



BASIS

Assets and Market Access Collaborative Research Support Program

AMA CRSP

Annual Report

October 2008-September 2009



BASIS AMA CRSP



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Department of Agricultural and Applied Economics
University of Wisconsin-Madison

<http://www.basis.wisc.edu>

November 2009

This publication was made possible in part through support provided by the
US Agency for International Development (USAID),
under the terms of Grant No. EDH-A-00-06-00003-00,
and by funding support from the AMA Collaborative Research Support Program
and the **Department of Agricultural and Applied Economics**,
University of Wisconsin-Madison, USA.

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Acknowledgements

Our thanks go to all who participate in the AMA CRSP for helping make this
document possible. Comments on this report and AMA CRSP work are encouraged.

Please visit the website for more information about the projects, contact
information, and upcoming events: <http://www.basis.wisc.edu>

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AMA CRSP: Where we work



THE BASIS APPROACH TO DEVELOPMENT: THE DIRECTOR'S REVIEW OF THE BASIS AMA CRSP

LAST YEAR'S ANNUAL REPORT traced the evolution of a unique BASIS approach to understanding chronic poverty. After beginning with abstract concepts, BASIS moved to empirical investigation and innovative pilot projects designed to ameliorate chronic poverty. Now beginning its fourth year, BASIS AMA CRSP findings are starting to show real impact on the ground.

The intellectual contributions at the root the CRSP are a necessary but not sufficient condition for full success. Outreach events like the conference "Escaping Poverty Traps: Connecting the Chronically Poor to Economic Growth" (EPT) are a vital component in the process of turning findings into effective policy.

The EPT conference, held in Washington, DC, February 26-27, 2009, grew out of the challenge to USAID and other development assistance agencies to find mechanisms to connect the poor, especially the chronically poor, to economic growth. The chronically poor and food insecure are often bypassed by development efforts, except in times of crisis when humanitarian assistance measures such as food aid are used. The EPT conference presented a unique opportunity for donors, development professionals, policymakers and researchers to come together to find programs, and ways of implementing programs, that include this population in growth opportunities, especially agricultural growth.

Of the nearly 250 people attending, participants included the Acting Administrator of USAID, Alonzo Fulgham, and US Senator Richard Lugar, who has emerged as a leading legislative advocate for reinvestment in foreign agricultural assistance. Joining the BASIS AMA CRSP as sponsoring organizations for the conference were USAID's Office of Agriculture, the Chronic Poverty Research Centre at the University of Manchester, and the International Fund for Agricultural Development. The NGO coalition InterAction and its many members were also extensively involved in the design of this event.

How can we do food aid better?

This question was the EPT conference starting point. Food security is linked to both poverty reduction

outcomes at the micro-level, and critical to generating economic growth through increased productivity in agriculture. However, the urgent need for innovative food aid programming became apparent after the recent global food crisis, which spurred conference organizers to seek programs that not only developed more effective food aid programs, but also that can build on the productive capacities of the rural poor.

Especially for the rural poor, it is important not to overlook the heterogeneity of rural households. Households that fall below the critical asset threshold vary in their capacity to respond to risk and in their ability to secure a stable source of food. Conversely, households near the asset threshold, or right above it, face different constraints and opportunities. For interventions to be effective, therefore, recipient households have to be differentiated by the nature of constraints they face, thus providing insight into what programming options are best suited to relax the constraints.

The EPT conference also examined how interventions can be targeted so as to avoid trade-offs that forgo the productive capabilities of the adult poor in place of investing in the future prospects of children of the poor. Interrupting intergenerational poverty is paramount for poverty reduction and agricultural growth to be sustainable and have a meaningful impact on economic development.

The conference laid out some of what we know about the chronically poor, and identified several potential areas for intervention. Researchers identified the importance of smart subsidies, and discussed the idea of subsidies to promote the production of food for consumption for ultra-poor households. There was also research presented on how to increase the efficacy of food aid, including the use of local and regional procurement of food. The theme of a critical asset threshold above which households must be to stay out of poverty emerged throughout the conference, which makes the case for both asset protection, through tools like insurance, and asset transfers, such as cash transfers or land titling programs. Researchers will continue to work on how to make these types of interventions work for the chronically poor. The BASIS AMA CRSP research

portfolio addresses many of these topics both directly and indirectly, with the goal of improving the lives of the world's rural agricultural households.

While we cannot claim that the EPT conference resolved this most difficult development challenge, it did highlight exciting new findings on successful interventions, which in turn provide guidance on how to tackle the problem. The conference also presented well-grounded and innovative programming ideas that merit testing and evaluation. A sample of the work presented at the conference follows.

Can humanitarian assistance be made a smart development tool?

The answer, it turns out, may be no, at least in some places. While there is substantial interest in turning emergency relief into a development program through local and regional procurement of foodstuffs, BASIS researcher Chris Barrett (Cornell University) and his colleagues are concerned that, implemented in the wrong time and place, local and regional procurement could actually hurt populations in both the sourcing and recipient communities.

While the promise of local and regional procurement is strong, a new BASIS research effort will develop a simple evaluative tool that can be used to characterize those communities where local and regional procurement might make sense and those where it does not. Only with such a tool in mind, will we be in a position to begin the programming innovation and analysis needed to find out if emergency assistance can become an important tool for development for poor rural households.

Building assets through cash transfers

A respondent to a qualitative poverty study remarked that chronic poverty “lays eggs,” passing itself on to the next generation. Cash transfer schemes in middle-income countries have attracted substantial attention based on their ability to help children reach secondary school. Yet what about poorer countries and younger children?

In work funded by BASIS in collaboration with the World Bank, Karen Macours (Johns Hopkins University) and her colleagues found that a conditional cash transfer program substantially boosted cognitive development of pre-school age children in Nicaragua. This finding is especially important in the light of work that shows that children from poor households fall progressively

further behind their better off peers as their pre-school years progress. Halting and reversing that slide is obviously vital if schooling is to work and the cycle of chronic poverty is to be broken.

Asset grants as a launching pad

While well-implemented cash transfer programs can build assets and future prospects for the next generation, what about the current generation of poor adults?

In a striking and careful study of a South African asset transfer program, Malcolm Keswell (Universities of Stellenbosch and Cape Town) and his colleagues report that market-assisted transfers lift poor families substantially above the poverty line. Their analysis shows that income increases over a period of three or four years, presumably as beneficiaries learn more about utilizing their expanded asset base and the opportunities it affords. Indeed, the implied long-run rate of return to the asset bundle actually transferred can only make sense if these basic asset grants crowded-in additional matching investments by the beneficiary families. This kind of program signals exactly the kind of multiplier effects that are needed to tackle the problem of rural poverty.

Making subsidies smarter with savings

In sections of sub-Saharan Africa and south Asia, poor households enjoy modest access to land. Productivity on that land is often limited. In Mozambique, subsistence farmers use no purchased inputs and on average produce well under 1000 kilograms per-hectare.

Inspired in part by a fertilizer voucher program in Malawi where maize yields have risen to more than five tons per-hectare, Mozambique and many neighboring countries are experimenting with similar efforts. Can these voucher subsidy programs be made smarter and their impacts more sustainable?

BASIS researcher Dean Yang (University of Michigan) and colleagues search for answers to this question with a pilot project that overlays fertilizer voucher coupons with improved access to savings services. Implemented in conjunction with the International Fertilizer Development Center and the Opportunity Bank of Mozambique, this multi-year effort will trace the separate and combined impacts of these interventions in an area in central Mozambique. The program will employ a variety of innovative mechanisms to promote savings (including the kind

of matched savings grants that have seen such success in the United States) and will examine if temporary subsidies can indeed be made smarter and result in long-term improvements in living standards.

LOOKING FORWARD

These illustrative areas of work hint at the exciting new findings and innovative ideas that BASIS shares with the development community through its outreach events. The examples only scratch the surface of the work currently underway in the BASIS portfolio of research and pilot projects.

Our work is organized under four themes. Below you will see the projects and pilots within each theme, along with a sample of findings.

Theme 1: Insurance and Risk Management

Micro Health Insurance in Rural Cambodia: An Evaluation of the Impact on the Stabilization of Incomes and Enhancement of Agricultural Productivity and Asset Accumulation.

In rural Cambodia, health insurance is a novel product. Potential customers have a difficult time understanding the complex contract. The expectation was that those who bought insurance would be above-average in education. A surprising finding was that those who took insurance had no more education than those who did not buy insurance.

The households covered by insurance product do not have a particularly high share of either young children or the elderly; in this way, adverse selection was not a problem. In other dimensions, however, the insurance product did face substantial adverse selection. For example, approximately 19% of insured household had someone who was disabled more than six days due to health problems. This was almost twice the rate of non-insured households.

Understanding the Impact of Idiosyncratic Shocks on Farm Productivity and Household Asset Building and Protection in Ethiopia, Ghana and Bangladesh.

The study shows that women in Bangladesh are less able to accumulate assets—particularly land—than men. A wife’s assets are more 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. Also, safety nets should be responsive to idiosyncratic risk of the “socially invisible,” which in this study comprise some 8% of villagers that were

not known by any other villager and therefore not part of community based risk management activities.

Weather Insurance, Price Information and Hedging: Financial Initiatives to Help the Poor Manage Agricultural Risk (India).

In Gujarat, India, only 5-10% of households purchased the innovative rainfall insurance product, even though rainfall variability is overwhelmingly cited by households as the most important risk they face. Household self-reporting shows that credit constraints are a key barrier to participation. A large fraction of households reported willingness to pay prices that are substantially below the current market price of insurance, which suggests that either subsidies, or improved efficiencies in pricing, may be necessary to facilitate dramatic increases in risk coverage.

PILOT: A Productive Safety Net for Northern Kenya’s Arid and Semi-Arid Lands: The HSNP+ Program.

In northern Kenya, both the pastoralists who might purchase index-based livestock insurance and the commercial financial institutions that must market, sell and underwrite the product, clearly found the insurance product appealing. Through the financial education games that we developed and fielded, people with little or no education rapidly grasped the pros and cons of insurance, revealing that these populations will be able to make informed decisions as to whether or not they should purchase products as they come on the market. Developing a software platform for the game should substantially enhance the generalizability and replicability of this tool.

PILOT: Area Based Yield Insurance for Peruvian Coastal Agriculture.

In Pisco, Peru, it appears that farmer interest in index-based weather insurance is taking root. In 2008, 43 policies were sold, covering 161.5 hectares of cotton. In 2009, in spite of a sharp reduction in the area of land cultivated in cotton in the Pisco Valley, 119 policies were sold, covering 312.5 hectares.

Theme 2: Smallholder Access to Markets

Access to Modernizing Value Chains by Smallfarmers in Indonesia and Nicaragua.

In Nicaragua, NGO subsidies have helped farmer cooperatives make key threshold investments and become formidable competitors to agribusiness companies. NGOs continue to provide technical assistance and guidance to coops on planting and harvesting schedules. Also, NGOs commonly act as

intermediaries between the supermarkets and the cooperatives—acting as guarantors of last resort, receiving purchase orders, negotiating prices, and distributing payments to farmers. When NGO subsidies diminish over time as cooperatives progressively become independent economic actors, we found two cases where cooperatives fell apart. This phenomenon is emerging in other countries, and is important to find proactive solutions to help cooperatives graduate as independent strong actors in the emerging modern market.

Contracting out of Poverty in Peru: Experimental Approaches.

Weather risk and large fluctuations in international prices can cause farmers to face a high degree of price variation across years and across producers. Because farmers do not know what prices they will get from year to year for their product, farming is very risky. Among mango farmers in this study in Peru, those who establish a long-term, contractual relationship with a firm tend to get higher prices for their mangos and receive more inputs and/or financial assistance from the mango firm. Also, the contract design improved farmer retention with the firm, and farmers who received the treatment contracts (credit and price incentives) sold a greater proportion of their production to the mango firm.

Enhancing Smallholder Competitiveness in the Face of Globalization.

Savings balances are understood to be a vehicle out of poverty for entrepreneurial households. In cooperation with Guatemala's largest public bank, Credito Hipotecario Nacional (CHN), researchers are engaged in a randomized study to find if promotion of savings has long-term effects, and, if so, how savings alters household behavior. Initially, efforts to nudge microfinance clients into savings through promotional efforts were effective, with treated borrowers more likely to make savings deposits. At peak, the program accounted for 80% of the new savings accounts opened in CHN. Over the course of time, however, the balances in the savings accounts converge across all types of clients. In the absence of penalties for failing to comply with the pre-determined savings behavior, the sharply divergent initial outcomes decrease over time.

Theme 3: Access to Finance

Understanding and Improving Financial Access for the Poor.

Researchers found that insured farmers in Ghana were more likely than the uninsured to sell to market traders instead of farmgate buyers. Rates with market traders tend to be higher, but farmgate buyers pay part in advance. It is possible that the price indemnity clause may replace use of farmgate pre-sales as an insurance mechanism. The insured farmers also spent more on chemical inputs for their insured crops.

Theme 4: Asset Building and Pathways from Poverty

Cash Transfers, Risk Management, and Asset Accumulation: Policy Evaluation for Rural Poverty Reduction in Nicaragua.

As reported at the EPT conference, researchers found that the conditional cash transfer program had significant effects on cognitive outcomes, especially language. Impacts are larger for older pre-school aged children, who are also more likely to be delayed. The program increased intake of nutrient-rich foods, early stimulation, and use of preventive health care. Households increased expenditures on these inputs more than can be accounted for by the increases in cash income only, suggesting that the program changed parent behavior. The findings suggest that gains in early childhood development outcomes should be taken into account when assessing the benefits of cash transfer programs in developing countries.

Furthermore, households that randomly received the conditional cash transfer reduce child labor more for older boys and for boys that were further behind in school. The results also show that households that randomly received a productive investment grant targeted at women, in addition to the basic conditional cash transfer benefits, show an increased specialization of older girls in nonagricultural and domestic work, but no overall increase in girls' child labor. The findings suggest that time allocation and specialization patterns in child labor within the household are important factors to understand the impact of a social program.

The results suggests that transfer programs can be an effective vehicle in changing behavior and subsequently affecting productive decisions.

Pathways for Ensuring Access to Assets: Land Reform and Beyond (Liberia and Uganda).

Women's rights to land and other assets are mediated not only by the type of formal land tenure, but also by the type of marriage they are in. The work in Uganda and Liberia indicates that strengthening women's property rights does not necessarily mean that she should have exclusive rights. It is important to understand both individual rights and rights within the household. For example, in the debate on individual versus joint titling of land, the impact on women's tenure security depends on those with whom she shares title. For women, having joint rights to all household resources may provide rights and access to more resources than if they rely on what they can accumulate on their own. But if women's rights to household resources are being eroded, then they may need formal backing for their rights.

In Liberia, the argument can be made that access to land and security of tenure is primarily a function of socioeconomic class, not of gender. Within the statutory system, women have equivalent rights to men to own and inherit property and do so. Women who lack economic resources and education, however, are disadvantaged.

Natural Capital and Poverty Reduction (Malawi and Uganda).

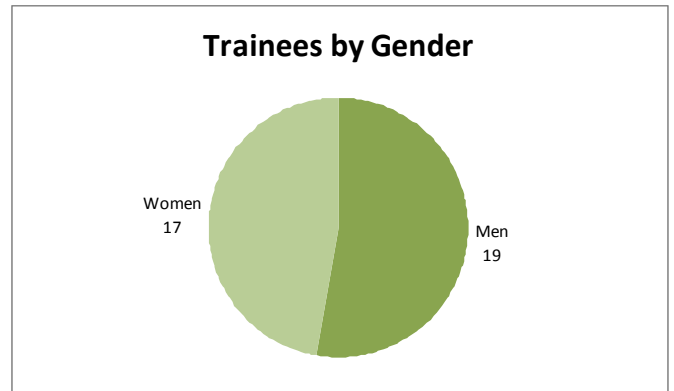
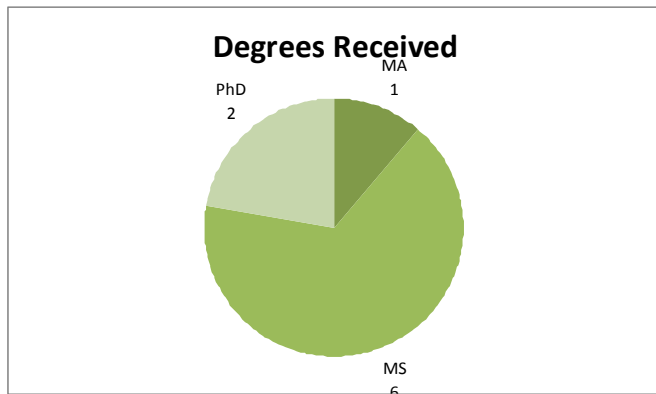
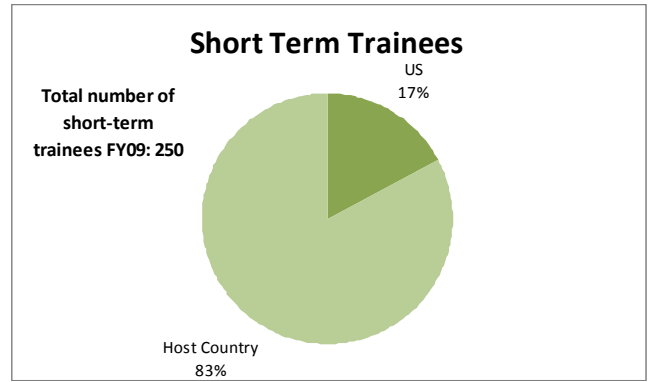
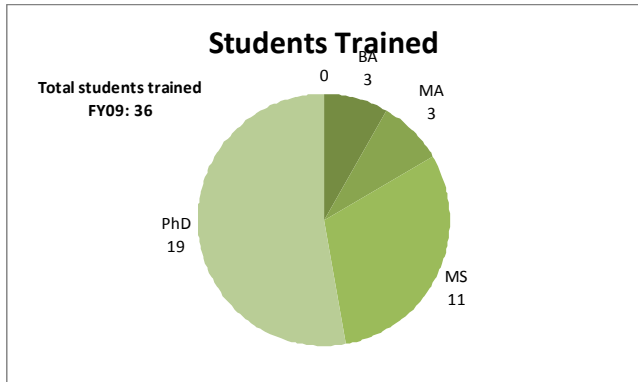
Researchers examined a broad set of major shocks encountered by rural households in Uganda, and the coping strategies used to counter the intensity of losses. In the research area, vulnerability most frequently takes the form of the loss of a productive household member or crop failure. The findings suggest such shocks result in income losses of 40% or more for many households.

As in other developing regions, financial services and other institutions are poorly developed. This places a limit on the range of coping mechanisms available to households, especially those that are asset poor and headed by women. Because of a long history of migration into the study area, the social and economic fabric is rather weak. As a result, forest extraction constitutes an economically significant part of many households' livelihood portfolios, providing as much as 70% of subsistence and cash income in some villages.

THE REPORT

The remainder of this report includes detailed reporting of the accomplishments of each project. We invite you to visit our website (www.basis.wisc.edu) to either contact us or see additional information on any of these activities.

