poverty across all studies conducted in the Global South (Krishna, 2010b). The core contribution of the analysis at this point is to provide a fuller account of causal variables along with an understanding of how they effect change (causal mechanism).

The next stage in the SoP analysis involves modeling 'reasons' with a view to provide information on causal weights. In Uganda and Peru, logistic (logit) regression models were estimated of the likelihood of falling into, or escaping, poverty (Krishna et. al., 2006a; Krishna et. al. 2006b). The relative importance of variables, conditional on all others, can be inferred by comparing the size of logit coefficients and/or odds ratios.[31]

A variant of this approach, in Gujarat India, entailed exploration of 'net events', which is simply the difference between positive and negative events experienced by the household (Krishna and Lecy, 2008). Visual inspection of the relationship between net events and change in poverty status reveal a sigmoid ('S-shaped') pattern with a diminishing (but positive) effect of the number of events above three and below negative two. Subsequent regression analysis found that a 'net event' variable remains significant even when conditioning on various types of individual events experienced by households. In addition, a technique known as association discovery, or market basket analysis, was used to identify events commonly grouped together, which entered the model as interact terms. Accordingly, model results provided an indication of the relative importance of particular events in explaining changes in poverty status (causal weighting), along with the relationship between such events (the causal tree).

(c) Model Specification

The preceding sub-sections have addressed specific ways that Q^2 approaches have facilitated causal analysis of poverty status and poverty dynamics. Here, examples are presented of how various types of narrative information have proved useful for purposes of modeling more generally.

(i) Searching for 'instruments'

A first example, not directly related to poverty, illustrates the so-called 'participatory econometrics' approach advocated by Vijayendra Rao of the World Bank (Rao, 2002, 2003). In

their study of sex workers in Calcutta, Rao et. al., (2003) sought to estimate the revenue loss, or compensating differential, associated with condom use. The main econometric problem is that unobserved characteristics of sex workers, which are correlated *both* with condom use and prices, can bias results. For example, if sex workers with more desirable, but unobserved attributes, are better able to require condom use of clients *and* to command high prices, then there will be a downward bias in the value of the differential.

The key Q^2 contribution was to use ethnographic data to search for an instrumental variable, or instrument, to deal with the econometric problem. When attempting to estimate the causal effect of x on y, an instrument is a third variable which affects y only through its affect on x. In this case, it must affect the price of sex acts only through its effect on condom use, and not be correlated with unobserved variables which also affect prices. Through semi-structured interviews, the research uncovered just such an instrument. The All India Institute of Public Health and Hygiene has initiated an HIV/AIDs awareness program throughout the area which was implemented in a seemingly random manner. Further, participation in the program appeared to be effective at promoting condom use. Accordingly, participation in this program was used as an instrument to estimate the relationship between condom use and price. In terms of the terminology of Table 2, Q^2 facilitated the selection of causal variables for modeling purposes.

(ii) Selecting variables and uncovering relationships between them

A second example is de Weerdt's study of poverty transitions in Kagera, Tanzania, which was undertaken as part of the World Bank's aforementioned *Moving out of Poverty* study (de Weerdt, 2010). The study drew on the Kagera health and Development Survey (KHDS) which collected panel data in 1994 and 2004 along with focus group discussions and life histories. Econometric analysis was performed on the data with a view to predict 2004 asset values on the basis of 1993 household characteristics. A comparison of model predictions with actual 2004 data revealed significant discrepancies. In particular, only around half of those whose asset values

were predicted to increase actually did so. The key role of Q^2 analysis, was to use narrative information to explain why certain households had 'defied their economic destiny'.

The narrative information suggested a number of factors as explanations of deviations from predictions of the model. Concerning 'unexpected losers', the two main types of reasons included intervening events between waves of the panel such as agricultural shocks, mortality, illness and widowhood or death along with variables not included in the survey such as alcoholism, bad marital relations and lack of exposure to outside information. With respect to 'surprise winners,' missing variables in the survey such as exposure to outside ideas and networks were important as was the incorrect specification of the causal structure of the model, in particular, the interaction between remoteness and initial conditions.

The life histories and focus groups suggested reasons why the interaction between initial conditions and remoteness, and not only their individual effects, was important by contrasting the situation in remote and non-remote villages. In the latter, initial conditions proved less important due to opportunities associated with trade, namely: the availability of employment as casual laborers for traders; the emergence of business relationships with outside traders; the influx of money and access to new ideas and networks outside the village. These positive effects were absent in remote villages which compounded the effects of poor initial conditions. In light of these findings, a re-specified model was estimated including an interact variable of remoteness and initial conditions which proved to be statistically significant. In terms of Table 2, the contribution of Q^2 was to aid in the specification of causal variables and their interrelationships (the causal tree) along with an understanding of the underlying causal mechanisms at work.

