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**Mixing Qualitative and Quantitative Methods of
Analyzing Poverty Dynamics**

Christopher Barrett
Dept. of Applied Economics & Management, Cornell University

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Mixing Qualitative and Quantitative Methods of Analyzing Poverty Dynamics

Persistent poverty has plagued rural Africa for generations and, by some accounts, is becoming more widespread and entrenched. As a consequence, governments and donors have renewed and intensified their commitment to poverty reduction. This is reflected around the continent in poverty reduction strategy papers (PRSPs), efforts at decentralizing public goods and services delivery and the rise of participatory poverty appraisals intended to empower the poor, and a range of other policy changes. In some cases, one can legitimately wonder about the extent to which these reforms are heartfelt, rather than merely rhetorical and political, and the extent to which national and international elites are prepared to make sacrifices so as to advance an authentic poverty reduction agenda. But as one who has worked on problems of African poverty for two decades now, I feel quite comfortable asserting that there has been a palpable increase in recent years in the attention paid and sincerity surrounding questions of poverty reduction by policymakers and donors.

Increased attention paid to the blight poverty leaves on society places an onus on researchers to generate relevant, accurate and timely analysis of the nature and causes of persistent poverty. Policymakers and donors need to know who are the poor, how large are their numbers, how deep is their poverty, and where they can be found. These questions have been probed in depth for decades, typically using cross-sectional methods of data collection and analysis. What is new and exciting is the question about the dynamics of poverty: who among the poor will naturally pull themselves up by their bootstraps and exit poverty and who will stay poor for a long period – a lifetime or more – unless communities, governments and donors take appropriate interventions?

There seems a fundamental difference between short-term deprivation – transitory poverty – where the poor have every expectation of becoming non-poor reasonably soon, and long-term deprivation, the chronic or persistent poverty that too often brings hopelessness. While any sort of poverty is plainly undesirable, persistent poverty strikes

most of us as especially odious. Widespread concern nonetheless falls short of offering a clear and sensible strategy for combating persistent poverty. This requires careful study of the etiology of persistent poverty – its correlates and causes – and rigorous evaluation of alternative means of helping people avoid or escape persistent poverty. This demands rethinking of the methods we social scientists deploy in studying poverty.

To be sure, there have been notable advances in recent years in the toolkit analysts employ in studying poverty. Economists have made important advances in studying African poverty over the past decade, due in no small part to broad-scale use of the rigorous Foster-Greer-Thorbecke (FGT 1984) class of poverty measures, the increasing availability of nationally representative survey data, even panel data offering multiple longitudinal observations on individuals and households, and important efforts at disseminating cutting edge poverty analysis methods through the African Economic Research Consortium (AERC), several leading universities around the continent, including the University of Nairobi. At the same time, social scientists coming from anthropological and sociological traditions have likewise pushed the frontiers of our understanding of poverty forward, especially through the development, refinement and dissemination of various participatory methods and careful ethnographic and social analysis. The need for rethinking of methods arises not due to any failure on the part of researchers analyzing poverty.

Rather, the need for some rethinking of methods arises from the complex, multidimensional nature of the concept of poverty itself. Poverty reflects at once (i) resource insufficiency, commonly manifest in low incomes and expenditures, (ii) vulnerability to adverse shocks such as illness, violence, and loss of livelihood, and (iii) powerlessness in the political, social and economic life of one's community and country. No single measure, no matter how cleverly designed nor carefully measured, could ever provide an encompassing treatment of so complex a concept.

As a result, all the different measures and methods we presently use are flawed, even when practiced skillfully. Consider, for example, some of the flaws of the metrics we

economists commonly use. Household expenditures increase with purchases of alcohol, firearms and tobacco and with the need to pay for medical treatment for ill or injured family members or for reconstruction of homes damaged in civil unrest or natural disasters. Since we commonly interpret higher expenditures to reflect a higher level of well-being, expenditures are vulnerable to increased payments for “bads” rather than “goods”. Similarly, income measures of well-being can rise as people substitute work for leisure in response to increased stress, a phenomenon I previously termed “immiserized growth” (Barrett 1998). One could similarly critique qualitative methods used by non-economists. And there has indeed been much inter-disciplinary sniping over the years.