AMA CRSP TRAINING



AMA CRSP PARTNERSHIPS

AMA CRSP U.S. Based Research Partners

Cornell University
Georgia State University
Georgia Institute of Technology
Harvard University
International Food Policy Research Institute
Johns Hopkins University
Massachusetts Institute of Technology
Michigan State University
Purdue University
Syracuse University
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University of Michigan
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World Bank
Yale University

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Domrei Consulting
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Instituto de Estudios Peruanos
International Livestock Research Institute (ILRI)
Makerere University
Norwegian University of Life Sciences
Padjadjaran University
Royal University of Phnom Penh
Universidad Rafael Landivar
University of Ghana-Legon
University of Liberia
University of Malawi

AMA RESEARCH THEME: INSURANCE AND RISK MANAGEMENT

ALL OF US ARE SUBJECT TO DIFFERENT TYPES OF RISK, both personal, such as family illness, or community wide, such as natural disaster. Risk is especially prevalent in agriculture, where farming households are subject to many health risks and where a poor rainy season may destroy a harvest. The provision of agricultural finance is very low due to the high risk involved, and it is particularly difficult for smaller producers to get access to loans. Even if a loan were available, families with access to credit markets might be reluctant to take out a loan for fear of losing collateral in case they are unable to re-pay. Yet, if an expansion of access to finance is combined with the provision of insurance and other financial products and services, then the risks to both borrowers and lenders can be reduced, and participation in financial markets will increase.

In the projects and pilots described in this section, AMA researchers look at the impact of health insurance products to protect borrowers in the case of illness, and the creation of innovative new types of crop insurance to increase the availability of agricultural finance. With a greater ability both to manage risk and engage in new production strategies, farmers can realize a higher income trajectory and improve their long-term wellbeing.

AMA PROJECTS

- Micro Health Insurance in Rural Cambodia: An Evaluation of the Impact on the Stabilization of Incomes and Enhancement of Agricultural Productivity and Asset Accumulation
- Understanding the Impact of Idiosyncratic Shocks on Farm Productivity and Household Asset Building and Protection in Ethiopia, Ghana and Bangladesh
- Weather Insurance, Price Information and Hedging: Financial Initiatives to Help the Poor Manage Agricultural Risk (India)
- PILOT: A Productive Safety Net for Northern Kenya's Arid and Semi-Arid Lands: The HSNP+ Program
- PILOT: Area Based Yield Insurance for Peruvian Coastal Agriculture

AMA BASIS BRIEFS

BASIS Brief no. 2008-08. *Altering Poverty Dynamics with Index Insurance: Northern Kenya's HSNP+*, by Christopher B. Barrett, Michael R. Carter, Sommarat Chantarat, John McPeak, and Andrew Mude. November 2008.

BASIS Brief no. 2008-07. *Insuring the Never before Insured: Explaining Index Insurance through Financial Education Games*, by Michael R. Carter, Christopher B. Barrett, Stephen Boucher, Sommarat Chantarat, Francisco Galarza, John McPeak, Andrew Mude and Carolina Trivelli. October 2008.

Spanish version available: *Asegurando a los que nunca estuvieron asegurados: Explicando el seguro por índice a través de juegos de educación financiera*.

BASIS Brief no. 2008-06. *Community-Based Risk Management Arrangements*, by Ruchira Bhattamishra and Christopher B. Barrett.

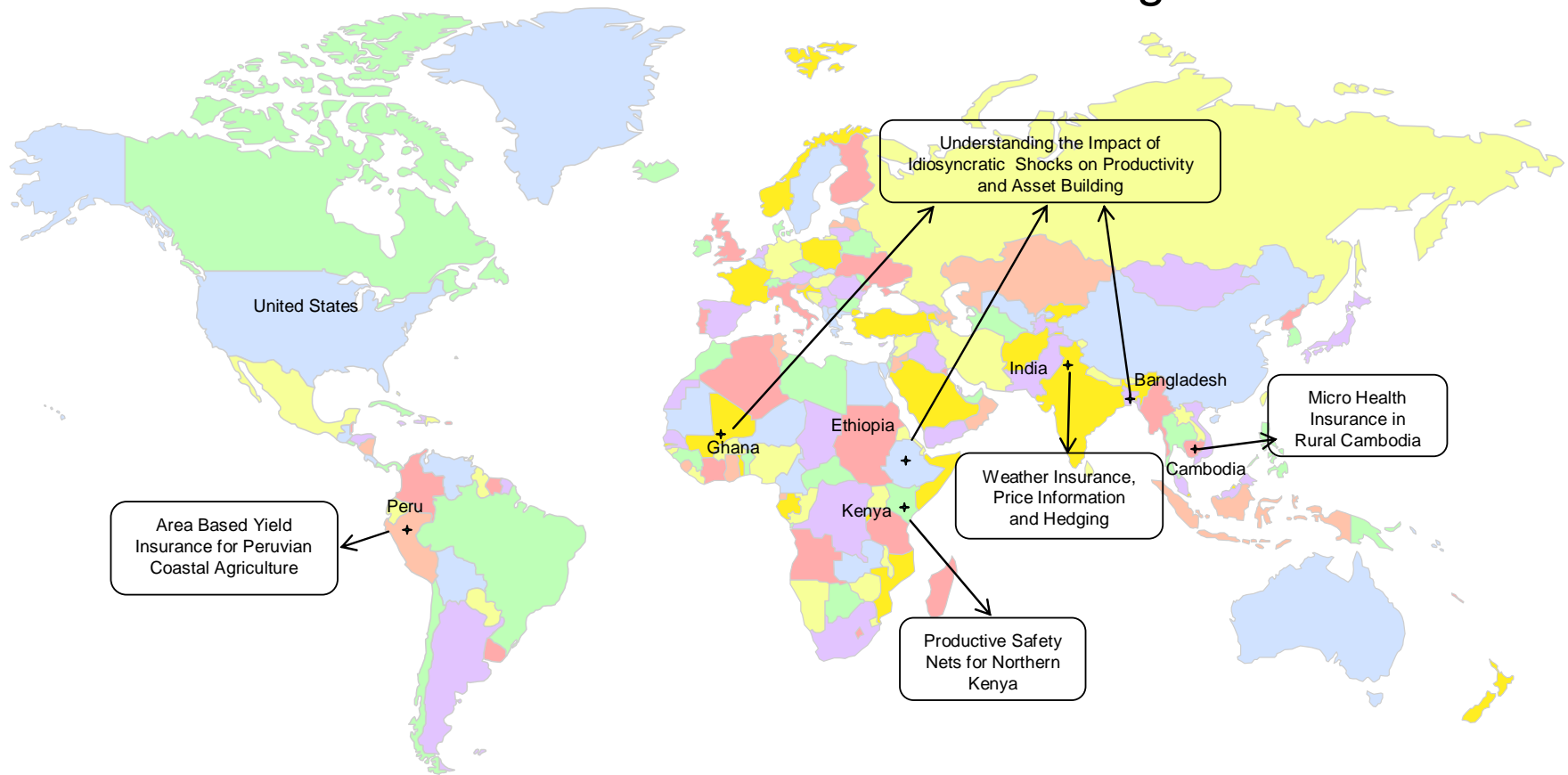
BASIS Brief no. 2008-01. *Weather Insurance, Price Information, and Hedging: Helping the Poor Manage Risk*, by Shawn Cole, Raghavendra Chattopadhyay, Stefan Hunt, Jeremy Tobacman, and Petia Topalova. January 2008.

BASIS Brief no. 2007-05. *Insuring Health: Testing the Effectiveness of Micro-health Insurance to Promote Economic Wellbeing for the Poor*, by David I. Levine, Nhung Hema, and Ian Ramage. July 2007.

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

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AMA CRSP: Insurance and Risk Management



**MICRO-HEALTH INSURANCE IN RURAL CAMBODIA:
EVALUATION OF THE IMPACT ON THE STABILIZATION
OF INCOMES AND ENHANCEMENT OF AGRICULTURAL
PRODUCTIVITY AND ASSET ACCUMULATION**

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http://www.basis.wisc.edu/projects_ama/micro_health_insurance.html

Problem and objective

The world's rural poor have the highest risks of ill health and the lowest rate of health insurance. The result is that injuries and illnesses—and the resulting loss of income and health care expenditures—often push households into poverty and lead them to sell productive assets. This evaluation provides the first rigorous evidence on the effectiveness of micro-health insurance on the ability of the rural poor to protect their economic wellbeing and livelihoods while maintaining access to quality healthcare.

Research context and policy relevance

The research conducts a randomized controlled trial of the GRET/SKY micro-health insurance program in rural Cambodia. The SKY program aims to provide protection from catastrophic health expenses, while at the same time encouraging use of public health facilities that meet quality standards. The project gives policymakers in Cambodia and around the world the ability to test a promising method of increasing utilization of health care services and preventing descent into poverty.

Additional support

Agence française de développement: \$569,310

Fung Foundation: \$98,000

Center on the Economics and Demography of Aging: \$24,072

Outputs

BASIS Brief no. 2007-05. *Insuring Health: Testing the Effectiveness of Micro-health Insurance to Promote Economic Wellbeing for the Poor*, by David I. Levine, Nhong Hema, and Ian Ramage. July 2007.

Levine, David I., and Rachel Gardner, with Gabriel Pictet, Rachel Polimeni and Ian Ramage. 2009. "Policy Brief: Results of the First Health Centre Survey."

<http://www.basis.wisc.edu/live/Health%20Centre%20Baseline%202009.pdf>

Levine, David I., Ian Ramage and Nhong Hema. 2007. "Final Evaluation Design."

http://www.basis.wisc.edu/documents/Final_Evaluation_Design_Cambodia.pdf

ACTIVITIES

DISCOUNTED HEALTH INSURANCE has been offered to approximately 2500 households, and purchased by approximately 1000 of these households. Over 90% of these households likely would not have purchased insurance without the discount. We are at a key stage in the project. If our analysis finds that the SKY program is successful, it could then be expanded to the rest of Cambodia, which could provide health insurance at affordable premiums to thousands of people currently uninsured. If we find difficulties with the program, then we can suggest sound methods for modification.

Our analysis focuses on:

- determining the characteristics of health insurance that appeal to potential buyers
- determining what type of people benefit from health insurance, and whether the targeted population benefits
- determining whether current SKY insurance methodology works as intended
- understanding how families cope with negative health shocks, and how insurance changes that behavior
- understanding whether voluntary health insurance is a viable option in a development setting, given the risk of adverse selection.

A note about adverse selection. The project seeks to inform policymakers about the role of private health insurance. If we find SKY does a good job in protecting health, increasing health care utilization among the ill, and facilitating asset accumulation, then there is more justification for policymakers to address obstacles to the spread of health insurance.

Any business serving the rural poor faces many obstacles, ranging from poor infrastructure to low literacy. Voluntary health insurance for the global poor must provide care that consumers value, lower transactions costs, and minimize adverse selection. SKY executives consider the current level of adverse selection to be a start-up cost. They anticipate less adverse selection as their market share rises. This trajectory is consistent with economic theory, and it is important to monitor whether it plays out in Cambodia.

Any voluntary insurance program faces a tension between financial sustainability and helping those in need. Thus, financially sustainable insurers in the voluntary market will tend to exclude pre-existing conditions and care for some high-cost conditions. As a result, voluntary insurance markets will typically work better when the insurance is not expected to cover chronic and very expensive conditions. These are also the conditions most subject to adverse selection. Cambodia's coverage of HIV/AIDS and tuberculosis treatment, for example, is a nice complement to SKY's voluntary insurance.



AMA researchers interviewed families to discovery why they did or did not take health insurance. Photo by Ariella Leaffer.

When adverse selection is important, insurers can follow the U.S. pattern and move to insuring groups, as when employers provide health insurance. SKY, for example, is expanding its offering of health insurance to large Cambodian employers such as the government and export-oriented factories. It is possible that more insurers in poor nations will bundle health insurance with employment or other naturally-occurring groups. Because most rural households have self-employed farmers and small entrepreneurs, but not employees, some health insurers will probably grow their market while minimizing adverse selection by working through farmers' groups, trade associations, and similar organizations.



Access to health care can keep families productive and therefore out of poverty. Photo by Ariella Leaffer.

At the same time, employer-provided or occupation-specific health insurance will never reach many of the poor. Employers also face incentives to pay for care for those conditions that can have a rapid recovery, but not for expensive and chronic conditions. Health insurance linked to an employer or occupation does not work well when people change jobs.

Thus, a nation interested in using private insurance to achieve universal coverage will eventually need some combination of subsidies for the poor and mandates for health insurance. Such regulations are appropriate to the extent adverse selection is a market imperfection like pollution and other externalities. At the same time, most poor nations can afford only small subsidies, and many of their poorest citizens cannot afford to pay much for health care. Thus, our evaluation of SKY health insurance in Cambodia must be coupled with studies of many other innovations as the world learns how to help those most in need.

Qualitative interviews and evaluation. In winter 2009, we carried out data collection for the baseline “Village Monographs,” which are qualitative surveys of households and key informants in villages where SKY has worked for several years.

The monographs aim to understand health care utilization, health-seeking behavior, and what motivates households to buy and retain SKY health insurance. A first village monograph will be available by the end of 2009. The qualitative research in the village monographs identifies the characteristics of insurance that are the most attractive to buyers and the characteristics that help keep families in SKY.

Dropouts from SKY have always been a threat to the statistical power of the evaluation. We negotiated with SKY to purchase additional coupons for those who won high-value coupons at the original village meetings. We will work with SKY to ensure insurance agents revisit all high-coupon winners and offer them the new discounts (six months coverage for the price of three months).

Household and clinic surveys. More than 5,300 households were interviewed during the first round of the household survey. The database has been cleaned. The first half of the first follow-up of the household survey was completed in August 2009. The second half will be completed in December 2009, along with a second round of village chiefs’ interviews.

The SKY program intends to insure households against health shocks, and hopes to be financially sustainable by attracting a diverse pool of members. At the same time, by partnering with public health facilities, the goal is to encourage the utilization of these facilities. Our baseline and follow up surveys can measure whether households utilize insurance as intended, by visiting facilities for necessary health care. In addition, our qualitative interviews for the village monograph have highlighted issues in the way SKY is marketed that may lead to unintended consequences for selection into the program.

The report on the clinic survey’s first round describes the health centers’ quality. Some aspects, such as opening hours and drug stocks, show improvements, while hygiene and cleanliness show substantial room for improvement. A qualitative data complement from other sources and a second round of the clinic survey (2010) will shed light on how SKY influences health center quality.

Logbook data collection. The logbook is a daily record of the health events encountered by the household. It collects exclusive data on diseases, costs and health-seeking behaviour. Collected

monthly, it provides the database with regular new information. The logbooks capture:

- seasonal cycles: a disease as dengue, for example, may follow a seasonal cycle
- the correlation of symptoms, helping to identify diseases
- accidents related to agricultural work, considering the fact that most of the sample consists of rural people
- chronic diseases, because the evaluation will be able to detect recurring symptoms
- data about mental illness. This kind of health problem is poorly documented, yet it is a serious concern for Khmer people.

FINDINGS

We find that SKY does a good job reaching its target audience, the rural poor. This is a group with high need for insurance because high health care costs can be frequent and devastating. Most SKY households farm, although many also have other small businesses.

While SKY targets the poor, it also tries to avoid financial losses. Thus, the insurance policy includes several terms that limit adverse selection. For example, SKY insurance does not cover chronic conditions such as high blood pressure. In addition, SKY does not pay for the delivery of babies within the first few months of joining. A government policy also reduces adverse selection: separate government programs pay for 100% of the cost of drugs for the very expensive chronic diseases of HIV/AIDS and tuberculosis.

SKY would have an easier time being financially sustainable if it enjoyed positive selection, where good risks purchased insurance more often. We found, though, that SKY members and non-members have similar education. This result is surprising, as health insurance is a novel product in the region. Potential customers have a difficult time understanding the complex SKY contract, and we expected SKY buyers to be above-average in education.

SKY members also show no positive selection in terms of risk aversion. That is, SKY members and non-members have similar levels of risk aversion on both of our measures: we asked respondents the

pay they would require to accept a hypothetical riskier job and how often they gamble.

Conversely, SKY would have a more challenging time being financially sustainable if it suffered adverse selection. We examined a number of dimensions of adverse selection. On some dimensions, SKY had no disadvantage. For example, in Cambodia (as in most of the world) both the very young and the elderly use more health services than others. SKY households do not have a particularly high share of either young children or the elderly.

On other dimensions, SKY faces substantial adverse selection. For example, in the year prior to our survey about 19% of SKY household has someone who was disabled more than six days due



AMA seeks to find out if voluntary health insurance is a viable option in a development setting. Photo by Ariella Leaffer.

to health problems. This was almost twice the rate of non-SKY households (11%). At the same time, SKY members and non-members reported similar rates of health care utilization during serious health problems in the three months prior to joining SKY.

Economic theory suggests that this adverse selection should be more severe at higher prices. Intuitively, at low prices, even the healthy find insurance attractive; in the extreme case of zero price everyone is covered and there is no adverse selection. We offered some randomly chosen

households a coupon to purchase SKY insurance at a steep discount. Consistent with theory, the adverse selection in terms of higher rates of disability lasting over six days only appeared for households paying the normal price.

SKY also faces adverse selection in retaining members, with those who use health care far more likely to remain SKY members than households that bought insurance but never used SKY-funded health care.

TRAINING

Undergraduate courses in research and evaluation continued at the Royal University of Phnom Penh (RUPP) during the project year. These courses cover evaluation methodology and prepare students to run their own rigorous evaluations of programs in Cambodia. To date three one-semester courses have been developed and taught with assistance from AMA.

- Introduction to Research Methods is a single semester first-year core undergraduate course.
- Experimental Design I is a single semester third-year core undergraduate course.

- Experimental Design II is a single semester third-year core undergraduate course. The prerequisite is Experimental Design I.

The courses introduce students to the concepts, principles, procedures and issues of the experimental method of studying human behavior and mental processes. By developing knowledge and skills in designing and

conducting experiments, writing an adequate and acceptable research report, as well as evaluating existing and future research, the students gain a more scientific attitude in solving relevant human problems. In the project year, 183 undergraduate students at RUPP have benefited from the capacity building support built in to the evaluation.

The courses have proved very popular with students and there is a demonstrable improvement in their understanding of research design and methods. We expect these outcomes to become apparent in the coming year as some of these students move on to designing their undergraduate thesis projects.

We also taught a graduate-level semester-long course on rigorous evaluations to UC Berkeley graduate students (<http://www.decal.org/file/800>). This course was very well received by the students.

Surprisingly we found that those who purchased the complex health insurance contract and those who did not have similar levels of education.

UNDERSTANDING THE IMPACT OF IDIOSYNCRATIC SHOCKS ON FARM PRODUCTIVITY AND HOUSEHOLD ASSETS IN ETHIOPIA, GHANA AND BANGLADESH

Principal Investigators

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http://www.basis.wisc.edu/projects_ama/idiosyncratic_shock_risk.html

Problem and objective

New evidence that idiosyncratic risk dominates covariate risk in rural Africa and Asia indicates the potential contribution of improved local risk management to household asset accumulation, productivity growth and poverty reduction in developing countries. This research aims to clarify what existing mechanisms help households through episodes of negative shocks, what gaps in coverage exist, and how different interventions affect productivity in Bangladesh, Ethiopia and Ghana.

