

## **Annual Activity Report Fiscal Year 2007-2008**

**I. Research Project Title:** Understanding the impact of idiosyncratic shocks on farm productivity and household asset building and protection in Ghana, Ethiopia and Bangladesh

### **II. Collaborating Institutions and Researchers**

*Cornell University (Ithaca, NY, USA):* Prof. Christopher B. Barrett (principal investigator), Dr. Felix Naschold, Mr. Thomas Walker, Mr. Asare Twum-Barima, Ms. Aurelie Harou, Dr. Vivian Hoffmann

*Addis Ababa University, Department of Economics (Addis Ababa, Ethiopia):* Dr. Tassew Woldehanna

*Data Analysis and Technical Assistance, Ltd. (Dhaka, Bangladesh):* Mr. Zahidul Hassan  
*Institute of Statistical, Social and Economic Research, University of Ghana (Accra, Ghana):* Prof. Ernest Aryeetey (co-principal investigator), Dr. Robert Osei, Dr. Jacqueline Vanderpuy-Orgle.

*International Food Policy Research Institute (Washington, DC, and Addis Ababa, Ethiopia):* Dr. Agnes Quisumbing (co-principal investigator), Dr. Akhter Ahmed, Dr. John Hoddinott

### **III. Project Dates**

The project runs from June 1, 2007 to May 31, 2011.

### **IV. Support**

Core AMA CRSP with matching funds from Cornell University (approximately \$50,000) and leveraged supplemental funding to IFPRI from CAPRI (\$62,500). IFPRI has obtained additional funding (approximately \$500,000) from the UK Economic and Social Research Council (ESRC) to analyze the long-term impact of anti-poverty interventions, using the same data set. The World Bank, through the Ethiopian Development Research Institute has provided \$33,500 to fund IFPRI's training and capacity activities in Ethiopia. In addition, IFPRI using funds received from a consortium of donors for its Ethiopia Strategic Support Program (ESSP) will provide approximately \$180,000 to fund a new round of the Ethiopian Rural Household Survey (ERHS) in 2009. Cornell has also proposed an NSF dissertation improvement grant, and an SSRC International Dissertation Research Fellowship, each of \$25,000-\$30,000, in support of extensions of the Ghana work.

### **V. Program Overview**

Idiosyncratic risk appears to dominate covariate risk in rural incomes in Africa and Asia, indicating the potential contribution of improved local risk management of idiosyncratic risk to household asset accumulation, productivity growth and poverty reduction in developing countries. Understanding better how households differentially experience idiosyncratic risk and what mediating structures minimize the adverse dynamic effects of such risk is therefore of considerable importance for sustaining broad based economic growth and designing effective poverty reduction strategies, not just in the three project countries, but more broadly, throughout the developing world.

The project focuses on the impact of idiosyncratic risk on the dynamics of household well-being, asset accumulation and productivity. Ex ante, who trades off expected asset and productivity

growth for reduced exposure to idiosyncratic risk? Ex post, what determines the impact of idiosyncratic shocks (e.g., due to illness, theft) on households? What formal and informal institutions mediate those experiences? The research aims to clarify what existing mechanisms help households through episodes of adverse idiosyncratic shocks, to what extent different mechanisms (self-insurance, social networks, formal programs through groups or contractual and quasi-contractual arrangements), individually and cumulatively, are able to insure households against risk, what gaps in coverage exist, and how different interventions affect insurance against idiosyncratic risk and its dynamic effects on rural households' asset holdings, productivity and well-being.

In contrast to most existing empirical work, this holistic approach to studying household insurance mechanisms can provide information to policymakers about gaps in insurance coverage, about who is truly vulnerable, and what factors help mend the holes in the social safety net. We aim to establish whether some households are systematically better insured by some mechanisms than are other households, and whether asset stocks and insurance coverage co-evolve over time, reinforcing each other.