But just because the practitioners of different methods of poverty analysis have commonly been in conflict, does this mean that the methods are necessarily in conflict? The fundamental claim of this paper is that all of our extant (and prospective) social scientific methods are more narrow than the complex concept of poverty they try to elucidate, too narrow indeed to be fully up to the important task of providing a full and accurate characterization of the nature and etiology of persistent poverty. Thus there exists some inherent complementarity between qualitative and quantitative methods. The situation is rather like the parable of the blind men and the elephant. One, holding the trunk believed the beast to be a mammoth python, while another, touching an enormous leg, thought it a tree, and a third, feeling the thick hide of the animal’s torso, was sure he had hold of a rhinoceros. Each had discovered an important but incomplete truth. Without sharing their findings, they could never divine the majesty of the complex beast, the elephant. So too must we can learn how to integrate methods in field-based research – what Kanbur (2003) terms “simultaneous mixing” – or to iterate between methods – “sequential mixing” – so as to significantly improve the quality of our analyses of poverty, perhaps especially poverty dynamics.

This paper outlines my current thinking and recent experience in mixing qualitative and quantitative methods of data collection and analysis so as to gain a firmer and more useful understanding of poverty dynamics, especially in rural Kenya. The next section defines terms and trying to make the case that the very real differences between

qualitative and quantitative poverty analysis methods make them useful complements. Then I briefly introduce the three multi-year research projects from which I have learned and tried to implement some of these lessons with a range of colleagues from animal science, anthropology, economics, geography, range science, sociology and soil science.

Real and False Differences

Lest I be misunderstood, let me be clear that qualitative and quantitative methods are not the same. They are extremely different in important ways. But one must be careful to identify precisely the dimensions of those differences. My contention is that the differences between qualitative and quantitative methods are commonly misunderstood and that this misunderstanding impedes fruitful mixing of methods.

So what are the important dimensions of difference between the methods? Kanbur (2003) goes into this issue in far greater detail than I have space for here. But let me emphasize four key differences between qualitative and quantitative methods.

The first is with respect to data collection methods. The breadth versus depth dichotomy (or even a unidimensional continuum ranging between these two end points) sometimes offered to distinguish quantitative from qualitative methods appears unhelpful, incorrect, or both. In my experience, it seems that a more apt representation might be Euclidean, ranging from specific to general coverage on one axis and from passive to active population involvement in the research on the other axis, as depicted in Figure 1. Qualitative autobiography would occupy one corner (specific/active) of that box, a quantitative census the opposite corner (general/passive), with considerable opportunity for creative combination of qualitative and quantitative methods in between. Where one locates one's work within that grid ought to be a matter of the objectives of the research, the nature of the subjects, and the human and financial resources available to do the job.