Research context and policy relevance

Risk and poverty are key, inextricable concerns in Bangladesh, Ghana and Ethiopia. The research focuses on the impact of idiosyncratic risk on asset poverty and the mechanisms available to redress it. Each country has an existing data set that has paid significant attention to risk issues, social networks and gender and allow researchers to look at the impact of idiosyncratic risk on asset accumulation and welfare dynamics.

Better understanding of idiosyncratic risk and how it affects the long-term well being of households will inform policies that help individuals, households and communities manage risk without being overly interventionist. The research will help inform public health debates about helping households and small producers manage illness and disease, a key area of interest in Africa and beyond.

Additional support

NSF Doctoral Dissertation Improvement Grant: \$29,000

International Growth Centre (IGC): \$28,000.

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

World Bank, through the Ethiopian Development Research Institute (EDRI), to fund training and capacity building activities in Ethiopia: \$33,500

Consortium of donors for a new round of the Ethiopian Rural Household Survey (ERHS) in 2009: approximately \$180,000.

Collaborations

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/>).

Outputs

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Press coverage in Bangladesh

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

http://www.thedailystar.net/pf_story.php?id=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>

ACTIVITIES

In Bangladesh, data collection was completed in May 2008. Using this data, a working paper on asset dynamics at the household level was released as a CPRC working paper. 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).

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 commenced. Initial indications suggest that data quality is high and attrition low. Preliminary analysis was undertaken of the impact of long-term disability on welfare outcomes such as consumption and poverty.

In 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 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 be disseminated in abridged form to the survey villages as part of our outreach efforts.

We 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, changes that have seen producers consolidate and many small farmers leave the industry. A third paper is being written that assesses the effectiveness of incentives to public goods contribution, making use of results from field



Participants of a field experiment in Oboadaka, Ghana.
Photo by Chris Barrett.

In 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 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

experiments conducted in the survey villages throughout the year.

Dissemination activities in 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.

In June 2009, a presentation was made on poverty dynamics in Ethiopia to the EDRI.

We 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.

FINDINGS

Since data collection just finished in Ethiopia and is ongoing in Ghana, key findings to date derive almost exclusively from the Bangladesh work.

Preliminary findings from a study on the *determinants of group and network formation* show the following.

Participation in groups is driven mostly by women's participation in NGOs, and 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.

In contrast to group membership, the strength of relationships with most, but not all, types of influential persons increases with human and physical wealth.

The husband's and wife's human and physical assets do not have the same influence on group membership and relationship strength. A husband's years of schooling strengthen relationships with local officials, judges or lawyers, doctors, headmasters, big business people, and big landowners, while a wife's years of schooling exert



A public lottery winner in Konkonuru, Ghana.

Photo by Chris Barrett.

a positive influence on relationships with judges and lawyers, doctors, and NGO officials.

Indicators of relative bargaining power within marriage 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* show that asset dynamics for husband-owned, wife-owned, and jointly-owned land and assets are different. The results indicate that wives are less able to accumulate assets—particularly land—than men. We also find that husbands' and wives' asset stocks are drawn down for different kinds of shocks. A

husband's assets are liquidated in response to dowry and wedding expenses, while a wife's assets are 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.

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, "Community-based risk management arrangements: An overview and implications for social fund design," we provide an original and extensive overview of evidence on community-based risk management (CBRM) arrangements 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

36 million people in Bangladesh face acute poverty, hunger

From **The New Nation**

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

August 20, 2008

Staff Reporter

Bangladesh's high economic growth during the last decade has resulted in significant reductions in poverty. However, 36 million people—about one quarter of the country's population—still face acute poverty and hunger.

Addressing this challenge is the focus of the workshop, "Understanding Chronic Poverty and Poverty Dynamics in Rural Bangladesh," that began in Dhaka yesterday. Government officials, researchers, and civil society representatives will discuss new findings on why some households and communities in rural Bangladesh remain trapped in poverty, while others have successfully moved out. These findings will help identify key factors that keep people poor....

Drawing on information collected from 1,800 households across rural Bangladesh, the study found that while close to half the households surveyed moved out of poverty, around one-fifth remained chronically poor and a small percentage fell into poverty. These households were found to be extremely vulnerable to unexpected shocks, such as illness, dowry and wedding expenses, and floods.

The study focused on three key aspects of poverty in rural Bangladesh: poor people's perceptions of what makes them poor; the factors that create and perpetuate their poverty; and the patterns of loss and gain that they directly experience....

The study found that those households that have lower education levels, own less land, hold fewer non-land assets and livestock, and have many young children and elderly members, face the most difficulty escaping poverty. Unexpected shocks, such as injuries, illness and livestock deaths, significantly increase the likelihood of chronic poverty. Dowry payments and wedding expenses are a heavy burden for most households....

Additionally, the study documented eight types of life trajectories based on accounts by people of their direct experiences of moving in and out of poverty. Many of these life trajectories displayed a "saw-tooth" pattern in which improvements in people's lives are reversed by illnesses and large medical expenses, wedding expenses, and legal disputes....

"Unexpected shocks keep people in poverty and prevent them from moving out," said Agnes Quisumbing, senior research fellow at IFPRI. "This study provides a better understanding of these issues and can guide the design of more effective social protection systems for poor people in rural Bangladesh."

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 CBRM 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.

WEATHER INSURANCE, PRICE INFORMATION AND HEDGING: FINANCIAL INITIATIVES TO HELP THE POOR MANAGE AGRICULTURAL RISK (INDIA)

Principal Investigators

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Shawn Cole, Harvard Business School, USA

http://www.basis.wisc.edu/projects_ama/Weather_Insurance_India.html

Problem and objective

For poor households engaged in agriculture, output risk and price risk are major obstacles to asset accumulation. Negative price shocks can have devastating effects, but this research aims to develop a complementary pair of initiatives to mitigate these risks. The first initiative is weather insurance that will pay farmers when rainfall is low. The second links farmers to spot and futures markets, promoting forward-looking planting decisions and eventually the hedging of risk directly through commodity exchanges.

Research context and policy relevance

This activity builds on several years of pilot projects conducted in the region that produced findings on weather insurance products and futures market education. Many farmers are wary of new financial products, and reluctant to use them as part of their investment strategies. However, with help in understanding the potential benefit of the products in the long term, farmers may move into levels of higher asset accumulation and significantly reduced risk.

This project is central to the current debate in India over whether liberalization and growth will benefit poor households. This research will help to inform policies aimed at making financial liberalization a strategy that can help all levels of society. The project has the potential to inform the development of weather insurance programs worldwide, as well as help clarify the potential of futures markets to improve farmer welfare, with the goal of mitigating agricultural risk faced by the world's poor.

Collaborations

We work with the World Bank and the Federal Reserve Bank of New York on a closely related project that provided particularly large rainfall insurance policies to 50% of a sample of approximately 1,500 farming households in Andhra Pradesh, India. The rains in Andhra Pradesh were particularly poor, and the payouts are expected to be quite large (up to $\frac{1}{4}$ of the value of a farmers typical income), and we therefore expect to detect substantial consumption smoothing and investment effects.

With the Institute for Financial Management and Research, we have begun to explore a project using mobile phone technology to assist farmers with marketing their output, and solving other research bottlenecks. A separate ground staff in Ahmadabad has been hired for this project, funded by AusAID, but there will be significant complementarities and spillovers between the futures price information project and this project.

Outputs

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Cole, Shawn, Xavier Gine, Jeremy Tobacman, Petia Topalova, Robert Townsend and James Vickery. 2008. "Barriers to Household Risk Management: Evidence from India." Harvard Business School Finance Working Paper No. 09-116. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1374076#. Also appears as Federal Reserve Bank of New York Staff Report 373.

Operations manuals on the Futures Price Information and Weather Insurance. Also an instructional video on futures markets.

ACTIVITIES

Weather Insurance

In collaboration with our NGO partner organization—the Self-Employed Women’s Association (SEWA)—we developed a new weather insurance product and marketed it to households in 108 villages in the Ahmedabad, Anand and Patan districts of Gujarat. Additionally, we surveyed the 1800 households covered in our project at the time of marketing. Poor rainfall during the monsoon triggered payouts that will be made in October of 2009 for holders of this insurance policy. Data gathered in subsequent surveying will allow us to analyze the impact of these payouts.

In December 2008-January 2009, we produced a document that explains the conceptual and logistical components of designing, marketing and evaluating weather insurance products. This document serves as a resource for organizations seeking to implement similar studies. It was distributed at the agricultural risk conference, is available upon request, and will soon be available on the project website.

Also in December-January, we worked with SEWA to develop a list of features desirable in the rainfall insurance product for the upcoming monsoon season. We brought these demands to three insurance companies and worked with SEWA to develop a new product that would incorporate the needs of SEWA’s members.

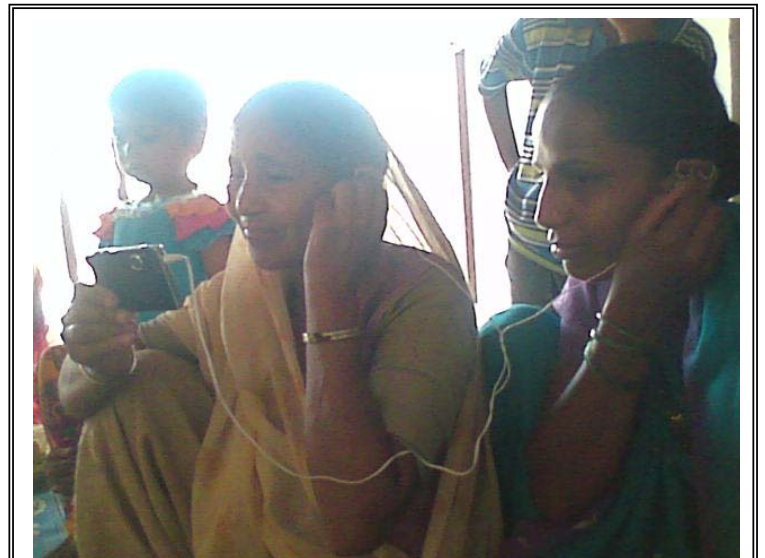
In April-May, we finalized the insurance policy, which used a three-phase policy from the government-owned Agriculture Insurance Company of India (AICI), covering both deficit and excess rainfall. We surveyed 1800 households in 108 villages. We introduced innovations in marketing process to measure price elasticity of demand, and induced variation in policy cost by offering respondents “scratch card” vouchers with randomly distributed prices.

In May, Sarthak Gaurav, a Ph.D. student at the Indira Gandhi Institute for Development Research, joined the project team as an intern and contributed to improving understanding of financial literacy as a determinant of weather insurance take up.

In October, we administered payouts in two talukas that received low rainfall during the monsoon season. NOTE: Although the insurance did not technically pay out, the research team made payouts in order to maintain a good relationship with our partner organization and to sustain interest in the product and the research program.

Price Information and Hedging (PI/H)

We conducted a fourth round of household surveying in villages in Ahmedabad, Mehsana, Surendranagar, and Vadodara districts of Gujarat. Analysis of this data has shown that our



Survey respondents watching a weather insurance marketing video that explains the benefits of the product.
Photo by Anar Bhatt.

intervention impacts farmers’ price expectations. Additional training in futures prices and improvements to our price information delivery mechanisms took place in the spring, accompanied by a third round of surveying.

In October 2008, to learn the extent to which access to futures prices influenced behavior of farmers in treatment group relative to control group, we surveyed 1080 households across 54 treatment and 54 control villages after kharif planting decisions were made.

In December-January, we produced a document that explains the conceptual and logistical components of the project, with the goal of sharing lessons learned and facilitating replication. This document was distributed at the agricultural risk

Also in July, we delivered a presentation to senior management at NCDEX, in which we described the project's operational achievements, shared findings on impacts of futures prices on price expectations, and explained the next steps. The presentation highlighted reforms that could reduce basis risk for farmers and potentially facilitate direct linkage to futures markets for farmers.

In August, the research team led the organization of a conference jointly hosted by SEWA and the Centre for Microfinance (CMF) in Chennai. Members of the research team presented findings of the project to date. Other speakers and attendees included representatives of the government, academic and corporate sectors.

Challenges. Because the focus has been on developing and evaluating projects that are cost-effective and quickly scalable, the program has been implemented primarily by SEWA members, who faced challenges in effectively delivering price information to rural areas. Initially, some price boards were not updated regularly. We worked to develop a system to check that the information was delivered regularly, using camera phones. The delivery system now is much more effective.

A broader challenge to the rainfall insurance impact evaluation has been that, by and large, the weather has been fine, meaning the insurance policies do not pay out, making it difficult to detect differences in outcomes between treatment and control. The 2009 monsoon was particularly poor in India this year, and we anticipate a number of payouts this year, although the rains in Gujarat were better than in most of the country.

FINDINGS

Regarding adoption of an innovative rainfall insurance product designed to compensate low-income Indian farmers in case of deficient rainfall during the primary monsoon season, we first documented relatively low levels of adoption of this new risk management technology. Only 5-10% of households purchase insurance, even though rainfall variability is overwhelmingly cited by households as the most important risk they face. We conducted a series of randomized field experiments to test theoretical predictions of why adoption may be low. Insurance purchase is sensitive to price, with an estimated extensive price



Participants at the Risk Mitigation in Agriculture Conference, August 2009. Photo by Alexandra Kobishyn.

conference, is available upon request, and will soon be available on the project website.

Rural distribution presents numerous challenges. In December-January, to ensure effective distribution of futures prices in as low-cost a manner as possible, we implemented new system of checking that futures prices in villages are updated promptly and accurately. We provided camera phones to our auditors, who took pictures, and sent these pictures over the GSM network to our central team, which was able to monitor price distribution in real time.

In April-May, we continued to provide spot and futures prices to households in treatment villages and interviewed the same 1080 households after delivering an improved training module in treatment villages that addressed farmers' questions over how futures prices can differ from harvest-time prices at local markets.

Dissemination activities. In July, we produced a brief documentary sharing the experiences and perspectives of farmers on risks posed by price fluctuations and the utility of spot and futures price information.

elasticity of demand between -0.66 and -0.88. Credit constraints, identified through the provision of random liquidity shocks, are a key barrier to participation, a result also consistent with household self-reports. Several experiments find an important role for trust in insurance participation. We find mixed evidence that subtle psychological manipulations affect purchase, and no evidence that modest amounts of financial education changes participation decisions. Based on our experimental results, we suggest preliminary lessons for improving the design of household risk management contracts.

While data from this year's round of marketing is still being analyzed, we can discuss some preliminary findings. First of all, by offering a wider range of discounts we were able to verify that the demand for rainfall insurance is extremely price sensitive. Previous results revealed a "one policy" puzzle—households purchased only one policy, no matter how large their risk exposure. Importantly, this year, we found that people were willing to buy multiple units of insurance, though only when the insurance is offered a steep discount. This suggests price has been a hindrance to full risk mitigation.

Our sales method, novel for a financial product, revealed household willingness to pay in an incentive-compatible manner (the Becker, DeGroot, and Marschak mechanism for estimating demand). Preliminary results suggest that a large fraction of households reported willingness to pay prices that are substantially below current market price of insurance. This suggests that either subsidies, or improved efficiencies in pricing, may be necessary to facilitate dramatic increases in risk coverage.

For the PI/H component of the project, we find some statistically significant differences between farmers in villages with access to spot and futures prices and farmers in villages without access. Farmers in treatments villages show a greater understanding of futures prices and exhibit different price expectations. While we see differences in price expectations, we do not yet see significant differences in crop choices or cultivation areas. We are conducting

Payout time for insurance company as dry spell continues

From **ExpressIndia.com** <<http://www.expressindia.com/>>

Posted: Aug 25, 2009

by **Kamran Sulaimani**

It is payout time for the government-owned Agriculture Insurance Company of India (AICI).

A total of 12 states, including Gujarat, Maharashtra, Madhya Pradesh and Chhattisgarh, have taken insurance coverage of over Rs 1,000 crore in the weather-based insurance scheme (WBIS) for this season under a pilot project.

These states have paid a premium of more than Rs 100 crore towards this insurance.

Several districts in central Gujarat have received deficient rain and any delay will further bring the crop yield down. Hence, the AICI will have to dole out a huge amount of money in settlement of claims in the state.

WBIS insurance uses weather parameters as a proxy for crop yield in compensating a farmer, which differentiates it from crop insurance.

K N Rao, DGM, AICIL, said, "We decide the claim based on rainfall data recorded in different locations. We get this data from government agencies. The deviation from rain decides compensation to be paid."

For instance, Gujarat's Tribal Department for the first time has taken an insurance coverage of Rs 63.40 crore covering over 1.4 lakh farmers for maize crop project.

AICI regional manager Kishore Kumar said, "The Tribal Department had paid Rs 6.99 crore in premium to AICI for the season this year and we have already started to pay out. For instance, in Mangrol taluka of Kutch district, we have already paid Rs 3.9 lakh under the scheme as the rainfall recorded was less than normal."

AM Tiwari, Secretary, Gujarat Tribal Department, said, "We believe at least 60 per cent crop will fail due to deficient rain."

In Dahod district, the second spell of the rain was expected between August 1 and August 25. However, in the absence of rain, AICI will have to pay out 100 per cent of the claim amount.

further analysis towards reconciling these results.

TRAINING

Approximately 40 surveyors were trained in methods for eliciting subjective probability distributions from farmers. This included learning elementary ideas in probability, and then rehearsing and implementing a script for both simple eliciting

of subjective probability distributions and a more complicated version with incentives during the third round of household surveying in the PI/H component of the project.

A number of students received training through their involvement in the project, including Sarthak Gaurav, Nirav Chheda and Daniel Stein.

A PRODUCTIVE SAFETY NET FOR NORTHERN KENYA'S ARID AND SEMI-ARID LANDS: THE HSNP+ PROGRAM

Principal Investigators

Christopher B. Barrett (PI), Cornell University, USA

Michael R. Carter (PI), University of California-Davis, USA

John McPeak (PI), Syracuse University, USA

Andrew Mude (PI), International Livestock Research Institute, Kenya

http://www.basis.wisc.edu/projects_ama/HSNP_Kenya.html

Problem and objective

The Hunger Safety Net Program (HSNP) launched in Northern Kenya provides reliable cash transfers to poor households. Given the considerable risk faced by households in the arid and semi-arid lands (ASAL) of Kenya, theory and empirical evidence both suggest that there may be considerable value added from augmenting HSNP with a productive safety net (PSN). The addition of the PSN can have three key effects: 1) stem the downward spiral of vulnerable households into poverty, 2) stabilizing pathways from poverty through asset accumulation, and 3) crowd-in finance for ancillary investment and growth. To achieve these impacts, a PSN needs to reliably and predictably compensate ASAL households for asset losses. Conventional insurance is not feasible, but researchers are working on an Index Based Livestock Insurance scheme that can be used as a foundation for the PSN program.

Policy relevance

The project evaluates impact of both the HSNP and the PSN programs. The goal is to design interventions that not only serve the immediate needs of vulnerable households, but also put them on a long-term path to asset protection and improved productivity. The evaluation looks at households receiving both the HSNP and PSN interventions, those receiving only one, and those households that are not involved in either program. This will help inform the design of future cash transfer programs, and assess the utility of including PSN programs with them. The project looks at standard headcount/poverty gap measures, as well as asset accumulation, child education and health, and income and consumption to assess the household benefits of program participation.

