

## Annual Activity Report Fiscal Year 2008-2009

**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):* Dr. Chris Barrett (principal investigator), Dr. Felix Naschold, Mr. Thomas Walker, Mr. Asare Twum-Barima, Ms. Aurelie Harou

*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):* Dr. Ernest Aryeetey (co-principal investigator), Dr. Robert Osei

*International Food Policy Research Institute (Washington, DC):* 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

In the past year, Cornell and ISSER have obtained further support for the Ghana research from an NSF Doctoral Dissertation Improvement Grant (\$29,000) and from the International Growth Centre (IGC) (\$28,000). These are in addition to previously secured supplemental funding IFPRI obtained from the UK Economic and Social Research Council (ESRC) to analyze the long-term impact of anti-poverty interventions, using the same Bangladesh data set (approximately \$500,000), from the World Bank, through the Ethiopian Development Research Institute, to fund training and capacity building activities in Ethiopia (\$33,500), and from a consortium of donors for a new round of the Ethiopian Rural Household Survey (ERHS) in 2009 (approximately \$180,000). In addition, IFPRI and Cornell both contributed matching funds per the initial grant proposal.

### 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. Preliminary 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**

The 2008-9 work plan revolved around four types of activities - data collection, data analysis, stakeholder consultation and training – that are each instrumental to the longer term objectives of the project. The project continued parallel research with local partners in each of the three project countries, playing to the strengths of specific data sets and research demands of stakeholders in each country. The four activity types are discussed in turn.

### Data Collection

Bangladesh: Data collection in Bangladesh was completed in May 2008; no new data collection related to this project was undertaken this fiscal year.

Ethiopia: Additional funding received via IFPRI's Ethiopia Strategic Support Program (ESSP) enabled a new round of household survey data to be collected. This survey obtained new data on shocks faced by households over the last five years, the presence of informal networks and other mechanisms to mitigate shocks, the use – or absence – of employment created by Ethiopia's Productive Safety Nets Programme and a variety of welfare outcomes including poverty, vulnerability and consumption. Pilot testing for new modules was done in the first four months of 2009. The survey went into the field in late April 2009 and was completed by early July. Data entry and preliminary cleaning are now finished; secondary data cleaning, construction of aggregates and analysis has now commenced. Initial indications suggest that data quality is high and that attrition is low.

Ghana: Data collection on the Akuapem South panel – building on prior household survey rounds from 1997, 1998 and 2004 – commenced in February 2009. The 2009 survey comprises five rounds of bimonthly panel data on household income, consumption expenditure, farming activity and transfers, plus additional modules on social networks, shocks and risk perceptions, housing, membership of organizations and co-operatives, family background, marital attitudes and education. Four of the five survey rounds are now complete and data and cleaning entry is underway. The data collection has been supplemented by two experiments. The first tests the effect of unanticipated positive income shocks on consumption and transfers. The second tests the effectiveness, among villagers, of different incentives to contribute to public goods.

### Data Analysis

Bangladesh: A working paper on asset dynamics at the household level was released as a CPRC working paper (see list of outputs below). Draft papers have also been written on three topics: (1) gender-differentiated asset dynamics; (2) determinants of group membership and social relations (co-funded by CAPRI); and (3) institutions for risk-coping (this has yet to be finalized).

Ethiopia: Preliminary analysis was undertaken of the impact of long-term disability on welfare outcomes such as consumption and poverty. In this next year of the project, with the new ERHS data available, considerably more analysis is planned.

Ghana: Data from the 1997-98 and 2004 were reformatted and rematched across the two rounds and were used for preliminary wealth dynamics analysis. This work is ongoing. We also started to write a technical summary of the newly collected data, with summary statistics, plot and social network maps, and some analysis of the wealth dynamics since the previous survey waves (in 1997-98 and 2004). This report will also be disseminated in abridged form to the survey villages as part of our outreach efforts. We have commenced work on a second paper to analyze who are the winners and losers from major structural changes in the export pineapple market in the past decade, which have seen producers consolidate and many small farmers leave the industry. A third paper is being written which assesses the effectiveness of incentives to public goods

contribution, making use of results from field experiments conducted in the survey villages throughout the year.

### Outreach

Bangladesh: All dissemination activities in Bangladesh and travel to Bangladesh in 2008-2009 were funded by the Department for International Development-Economic and Social Research Council. In August 2009, IFPRI, DATA, and CPRC held a preliminary dissemination workshop on the research results from the project evaluating the long-term impacts of anti-poverty interventions. The community-level stakeholder meetings will take place during a CAPRI-organized workshop on gender and collective action in October 2009.