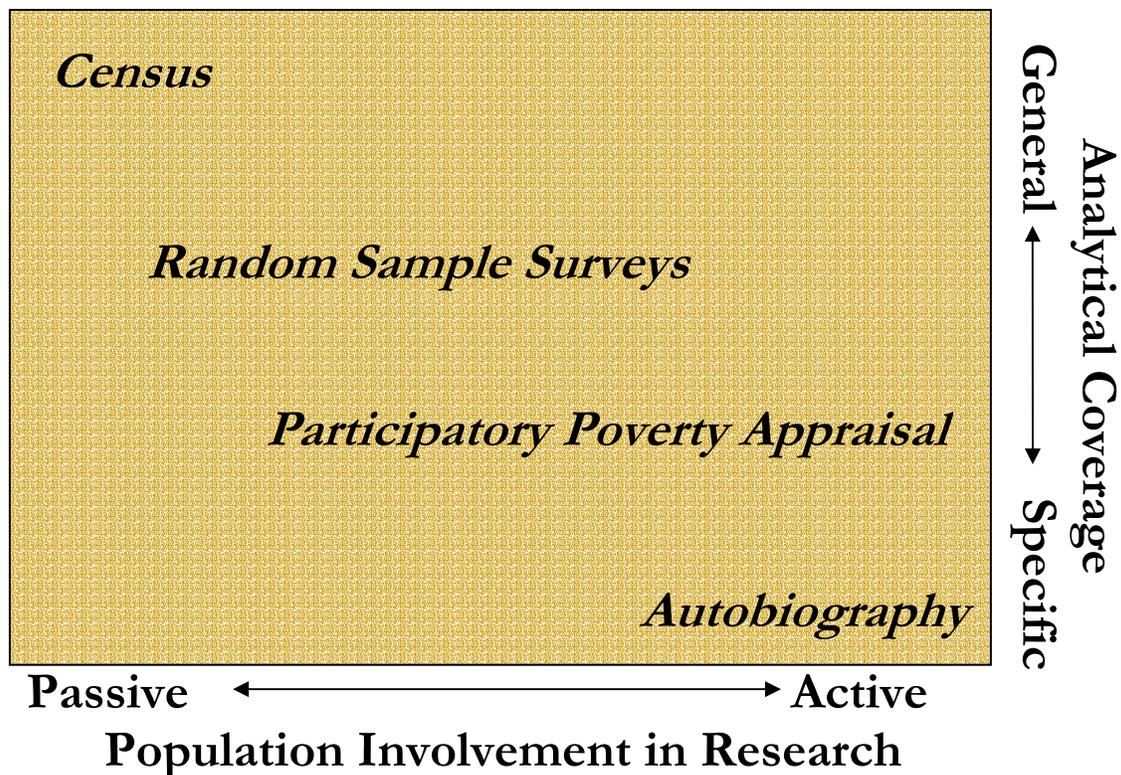


Figure 1: Differences According To Data Collection Method

The second dimension along which important differences arise concerns the type of data one collects. There exist three basic data types: (i) categorical data, including such data as identifying characteristics (e.g., gender, race, religion, clan, ethnicity), explanations and histories, can be distinguished from (ii) ordinal data – have things improved, stayed the same or gotten worse? what are your greatest fears? – for which a clear ordering exists among categories but there is no measurable “distance” between categories, and (iii) cardinal data (e.g., incomes in monetary units, children’s weight or height measures) for which numeric ratios and intervals hold precise meaning. Note that the difference is *not* between the numeric and the non-numeric. Categorical and ordinal variables can be given numeric representation. Quantitatively-minded social scientists do this all the time using dummy variables. But those of us who like to use relatively more sophisticated econometric techniques in analysis tend to depend more heavily on cardinal data.

The third dimension of important difference concerns the method of analysis one applies to data of whatever sort, collected by whichever means. The deductive tradition of economics differs markedly from the inductive tradition of anthropology. This difference is of course closely related to the specific-general data collection methods distinction drawn earlier, for one tends to collect data according to the analytical methods one plans later to employ. Where the general-to-specific, deductive approach most economists follows emphasizes the universally applicable signal in a given data set, the specific-to-general, inductive approach followed by most ethnographers and historians allows for fresh insights and honors the idiosyncratic elements of any given person or community's experience.

Finally, and closely related to the preceding three differences, quantitative analysts commonly rely on deductive methods and general, random sampling in order to be able to speak to larger-scale decision-making units: national governments and international donors. Policy-oriented poverty economists like to try to capture "the big picture" and attempt to "speak truth to power". Qualitatively-oriented researchers, meanwhile, are far more likely to be concerned about returning research findings directly to the population under study and to using the research experience to empower the poor directly, rather than trusting that policy changes on high might filter down to improve the lot of the poor within a reasonable period of time. The ultimate audience for research thus commonly differs somewhat between poverty researchers from the qualitative and quantitative traditions. Of course, this also helps account for the primacy of economic analysis in high-level policy debates about poverty and the striking under-representation of good qualitative analysis in those fora.

Having tried to define the meaningful differences between qualitative and quantitative methods of poverty analysis, it is important as well to debunk a few myths about differences that I do not believe to exist. Claims of ethical superiority – typically of qualitative methods perceived as somehow less "extractive" than quantitative methods based on closed-ended survey instruments and complex statistical analysis – typically reflect highly selective association of particular research projects with general research

methods. There is much good and bad practice on both sides. Research ethics are indisputably important and poverty analysts bear an obligation to do no harm to the population under study and, preferably, to serve as a truthful and energetic advocate for the poor. But there is no ethical superiority of one over another analysis method.

Nor is one approach necessarily more contextual than another. Quantitative researchers can probe extensively as to the history and genesis of current conditions. We already took issue with the mistaken perception that “qualitative” research is inherently non-numerical. The best social analysis uses numbers to reflect inherently cardinal concepts, whether or not it uses statistical methods to make inferences about key hypotheses. Finally, and relatedly, math does not equal rigor. It is fallacious, yet I believe a common hubris of economists, that analyses based on careful statistical methods are somehow more “rigorous” than equally careful textual, historical or ethnographic analysis.