These are especially topical issues in the three project countries. In Bangladesh, long-term poverty is often caused by idiosyncratic shocks in the form of illness and injury. In Ethiopia, illness ranks as the greatest risk to long-term household welfare. Serious undernutrition of adults may trap a household in poverty as low nutritional status is highly correlated with subsequent low growth in consumption. In Ghana, idiosyncratic risk associated with illness, injury, theft and farm shocks are widespread and key determinants of current incomes. Recent findings suggest that socially excluded groups, such as new migrants and young farmers who don't belong to major clans, are least able to cope with such risks because they have minimal social networks to manage idiosyncratic risk through interhousehold transfers. Shocks appear to have persistent effects on their asset dynamics but not on those of better-connected and better-off neighbors. In each country there are different primary mechanisms which can help households recover from individual shocks: loans from NGOs in Bangladesh, burial societies in Ethiopia, and funeral societies and farming and church-related organizations in Ghana. We aim to enrich understanding of the role such institutions play and the dynamic gains from these idiosyncratic risk management mechanisms.

The project directly addresses AMA CRSP research priorities 1 ("managing risk and vulnerability to enhance asset protection and accumulation") and 3 ("asset building for growth and poverty reduction") given our project's emphasis on how risk mediates asset accumulation. It will also contribute directly to knowledge supporting USAID's strategic objectives in each project country, in particular those related to expanded economic opportunities created through equitable economic growth, and a healthier and more productive population. We also anticipate significant degree and non-degree training of research professionals and practitioner partners over the life of the project.

## **VI. Discussion of Annual Activities**

Our project's 2007-8 activities were of four broad types: data collection, data analysis, stakeholder consultation and training. Each is instrumental to the longer term objectives of the

project. This first full project year emphasized parallel research with local partners in each of the three project countries, playing to the strengths of specific data sets and to the research demands of stakeholders in each country. The four activity types are discussed in turn.

### Data Collection

*Bangladesh:* Two phases of qualitative and institutional data collection were completed in Bangladesh, both funded by CAPRI (Systemwide Initiative on Collective Action and Property Rights). The qualitative data collection built on completed life histories and examined the role of collective action (both formal NGOs and social networks) in helping households cope with shocks. The institutional data collection phase took place in April-May 2008 and focused on mechanisms used by households to cope with idiosyncratic risk. The case study drafts were written up and summarized in June 2008, but analysis has not yet been completed. Although the original plan was to examine institutional mechanisms and modalities of NGOs (and other relevant institutions) that enable households to cope with idiosyncratic risk, we decided to look at a broader range of coping mechanisms because responses to the shocks module in the survey showed that NGOs were not an important coping mechanism for households. This is probably because NGOs only lend for program purposes (even if, admittedly, credit is fungible).

*Ethiopia:* Preparatory work has begun on the ERHS resurvey, which is scheduled to go into the field in March 2009.

*Ghana:* Data collection will commence in January 2009, focusing on generating the fourth round of a panel data set initiated by Christopher Udry and Markus Goldstein (rounds 1 and 2) and Jacqueline Vanderpuye-Orgle (round 3). Preparations for the new round of data collection commenced in January 2008, when some of the Ithaca-based team visited Ghana to work with the ISSER team, visited the survey villages and held national and community level stakeholders consultations. Actual data enumeration will commence in the next fiscal year.

### Data Analysis

During the previous we started the empirical analysis of quantitative and qualitative data already available. Outputs included descriptive analysis in the form of poverty transition matrices, descriptive statistics of all variables and plots of income, consumption and asset dynamics and their relation to idiosyncratic shocks and to targeting (see list of outputs below).

*Bangladesh:* A paper on poverty dynamics in Bangladesh was finalized, and a draft paper on asset dynamics in Bangladesh written.