Additional support

USAID Borlaug LEAP program: \$19,997

DfID: \$436,535

World Bank: \$259,000.

Collaborations

This project builds on the USAID Global Livestock CRSP project on Pastoral Risk Management (PARIMA), which collected and analyzed household data from northern Kenya 1999-2005, and the Arid Lands Resource Management Project (ALRMP) based in the Ministry for the Development of Northern Kenya and other Arid Lands. Livestock mortality data from ALRMP were used to model the insurance contract and ALRMP staff facilitated field work closely associated with the development of IBLI.

The project is involved in a joint program involving a collaboration of ILRI with the Financial Sector Deepening Trust in Kenya, the Rockefeller Foundation and the World Bank's Commodity Risk Management Group aimed at collaborating to support the development of broad range of index-insurance pilots for agriculture in Kenya.

In an effort to investigate other products similar to IBLI but in a different scale and context we are investigating the feasibility of introducing index-based famine insurance in Kenya targeted to meso and macro level clients, and investigating the suitability of an IBLI-type contract for Tanzanian pastoralists.

Outputs

- BASIS Brief no. 2008-08. *Altering Poverty Dynamics with Index Insurance: Northern Kenya's HSNP+*, by Christopher B. Barrett, Michael R. Carter, Sommarat Chantarat, John McPeak, and Andrew Mude. November 2008.
- BASIS Brief no. 2008-07. *Insuring the Never before Insured: Explaining Index Insurance through Financial Education Games*, by Michael R. Carter, Christopher B. Barrett, Stephen Boucher, Sommarat Chantarat, Francisco Galarza, John McPeak, Andrew Mude and Carolina Trivelli. October 2008.
Spanish version available: Asegurando a los que nunca estuvieron asegurados: Explicando el seguro por índice a través de juegos de educación financiera.
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ACTIVITIES

Major activities involved refinement of the index-based livestock insurance (IBLI) product design, coordination with the DfID-sponsored Hunger Safety Nets Program (HSNP) around monitoring and evaluation issues, liaison activities with

been shared with commercial partners (Equity Bank as the retail-level agent/broker in northern Kenya, and UAP Insurance as the Kenyan underwriter), and with prospective reinsurers (notably, Swiss Re). The conceptual, theoretical and statistical

details of IBLI design have been written up in a manuscript for peer-reviewed publication. A nontechnical version has been drafted and will be submitted for publication in an industry-oriented journal.

Coordination with various stakeholders in the process proved exceptionally time consuming, especially for our Kenya-based partners at ILRI, but also very necessary to ensure broad-based understanding of both the potential and limitations of this product. We held scores of meetings with, among others, the Financial Sector Deepening Trust, Equity Bank, UAP Insurance, various government ministries, DfID, HSNP implementers at OXFAM, CARE, Oxford Policy

Management (OPM, which is responsible for HSNP monitoring and evaluation) and the University of Sussex Institute for Development Studies.

The team made good headway on development of the research design for monitoring and evaluating the impact of IBLI. In mid-November, OPM sent us a copy of its monitoring and evaluation handbook. This provided essential information, but was missing key details we needed to move forward on our site selection. In early December, we began putting together lists of sites we could target in our work in Marsabit conditional on what OPM and the larger HSNP project decided. Further essential details were gradually provided to our team over the course of the spring and summer. In August, ILRI hired a field coordinator, Mohammed Shibia, to facilitate the baseline survey activities and the financial education games that are to commence in October 2009. The team reviewed the HSNP



Field research team preparing to conduct a household survey in northern Kenya. Photo by Sommarat Chantarat.

commercial financial institutions in Kenya that might pilot IBLI, and with international reinsurance companies that might support that pilot. We also wrote results from the financial education games in summer 2008, the surveys in summer 2008, and the simulation based impact assessment work.

IBLI product design proceeded as planned. Our team developed an area-based predicted livestock mortality index based on household-level repeated cross-section data from the Government of Kenya. This was statistically fit to publicly available remotely sensed data on vegetation in the region. The designed contract was validated using both pre-existing household-level panel data from a previous project and new household-level recall data our team collected in summer 2008. Both within-sample and out-of-sample measures of contract performance proved quite satisfactory. Design details and statistical performance indicators have

monitoring and evaluation survey instruments and developed its own.

The team made good progress writing up findings at this early stage in the project and presenting preliminary ideas and results in a wide range of fora. These include write-ups of IBLI design, of simulation-based ex ante impact evaluation of IBLI, of the pilot version of the financial education games run in northern Kenya in summer 2008, and of the willingness-to-pay survey run in summer 2008. A variety of outlets are envisioned for these outputs.

Visits by US-based team members were primarily around project coordination with stakeholders, a March workshop, and finalizing IBLI contract design details. The summer visits served primarily to push forward the (re)design of the upcoming monitoring and evaluation research and financial education games.

Early in the project year, it became apparent that there was both widespread interest in IBLI and equally widespread lack of clarity on essential details. The team decided to organize a workshop, hosted by ILRI, that was opened by the Minister of State for the Development Northern Kenya and Other Arid Lands, the Honorable Mohammed Elmi. The workshop was well attended by insurance and re-insurance companies, financial service and delivery channel partners with a demonstrated interest in playing a role in the pilot. Other key stakeholders from relevant government ministries, regulatory bodies, client representative organizations and donors were also present.

As the team began discussing the financial education games in March, it became apparent that the project might productively tap into field laboratory innovations made by UC-Davis. We worked to adapt the software developed for similar games played in rural Morocco. The computer hardware was purchased and transported to Kenya, and the software development was undertaken. This was largely completed by late August and should all be in place for the November commencement of the financial education games in northern Kenya. At the end of September, a second order for computers was placed to allow two teams to operate the game at the same time in northern Kenya in different sites. This will speed up our ability to extend the idea of insurance and allow us to reach more sites in a timely fashion before the sales campaign begins.

For a variety of reasons, the piloting of IBLI was delayed one season, to early 2010. We had originally hoped that our commercial partners would be able to begin marketing IBLI in August 2009, but this proved infeasible largely because managing and coordinating implementing partners has been considerably more challenging than anticipated. That has pushed back the launch of baseline surveys for monitoring and evaluation of IBLI impact on pastoralist and agro-pastoralist households in northern Kenya.

Coordination with HSNP around monitoring and evaluation activities proved far more difficult than anticipated. The result is that we are unable to rely on the monitoring and evaluation data OPM is generating for HSNP for control (no IBLI) sites. We substantially modified our original survey design in order to ensure adequate coverage of both IBLI and no-IBLI sites, as well as modification of survey instruments to capture data essential to our monitoring and evaluation that are not included in the HSNP monitoring and evaluation activity. A data sharing agreement with HSNP, OPM and IDS is presently under negotiation.

A presentation describing the game methods and outcomes was developed and a paper on the topic was finished.

A paper that links game play to risk preferences has been delayed as other outputs such as the insurance product design and willingness to pay studies became higher priorities as the year developed. We are now beginning work on this paper.

A monitoring and evaluation plan in Marsabit District is being developed and will be operational in the coming year. A survey instrument, enumerators, and field operations are now in place.

Two co-authored BASIS briefs were written, one co-authored manuscript is in review at Agricultural and Resource Economics Review, and five working papers have been produced and are being prepared for submission to journals.

FINDINGS

The project is at an early stage; therefore it is premature to report findings and results in detail. Yet, preliminary results are as follows.

First, it appears feasible to design index-based livestock insurance contracts that are both attractive to pastoralists who might individually purchase the contracts and to the commercial financial institutions that must market, sell and underwrite the products. Both our statistical evaluation of the product through a range of different techniques, along with informal discussions, reveal that stakeholders in the target locations and members of financial institutions clearly find the product appealing.

Second, it appears that financial education games can be successfully developed and fielded to

capture the essence of complex IBLI products. Pastoralist and agro-pastoralist populations with little or no education can rapidly grasp these ideas so as to be able to make informed decisions as to

whether or not they should purchase IBLI products as they come on the market. Refinements of the game protocol and development of a software platform should substantially enhance the

generalizability and replicability of these tools.

Through use of financial games, pastoralists with little education showed easy understanding of index-based insurance.

TRAINING

Chantarat successfully completed her Ph.D. in Economics from Cornell University in August 2009. Kira Villa supported as graduate research assistant pursuing a Ph.D. in Applied Economics and Management from Cornell University starting August 2009.



Gabra pastoralists on the move in the Chalbi desert of northern Kenya. Photo by Sommarat Chantarat.

AREA BASED YIELD INSURANCE FOR PERUVIAN COASTAL AGRICULTURE

Principal Investigators

Stephen R. Boucher: University of California-Davis, USA

Michael R. Carter: University of Wisconsin, USA

Carolina Trivelli: Instituto de Estudios Peruanos, Peru

http://www.basis.wisc.edu/projects_ama/Area_Based_Yield_Insurance_Peru.html

Problem and objective

The potential benefits of agricultural insurance include greater willingness on the part of farmers to carry risk and engage in production strategies with higher returns, as well as increasing the provision of lending to agriculture. However, the design of sustainable insurance products for agriculture is very complicated. This project tests an area-based yield (ARBY) insurance scheme for small and medium sized producers in selected valleys of the Peruvian coast. This ARBY insurance product should give farmers a lower base risk than other types of index-based insurance programs.

Policy relevance

The Peruvian government approved \$30 million to strengthen rural financial markets, with the provision of index-based insurance as a top priority. This project works with government officials, financial market providers, and the private insurance sector to help develop a product that can be offered to farmers in the market. By assessing the uptake and impact of this pilot project, researchers will be able to inform future activity of the Ministry of Agriculture in Peru.

Outputs

BASIS Brief no. 2008-07. *Insuring the Never before Insured: Explaining Index Insurance through Financial Education Games*, by Michael R. Carter, Christopher B. Barrett, Stephen Boucher, Sommarat Chantarat, Francisco Galarza, John McPeak, Andrew Mude and Carolina Trivelli. October 2008.

Spanish version available: *Asegurando a los que nunca estuvieron asegurados: Explicando el seguro por índice a través de juegos de educación financiera*.

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ACTIVITIES

Activities focused on compiling information through yield and household surveys, raising awareness about the Area Yield Insurance (AYI) product, and assisting in the marketing and sales of insurance contracts.

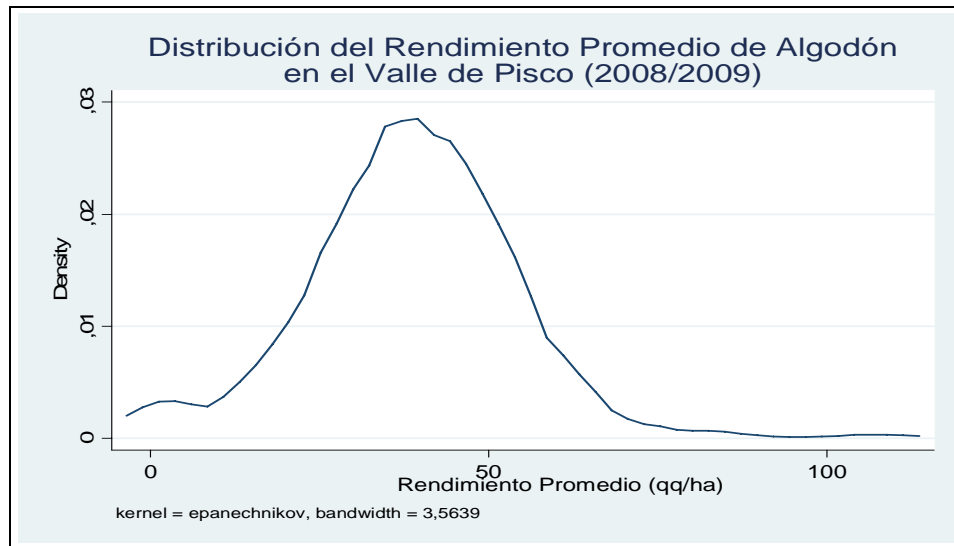
From August 2008 (beginning of the insurance sale period) to February 2009, we carried out field visits. These were necessary to gather information that lets us analyze the savings and credit lender CRAC Sr. de Luren's cotton loan portfolio and trace the growth of cotton loans.

In April and May 2009, we participated in a series of meetings with the Ministry of Agriculture in order to address the subject of agricultural

In June 2009, we redefined the insurance contract, which fixed the sales price of the insurance at 127 soles per hectare. This revised contract raised the strike point by using a double trigger scheme, which not only made this increase possible but also fixed the amount.

We also re-negotiated the price of the policy with La Positiva and the reinsurer. We got both to lower their commissions in order to establish a reasonable price. The price fixed for the policy is 205 soles. The final price for the farmers, however, is 127 soles, thanks to subsidies provided by the Ministry of Agriculture.

In June 2009 we carried out the yield survey, which



Graph showing the average cotton yield in Pisco Valley, Peru. This information helps determine when insurance is paid out.

insurance and to present the project's work to date.

In May and June 2009, we met with both La Positiva, the insurer, and CRAC Sr. de Luren in order to define the marketing strategy for the insurance product, called *Agropositiva*. We supported the marketing process by paying out the monetary incentives offered to CRAC Sr. de Luren loan officers (a maximum of approximately 750 soles per officer), as well as the incentives for those in the CRAC Sr. de Luren's Pisco office and the individual credit managers of the CRAC.

helped us measure the average yield for Pisco Valley, which is required to determine how much, if any, indemnization would be paid by the insurance contract. This information was sent to La Positiva in order to verify the consistency of our results in relation to the data managed by the Ministry of Agriculture, which were used to define the AYI contract. The survey showed an average yield of 38.55 qq/ha, which corresponds to the mean of the yield distribution shown in the graph.

During July 2009, the discount coupons were designed and distributed to 963 cotton farmers in

the Pisco Valley. The coupons were delivered in a closed envelope, along with a introductory letter that explained the index insurance product and how the discount coupon works when acquiring the insurance. For this, we coordinated with 22 area managers of the Board of Irrigation of the Pisco Valley. Each belongs to a different board, which made it easier to deliver the envelopes. We also held a training workshop with these managers in order for them to have accurate information regarding *Agropositiva* and the role and function of the coupons.

In August 2009, the new household survey was applied to 800 farmers that were surveyed in 2008. Interviewers were trained, and then the fieldwork began. For this activity, the 2008 survey was revised and changes were made in order to ensure a better data collection for this year; as well as to ensure complementarity between both surveys. Pre-printed tables that allow personalizing the questionnaire were designed as well as a users' manual for the household survey for 2009. The application of the survey finished successfully and the data are being entered and cleaned. The household survey will allow us to evaluate the impact of the AYI contract on farmers in the region, and test our main hypotheses, namely that agricultural insurance can lead to greater willingness on the part of farmers to carry risk and engage in production strategies with higher returns,

and that insurance will increase the provision of lending to agriculture.

In August 2009, along with La Positiva and CRAC Sr. de Luren, we held a meeting launching the product to farmers. Authorities of the Board of Irrigation and clients who bought *Agropositiva* in 2008 were invited. The new contract, as well as the results of the yield survey, were presented.

In September 2009, due to an initially low demand for the insurance product, we worked on a new promotional campaign. In this effort, employees of La Positiva visit 400 farmers randomly drawn from the 800 farmers from the 2009 household survey. During the visit, the employees fill out a very short survey form that seeks to understand the reasons for the low demand and to find out if it has something to do with the type of marketing for *Agropositiva* being carried out by La Positiva and CRAC Sr. de Luren.

FINDINGS

It appears that farmer interest in index-based insurance is taking root in the area. In 2008, 43 policies were sold, covering 161.5 hectares of cotton. In 2009, in spite of a sharp reduction in the area of land cultivated in cotton in the Pisco Valley, 119 policies were sold, covering 312.5 hectares.

AMA RESEARCH THEME: SMALLHOLDER ACCESS TO MARKETS

WITH THE GLOBALIZATION OF MARKETS, THE ROLE OF SMALL PRODUCERS has changed dramatically. While there are new opportunities in the spread of high value exports and specialty cash crops, many small and medium-sized farmers have trouble meeting new quality standards, integrating into new distribution systems, and finding ways to enter global markets. They are missing out on higher return crops and are excluded from growth sectors.

AMA researchers are looking for ways to help smallfarmers be a part of the increasingly global marketplace by investigating new contracting mechanisms, the role of producer organizations, the impact of participating in modernizing value chains, and opportunities in specialty markets, including fair trade products. In order for globalization to have a positive effect on households at all levels, traditional small producers need to find ways to integrate themselves into new markets. The AMA projects generate practical business and policy strategies to help make this possible.

AMA PROJECTS

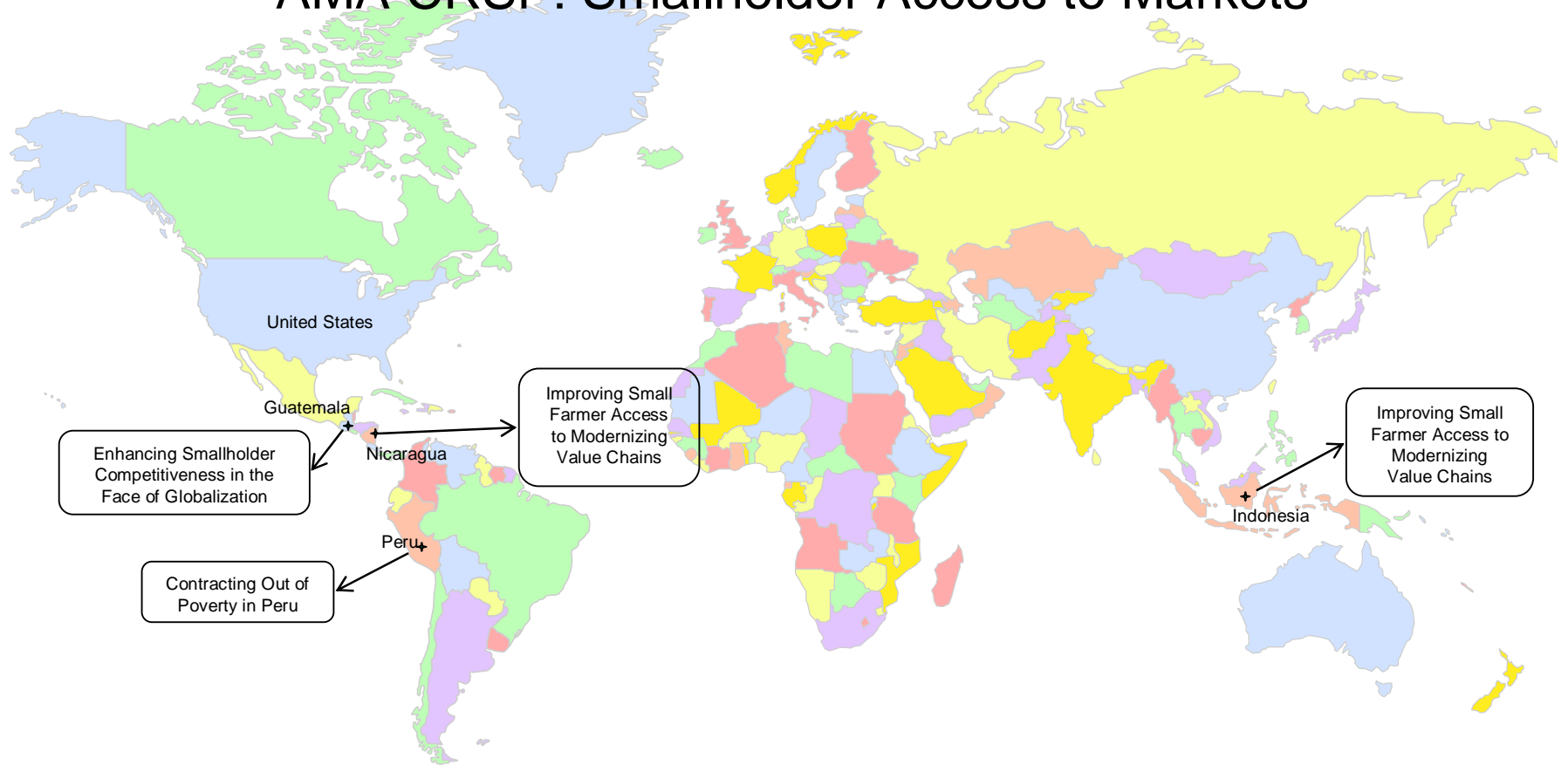
- Access to Modernizing Value Chains by Smallfarmers in Indonesia and Nicaragua
- Contracting Out of Poverty in Peru: Experimental Approaches
- Enhancing Smallholder Competitiveness in the Face of Globalization

AMA BASIS BRIEFS

BASIS Brief no. 2007-06. *Improving Smallfarmer Access to Modernizing Value Chains in Indonesia and Nicaragua*, by Thomas Reardon, Ronnie S. Natawidjaja, and Francisco J. Perez. July 2007.