A final example concerns the econometric estimation of panel data from the *Chronic Poverty Research Centre's* study on Bangladesh mentioned above. As noted, the said study combined panel data with life histories, in addition to focus group discussions at the start of field work. The contribution of Q^2 to and model specification is aptly described by Agnes Quisumbing who conducted the econometric work:

Nesting a quantitative analysis of poverty dynamics within a fully-integrated qualitative and quantitative study has also yielded insights that might not have been possible with one approach alone. The focus group discussions, conducted prior to the fielding of the quantitative survey, brought out specific issues that were addressed through the design or adaptation of specialized questionnaire modules, such as those focusing on shocks. While the shocks module was similar to those administered in other countries, its adaptation to the Bangladesh context—particularly the disaggregation of illness shocks into income losses and medical expenses—was reinforced by the focus group discussions. The life histories work identified the severe deleterious effects of combined dowry and illness expenses as an important factor that put households on a downward life trajectory. This led to the re-specification of the shocks variables to include these combined shocks, which have been found to reduce the probability of moving out of poverty (Quisumbing, 2011, 54).

Otherwise stated, Q^2 has facilitated the integration of improved causal weights with a better understanding of casual variables, mechanisms and the causal tree.

5. CONCLUSION

We are now in a position to respond to the question motivated by Ravi Kanbur's challenge: are two disciplines are better than one? The above evidence suggests that, for many of the types of issues which are typically addressed in poverty analysis, there are decided benefits in using Q^2-type approaches. This does not mean that mixed methods are required to address *all* poverty-related questions, nor that they *always* add value. Nevertheless, the literature review has revealed quite a number of instances of such valued-added through the use of mixed methods.

With respect to the Identification Stage of poverty analysis, which asks who are the poor and what are their characteristics, a core contribution of Q^2 analyses has been to incorporate

poverty definitions, weights and thresholds which are 'locally meaningful'. First generation Q-squared studies revealed that they may be large discrepancies between local conceptions of poverty and definitions based on income or consumption expenditure. In so doing, challenges arose for interpersonal well-being comparisons, in particular the requirements of 'basket' and 'levels' consistency, and external validity. The core contribution of Second Generation Q-Squared analysis has been to address such challenges through techniques including: incorporation of 'locally meaningful' definitions, questions about consumption adequacy or the relative importance of dimensions of poverty in households surveys to address external validity; reliance on correlates or dimensions of poverty to address the 'basket' problem; use of statistical techniques or vignettes to address the 'levels' problem; and so forth. Overall, a richer picture of poverty has emerged which increasingly meets consistency requirements of interpersonal comparisons and the demands of external validity.

With respect to the Causal Stage, significant contributions have been made by Q^2 analyses by improving, and/or broadening, the overall causal framework, including causal variables, weights, mechanisms and the causal 'tree', and by addressing external validity. Specific examples of such value-added have been presented related to the determinants of poverty status and poverty dynamics and to model specification. The resulting analysis have allowed for closer integration of outcomes and processes in the analysis of the determinants of poverty status, better understanding of the transition matrix in the study of poverty dynamics and greater appreciation of causal variables, and their interaction, for modeling purposes. A richer causal analysis has emerged which has generated insights beyond that of any individual discipline or approach.

As discussed above, the past decade has seen a flourishing of mixed method approaches across the social sciences including poverty analysis. In many circles, the potential contribution of Q^2 approaches has been recognized and the core debate is about ways of maximizing their benefits rather than justifying their existence. The core challenge which lies ahead will be to

maintain such momentum and to continue to showcase the value-added that such approaches can provide.

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NOTES

[1] While interdisciplinarity has been quite integral to development studies since its founding (Lipton, 1971), in practice, it has followed the ebbs and flows of methodological fashion as elsewhere in the social sciences.

[2] For further discussion of these issues, see da Corta (2008) and Shaffer (2009).

[3] There are other steps which are omitted given the focus of this discussion. Specifically, for multidimensional indices, there is the question of deprivation counts, i.e. the number of deprivations required to be classified as poor (Alkire and Foster, 2011) and generally, the issue of aggregation, or ways of 'adding' up those below the poverty line (Ravallion, 1994).

[4] These issues are discussed at greater length in Kanbur and Shaffer (2007b) and Shaffer (2005).

[5] An extreme variant of this argument from 'post-development' circles is that the modern concept of 'poverty' is a 'Western' construction and imposition in the sense that it bears little relation to local categories and disparages traditional practices of frugality, simplicity and stewardship (Rahnema, 1991).

[6] The issues are complex here and depend on normative judgments about what types of 'levels' differences should be 'allowed for' when making interpersonal comparisons of well-being. Some interpersonal differences related to social circumstances (climate, social relationships) or personal characteristics (pregnancy, disability) imply higher commodity requirements to reach the same levels of achievement. Amartya Sen has addressed these issues at length over the years (Sen, 1983, 1999).

[7] Examples from this literature include: Jodha (1988); Scoones (1995); Shaffer (1998); Christiaensen et. al. (2001), Kanbur (2001); McGee (2004), Place et. al. (2007) and Wodon (2007). Similar results have been found when comparing 'standard' social indicators (e.g. Glewwe and van der Gaag (1990); Stifel et. al. (1999); Baulch and Masset (2003)) and even different measures of nutrition-based consumption poverty (Ravallion and Bidani, 1994).