*Ethiopia:* Work commenced on four papers. Building on earlier work that examined the impact of shocks on consumption, the first paper looks at the impact of idiosyncratic shocks on child labor. As part of a second paper, we undertook preliminary work on the impact of long term physical disability on poverty and poverty dynamics. A third paper linked two newly available sources of nationally representative household data, the 2004 Welfare Monitoring Survey and the 2004/05 Household Income and Consumption Expenditure Survey (HICES) to extend our earlier analyses of the impact of idiosyncratic shocks on consumption and poverty. A fourth paper explores how best to target transfers of different asset types so as to maximize poverty reduction in the ERHS villages.

*Ghana:* The anticipated paper on asset dynamics and risk in rural Ghana has not yet materialized due to two types of data problems. First, unanticipated problems in access to the 2005 data delayed progress on this paper until October 2008. Second, we were not able to access the 1997/98 data in the format and shape anticipated, requiring considerable extra time in data preparation. The Cornell-based team has newly formatted the 1997/98 data and is now beginning to merge them with the 2005 data. This work, and the draft paper on asset dynamics and risk in Ghana, will be completed in time for the 2009 Ghana data collection.

In addition to these country-specific data analysis activities, the project team has been examining and identifying possible topics for the final, cross-country synthesis report that will be produced in 2010. This early planning should strengthen the synergies between the three country case studies and improve the final synthesis report. We compared survey data questionnaires from the three countries in great detail so as to identify common questions and modules across the surveys as well as gaps between them. The gaps we identified, particularly in how the Ghana survey information on shocks differs from the other two countries, is helping us redesign the survey instruments for data collection in Ghana and in Ethiopia in 2009.

#### Outreach

We have started to use our existing, extensive contacts with communities, different levels of government, and donors to stimulate discussion and bring attention to the goals of and possible range of policy lessons to be learned from this research project. We released the first project policy brief, describing the project, and disseminated it widely within USAID and to stakeholders within each of the three project countries. Moreover we set up a project website (<http://amacrsp.aem.cornell.edu/>) where we have been posting data descriptions, questionnaires, working papers, trip reports and briefing papers. We recently released a second BASIS Brief, this one reviewing the evidence on community-based risk management arrangements as instruments for managing idiosyncratic risk in low-income rural areas.

*Bangladesh:* All dissemination activities in Bangladesh and travel to Bangladesh were funded by the Chronic Poverty Research Centre and CAPRI. In August 2008, IFPRI, DATA, and CPRC held a high-visibility national conference to present the results of the poverty transitions analysis to various stakeholders in Bangladesh. Because CAPRI is thinking of organizing a major workshop on gender and collective action (of which our study is a part) in October 2009, the community-level stakeholder meetings have been postponed tentatively to October 2009.

*Ethiopia:* In May 2008, results of the analysis of the WMS and the HICES was presented at a high level workshop attended by the Minister of Finance and Economic Development, senior donor representatives as well as representatives from regional governments in Ethiopia. In July and October 2008, we held a series of training and capacity building workshops on the analysis of poverty dynamics using household panel data. In addition, we completed a series of mentoring exercises designed to support junior Ethiopian researchers in their microeconomic analysis of shocks and poverty dynamics. The planned national level workshop has been postponed to October 2009 so as to incorporate results from the 2009 round of the ERHS.

*Ghana:* We held national and community-level stakeholder meetings in January 2008 and presented preliminary results based on the existing three waves of the panel survey. We will hold another round of stakeholder meetings in December 2008, immediately prior to the resurvey. In January 2008, our project also helped sponsor a highly successful, two-day Young Economists Outreach Programme organized by ISSER and the Economy of Ghana Network. This event, attended by 76 persons, connected a number of accomplished, senior economists working on Ghana with some of the country's younger economists, from universities, government ministries, and local research institutes, in order to build the younger economists' skills and contacts and to help promote the development of local economic analysis and research.

## **VII. Collaboration with other projects**

This project builds on the recently completed USAID BASIS CRSP project on "Conceptual and Statistical Foundations for the Estimation of Poverty Traps," which funded work developing concepts and methods being employed in this new effort.