BASIS Brief no. 2007-04. *Enhancing Smallholder Competitiveness in the Face of Globalization*, by Alain de Janvry, Elisabeth Sadoulet, Craig McIntosh and Tomas Rosada. July 2007.

AMA CRSP: Smallholder Access to Markets



ACCESS TO MODERNIZING VALUE CHAINS BY SMALLFARMERS IN INDONESIA AND NICARAGUA

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Thomas Reardon, Michigan State University, USA

http://www.basis.wisc.edu/projects_ama/modernizing_value_chains.html

Problem and objective

The agrifood industry has transformed extremely quickly and profoundly over the past decade in developing regions, with rapid diffusion of supermarkets, fast food chains, and large-scale processors. This project examines the asset-related determinant and the impacts of the participation of small farmers and farmer organizations in modern versus traditional market channels in Indonesia and Nicaragua. The research (1) identifies the specific extent, nature and determinants of the restructuring of the product value chains, (2) examines the determinants of inclusion or exclusion of small farmers in the restructured market channels, and (3) looks at the asset and income effects of this participation, with the goal of informing organizational, policy and institutional design to have maximum benefits of new markets to small farmers.

Research context and policy relevance

In Indonesia, supply chain mapping studies are underway for mangoes and mangosteen, both of which are priority products in the Ministry of Agriculture's long-term development plan and have domestic and export market potential. The research will help inform the work of the Ministry of Agriculture in the development of the horticulture division and the creation of policy that encourages value chains that serve cities and exports.

In Nicaragua, researchers focus on the role of "second floor cooperatives" that will help producers to access new markets, and inform the role of government in this process. The research will inform the new government focus on investments in small and medium rural enterprises and farmers.

Collaborations

We initiated a collaboration with the International Center for Tropical Agriculture (CIAT) on small farmer organizations, and the University of Wisconsin-Madison on tomato supply chains.

Additional support

CIAT: \$27,000.

Outputs

BASIS Brief no. 2007-06. *Improving Smallfarmer Access to Modernizing Value Chains in Indonesia and Nicaragua*, by Thomas Reardon, Ronnie S. Ntawidjaja, and Francisco J. Perez. July 2007.

Francisco J. Pérez, Ricardo Hernández, y Thomas Reardon. 2009. "Análisis de Estructura de Gobernación en Grupos Asociados de Productores de Las Cadenas de Valor de Plátano y Frijol en Nicaragua." Report to CIAT and AMA CRSP by Nitlapan and MSU.

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ACTIVITIES

Nicaragua

October 2008-January 2009, Ricardo Hernández prepared his dissertation proposal, successfully defended, and advanced to doctoral candidacy.

For the entire fiscal year, we finishing cleaning household survey data, analyzing the data, and writing a paper on the “horticultural producer modern channel participation” first survey.

March-May, Ricardo coordinated and co-managed field tasks for the second survey, and then in June-August he drafted and pretested the questionnaire and worked on the sampling frame. We established a formal collaboration with the Ministry of Agriculture to undertake the sampling frame and to use the results.

Ricardo now is drafting the Inception Plan Document for this task, and will finalize the plan by January 2010. The survey is slated to roll out in January 2010.

March-May 2009, key informant interviews for the “value chain study” were conducted. The sample was 80 persons/companies along the supply chains for tomatoes, sweet peppers, and lettuce. Draft policy briefs were written in August 2009, and are being finalized to present to USAID.

In April a report was finalized based on interviews with 31 small farmers associations.

June-August, horticultural product traders were surveyed at 11 markets, for a sample of 91 traders of lettuce, tomatoes, and sweet peppers. A policy brief is being finalized to present to USAID.

Indonesia

August 2008-October 2009, we carried out key informant interviews (sample of 130 persons/companies along the supply chains for mango and mangosteen). The mangosteen fieldwork was inadequate. We now focus solely on mangoes. A revised draft of a report was finalized in November 2009.

June-August, we prepared the mango sprayer-trader questionnaire and pretested it in several waves of pretests, , and then drafted the Inception Plan Document for the sprayer-trader survey, in September. In October 2009 we designed the

household questionnaire, which is now being pretested in several waves.

Implementation of the sprayer-trader and household questionnaires for mango is slated for late January (which is the end of the main season). We are preparing a mangosteen version of the household questionnaire, also ready for launch in January.

In addition, the sampling for the mango and mangosteen surveys will be done in December, for launch of the surveys in mid to late January to coincide with the end of the season to allow full-disposal recall.

The timing is optimal, as the recall will be done right at the end of the main season (June 2008-January 2009), plus the minor off-season in February-May 2009.

FINDINGS

Nicaragua

Key findings come from the value chain key informant study of tomatoes, lettuce, and sweet peppers, using a base of 94 key informants in the various segments of the supply chain. We focus on results for procurement practices of modern market players (supermarkets and dedicated wholesalers) and their main upstream sources (cooperatives). The hypotheses that arise from the findings will be tested in the surveys of traders and farmers.

Emerging role of modern (dedicated) wholesale and NGO-assisted farmer cooperatives. In a country of 5.7 million people, the three main supermarkets sell, per year, 1180 tons of tomatoes, 619 tons of sweet peppers, and 78 tons of lettuce, or merely 5%, 3%, and 1% of total market volume of these three products in the country. Thus supermarkets have only incipient penetration of the produce market. As supermarkets are only in urban areas, and as the urban population is about 58% of the total population, one could very roughly double the numbers to get shares of overall intake of these products: tomatoes 10%, sweet peppers 6%, and lettuce 2%.

In Nicaragua, supermarkets and modern firms in HRI (hotels, restaurants, and other institutions, such as hospitals) buy the vegetables under study from three sources. In sharp contrast to a decade ago, the

three main supermarket chains report that they source relatively little of their tomatoes (2%), lettuce (none), and sweet peppers (19%) from traditional wholesale markets. In 2008, supermarkets sourced most of their tomatoes and lettuce from small farmer cooperatives (70% and 87%, respectively), dedicated wholesalers (only tomatoes 27%) and agribusiness companies via “preferred supplier” relationships with farmers (lettuce 13%). Sweet peppers are from more diverse sources, but primarily directly from individual farmers; the rest comes from dedicated wholesalers (5%), agribusiness firms (11%), and cooperatives (15%).

Reports from 2003 differ sharply. In that year Supermarkets sourced only 35% of tomatoes from cooperatives, and no lettuce or sweet peppers, which they bought from the wholesale market.

While the role of dedicated wholesalers remains minor, it is growing fast. In 2000, only the internal unit of the leading chain was a supplier; by 2009, six companies external to supermarkets and HRI were suppliers. Most of these “dedicated wholesalers” are medium scale (relative to those on-market in the wholesale market) and several are much larger than the wholesale market brokers. The origins of these dedicated wholesalers are diverse. One had been a traditional wholesaler in the preferred supplier list of the main supermarket chain. When the latter shifted to Wal-mart and the procurement arm of the chain stopped selling to HRI, the dedicated wholesaler shifted to supplying an HRI. A second obtained grants from donors and acted partly like an NGO, partly like a broker, and sourced from small farmers to supply food industry clients. A third was the dedicated wholesaler for a chain in Costa Rica. When the chain shifted to Nicaragua, the dedicated wholesaler moved with it (a common action internationally). The other three dedicated wholesalers were traditional wholesalers in wholesale markets and shifted off-market to focus on HRIs as these grew over the decade.

These new dedicated wholesalers rely more on traditional wholesale markets than do supermarkets, this remains a minority of their sourcing for tomato, lettuce, and sweet pepper (37%, 12%, and 23%, respectively). They tend to buy direct from small producers (tomato 41%, lettuce 43%, and sweet pepper 45%). They report this as an implicit-contract, or preferred supplier relations. Sourcing

from agribusiness companies accounts for no tomatoes, 45% lettuce and 27% sweet pepper. Sourcing from cooperatives is significant only for tomatoes (22%).

Cooperatives are particularly important for tomatoes and lettuce. The three supermarket chains report that 70% of their tomatoes is sourced from coops. They rely on only three cooperatives, all of which these were founded with assistance from NGOs (with donor funding) in the early 2000s. These cooperatives reported to us that this funding accounted for 97% of their initial assets: collection centers, warehouses, greenhouses/tunnels, plastic cradles, scales, office equipment, motorcycles, dwell equipment for water pumping, drip irrigation systems, and input credit funds for rotating credit. Their own funds accounted for 3% of these investments. There were a similar range of investments by the lettuce cooperatives, and three of five supermarkets received NGO financing, accounting for 66% of their investments. Government accounted for 19% and own funds for 15%.

We can see the important role that donor-funded NGOs played in coop formation circa 2003/4. The role of helping to establish cooperatives did not end there. They continue to provide technical assistance and guidance to coops on planting and harvesting schedules. Also, NGOs commonly act as intermediaries between the supermarkets and the cooperatives—acting as guarantors of last resort, receiving purchase orders, negotiating prices, and distributing payments to farmers.

While it is clear that NGOs played an important and positive role in establishing small farmer cooperatives, which then play a major role in supplying the emerging modern market, the issue of sustainability of this approach inevitably arises. This is particularly salient if the NGO presence, and thus explicit and implicit subsidy, diminishes over time as cooperatives progressively become independent economic actors. Some worries emerge. We found two cases of tomato and sweet pepper cooperatives that fell apart after NGO support was withdrawn. This phenomenon is emerging in other countries, and is important to find proactive solutions to help cooperatives graduate as independent strong actors in the emerging modern market in Nicaragua.

Our surveys will test the initial findings that membership in the cooperative confers clear advantages to farmers in terms of reducing price risk due to the payment policies of the cooperatives, and the contracts they have with the supermarkets.

The modern food industry as a “change agent.”

The “product cycle” is a trend where a small niche product (such as lettuce in Nicaragua in the 1990s) develops into a “bulk” commodity with low price and little quality differentiation (iceberg lettuce in Nicaragua in early 2000s). Then there comes differentiation into a combination of the commodity plus several new niche products (iceberg plus “fancy lettuces,” such as romaine in Nicaragua in the late 2000s). A similar cycle occurred with sweet peppers. While tomato is native to meso-America, and the only traditional product of the three under study, the 2000s saw a differentiation from the bulk “roma” variety into non-traditional “salad tomato” varieties. The niche products are higher value and represent an opportunity for farmers to increase income, mediated by investments in the technologies needed to produce quality grades of those niche products.

We found that the emergence of the modern industry facilitated the emergence of this cycle. The emergence of fast food chains and supermarkets in the mid 2000s spurred demand for salad tomatoes; this was a boon to the small farmer coops that were the main producers. Last year the niches themselves “commoditized,” as more production and broadened demand to lower incomes brought a bulk offer of these products. Thus we found that over the past five years there has been a jump of 300% of salad tomatoes marketed in traditional wholesale markets (from 5 to 15% of the market).

More striking is the rise of fancy bell peppers. Five years ago these constituted 8% of the bell pepper volume in traditional wholesale markets (in the three in or around Managua that concentrate 85% of the volume of produce in the country). The rest were all in modern food industry segments. Last year, however, fancy bell peppers constituted 37% of the volume of bell peppers in the market. Moreover, whereas before they were all imported from Costa Rica and Honduras, now 75% are produced in Nicaragua.

A similar product cycle facilitation has occurred in lettuce, with the move into quality niches spurred by supermarkets and HRI (who disproportionately

market these) and then a trend where these niche products emerge as staples in the traditional markets. For lettuce, this happened too in the United States, where the HRI was the key change agent, with commoditization of romaine lettuce occurring thereafter.

In some cases, as with niche lettuce, NGO subsidies of cooperatives so they can make key threshold investments, has helped coops become formidable competitors to agribusiness companies

Modern channel participation. We analyzed the payoff and risk of contracting with Wal-mart versus selling to the traditional market. Mean per unit farmgate revenues in the supermarket chain are not significantly higher than in the traditional market. A lack of a real output price premium in the supermarket chain is unexpected, given that the supermarket buys only the high quality share of the producers’ production, and given the costly transaction and post-harvest production standards required under the agreement.

Instead of an increase in mean price, we find that the Wal-mart supply agreement represents a significant reduction in price risk to farmers used to selling in the traditional market system. Preliminary evidence, however, suggests that farmers may be overvaluing this decrease in downside risk. Estimates of relative risk coefficients using farmers’ observed income, annual transaction quantities, and traditional and supermarket price series are extremely high, suggesting that the decrease in mean price that the farmers pay for the measure of price insurance in the contract is too high.

We also focused on the effects of a Nicaraguan farm household’s being in a supply relationship with supermarkets. We show that geographic characteristics and natural resource endowments are significant predictors of a community’s inclusion in a supermarket procurement basin.

Conditional on supply chain placement and instrumenting for supplier status, it is possible estimate the impact of supplying a supermarket on participant farmer incomes, land accumulation, credit use, and assets. Estimates are of significant high positive impacts, on the order of a three to four fold increase in income, on farmer outcomes, significant to a number of robustness checks. We do not find that income impacts of participation increase with the tenure of the supply relationship.

Preliminary analysis does not find significant impacts on land holdings, asset accumulation, or credit.

Indonesia

Key findings come from the value chain key informant study of mangoes, using a base of 113 key informants in the various segments of the supply chain.

Decentralized economic growth in Indonesia induced rapid urban population growth and accelerated growth in domestic demand for fruit and vegetables. The demand increase has not only been in terms of quantity, but also in terms of better quality of produce. We found that consumption of fruit has been shifting from cheap year-round fruits, such as bananas, to seasonal fruits, such as mangos or mangosteen and exotic (for Indonesia) fruits such as apples and melons.

Demand for high quality mango comes especially from the *modern retail market*, which has trended toward use of a specialized procurement system that directly sources from production zones that guarantee quality, particularly freshness. However, *traditional wholesale markets* still play an important role in handling the large surge of demand not only coming from large urban areas on Java but also from Sumatera and Kalimantan.

Responding to the growing demand, the mango production zone is restructuring toward more commercial operations. Farm size has grown from mere “backyard operations,” that traditionally have a few trees, to small and medium farms.

Technology is changing toward the use of flowering-inducers, fertilizer, pesticides, while cultural practices around such things as pruning and bagging are used to help quality.

There has also been shift in production zones and growth of inter-island trade. National production of mango has increased by 14% annually for the past five years. East Java remains the largest production zone, though it is in relative decline. West Java and Central Java are expanding production. Mango production has spread to other islands, the output from which has entered the Java market during the off-season. This indicates new growth in inter-island trade.

Despite rapid production growth, exports are less than 1% of output. Contrary to conventional wisdom, export is not a driver of the mango sector in Indonesia. It is the dynamic internal market that induces both growth, restructuring, and quality and varietal differentiation in the market.

A particularly important finding is that the “sprayer trader” is rapidly emerging as a key player. Under contract, the sprayer trader applies chemicals and prunes the crop, then harvests and markets the output. Sprayer traders address the labor and expertise constraint in the country, and their emergence in substantial numbers, especially on Java, appears to spur technology change (even on small farms), increase the variety and quality of produce available, and lead to growth in mango production.

We will study the use of this service by farmers, and the effects on technology, marketing and small farmer inclusion in the coming year.

CONTRACTING OUT OF POVERTY IN PERU: EXPERIMENTAL APPROACHES

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http://www.basis.wisc.edu/projects_ama/contract_farming.html

Problem and objective

Poor, rural farmers are often left out of the market. They may not be able to compete with larger farmers who can provide exporters and consistently high quality product. While some of these problems stem from scale, their inability to commit to a contract is also problematic. The proposed research will test contract designs in the field to show which structures work, and will measure improvements to overall farmer welfare based on their participation in a contract.

Policy relevance

The research aims to help in the design of new institutional mechanisms that will favor the inclusion of smallholders and link them to dynamic markets through efficient contract farming arrangements. By working on refining these mechanisms, researchers will help integrate small farmers into higher value export markets and rapidly changing value chains. Participating in these markets will improve the welfare of the poor, and increase their income generating options.

Additional support

International Food Policy Research Institute: \$43,266 per year.

Collaborations

IFPRI has an extensive research program on contract farming, which will benefit from our project results. Another IFPRI research team is implementing and evaluating existing contract designs in high-value crops in Indonesia, India and China, and with milk producers in Tanzania and Vietnam. The goal is to identify existing bottlenecks in existing contract designs with small holders. Results from our project in Peru will provide useful inputs for future contract recommendations and possible new contract designs.

Also through IFPRI, we worked with the Multilateral Investment Fund of the Inter-American Development Bank (IADB) to launch a US\$2 million technical assistance grant in support of private sector initiatives to reduce rural poverty and promote development. This grant fund will increase economic opportunities for the rural poor through the development of innovative cost-effective and private sector initiatives linking smallholder farmers to dynamic markets using contract farming arrangements. This initiative is being implemented in Guatemala, El Salvador, and Nicaragua. IFPRI will be involved in the impact evaluation of the selected interventions and in proposing innovative ways for improved contract arrangements. This opens a significant opportunity to use what we learn from our AMA-funded project to include in the criteria of the competitive grant process.

Outputs

- Report on the market conditions and viability of working with the coffee cooperative, banana cooperative, and mango firm.
- Baseline and follow up survey initial results reported in the a powerpoint.

ACTIVITIES

In August 2008, we collected baseline survey data on more than 400 farmers. This included information on previous year production activities, household characteristics, and experimental data on risk preferences. Near the end of the growing season (March/April 2009), we conducted a follow-up survey with all the farmers from our baseline. In this survey, we collected detailed information on input use during the 2008-2009 mango-growing season, details of the contract that the household was offered and selected into, how the contract was finally executed, harvesting information, prices of transactions, problems faced, the evolution of production of the different qualities of mangoes, and mango sales.