Bad practice is bad practice, whatever the method. There is no unconditional superiority of one class of methods, be they qualitative or quantitative, over another. Rather, the germane questions appear to be:

- “when and how is good practice within a given class of methods still wanting?”
- “can another class of methods, well applied, fill in the blanks?” and
- “how can one method validate the findings of another?”

The specifics of the answers to these questions depend very much on the precise question and site of one’s research. But I have become convinced that in most poverty research, mixed methods approaches can work, each enhancing the efficacy of the other and reduces its weaknesses. To adapt and extend Leamer’s (198??) famous injunction, it is sometimes important to take the “con” out of econometrics and to push beyond the “part” of participatory methods. Much of the challenge lies in reconciling vocabulary and data that do not correspond across different units or methods or analysis and in stimulating a culture of respectful inquiry that feeds on the creative tension of mixing methods.

Examples from Research in Rural Kenya

For the remainder of this paper, I wish to share with you some of the lessons I have learned on the matter of mixing methods from four ongoing, multi-year collaborative research projects funded by the United States government, three by the United States Agency for International Development (USAID) and one by our National Science Foundation. The results from these projects remain preliminary at this point, but these projects illustrate nicely the findings that become feasible through sequential or simultaneous mixing of qualitative and quantitative research methods.

The PARIMA Project

The Pastoral Risk Management (PARIMA) project, funded by the Global Livestock Collaborative Research Support Program (GL CRSP), operates in southern Ethiopia and northern Kenya. It is an interdisciplinary project with four lead investigators drawn from four separate academic fields (anthropology, economics, range science, sociology) and a variety of local and external collaborators across several disciplines. The project began in 1997 and is presently funded through 2006. PARIMA set out to improve understanding of the etiology of vulnerability among pastoralists in arid and semi-arid lands (ASAL) of east Africa and, derivatively, what sorts of policies, projects and technologies might best reduce that vulnerability. ASAL pastoralists are extraordinarily poor, with their poverty manifest in powerlessness (in national and often local politics), meager opportunities (the harsh climate limits agricultural options while poor infrastructure and low incomes limit non-farm ones) and tremendous vulnerability (to drought, flood, banditry, political violence, human and livestock disease, grain or livestock price shocks). PARIMA has concentrated on the latter two manifestations of pastoralist poverty, opportunities and vulnerability, and on interactions among these. In complex adaptive systems such as east African pastoralism, vulnerability can lead to sudden shifts in the opportunities faced by individuals, households or communities and, reciprocally, new opportunities can fundamentally reshape the risks these peoples face. Indeed, through multiple research methods our project has begun to uncover, if not yet fully explain, the stochastic poverty traps that appear to characterize these systems (Barrett and McPeak 2003, Barrett et al. in preparation, Lybbert et al. forthcoming, McPeak and Barrett 2001).

PARIMA has employed what Kanbur (2003) terms “simultaneous mixing” or “Bayesian integration”, wherein we follow an iterative approach, using one method to inform another, then back to the first, etc., keeping multiple methods interactive throughout the research process to update researchers’ priors continuously. We have found that this built-in feedback loop yields a reasonably homeostatic (i.e., self-regulating) research mechanism that keeps pushing us towards our research objective and prevents us from drifting far from relevant or rigorous findings.

The feedback loop depends fundamentally on multi-faceted integration of qualitative and quantitative methods to ask and answer several generic questions:

- 1) What does it mean to be poor or vulnerable in this setting? How does this vary across individuals, households, and communities and over time? (i.e., are we asking the right questions of the right people at the right time?)
- 2) Derivative from 1), are we measuring the correct variables and in the right manner? (i.e., which data collection method and what data type(s) best fit the question(s) at hand?)
- 3) Is our inference of the qualitative and quantitative data on those variables consistent (a) across research methods (a test of robustness) and (b) with local expressions of understanding of the problem(s) (a test of relevance).

Procedurally, this qualitative-quantitative integration has taken place roughly as follows.