In Bangladesh, the project builds on an ongoing longitudinal study funded by the Chronic Poverty Research Centre, HarvestPlus, the University of Waikato, and the Systemwide Initiative on Collective Action and Property Rights (CAPRI) of the CGIAR.

In Ethiopia, this project links to the recently funded World Bank capacity building project, "Pathways from poverty in Ethiopia: Strengthening Ethiopia's PRSP through the analysis of longitudinal household data."

In Ghana the project builds on the USAID SAGA cooperative agreement, which funded closely related policy research and outreach in Ghana and helped ISSER found the highly successful Economy of Ghana Network (<http://www.egnghana.org/>).

## **VIII. Outputs**

### **1. BASIS CRSP Publications**

Bhattamishra, Ruchira and Barrett, Christopher B. (2008) 'Community-based risk management arrangements', BASIS Brief no. 2008-06.

Christopher B. Barrett, Ernest Aryeetey, Agnes Quisumbing, Akhter Ahmed, John Hoddinott, Felix Naschold, Jacqueline Vanderpuye-Orgle and Tassew Woldehanna (2007). [\*Local Risk Management: Protecting Household Asset Building and Farm Productivity from Idiosyncratic Shocks\*](#), BASIS Brief no. 2007-03

### **2. Other Print Outputs**

Bhattamishra, Ruchira and Barrett, Christopher B. (2008) 'Community-based risk management arrangements: An overview and implications for social fund program design' (paper for the World Bank)

Hoffmann, Vivian, Barrett, Christopher B., Hoddinott, John and Woldehanne, Tassew (2008) "The impact of asset-building interventions on poverty in rural Ethiopia" draft paper.

Naschold, Felix and Barrett, Christopher B. (2007), "Do Short-Term Observed Income Changes Overstate Structural Economic Mobility?" December. Invited revise and resubmit from *Oxford Bulletin of Economics and Statistics*.

Quisumbing, Agnes and Baulch, Bob (2008) 'Assets and poverty traps in rural Bangladesh' August draft.

Quisumbing, Agnes (2007) 'Poverty transitions, shocks and consumption in rural Bangladesh: Preliminary results from a longitudinal household survey', CPRC Working Paper 105, October.

Quisumbing, Agnes (2007) 'Inheritance and the intergenerational transmission of poverty in Bangladesh: Preliminary results from a longitudinal study of rural households', December draft.

Quisumbing, Agnes (2008) 'Determinants of poverty reduction' *The dynamics of poverty in rural Bangladesh Briefing Paper No.2*, IFPRI and Chronic Poverty Research Center.

Vanderpuye-Orgle, Jaqueline and Barrett, Christopher B. (forthcoming) "Risk Management and Social Visibility in Ghana". *African Development Review*.

Woldehanna, Tassew, John Hoddinott, Frank Ellis and Stefan Dercon, 2008. "Dynamics of growth and poverty reduction: 1995/96-2004/05", draft paper.

#### *Trip reports*

January 2008 International Trip Report: Ghana, Christopher B. Barrett and Thomas Walker.

### **3. Non-Print Outputs**

Nothing prominent

#### **Press coverage in Bangladesh**

<http://www.newagebd.com/2008/apr/06/nat.html>

[http://www.thedailystar.net/pf\\_story.php?nid=30963](http://www.thedailystar.net/pf_story.php?nid=30963)

<http://nation.ittefaq.com/issues/2008/04/06/news0713.htm>

<http://nation.ittefaq.com/issues/2008/08/20/news0230.htm>

### **IX. Key findings and results**

In Bangladesh our analysis of the determinants of intergenerational transfers and the association between such transfers and the intergenerational transmission of poverty finds that women receive less schooling, land, and inherited assets than men, and also give up their inheritance to their brothers in exchange for economic and social support. While intergenerationally transferred assets, mostly controlled by the husband, increase levels of current assets and consumption, only

husband's schooling and inherited land, as well as women's social networks, help protect against chronic poverty.