[8] Some argue for subtracting welfare-reducing health expenditures from the consumption aggregates in light of this 'perverse consumption' effect (e.g. Deaton and Zaidi, 2002).

[9] A related issue concerns whether or not systematic differences exist between population groups in terms of their definitions of poverty. Research undertaken by the *Young Lives* project, reported in Crivello et. al. (2009) and Jones and Sumner (2009), found just such differences between children's and caregivers' (i.e.

parents') perspectives on child ill-being. The former tended to emphasise the nature of relationships within the household, (alcoholism, domestic violence, lack of affection from family members, social exclusion from peers), while the latter focused on basic human needs, (nutrition, health, education).

[10] The MDI included indicators of demographic composition, education, employment, assets and expenditure.

[11] The relevance of this reference period was forcefully articulated in the PRA exercises.

[12] This point is analogous to Sen's (1983) conceptualisation of poverty as absolute in the space of capabilities or functionings, e.g. being adequately nourished, but relative in the space of the commodities required to achieve this functionning.

[13] The PPA exercise was a large scale undertaking covering all districts in Rwanda's 12 provinces. In the province of Butara, all 679 of the lowest administrative unit, cells, were covered. In the remaining 11 provinces, 96 of the second lowest administrative unit, sectors, participated (Republic of Rwanda, 2011).

[14] Well-being ranking Category scores were calculated according to the formula: 100* ((N-n)/(N-1), where n is the category number and N the total number of categories (n=1 for the lowest category). So, in the case of 5 ranking categories (N=5), scores would be 0, 25, 50, 75 and 100.

[15] For example, in the case of 5 well-being ranking categories, if a statement was uttered 8 times with respect to the lowest ranking category and twice for the second lowest category the statement score (S), would equal 5, and be calculated as follows: S = ((0*8)+(25*2))/10

[16] Additional information, and sources, on vignettes can be found at the 'anchoring vignette website at: http://gking.harvard.edu/vign

[17] This is the problem of adaptive preferences or 'sour grapes', i.e. our preferences are shaped by what is attainable so, drawing on Aesop's fable of the *Fox and the Grapes*, the grapes are deemed 'sour' because unattainable (Elster, 1983). Empirical evidence with respect to health outcomes is provided by Sen (2002).

[18] Another more recent example is Hayati et. al.'s (2006) multidimensional poverty index applied to Iran in which all 14 elements are equally weighted

[19] Here, the referent is the Food Share or Food Energy Methods which are prevalent in modern poverty analysis. Other approaches, such as some variants of the Cost-of-Basic Needs approach, rely on the analyst's judgement to cost out a bundle of basic goods and services (Boltvinik, 1998).

[20] There are similarities here with other attempts to base the poverty line on outcome thresholds, say based on nutritional indicators, and forms the basis of Lipton's distinction between the poor and the ultrapoor (Lipton, 1988).

[21] As such, there are similarities to Townsend's (1979) work on poverty where he estimates, by visual inspection, a poverty line in the UK at 150% of the Supplementary Benefit. At this point, the slope in the relationship between the log of income and the value of a composite deprivation index changes abruptly.

[22] The terminology draws on Little (1998) and Schaefer (2008).

[23] There is no consensus in the literature as to the precise definition of causal mechanism (Hedström and Swedberg, 1998; Pickel, 2004) and in fact, very different accounts of their nature and functioning (Mahoney, 2001). We skirt these debates by providing concrete examples of variables which explain the 'how' and 'why' of causal relations, and as such, meet the definition of a mechanism.

[24] Unpacking multiple sources of action, which offer differ from textbook maximizing assumptions in applied micro-economics, is a area where ethnographic research has made important contributions (e.g. Berry, 1993; Mosse, 2006).

[25] The individual countries studies for Uganda, Tanzania, Malawi and Kenya appear, respectively, as Ellis & Bahiigwa (2003), Ellis & Mdoe (2003), Ellis, Kutengule &Nyasulu (2003) and Freeman et. al. (2004).

[26] Here, we are referring to the 'spells' approach to poverty dynamics rather than the 'components' approach (see Baulch and Hoddinott, 2000). The latter defines chronic poverty as those whose average inter-temporal income or consumption is less than the poverty line (e.g. Jalan and Ravallion, 2000).

[27] Other similar studies, not discussed below, are Little et. al. (2006) and Lawson et. al. (2008).

[28] It was included, however, in other modelling work using the same dataset (Mallucio et. al., 2000).

[29] A similar methodology, entitled the 'Ladder of Life' approach, was used in the World Bank's *Moving out of Poverty* studies. The methodology was introduced in Volume 2 (Narayan et. al., 2009) and combined with forms of econometric analysis in Volume 3 on India (Narayan, (Ed.), 2009). We focus on the Stages of Progress approach which preceded it.

[30] The SoP methodology is unlikely to satisfy requirements of 'basket' and 'levels' consistency required for consistent interpersonal comparisons, discussed in Section 3. With respect to basket consistency, however,

there was a remarkable degree of homogeneity across all sites concerning the initial stages of progress associated with food, clothing and shelter/home repairs.

[31] The latter provide a more intuitive understanding of coefficient values in terms of probabilities.