Participatory appraisal and detailed direct field observation by team members preceded questionnaire design and survey site selection. This underscored issues the importance of which we had not previously appreciated. It helped us design a locally acceptable survey strategy (e.g., safeguarding project field staff against misperceptions of ethnic bias).

“Ethnography” precedes “participatory” which in turn precedes “sampling” in the dictionary, and based on our experiences, I believe that sequencing ought to apply in the field, as well. Start by reviewing the relevant ethnographies of the area so as to be able to interpret well the products of participatory methods, then use the tools of survey-based data analysis to explore more precisely hypotheses that emerge from the PRA exercises.

We therefore began analysis on the basis of ethnographic and participatory rural appraisal (PRA) qualitative data to draw out patterns and explanations from a relatively small sample of non-representative respondents. This helped to clarify oft-misunderstood dynamics (e.g., with respect to the driving factors behind diversification out of pastoralism, see Little et al. 2001, or the absence of classical tragedy of the commons effects in southern Ethiopian rangelands, see Lybbert et al. forthcoming) and to identify issues we had not sufficiently emphasized before (e.g., human health, see Smith et al. 2000). We then presented these findings, our assessments of the extant literatures, and a draft Phase II, survey-led research design to a workshop of largely external stakeholders (donors, local and national governments, NGOs, and local researchers) for their feedback and some on-the-spot revision and re-presentation by our team, with further feedback. For the past four years we have therefore been following up the initial qualitative work with collection and preliminary analysis of quantitative data generated by repeated quarterly surveys among almost 750 individuals in 330 households across 11 sites in southern Ethiopia and northern Kenya. We have used this method effectively to explore whether pastoralists use and might benefit from modern climate forecasting techniques (Luseno et al. 2003, Lybbert et al. 2003), what constrains poor pastoralists from making better use of livestock marketing channels (Barrett et al. 2003, Barrett and Luseno forthcoming, Osterloh et al. 2004)

This is not, however, a strictly sequenced process, but a simultaneous process of ongoing dialogue between the qualitative and quantitative components of the project. We follow up quantitative survey analysis with qualitative exploration of anomalous results and puzzles and, reciprocally, follow up interesting qualitative findings with structured survey modules. For example, by asking individuals to report how many animals they owned and then adding up across individuals within households, we inadvertently discovered systematic overlapping claims to animals, revealing the importance of complex property rights in animals defined by the social origins of the livestock. This is both a potential (partial) explanation of the pastoralist marketing puzzle – why pastoralists’ sales of livestock are typically weakly responsive to changing market or ecological conditions – and a natural adaptation to the market problem, wherein breeding stock are largely

unavailable for purchase, so communities tie others' hands to prevent the export of fertile heifers. Similarly, our questionnaires integrate open-ended questions that are designed to explore matters tough to frame precisely through traditional survey instruments (e.g., historical perceptions, indigenous climate forecasting methods). And we simultaneously pursue studies of livestock marketing through quantitative analysis of price data and through intensive participant observation and interviewing of traders so as to understand the social relationships that underpin trader networks. I have found that this ongoing, creative tension between qualitative and quantitative methods helps illuminate both key findings that hold up across disciplinary research traditions and findings that, while interesting, appear fragile and therefore a risky foundation for policy prescription.

Moreover, the research is intended to be integrated with project's outreach activities which, through separate funding, include community-level participatory identification of priority needs so as to help spark pilot activities to be accompanied by qualitative action research. We try to follow the traditions of bidirectional research-extension linkages, wherein findings flow both from practitioners to researchers and vice versa. We use quantitative evidence derived from past survey rounds to inform focus group and community discussions. It helps to have the subject groups themselves engaged in attempting reconciliation and explanation of data from different source levels.

Reconciling individual and group level responses is not always simple. Individuals may either deceive or speak more frankly in private, so one can never really be sure whether privately or publicly collected data offer more reliable representations of elusive truths. Hence the value of mixing methods and the fora from whence we derive data and thus analyses.