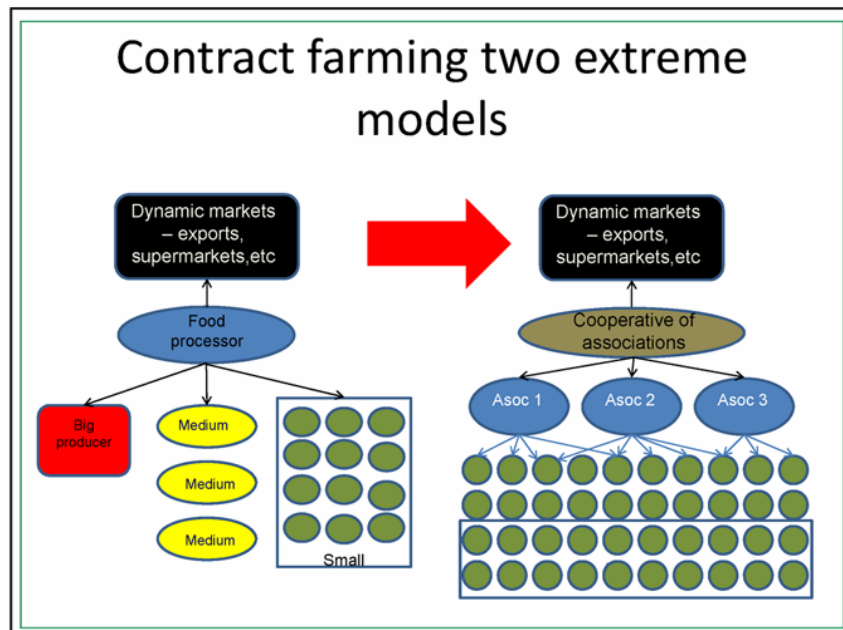
At the same time, we implemented in-depth interviews with producers and company staff to identify the major problems they faced during the mango-growing season and with the mango company. This information will be used to test the impact of the contract design on input use and farmer profit. We also will evaluate the prevalence of implementation bias of contracts and evaluate the need to use third parties to implement the contracts in the 2009-2010 growing season.

The mango firm with whom we are working (Sunshine) has given us data on the firm's purchased production and purchase prices for the 2005-2006, 2006-2007, and 2007-2008 mango growing seasons. We will collect the same data from the firm for 2008-2009. We will use this data to cross-check with data collected from farmers in the March/April 2009 survey. This data will allow us to analyze the distribution of contracts across the population of farmers. That is, it will allow us to better understand the incentives behind the firm's behavior.

Data analysis is ongoing. Using data from the baseline survey, end-of-season surveys, and mango firm's previous years of production and prices paid, we examine the determinants of selection into the contracts that were offered. Conditioning on the contract that was offered to the farmer, did the farmer accept or not? Did the company implement the contracts as designed? Did the microfinance institution implement the loans? What other

changes happened that affected our designs? For example, can this be explained by prior production, risk aversion, or household characteristics? By looking at the previous season data and the baseline and follow-up survey data, we examine the effect of the contract structure on farmer profit and input use, and we look at what determines which contract the firm offers the farmer.

While collecting the baseline data (in August 2008) we conducted experiments that measured risk preferences. During 2009, we explored additional



new artefactual field experiments that we could apply during the next growing season. These experiments are related to the labor-leisure trade-off and to market design and trust.

In consultation with Sunshine, we designed new contracts, and from May-August 2008, Sunshine randomly offered the contracts we designed to farmers. The contracts used price incentives to increase production of high-quality mango and offered credit to help farmers buy inputs to increase quantity of production. During that time, we designed new contracts to be implemented by the firm in the 2009-2010 season. These new contracts tackle problems we faced with the previous

contracts, specifically issues related to price variability and how this effects any contract linked to the price of the product. We will try a double ransom design to eliminate contract incompleteness.

In February 2008, we met with various companies to determine the viability of working with them on contract design. Including Sunshine, we met with a banana cooperative and a coffee cooperative. During 2009, we continued exploring other potential companies where we can scale up our designs. In the coming year, we will continue to try to identify additional companies and products with which we can implement our new contract designs.

We have detailed survey designs for mango production, and our survey has an innovative technique to include differences in gender in reporting information. Specifically, we developed surveys that have a questionnaire to be answered by the household head (male/female) and by spouse (male/female). We tested this in previous surveys implemented in Peru using pairs of survey takers (male and female). We concluded that there was a significant improvement in data quality by using two questionnaires (one for males and one for females) and by using interviewers of the same gender (male interviewer with male household member and female interviewer with female household member).

We implemented two contract designs and are planning to implement at least two additional ones during the 2009-2010 season. This will help us develop a typology of contracts based on the problems to be solved.

In the past year, Sunshine underwent a change of management. We are working on formalizing the promised cooperation of the new management. We are looking for other exporting firms in other product areas with whom we could work, and we are exploring the possibility of implementing incentives outside the firm's purview.

The credit union providing the credit for the contracts that were implemented in the 2008-2009 season did not get credit to the mango firms in time for the farmers to use it to buy inputs for the season. Sunshine provided the credit directly by giving inputs to our treatment group (51% of our treatment) or cash (44% of our treatment). Only 12% of our control group received similar support from Sunshine. While Sunshine was able to ultimately provide the credit when the credit union could not, we still need to ascertain if this contaminated our control group, and we need to identify if there was selection bias in the way Sunshine distributed inputs and cash to the treatment farmers. We collected information on what contract was offered to each farmer, if the farmer took it or not, where the farmer got credit and who from, and on production. So, we will be



able to control for these shocks in estimating the impact of the contracts.

The 2008-2009 season was an unusual season for mangos. It never got cold enough to make the mango trees blossom, so production was particularly low this year. We have data on previous seasons, so we can control for these unusual changes in production.

FINDINGS

We conducted two rounds of surveys with over 400 farmers in Piura and Lambayeque in northern Peru. The farms are all located with reasonable access to roads and markets. In other words, these farms are not isolated. The farms in our sample are small (average 5.5 ha) and are poor but not in extreme poverty (average S./6,591 per year). Most households also engage in livestock production in addition to agricultural production, but livestock production makes up a small portion of overall production (only 6%). The majority of households are headed by men, and the average age of the household head is 57.

The farmers in our baseline survey sample sell frequently to the Sunshine firm—about half of the farmers sold at least twice to the firm in the past three years. Even so, the distribution of production among suppliers is highly skewed, with the ten largest farmers providing roughly 40% of purchased production.

Because of weather risk and large fluctuations in international prices, farmers in our sample face a high degree of price variation across years and across producers. Average prices were 50% higher from 2006 to 2007 and then 33% lower the following year. This makes mango farming very risky.

Mangos come in a range of quality and, therefore, prices. For example, a top-quality mango could be sold to European markets for roughly 4€/mango, and a low-quality mango is typically cut up, frozen and used in manufacturing fruit drinks.

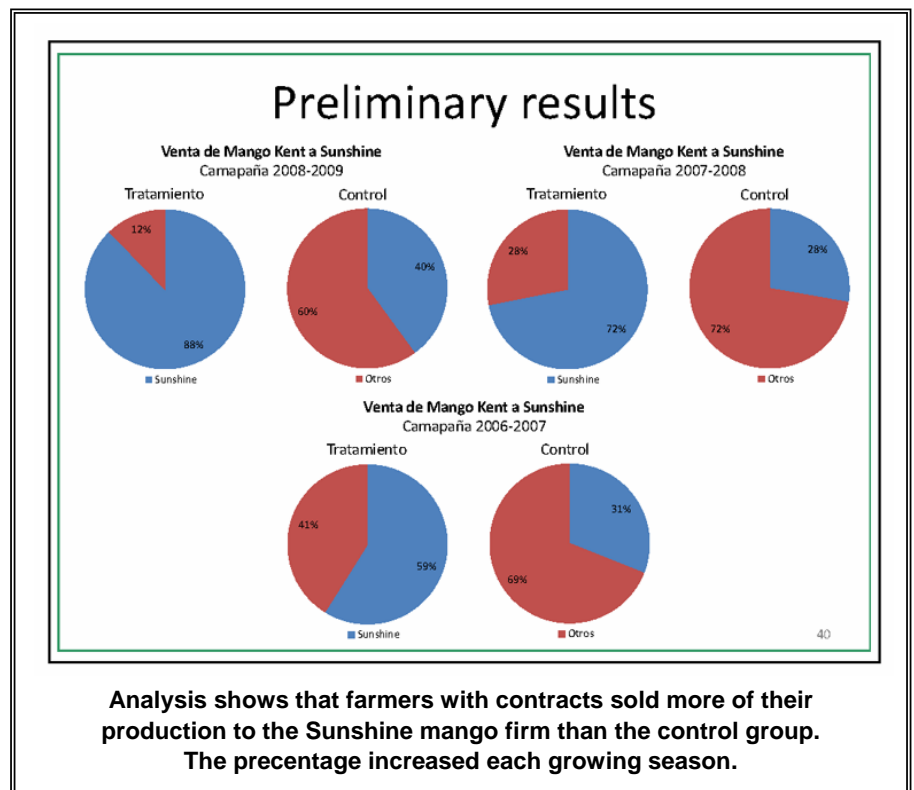
Higher-quality mangos typically receive higher prices, but with the price variability that many farmers

experience, the same “high-quality” mango may receive high prices one year and low prices the next.

There is no standard of quality that remains constant across seasons. That is, the same mango considered high quality in one year could be considered low quality the next. This depends on the supply of mangos in the market. Due to unstable international prices, the firm adjusts the prices it offers by quality and the quality standard to deal with price variation. This means that farmers do not know from year to year what will be considered high quality and what prices they will get for their product.

A long-term relationship with a firm such as Sunshine has a monetary return to the farmer. Farmers who have traded with the firm for a longer period of time tend to get higher prices for their mangos.

Our experimental contract design included credit from the local credit union (backed by the firm) and a price incentive for an increase in production of top-quality mango. Contracts were randomly assigned to farmers in order to measure the impact of the contract apart from contract selection. There were challenges in the implementation of the



contract because the credit union was late or did not deliver the credit to farmers in time to make a difference in production. Given these challenges, the contracts were not necessarily implemented as originally designed. Nonetheless, we checked the data, and our control and treatment groups are similar in terms of observable characteristics and risk preferences.

The contract design did work. Farmers in our treatment group received more inputs or financial assistance from the mango firm. Also, the contract design improved farmer retention with the firm. Farmers who received the treatment contracts (credit and price incentives) sold a greater proportion of their production to the mango firm. The price incentives offered in the experimental contracts were swamped by market prices. The 2008-2009 mango season was marked by low

production, so international prices were very high. The price incentive would have made a difference in a season with high production but not in this past season.

TRAINING

Several training modules were conducted during 2008. We implemented a two-week training course on our new survey design (gender specialized), a three-day technical training workshop on mango production for which we brought in specialized engineers on mango production from Sunshine, and a one-week training workshop on our risk aversion experiment protocols and designs.

ENHANCING SMALLHOLDER COMPETITIVENESS IN THE FACE OF GLOBALIZATION (GUATEMALA)

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http://www.basis.wisc.edu/projects_ama/enhancing_smallholder_competitiveness.htm

Problem and objective

Smallholder farming has been the institutional structure for some of the most effective historical contributions of agriculture to economic development. Yet, this very social structure is under threat as globalization, trade liberalization, and the development of integrated value chains for food communities progresses. This project analyzes three institutional innovation with potential of increasing the competitiveness of the smallholder sector: fair trade, the linking of insurance to credit, and the use of credit bureaus in microfinance lending.

Research context and policy relevance

Guatemala has an unusually large smallholder sector with a strong indigenous base engaged in labor intensive non-traditional exports. It is an excellent natural laboratory since it combines widespread smallholder farming with a rapidly-growing high value export sector.

Results from this project will provide an unusual combination of benefits: opportunities for collaborating institutions (including fair trade agencies, producer cooperatives and microfinance lenders) to improve their products and provide information for policymakers to improve policy design.

Outputs

BASIS Brief no. 2007-04. *Enhancing Smallholder Competitiveness in the Face of Globalization*, by Alain de Janvry, Elisabeth Sadoulet, Craig McIntosh and Tomas Rosada. July 2007.

Buck, Steven, Craig McIntosh, Elisabeth Sadoulet, and Tomas Rosada. "Reputation in a Public Goods Game: Taking the Design of Credit Bureaus to the Lab."

de Janvry, Alain, Craig McIntosh, and Elisabeth Sadoulet. 2009. "What's Fair in Fair Trade? Generating Long-Term Benefits in a Disequilibrium Market."

de Janvry, Alain, Craig McIntosh, Elisabeth Sadoulet, and Tomas Rosada. 2009. "Note for Fedecocagua on coffee sales and deliveries by cooperatives." Available in Spanish: "Nota para Fedecocagua sobre las ventas de café y los ingresos provenientes de las cooperativas." Report shared and discussed with Fedecocagua.

Gourevitch, Peter, and Kristen Parks. 2009. "Fair Trade Certification: What's Behind the Label?"

Kucharski, John. 2009. "Understanding the Provision of Credit in Guatemalan Coffee Contracts."

Linton, April. 2009. "Fair Trade and Development: The Case of Guatemalan Coffee."

Luna, Kira. 2008. *Selling on the Side: A Look at Selling Practices within Guatemalan Fair Trade Coffee Cooperatives.*

McIntosh, Craig. "Offering Commitment Savings Products to Current Microfinance Borrowers." Power-point presentation.

Ozier, Owen. 2008. "The structure of Fair Trade Coffee Production in Guatemala and Price Transmission to Farmers."

Sanborn, Rebecca. "Fairtrade Coffee Production in Guatemala." Report produced for the University of California, San Diego.

In collaboration with CHN, we produced material that explain to clients the principle of savings and the different products.

ACTIVITIES

Analysis of the coffee value chain

We have been granted complete access to the institutional data of Fedecocagua, covering 10 years of sales of Fair Trade (FT), non-FT, and organic coffee, for the period 1997-2006. This database gives the quality, price, quantity, and timing of delivery of all coffee that moves through Fedecocagua. The format in which this information was collected required an enormous amount of work on our part to clean, correct errors, and get a coherent database.

The information covers a long period of very low international coffee price and a couple of years at the end of high international prices. This has allowed us to perform an analysis of the effective FT premium under these two very different conditions. We also analyzed the heterogeneity in coffee quality across the cooperatives, as revealed by the price that their coffee fetches on the market, showing that there is unobserved quality not captured by the current labeling system referring to bean quality (“Strictly Hard Bean,” “Extra Prime Washed,” etc.). This analysis was well received by Fedecocagua, which requested specific analysis on its affiliated cooperatives, and is now providing the updated data for 2006-2008 that will allow a more

robust analysis of the FT premium in a market of high international coffee price.

Savings innovations in Credito Hipotecario Nacional

Credito Hipotecario Nacional (CHN) is the country’s largest public bank. We worked with the bank on alternative ways to build liquidity among Guatemala’s poor entrepreneurs. This project was running successfully for three months until the financial crisis hit Guatemala in October 2008. All lending activities were frozen and have not yet picked up. As a consequence, we modified the research strategy, and our results are based on comparing three treatment groups described below.

The 32 branches CHN branches were stratified according to loan volume and randomly assigned to one of three ways to nudge microfinance clients into savings. More than 2,000 borrowers took new loans within the experimental window. The “Libre” treatment gives microfinance borrowers a promotion using CHN’s interest-bearing savings account, and nothing else. We expected this treatment to be relatively ineffective and therefore to serve as a control. The “Fijo” treatment offers microfinance borrowers starting new loans the opportunity to add on top of their standard loan

Debes recordar que:

- Ahorrar es un proceso paso a paso. No puedes acumular riqueza de un día a otro.
- Aún cuando no has logrado ahorrar en el pasado nunca es tarde para empezar y mientras más pronto lo hagas, más tiempo tendrá tu dinero de crecer.
- Puedes abrir una cuenta de ahorro corriente con El Banco CHN sin depósito mínimo.
- Puedes ahorrar cualquier dinero que recibas extra que no necesites en ese momento. Por ejemplo, si vendes un producto o recibes remesas puedes guardarlo en tu cuenta de ahorro. Debes entender la importancia de ahorrar para emergencias. Este tipo de ahorro puede ser tu primer paso.
- No hay ninguna obligación de ahorrar porque tienes un sistema de Microcréditos con El Banco CHN.
- Tus ahorros van a ganar intereses y aumentará el valor de tu dinero.
- El dinero en la cuenta de ahorro es dinero líquido es decir, que puedes usarlo cuando quieras para pagar tus préstamos. Solamente tu puedes decidir si uno de tus ahorros.
- El Banco CHN no puede usar tus ahorros para pagar tus préstamos. Solamente tú puedes decidir si uno de tus ahorros.

BANCO CHN
SUSANARA AL CREDITARIO

TODO SUEÑO COMIENZA CON UNA PRIMERA PIEDRA

empieza a ahorrar para alcanzar tus metas

Ahorrar funciona de una forma muy similar a la construcción de una pared de ladrillos.

Colocas un ladrillo encima del otro asegurándote que la pared sea sólida antes de colocar el próximo ladrillo. Tú eres quien poner metas claras y realistas.

¿Por qué debería ahorrar?

Una de las formas más fáciles de alcanzar tus metas es estableciendo un hábito de ahorro. Al ahorrar dinero, te estás diciendo a ti mismo sí vas en mi futuro y quiero estar listo para afrontarlo. Hay muchas razones por las que puedes ahorrar, pero las principales son para acumular riqueza o para cubrir emergencias.

Primero:

Si ahorras para acumular riqueza puedes comenzar más adelante bienes como muebles o vehículos sin necesidad de recurrir a comprar al crédito o a solicitar préstamos que te cobren altos intereses.

Al depositar en una cuenta de ahorro el banco te pagará una tasa de interés anual por el monto depositado. Por ejemplo si tú ahorras Q.100.00 y tu banco te paga un 5% de interés anual habrás acumulado los siguientes montos en tu cuenta, si tú ahorras mensualmente:

Intereses	Año 1	Año 2	Año 3	Año 4	Año 5

Una vez alcanzas tus metas puedes ser comprar una casa, mejorar tu negocio, cubrir gastos médicos, o enviar a tus hijos a la escuela y tener un plan de ahorro puede ayudarte a alcanzar estas metas.

Segundo:

Si ahorras para cubrir emergencias el fondo ahorrado puede servirte para cubrir gastos inesperados o incluso para tus préstamos en el caso que pierdas tu trabajo o sufras una herida que no te permita trabajar.

Para los ahorros de emergencia deberías guardar al menos lo equivalente a los ingresos correspondientes a tres meses a seis meses de trabajo. Debes tratar en cuenta al empezar tu ahorro para emergencias que puedes guardar cualquier cantidad, y poco a poco ir creciendo tu ahorro. Va a tomar un tiempo lograr ahorrar el equivalente a las ganancias de tres a seis meses. Lo más importante es empezar con el fondo y con el tiempo ir aumentando la cantidad ahorrada conforme tus capacidades.