Examining the relationship between assets holdings, shocks and poverty, our longitudinal survey from rural Bangladesh shows no evidence of poverty traps in the form of multiple dynamic equilibria. Results both from non-parametric and parametric estimation suggest a concave asset transition paths and only limited evidence for multiple equilibria in the case of non-land assets. It is hypothesized that the existence of well-functioning markets for labor and capital, the absence of discrete differences in livelihood strategies, and the absence of exclusionary mechanisms in rural Bangladesh, and Asia more generally, help to explain the contrast between these results and those for several African countries in the existing literature.

In Ethiopia, we find that idiosyncratic shocks in the form of illness are associated with reductions in consumption, but they appear to have no effect on child labor. The death of an adult, by contrast, is associated with increases in child labor, but this appears to depend on the identity of the adult. The death of the spouse of a male household has a large, statistically significant effect on child labor, increasing it by approximately 16 hours per week. By contrast, deaths of male adult heads or other household members have little or no effect on this outcome. Further we find no impact of long term physical disability on poverty and poverty dynamics. However, the prevalence of disability in our sample has proved smaller than we had first anticipated and, as a result, we suspect that a lack of statistical power is behind our inability to find significant impacts of disability on poverty or consumption.

By combining two newly available nationally representative household data sets, the 2004 Welfare Monitoring Survey and the 2004/05 Household Income and Consumption Expenditure Survey (HICES) in Ethiopia, we were able to extend our earlier analyses of the impact of idiosyncratic shocks on consumption and poverty. We find that illness shocks have a large, negative effect on adult equivalent consumption, reducing it by 8.9 percent in rural areas and 19.4 percent in urban areas. Severe illness is associated with an increased likelihood that a rural household is poor by 9.9 percent and that an urban household is poor by 15.0 percent.

Social insurance has the potential to fill the gap left by more formal financial markets. However, access to these social insurance mechanisms is not uniform. We find that risk management in rural Ghana varies with the extent to which people are integrated into the social fabric of the village. We identify a subpopulation that comprises some 8% of villagers that is socially invisible in that they were not known by any other villager in random matching. Socially invisible individuals tend to be younger, poorer, engaged in farming, recent arrivals to the village and have been fostered and are not members of a major clan. We find evidence for considerable risk pooling among the socially visible to the extent that individual shocks don't seem to cause large changes in consumption. In contrast, we reject risk pooling for the socially invisible subpopulation. These findings suggest that social safety nets should be responsive primarily to covariate risk and to idiosyncratic risk of the socially invisible.

In a new synthesis paper, we provide an original and extensive overview of evidence on community-based risk management arrangements (CBRMAs) observed across the developing world. The latter include traditional, indigenous, informal credit, savings and insurance

arrangements as well as newer, semi-formal community-based microfinance, storage and insurance arrangements typically introduced by the government or an NGO. Our analysis underscores the fact that risk management and poverty are often intrinsically linked. If income is endogenous, asset risk can have a more permanent impact than one-off income risk. While community-based risk management mechanisms can overcome some of the information asymmetries and enforcement costs that plague more formal mechanisms, to date there are no careful evaluations of the efficacy or the rate of return of CBRM arrangements. Such evidence, however, would be needed before commencing large scale financing of CBRM as part of social protection programs.

Empirical work on the effects of risk inevitably must rely on panel data. Much of the existing literature on risk and on welfare dynamics has to rely on panel data that cover only relatively short intervals between observations. We, however, find that (even when controlling for measurement error) the magnitude of welfare variability and, hence, of estimated risk, is systematically and inversely correlated to the time interval between panel observations. This highlights the importance of collecting long run panel data sets to properly identify the extent of structural economic mobility and risk faced by households.

#### **X. Photos, Illustrations and Graphs**

Photos sent previously from January field work in Ghana survey villages.