Let me offer a specific example of a mixed qualitative-quantitative tool that has proved quite useful (Smith et al. 2000, 2001). Our team developed an open-ended technique for getting people to identify and rank threats that concern them. We did this first in purposively/opportunistically selected focus groups, wherein the field leader (an anthropologist) took notes on explanations of these assessments and on the context. We recorded these ordinal data in numeric form, then subsequently constructed a simple

(pseudo-cardinal) index. Having georeferenced all the points using a handheld global positioning system (GPS) unit, the geographer on our team could construct contour maps of risk assessment, polygonal maps of ethnic territories, and link these to extant biophysical data (e.g., rainfall), permitting quite useful and original spatial analysis. For example, we found that perceived vulnerability to drought is *positively* correlated with mean rainfall because of the differential mobility associated with various chosen activities. This led to a more fundamental, if not entirely original, insight that vulnerability to specific forms of risk is endogenous even when the biophysical shock itself (e.g., low rainfall) is exogenous. We could then also analyze the data using limited dependent variable econometric methods, using the ethnographic notes from the original focus group interviews to provide causal explanations of the observed statistical correlations. This process uncovered important structural patterns of heterogeneous risk assessment between men and women, rich and poor, Ethiopia and Kenya, pastoralists near and far from towns, etc. Since rangelands policies have historically treated pastoralists as a homogeneous population, this analysis has revealed unintended distributional and targeting effects of past policies (e.g., borehole development, pasture improvement). Of course, the lingering questions from the first round of work concerned the representativeness of risk assessments by purposively selected groups and the intertemporal stability of risk assessments. We therefore built the participatory risk assessment instrument into individual-level questionnaires fielded every three months over the course of two years so as to track more micro-level and temporal variation in risk assessment and to match randomly sampled individuals' *ex ante* risk assessment to their *ex post* experiences of shocks. We are now analyzing those data and should have results to share within a few months.

The BASIS CRSP Project

The Rural Markets, Natural Capital and Dynamic Poverty Traps in East Africa project, funded by the funded by USAID's BASIS CRSP from 2000-2004, is likewise an interdisciplinary project with a variety of local and external collaborators across several disciplines covering two sites in the central and southern highlands of Madagascar, three sites in the central and western highlands of Kenya, as well as the northern Kenyan

rangeland sites also covered by PARIMA. Through empirical analysis using mixed qualitative and quantitative methods of data collection and analysis, the BASIS project aims to identify best-bet strategies to help poor smallholders escape the interrelated problems of chronic poverty and on-farm natural resource depletion. We are trying to determine the incidence, severity and causal linkages behind prospective “poverty traps”, as well as to identify the most promising approaches to reducing the incidence and severity of chronic poverty, especially in ways that support agricultural productivity growth and repletion of degraded soils.

Studying poverty dynamics is even more complicated than measuring welfare at a single point in time, no matter which method(s) one employs. Repeated observations on the same respondents creates longitudinal observations on a cross-section, in the case of the BASIS project, of households. Intertemporal comparisons of real (i.e., inflation-adjusted) measures of income or expenditures depend fundamentally on the deflators used. Problems of sample attrition, household splitting or consolidation – especially if these phenomena prove non-random¹ – changing survey designs and survey implementation teams, etc. can all affect inference by subtly changing the statistical representativeness of the panel sample, the definition of variables, or both. Furthermore, life cycle effects may come into play if households tend to, for example, accumulate assets through their adult working years and then decumulate assets later in life, although the limited direct evidence on the importance of these effects suggests they may be limited in developing country settings.² We suspect that life cycle effects may be further attenuated in rural Africa by the advent of the HIV/AIDS pandemic, which commonly necessitates rapid liquidation of assets to meet health care costs. Furthermore, the causal mechanism underpinning observed welfare dynamics – and, derivatively, what policy might do to prevent descents into poverty and to facilitate climbs out of it – do not automatically appear even when we measure income, expenditure or asset transitions accurately. For example, while we know that just over ten percent of our Vihiga District sample fell into

¹ See Alderman et al. (2001), Falaris (2003) and Rosenzweig (2003) for good discussions of the problems of sample attrition and endogenously changing household structure, as well as some suggestive empirical evidence that concerns about attrition bias may be overblown in panel data sets from developing countries.

² Deaton (1992, 1997).

poverty between 1989 and 2002, while just over twenty percent climbed out of poverty over the same period, our quantitative survey data don't give us a clear indication as to why these transitions occurred and for the particular households we see crossing the poverty line over time.