Ethiopia: In June 2009, a presentation was made on poverty dynamics in Ethiopia to the Ethiopian Development Research Institute (EDRI).

Ghana: Thomas Walker gave a seminar at ISSER in September 2009 to present a preliminary version of the paper on public goods provision. A second seminar on this paper is planned for the ISSER Annual Conference in November 2009. A follow-up visit to the survey villages is planned for March 2010, during which we will present the results of the survey, and copies of research generated, to the villagers.

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

This project builds on the earlier 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 data collected as part of a 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. Additional funding has been secured from the Department for International Development (UK) and the Economic and Social Research Council.

In Ethiopia, this project has linked with the (now completed) World Bank capacity building project, “Pathways from poverty in Ethiopia: Strengthening Ethiopia’s PRSP through the analysis of longitudinal household data.” It also works closely with IFPRI’s ESSP program which is funded by a consortium of donors and has links to high level policy makers in Ethiopia.

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.

Barrett, Christopher B., 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

Quisumbing, A. 2008. Beyond the *Bari*: Gender, Groups, and Social Relations in Rural Bangladesh. Unpublished paper, International Food Policy Research Institute (jointly funded by CAPRI).

Quisumbing, A. 2009. Do Men and Women Accumulate Assets in Different Ways? Unpublished paper, International Food Policy Research Institute (jointly funded by FAO and IFPRI).

Quisumbing, A. and B. Baulch. 2009. Assets and poverty traps in rural Bangladesh. CPRC Working Paper 143. Manchester, UK: Chronic Poverty Research Center.

Naschold, F. and C.B. Barrett. 2009. "[Do Short-Term Observed Income Changes Overstate Structural Economic Mobility?](#)" revision resubmitted to *Oxford Bulletin of Economics and Statistics*.

Vanderpuye-Orgle, J. and C.B. Barrett. 2009. "[Risk Management and Social Visibility in Ghana](#)," *African Development Review* 21(1): 5-35.

Bhattamishra, R. and C.B. Barrett. 2009. "[Community-based risk management arrangements: A review](#)," revision resubmitted to *World Development*.

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.

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>

#### **Press coverage in Ghana**

<http://www.modernghana.com/news/212143/1/g8-call-for-tighter-investment-controls-in-africa.html>

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

Since data collection has just finished in Ethiopia and is ongoing in Ghana, key findings and results to date derive almost exclusively from the Bangladesh portion of the team's workplan.

Preliminary findings from a study on the determinants of group and network formation in Bangladesh found that: (1) participation in groups is driven mostly by women's participation in NGOs, and that group membership is progressive, with higher participation rates among the poor and those with smaller sizes of owned land. This is in large part due to the targeting mechanism and pro-poor orientation of NGOs; (2) in contrast to group membership, the strength of relationships with most, but not all, types of influential persons increases with human and physical wealth; (3) husband's and wife's human and physical assets do not have the same influence on group membership and relationship strength. Husband's years of schooling strengthen relationships with local officials, judges or lawyers, doctors, headmasters, big businessmen, and big landowners, while wife's years of schooling exert a positive influence on relationships with judges and lawyers, doctors, and NGO officials; (4) indicators of relative bargaining power within marriage also have differential effects on group membership and social relations. Women who bring more assets to marriage and who live closer to their natal villages are more likely to belong to a group. Assets at marriage and distance to village of husbands and wives also have differential effects on relationship strength, indicating that spouses may not share the same preferences nor invest in the same way in relationships with powerful and influential people.

Preliminary results from the study on gender-differentiated asset dynamics in Bangladesh show that asset dynamics for husband-owned, wife-owned, and jointly-owned land and assets are different, with wife's asset accumulation paths lying closer to the origin than husbands'. This indicates that wives are less able to accumulate assets—particularly land—than men. The paper also find that husbands' and wives' asset stocks are drawn down for different kinds of shocks, with husbands' assets being liquidated in response to dowry and wedding expenses, and wives' assets being negatively affected by illness shocks. Given that illness shocks are the most frequently-reported idiosyncratic shock in Bangladesh, health insurance may be an important way to protect assets, particularly women's assets, as well as individual health.

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 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**



*Near village Debre Berhan in Ethiopia. Photo by John Hoddinott.*



*The Akuapem Ghana research team explaining a field experiment to study participants in Oboadaka. Photo by Chris Barrett*



*Tom Walker congratulating a public lottery winner in Konkonuru, Ghana. Photo by Chris Barrett*