Es muy importante recordar que este ahorro lo utilizarás solamente en caso de emergencia, pero si no lo utilizas tu dinero seguirá acumulándose y no lo perderás.

RAZÓN	SI	NO
Para cubrir emergencias sin necesidad de hacer un préstamo muy caro.		
Para comprar bienes más caros, como muebles, sin necesidad de solicitar una tarjeta de crédito o otra forma de crédito.		
Para tranquilidad, pues sabrás que no tienes que pagar ningún préstamo.		
Para alcanzar la meta que te has propuesto.		

BANCO CHN
SUSANARA AL CREDITARIO

Promotional pamphlet for encouraging savings.

payment an additional amount that will automatically be directed to their newly opened savings account. The “Estandar” treatment informs clients that the standard policy is to take payments that are 10% higher than the loan plus interest, and to put this margin into savings; clients are free to change this amount, but if they take no action then the default is to save.

Six months after the introduction of the products, we found important differences in rates and patterns of savings. We now will analyze whether this was a short-term effect of salience induced by the promotion of savings or whether it has long-term effects, and, if so, how to measure the effect of having acquired this saving cushion alters household behavior.

Competitions among microfinance institutions

We have institutional data from BanCafe and Genesis, and were expecting data from Banrural by December 2008, which would have given us all three of the large microfinance lenders contributing data into the country’s credit bureau as it was created. However, access to Banrural data was stalled by the consequences of the financial crisis on the banking industry in Guatemala. We maintain good contacts with the institution, and hope eventually to obtain access to the data that will allow to pursue the project.

In the meantime, this year, we completed mapping of all the branches from all three institutions. This will allow us to relate the branches of different lenders spatially, and hence provide a good measure of intensity of competition among them.

NOTE: Two projects outlined in the workplan of September 2008 were dropped. As feared, we found that Fundacion Agil could not ensure large enough funds to undertake a project of sufficient scale to allow statistical analysis. Therefore, we backed out of our plan to collaborate and produce a case study of producer groups in the non-traditional export sector.

Also, use of the Safeway data to analyze consumer demand for specialty coffee products as a function of coffee prices and coffee attributes (labeling, brand, certification) did not lead to sufficiently interesting results to be worth pursuing. There is not enough variation in prices (which would come from special sales and promotion), not enough FT

sale, and not enough variation in the labeling on the coffee proposed by Safeway over the period for which we had data, to be able to assess the willingness to pay of consumers for the FT and other attributes. We have thus decided not to pursue this avenue and will design a different strategy to analyze the demand for FT coffee.

FINDINGS

Coffee value chain

The objective of the FT organization is to provide small producers a price for their product above the market price for coffee of the same quality, i.e., a rent. Economic theory, however, tells us that under competition, rents cannot subsist, market equilibrium settles for a price equal to the marginal cost of production (and delivery). Only when producers can restrict entry and induce some scarcity can prices remain higher than marginal cost.

We measured the actual FT premium by comparing prices of coffees that are all certified, but sell either as FT or on the regular high quality market. We also computed an annual measure of the excess supply of FT coffee from the fraction of certified coffee that is sold on the FT market.

Our conclusion is that there is almost no effective FT premium. Controlling for observed quality of the coffee and the cooperative of origin of the coffee, we find that the premium increased from 10cts/lb in 1998 to a maximum of 70cts/lb in 2002 when international prices reached their lowest level before decreasing again to about 10cts/lb in 2005-08 when the coffee price recovered. Although this looks like a good premium, at least in the early 2000, in reality absence of sufficient control on supply means that there is excess certification and only a fraction of the certified coffee finds its way on the certified FT market. This excess supply varies between 55% and 75% (in 2000-02). This means that, once spread over all the FT certified coffee, the premium is substantially reduced to 2 to 5-6cts/lb in the peak years 2001-2004, a far cry from the observed difference in prices. While this result may look shocking to the eyes of FT proponents, it does correspond to what economic theory would prognosticate.

Another interesting result concerns the quality of FT coffee. FT certification is, as of now, only in the

specialty market, and small coffee producers in the highlands of Guatemala are all in the specialty market as well. So FT coffee is of high quality. However, within the range of quality offered by these small producers and cooperatives, which quality goes on the FT market? A feature of the coffee market is the steep price difference across qualities, while to the contrary, the FT contracts do not recognize quality: the floor price is a constant international price and the premium is quoted relative to the NY'C' price. Theory predicts that the relative quality of coffee sold under FT should vary with reference to international price. With a low international price for coffee, like that prevailing in the early 2000s, the FT premium allows FT importers to select higher quality coffee; while with a high international price, in particular when it surpasses the minimum floor price, FT importers cannot attract coffee of quality higher than what the non-FT market would get with the same price. This suggests an inverse relationship between average FT coffee quality and the international price of coffee. The theory also suggests that when the FT floor price is close to the international market price, FT buyers can fulfill their demand within a narrow range of coffee quality, suggesting a negative relationship between the variance in FT coffee quality and the international price. Preliminary results show that these two relationships hold.

In conclusion, a FT market, being inherently based on disequilibrium between supply and demand, can be understood by analogy with the common property resource problem. Despite the fact that the FT system appears to control prices effectively, because the quantity of FT production is a free variable, rents are dissipated in equilibrium. The situation, however, is not a hopeless open access problem because the long-established solution to such CPR issues is that there must exist a gatekeeper able to regulate entry. In this case, the strict certification control possessed by FLO as the only certifying agency, and the apparently effective maintenance of the FT trademark by TransFair and other labeling initiatives in the consumer countries, indicate that such gatekeepers exist. Therefore the critical policy question in the ongoing effort to generate real benefits for producers is how the system can be used to control supply.

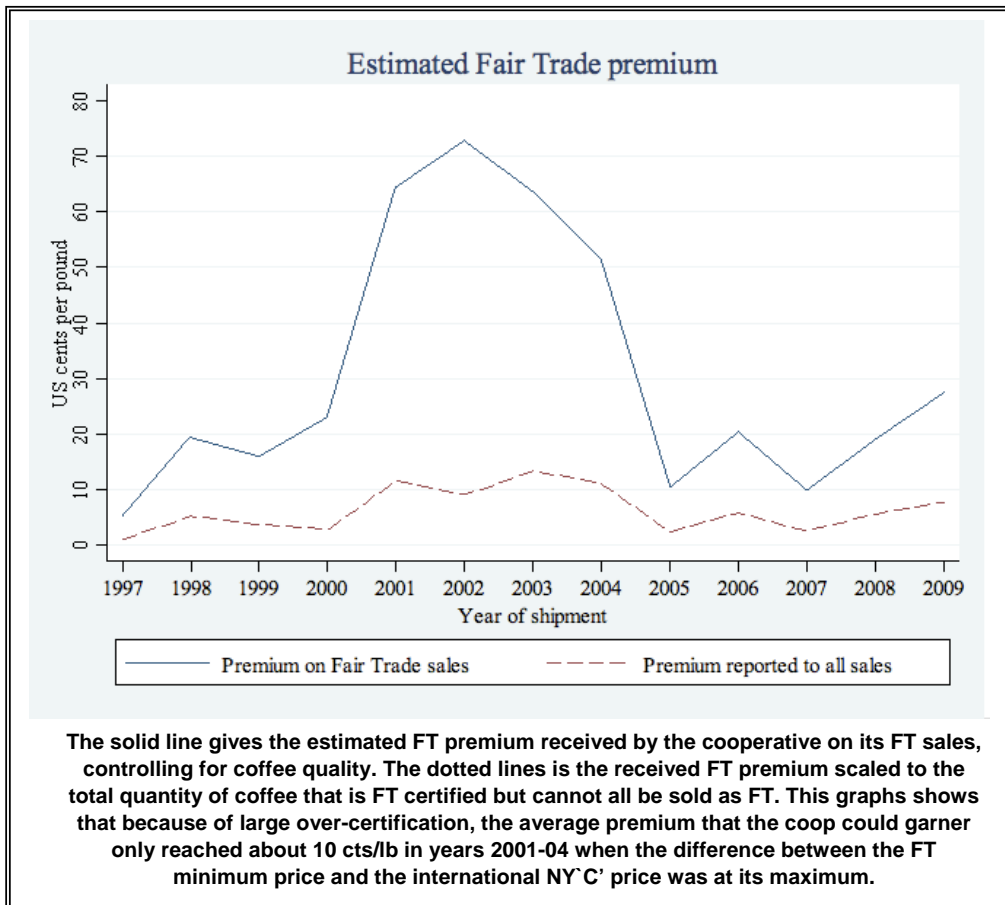
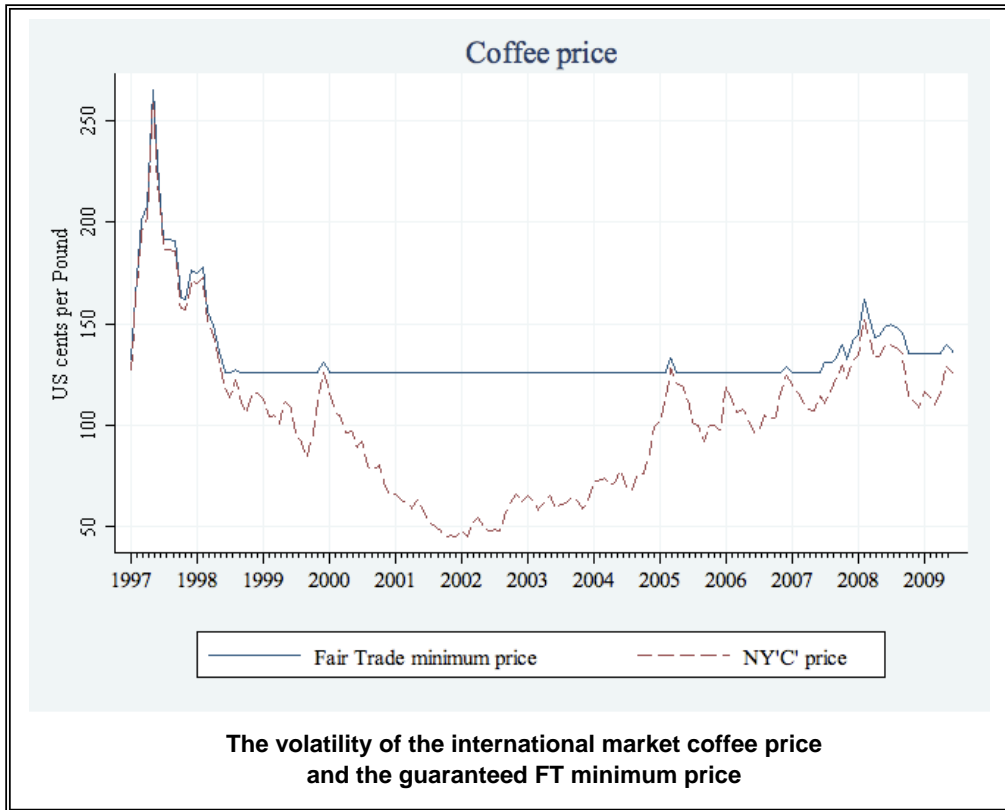
Savings innovations in CHN

See above for details about research design and the three treatment groups. This randomized savings experiment within CHN utilized recent insights from behavioral economics to try to design products that foster the rapid and sustainable formation of savings among CHN's microfinance portfolio. This question is of important policy interest because of the long-understood importance of savings balances as a vehicle out of poverty for entrepreneurial households. Also the collapse of external financing for the microfinance sector led lenders to focus much more intently on internal savings as a source of loan liquidity.

Our results show that these treatments have sharply divergent initial outcomes, but that in the absence of penalties for failing to comply with the pre-determined savings behavior, these divergences decrease over time. Initially, only 16% of control borrowers open new accounts, whereas 35% of the "Fijo" treatments do and more than 70% of the "Estandar" treatments do. After six months, the average balance among the control group was 51 Qtz, whereas this figure was 85 and 197 Qtz in the "Fijo" and "Estandar" treatments, respectively.

Treated borrowers were more likely to have ever made a deposit, more likely to make a deposit every time they made a loan payment, and at its peak the program accounted for 80% of the new savings accounts opened in CHN. Over the course of time, however, the balances in the savings accounts converge. The financial crisis hit Guatemala about six months into the study, and subsequent to this all three types of savers began on average to draw down balances. The rate of accumulation of the "Estandar" accounts, which had previously been the fastest of the three, now turned the most negative, and as of a tranche of data from September 2009, the differences between the average savings balances in the three treatments had disappeared.

The results of this study indicate that initially, commitment is effective at generating savings, and commitment plus a savings default option is even more effective. In a time of crisis, however, and in an environment in which borrowers are not penalized for failing to meet savings targets, the salience of savings decreases and the efficacy of these behavioral interventions fades over time.



AMA RESEARCH THEME:
ACCESS TO FINANCE

WITHOUT ACCESS TO CREDIT, HOUSEHOLDS ARE LIKELY TO ENGAGE IN LOW-RISK LOW-RETURN income strategies that inhibit their ability to accumulate assets over time. If they were able to access capital to finance input purchases or other investments, they could improve both their short and long term earnings and wellbeing. Unfortunately, there are many good reasons why households have trouble accessing capital.

AMA researchers are looking at different innovations to help expand the provision of financial services. By understanding the circumstances that create incomplete access to finance, we can then generate a set of products and policies that will improve both the supply and the demand for credit.

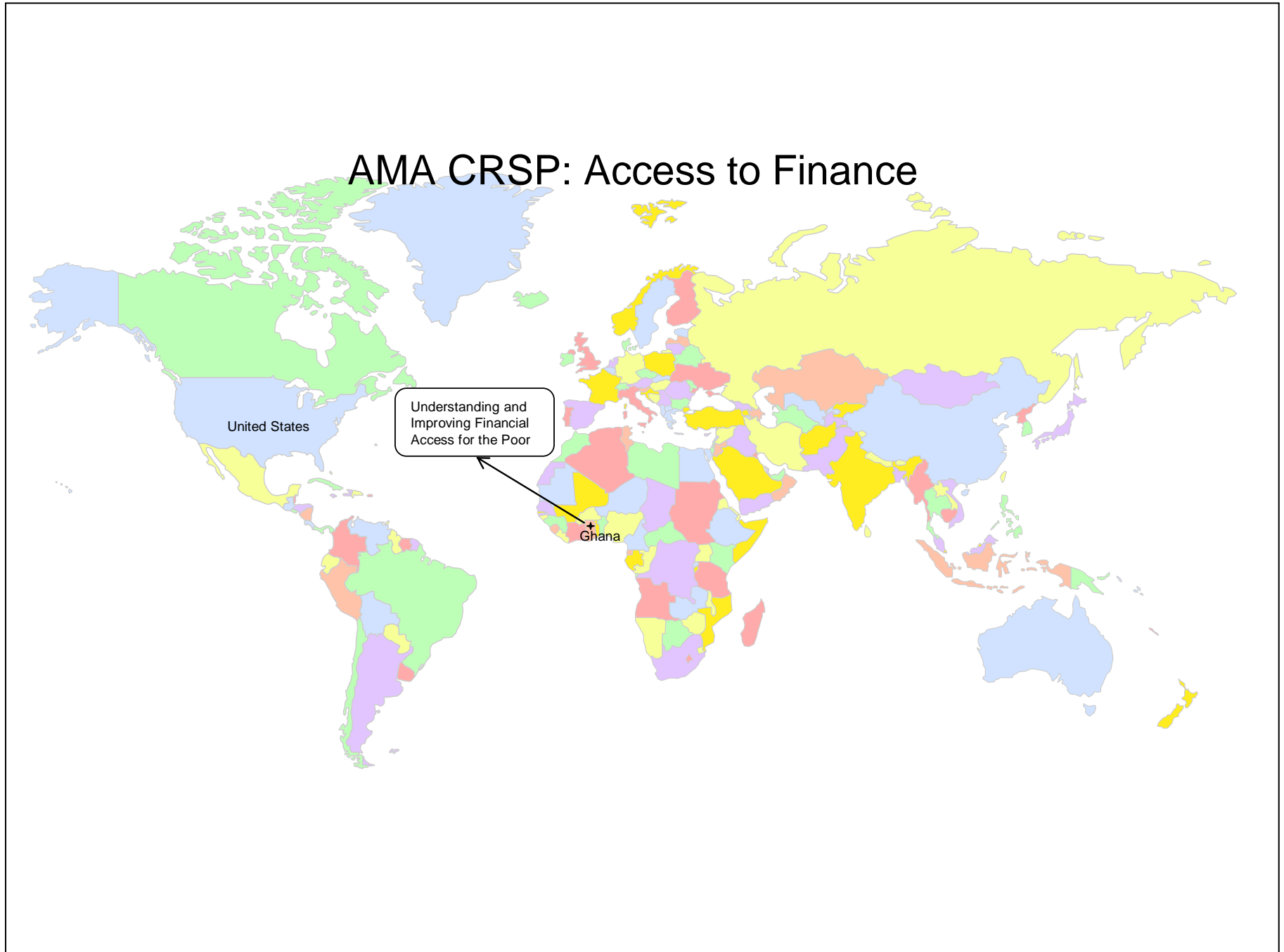
AMA PROJECT

- Understanding and Improving Financial Access for the Poor (Ghana)

AMA BASIS BRIEFS

BASIS Brief no. 2008-04: “Understanding and Improving Financial Access for the Poor,” by Ernest Aryeetey, Dean Karlan, Justin Oliver, Laura Schechter, and Jonathan Zinman. May 2008.

AMA CRSP: Access to Finance



UNDERSTANDING AND IMPROVING FINANCIAL ACCESS FOR THE POOR (GHANA)

Principal Investigators

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http://www.basis.wisc.edu/projects_ama/Microfinance_Ghana.html

Problem and objective

Many poor households lack access to financial markets and services, which limits their ability to undertake higher return production strategies. This project seeks to improve access for the poor by identifying mechanisms that create incomplete access, which innovations are effective at expanding access, and finally in looking at the welfare implications of expanded financial services. Researchers will use experimental methods to test various types of interventions and assess their effect on financial access for the poor.

Policy relevance

The findings from this research will inform policy makers on the effect of financial market regulations on the access the poor have to financial services. It will also help financial service provider refine their selection criteria, loan terms, and other policies in ways that will help the profitably expand access to households that are currently excluded from the market.

Collaborations

Yale University Economic Growth Center Dataset. We take advantage of a unique panel dataset designed to provide data on 5,000 households in collaboration with the Institute of Statistical, Social and Economic Research at the University of Ghana (ISSER), and with the Ghana Statistical Service (GSS).

Ministry of Food and Agriculture (MoFA). MOFA is an essential partner in numerous projects ongoing in Ghana. Valuable consultations and collaboration with MoFA staff have occurred at all levels. Meetings with agricultural extension agents in the field have provided important insights and important data which have informed study designs and dissemination strategies. Extension agents have also been involved in IPA field staff training, reviewing village entry procedures and tips on working with rural farmers.