In order to breathe life into these numbers, to cross-check their accuracy and to gain deeper insights into the causality behind observed welfare transitions, we followed up the panel survey data collection with qualitative poverty appraisals in each site. This involved both community-level focus group meetings and key informant interviews to try to establish local conceptualizations of poverty and community-level phenomena that have affected the observed trajectories of most households (Mango et al. 2004). We followed up these group meetings with in depth case studies of selected households so as to construct social-historical profiles of distinct household types characterized by observed welfare transitions. We constructed household-level per capita income transition matrices – reflections of income status above or below the poverty line in each survey period – for each site in order to establish which households had been poor in each survey period, which had exited poverty from one round to the next, which had fallen into poverty and which had consistently stayed non-poor. We wanted to be sure to interview households representing each quadrant of this matrix defined by current and past position relative to an income poverty line. We then further broke down the subsamples who remained poor in both periods and those who were nonpoor in both periods according to the direction of change in their income between periods: those with significant per capita income losses between periods, no significant change, and those who enjoyed significant per capita income gains from one survey round to the next (Figure 2). Since our interest lies in welfare dynamics, and because some dynamics do

not involve crossing the poverty line, we needed this further decomposition in order to capture the full range of measurable movements around, toward and away from the poverty line. In these household level interviews – and subsequent closing community meetings – we focused especially on understanding the historical context underpinning local households’ strategies to improve their welfare and the pathways by which certain households collapse into or escape from poverty. By complementing our quantitative work with follow-up qualitative work³, we were able to get an independent check on our statistical findings, an improved understanding of what lay behind observed changes in household well-being over time, and a set of human interest stories that are somewhat easier to communicate to policymakers and interested laypeople than are econometric results (Barrett et al. in preparation).

	Poor _t	Non-Poor _t
Poor _{t+1}	Decline	Decline
	No change	
	Improvement	
Non-Poor _{t+1}	Improvement	Decline
		No change
		Improvement

Figure 2: Qualitative Sampling Design Based On Income Transition Matrix: Stratification Based on Poor/Non-Poor Status and Intertemporal Welfare Change

The BASIS CRSP thus offers an example of sequential mixing of methods, where we use the intermediate outputs from quantitative, survey-based analysis as an input into

³ The qualitative work was generously supported by Canada’s International Development Research Centre

qualitative work based on ethnographic interviewing techniques, participatory appraisal methods and historical analysis. The qualitative results are now being used to specify econometric models for more refined quantitative analysis of the survey panel data. This method of sequentially mixing offers considerable promise for shedding light both descriptively and analytically on poverty dynamics, not just in rural Africa but anywhere.

The SAGA project

The USAID Strategies and Analyses for Growth and Access (SAGA) cooperative agreement, which links U.S.-based researchers at Cornell and Clark Atlanta Universities with partner research institutions in Kenya, among other countries, takes a "bottom-up" perspective on the problem of persistent poverty and stagnant economic growth in sub-Saharan Africa, an approach that starts from the capabilities of individuals, households, and communities -- their productivities, their vulnerabilities, their institutions, and their environment -- and which considers in detail how economic and social development can and do play out at the ground level.. A bottom-up approach naturally invites complementary research from the social sciences other than economics. While we maintain a firm foundation in economics, anthropologists, geographers, political scientists, and sociologists are actively involved as full research partners. We also emphasize dynamic issues because although economic growth and poverty reduction are inherently dynamic concepts, the existing debate on policy reform and poverty has paid scant attention to the dynamics of income, wealth, and human development. Understanding these dynamics will lead to a structural foundation for growth and development at a micro level.

In Kenya, the SAGA research program was developed through a consultative process among the participating institutions⁴ wherein we identified key policy-oriented research topics that could usefully feed into the PRSP and Kenya Rural Development Strategy (KRDS) processes. We settled on two core themes around which each participating

(IDRC) and the Rockefeller Foundation, as well as the USAID BASIS CRSP.

⁴ The SAGA Kenya partners with Cornell and Clark Atlanta are the Institute for Policy Analysis and Research (IPAR), the Kenya Institute Of Public Policy Research and Analysis (KIPPRA), Egerton

institution's SAGA research is built: (i) reducing rural risk and vulnerability, and (ii) empowerment of the rural poor. These themes take aim squarely at the problem of chronic poverty as experienced by many rural Kenyans today. The research follows the simultaneous mixing design in that the institutions work in parallel on common topics following their own chosen methods, with regular interaction so as to facilitate feedback between, for example, those doing quantitative, survey-based work on the role of producer groups in improving small farmers' livelihoods and those doing qualitative case study research on how decentralization of agricultural extension services might (or might not) accomplish that same goal. We remain at a relatively early stage in the process, but there is considerable promise in learning to integrate methods and products across researchers and institutions in this manner.

The NSF Biocomplexity Project

In 2003, a group of biological and social scientists began a four year research project aimed at uncovering the coupled dynamics of human and natural systems in farming communities in Kenya's central and western highlands with an eye toward getting a better sense of what interventions might help stem the interrelated problems of declining soil fertility and persistent poverty among smallholder farmers. Poverty dynamics in Kenya's rural highlands depend fundamentally on the interplay between agricultural productivity, the evolution of the soils, trees and waters on which crop and livestock productivity depend, and the status of rural financial, labor, land and product markets. This necessarily involves a great deal of multidisciplinary collaboration on technical questions surrounding the evolution of soil quality and farm productivity. But the NSF project, which links with and builds on the BASIS project, combines not only soil and animal scientists' experimental data with economists observational data, all based on cardinal data collected using randomized designs and analyzed deductively, we also integrate open-ended discussions with farmers and focus groups intended to understand better smallholders' perceptions of the soils they work, how they perceive their farm management decisions to affect the future state of the natural resource base and their own

farm's productivity, and the constraints they face in managing livestock, soils, trees and water as they think best. This "cognitive mapping" of the coupled dynamics of human and natural systems as perceived by and acted upon by smallholders has become an intrinsic component of and check on our efforts to map those dynamics using more traditional, quantitative methods.

The Way Forward: Walking On Two Legs

An old proverb, the origins of which I cannot recall exactly, says "a man can stand on one leg, but he needs two to move forward". This strikes me as an apt insight with respect to the analysis of poverty dynamics today. The social sciences have a range of proven methods available for use and one can reasonably stand by any one of them to replicate the sorts of descriptive analyses with which we have all become familiar. The challenge, however, is to move forward, to push beyond the descriptive to do truly analytical work as to the causality behind persistent poverty and, derivatively, what interventions at which scales, on what timing and by which actors are most likely to yield permanent improvement in the standards of living of Kenya's, or Africa's, poorest peoples. From my perspective, there is little choice but to work harder at integrating qualitative and quantitative techniques, through simultaneous or sequential mixing of methods. The best development scholars increasingly recognize the inherent complementarity of qualitative and quantitative methods in tackling so complex a concept and intractable a problem as persistent poverty.

Let me close with a few practical suggestions based on my limited experience in trying to mix methods in research on poverty in rural Kenya. As Kenya launches its upcoming participatory poverty appraisal, it ought to situate this exercise within the sampling frame used for nationally representative statistical surveys. That way both efforts will be focusing strictly on the same population and inferences can be directly and fruitfully compared across methods. Similarly, upcoming survey rounds should include more open-ended and subjective questions about categorical and ordinal data, such as respondents' perceptions of risk and their sense of the causal mechanisms behind their current state of

well (or not-so-well) being. Above all, it is essential to build multidisciplinary teams, to keep them operational for a period of several years, and to create and maintain incentives for regular feedback within the group and between the researchers and the communities under study. No one discipline or set of individuals has a monopoly on useful data, methods or theories relevant to the challenge of combating persistent poverty. But it takes some time to establish mutual trust, a common vocabulary, shared insights on the mechanisms at work in the populations being studied, common data storage and use protocols, etc. Experience tells me that such investments pay handsome dividends.

I have been fortunate to be a part of teams supported with multi-year research funding from the U.S. government for precisely such purposes. Such projects are distressingly rare, however. Governments and donors need to establish and fund multi-disciplinary research apparatus capable of tackling the disparate dimensions of persistent poverty as manifest across nations as diverse as Kenya. This requires a change from the usual donor “hire a consultant” mindset. It also demands some real attention be paid to reconstituting graduate training in the social sciences in local universities, which have fallen into disrepair after years of underfunding, politicization and general neglect. These multidisciplinary teams need to draw increasingly from a skilled cadre of committed local researchers working independently and in concert with government and donors, perhaps backstopped by expatriate collaborators, but not led by folks like me.

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