Institute of Statistical, Social & Economic Research (ISSER). The partnership with ISSER greatly extended IPAs research network in Ghana, allowed for closer collaboration with local researchers, provided valuable advice on data availability and data services in country, and resulted in assistance from local interns and researchers. Knowledge shared about local researchers, previous research completed, and other regional resources have been invaluable. In January 2009, ISSER collaborated with IPA on a large Financial Access conference. ISSER's continuing involvement in the Yale Panel Surveys and MiDA (GLSS5+) Surveys allows for regular updates on progress and opportunities for collaboration.

Outputs

BASIS Brief no. 2008-04: "Understanding and Improving Financial Access for the Poor," by Ernest Aryeetey, Dean Karlan, Justin Oliver, Laura Schechter, and Jonathan Zinman. May 2008.

ACTIVITIES

Interest rate sensitivity

The past two years we have partnered with Opportunity International (OI) on a study addressing the effect of interest rates on client demand for credit, loan size, repayment behavior and client retention. We conducted two pilot projects, aimed at finding the best design to tackle this complicated question. The project was on hold for the much of the last year while the bank underwent a series of management transitions. In June 2009, conversations restarted with new management, and an updated evaluation design was developed. The new management is interested in reducing OI's current interest rate and would like to better understand the impact this might have on business. In addition, the length of the loan term on take-up was highlighted as an area of interest.

We traveled to select OI branches to finalize the study design and prepare for mapping target areas where marketing activities will take place. The new study design will involve four OI branches, where 200 geographic clusters would be mapped. Marketers will offer either a high or low interest rate with either a long or short loan term, depending on the random assignment of the cluster.

Measuring returns to capital and insurance among farmers

This study examines how insurance products and capital shocks impact farmers' investment decisions, by comparing three treatments: the direct transfer of capital, a rainfall insurance product, or both the transfer of capital and the insurance product. A fourth group of farmers receive no treatment, but be monitored and surveyed and serve as the control group.

Between September 2008-February 2009 numerous focus groups were conducted in Tamale, Savelugu and West Mamprusi District. The aim was to better understand farmers investment decisions, concept of risk and view of what constituted too much and too little rainfall for their crops. The rainfall insurance product was then developed based on farmers' input on rainfall risk. Interviews were conducted with Ministry of Agriculture, the Savannah Agriculture Research Institute, the International Center for Soil Fertility and

Agricultural Development, the Ghana Metrological service, national and international insurance companies, and numerous farmers. Many academics and researchers were also consulted. In Ghana, experts were consulted from the University of Ghana Legon, the University of Development Studies, and Kwame Nkrumah University of Science and Technology. Additional meetings were held with international researchers and rainfall insurance experts from Malawi, South Africa and India.



Interviewing a maize farmer in Tamale about his investments.
Photo by Dean Karlan.

Farmers were selected from among those who participated in the Ghana Living Standards Survey 5+ (GLSS 5+), conducted by Ghana Statistical Services and the Millennium Development Authority in early 2008. The advantage of returning to these farmers is that they were already randomly selected to be representative of their communities. The districts of West Mamprusi and Savelugu-Nanton were chosen, along with Tamale Metropolitan Area, because they contain weather stations maintained by the Ghana Meteorological Agency, which are required for the rainfall insurance policy to operate. We selected all those communities from the GLSS 5+ survey that lie within 30 kilometres of a weather station as appropriate for this project. Within these selected

communities, we included in our sample all those farmers who reported in the GLSS 5+ survey that they had cultivated a maize farm of between 1-15 acres during the 2007 season. The random allocation of the capital grants and the rainfall insurance product was carried out among these farmers.

The TAKAYUA rainfall insurance product is aimed at maize farmers in the region. The product provides farmers with some protection from the consequences of drought or excess rain during the months of June, July, August and September 2009. This product is given to selected farmers free of charge this year. One of the major barriers to adoption of rainfall insurance products in other countries is believed to be the complexity of those policies. IPA therefore sought to make its rainfall insurance policy as simple as possible.

Two separate intensive trainings were conducted in March 2009 for field workers responsible for conducting a brief census, delivering the cash to farmers, and marketing the rainfall insurance. The three-day trainings included presentations by experts on the maize crop, extension work and farmer outreach, and survey implementation.

In March 2009 we conducted a short survey with all farmers in the sample about their plans for the 2009 farming season and their use of inputs. The survey also asked them to consider what extra activities they would conduct if they were to have extra capital available to invest in the maize crop. The amount of hypothetical extra capital varied with farm size, as recorded in the GLSS 5+ survey: we asked each farmer to assume that they had GH¢60 per acre extra to spend.

Following the input research survey, we informed those farmers who were randomly selected to receive a capital grant. We delivered a majority of the capital grants (in cash) to these farmers according to the timetable set out during the input research survey. Distributions are made on a weekly basis.

The rainfall insurance teams went to all selected farmers and explained the details of the TAKAYUA rainfall insurance product. All farmers who were offered the TAKAYUA rainfall insurance product decided to accept. Feedback from field workers and monitors suggests that a large majority of farmers readily picked up the principles

of the rainfall insurance policy, and were able to recall many of the details during a follow-up visit.

Rainfall levels were low in June and resulted in a payout for many of the covered farmers. Field workers delivered the payouts to farmers during the first two weeks of July. Additional isolated payments were made in September to affected farmers.

Consultations with the Ministry of Food and Agriculture and Presbyterian Agricultural Service are ongoing. We met with Ghana's Commission of Insurance and shared information on the study to date and plans for the coming year. The Commissioner showed great interest in the results, and explained that while there are no agricultural insurance options in Ghana currently, there have been continual discussions with GTZ and the World Bank regarding the need for technical training and financial support to design and pilot such products. Piloting of the census has been launched. The census will provide a list of all farmers in the target areas, which will serve as the sampling frame for the next year. The endline survey has been drafted and is currently being edited. Portable survey technology—Netbooks—are being piloted and considered for the upcoming survey.

Credit and crop insurance for farmers

Working with Mumuadu Rural Bank (MRB), we completed the pilot of a new loan product that partially indemnified farmers against low prices for their crops. In 2007, 201 maize and garden egg farmers were marketed loans. Of those, 100 were offered the standard loan and 101 were offered a loan product with the crop price insurance addition free of charge. Interest in and take-up of the loans was extremely high for both groups. In February and March 2009, a follow up survey was completed with farmers who received both insurance and uninsured loans. Of the 170 farmers who received a loan, 140 were located and surveyed. Information on crop selection, inputs and yield and harvest were collected. Data entry was completed in June 2009 and data analysis was completed in October 2009. Data collected included information on the size of land, crop choice, output details of minor season (yield size, transport costs), input details for minor season (chemicals used, seeds used), and labor use (casual/permanent/family for land prep, management, harvest, post-harvest). The analysis

yielded interesting results, described below in the findings section.

Savings account labeling and financial literacy training for susu customers

This project studies the response to a new savings product aimed at MRB susu customers, those individuals who make small regular savings deposits to agents who visit them at their place of work. The new product allows for individualized labeling of the account so that deposits can be directed to a specific goal. Accounts can be labeled as the client chooses, and the effect of this labeling will be measured by comparing the savings behavior, and expenditures related to the stated



An OI credit center meeting in Berekum.
Photo by Dean Karlan.

savings goal, of those who were offered this new product and of those with the current susu savings product. In addition to looking at overall savings data, examining specific consumption data will show if spending habits change and if spending on any items, in particular the savings goal, are affected by the intervention.

In October and November 2008, focus groups and interviews were conducted to understand the most common goals among customers. The most common savings goals were related to business, education and the household. A simple census document was developed and piloted, aimed at capturing the clients savings goals and basic socio-demographic information.

In December, MRB susu agents were trained in survey techniques and in implementing the brief census. They then conducted the census among susu customers.

Seventeen susu agents at six branches turned in completed basic questionnaires for 1,220 out of 2,030 active susu customers, and 229 new customers between December 2008 and February 2009. Bank secretaries entered data from all complete questionnaires into a project database.

We re-visited 10% of all customers surveyed in order to audit the information reported on the census questionnaire. Results from the audits showed that the information collected by the susu agents is unreliable: only 54% of customers reported that their susu agent asked them about their savings goal, and only 60% of customers stated the same savings goal as was reported by the susu agent. Though results varied by susu agent and by branch (ranging from 25% correct to 100% correct), the general conclusion was that the data collected is not reliable, and therefore must be re-collected. After meeting with MRB management and Board of Directors it was agreed that susu agents were not qualified to collect data.

In April and May 2009 a new implementation strategy was developed, requiring the employment of full-time surveyors to be paired with susu agents and for the project to be rolled out to one branch at a time. MRB selected Nkawkaw as the first branch to roll out the new study design. Initial set up began, and a new, lengthier survey was designed and piloted.

In June 2009 surveyors were trained in depth in the new survey, and the most qualified surveyors were hired. Additional changes to the survey were made, including adding discretionary spending questions, additional details to locate respondents, information about borrowing and proxy indicators for income.

In July 2009 four surveyors were paired with the four susu agents at the Nkawkaw branch and began conducting the surveys among susu customers. Over 600 surveys were completed with susu customers at the Nkawkaw branch. These surveys have been entered by the data entry firm.

In August and September 2009 updates were provided to the Bank's Board of Directors. We also met with the Board to discuss next steps and methods for improving the study. It was agreed that

our researchers can assist in offering the labeled savings account.

Returns to business management consulting study

The purpose of this project is to help identify the constraints to growth for micro/small enterprises in the developing world. Much of the focus to date has been on capital constraints—that is, on their lack of access to funds for investments. Indeed, during the pilot phase of this project, lack of capital was the most common response by micro/small enterprises when asked what barriers to growth they face. Increasing the availability of capital has therefore been the focus of major development initiatives, such as the rapid expansion of microfinance institutions over the previous decades. However, there could be other limits to expansion such as a lack of skilled business management practices.

To address the question of whether improved business practices can help firms grow, we are conducting a study on the impact of providing high-quality business management consulting services to small/micro entrepreneurs in Ghana. The research design also includes capital grants to test the added effect of capital on the firms.

Ernst and Young provides consulting services to 80 small tailors in Greater Accra over the course of one year. The tailors were selected randomly from a group of 160 candidates in eight neighborhoods across Accra. After six months of receiving consulting services, 80 businesses will receive \$200 to invest in their business (comprised of 40 tailors who are receiving consulting services and 40 who are not). This methodology will allow us to identify whether improved business practices, access to capital, or both better business practices and access to capital are necessary to unlock the growth potential of micro/small enterprises.

In October 2008 interviews were conducted with additional micro/small enterprises development organizations and local experts. From these additional meetings tailors were selected as the target population, and eight neighborhoods in greater Accra were selected as the geographic location.

Interviews with tailors and actors in the sector were conducted to begin planning for the baseline survey and the consulting services.

Ernst and Young was selected as the consulting firm best placed to provide high quality services to selected tailors. Four Ernst and Young consultants with relevant experience were chosen to work on the project and provide services to the tailors for the 12-month period. Local industry trainers conducted a two-day training with the consultants on providing training and financial services to low literacy and numeracy populations.

In November 2009, a census was conducted of the tailors in the eight selected neighborhoods. From among that list 160 tailors were randomly selected, 20 per neighborhood.

The baseline survey was conducted among the 160 selected tailors in December 2008 and January 2009. The lengthy two-part survey covered numerous key areas related to business practices, investments, expenditures, savings and lending history, financial and business knowledge, time preferences, cognitive ability, and management. Of the 160 tailors, 80 were randomly selected to receive the consulting services for one year, stratified by neighborhood.

Consultants were introduced to the tailors and officially began providing services in March 2009. The first three months were intensive, where the consultants visited clients roughly every week. After this, visits dropped off to every two or three weeks.

During the last two weeks of July, the midline survey was conducted among the 160 tailors. The survey aimed to capture potential changes that may have occurred since the baseline, related to investments, savings behavior, record keeping, salaries, and business and financial knowledge.

Additional data was collected over a one-month period every other day from all 160 tailors. A quick visit was conducted to collect information on basic sales and expenditure data. The aim of this data collection exercise was to gather accurate information from both control and treatment tailors, which would not be impacted by the provision of management consulting. Given that the consulting services have assisted tailors in keeping records and documenting profits, sales and expenses, it may be that treatment tailors are providing more accurate data than control tailors. Thus the month of regular visits was aimed at gathering data directly from tailors, not relying on their record keeping or calculations or other skills affected by the

treatment. Data entry is almost complete for both the midline survey and the month of visits.

Group vs. individual liability study

The new management at OI shifted its focus to major delinquency problems and structural issues within the organization. OI began to modify and reorganize its group lending system. Previously group sizes averaged 35 people and several groups met in a center. New centers are being developed with 50 people total, comprised of ten groups of five clients each. The transition has been time consuming, as it can only happen at the end of each credit cycle. With these changes underway, it was not an appropriate time to move forward with the study. Once the transition is complete, we will revisit the possibility of resuming this study.

FINDINGS

Examining underinvestment in agriculture

By May 2009, data from the input research survey was entered and analyzed for a random sample of 212 survey respondents (42%); 99% of respondents chose to allocate at least part of their potential capital grant to maize farming activities; 78% chose to allocate the whole amount to the maize farm. (See chart.)

As expected, farmers reported that they require

most of the funds during the first months of the planting season—April, May and June. This is probably due not just to the fact that farmers require funds to purchase inputs needed early in the year, but also to the expectation sometimes created by the survey that respondents really would receive some funds, in which case they would naturally prefer to receive the money sooner rather than later. In spite of this, some broad patterns are clear: plans for ploughing focus on April and May, while June is the peak month for purchasing inputs and hiring labor.

Credit and crop insurance for farmers

Recent analysis of baseline and endline data revealed interesting results. Insured farmers were more likely than uninsured to sell to market traders over farmgate buyers. The difference is of 26 percentage points, which is large. Rates with market traders tend to be higher, but farmgate buyers pay part in advance. One possible interpretation of this finding is that the price indemnity clause may replace use of farmgate pre-sales as an insurance mechanism.

Insured farmers also spent more on chemical inputs for their insured crop as percent of all crops. The difference is of 18 percentage points. This could suggest a concentration of efforts and investments on insured crops. Yet there were no significant differences in expenditures for other non-chemical

Common uses for extra capital		
Use		Proportion of respondents
Purchasing fertilizer	182	86%
Hiring labour	117	55%
Hiring tractor services and ploughing	107	50%
Purchasing herbicide/weedicide	50	24%
Extending farm size – cultivating more land	29	14%
Transportation	21	10%
Purchasing food for consumption during farming season	18	8%
Purchasing seeds	13	6%
Purchasing livestock	6	3%
Purchasing maize or other agricultural products for later use or reselling	6	3%
(Categories are not mutually exclusive or exhaustive.)		

inputs. There also were no significant differences between the insured and uninsured farmers for other areas analyzed (including type, proportion of crops grown, area under cultivation, revenue, quantity harvested, outcomes relative to farmers' expectations, loan repayment, small pilot sample size may be to blame), which most likely is due to the small sample size of participants for this pilot study.

Open questions following this study include: Did farmers fully understand the indemnity clause? Does indemnity offer a substitute for other informal insurance mechanisms, such as pre-sales to farmgate buyers? Would a higher price threshold or larger percent indemnity change the effect? Would other variations of insurance yield larger effects? Would a larger sample show an effect?

TRAINING

Fourteen training sessions were conducted as part of the projects with MRB, the Ministry of Food and Agriculture, Presbyterian Agricultural Service and Ernst and Young. The objective of the trainings was to increase capacity of staff to implement financial products. MRB susu collectors and bank management were trained on marketing, data collection, the principles of research design and randomized controlled trials. OI loan officers received numerous trainings and learned a great deal about research methods, impact evaluations, randomized controlled trials and new financial products.

Ernst and Young assigned a co-coordinator to work intensively on the Returns to Business Management Consulting Project. The co-coordinator helps develop the study design, narrow down the study population, finalize the treatments and plan the logistics of the study. The Ernst and Young consultants received an intensive training conducted by representatives of the National Bureau for Small Scale Industries on providing

training, education and financial services for small and micro enterprises.

We conducted a policy workshop on Microfinance and Agriculture with the Department of Agro-Economics at Kwame Nkrumah University of Science and Technology in August 2009.

We worked closely with Ghana's Ministry of Agriculture throughout the last year, both at the national level and the small scale district and community level. Information learned in developing the project has been shared and reviewed with Ministry staff. Results, findings and design details are provided as well, and feedback and input is solicited from the Ministry.

Presbyterian Agricultural Service staff participate in various events and trainings. Close collaboration on the study goals and design have been ongoing at the headquarter office in Tamale and among field staff. The Department of Agricultural Economics at University of Development Studies (UDS) provided advice and guidance on the ongoing project: Examining Underinvestment in Agriculture.

Five students participated in field work and in data analysis. Two Ghanaian students from the University of Ghana Legon and ISSER, worked on Examining Underinvestment in Agriculture Study over the past ten months. One Indian, one French and one United States student worked over the summer. One did in depth research on a new potential partner's operations and worked in the design of a new study aimed at increasing savings levels and understanding the impact of lotteries and financial incentives to save. Two students assisted in the MRB Labeled Savings Account Study at difference times, where they learned the details of the study design, the operations involved in running the study, about survey and data quality, and managing field operations. All the students were trained in research design, focus group techniques, survey design, and data collection methods.

AMA RESEARCH THEME:
ASSET BUILDING AND PATHWAYS FROM POVERTY

ASSETS AND NATURAL RESOURCES CAN PLAY A KEY ROLE IN HELPING HOUSEHOLDS move out of poverty. In some cases safety nets—such as food aid or cash transfers that help households stay above critical thresholds in times of need—are the most appropriate. In other cases, households that are already below the poverty line need help climbing out. Policy reform, such as land titling, helps to protect households' assets and allows them to make more productive long term decisions. Other government interventions, such as aid programs, conditional transfers, and educational programs help give poor households the tools they need to get on a successful pathway out of poverty. The goal is to protect existing assets and create an environment that allows for further asset accumulation over time, giving households the resources they need to manage shocks and stay out of poverty.

AMA researchers are looking at the implementation of different policies, including transfer programs and land tenure reform, and are forming recommendations on how these programming interventions might have a greater impact for poor households.

Use of natural resources, such as forest products, is necessary for many people's livelihoods. Yet, often, incentives for sustainable use of the resources are lacking. It is critically important to protect resource quality over time. Understanding how households use their natural environment is key to developing policies that will protect both the user and the resource. Innovations such as payment for environmental services programs and other initiatives are providing new alternatives in the successful management of forest and agricultural resources.

AMA researchers are investigating policies that will protect both resources and those households that depend on their use.

AMA PROJECTS

- Cash Transfers, Risk Management, and Asset Accumulation: Policy Evaluation for Rural Poverty Reduction in Nicaragua
- Pathways for Ensuring Access to Assets: Land Reform and Beyond (Liberia and Uganda)
- Natural Capital and Poverty Reduction (Malawi and Uganda)

AMA BASIS BRIEFS

BASIS Brief no. 2007-02. *Land Tenure Reform and Beyond: Ensuring Women's Access to Assets*, by Cheryl Doss, Ruth Meinzen-Dick, Jeanette Carter, and Gorette Nabanoga. July 2007.

BASIS Brief no. 2007-01. *Evaluating and Improving Interventions for Asset Accumulation, Risk Management, and Rural Poverty Reduction in Nicaragua*, by Karen Macours, Renos Vakis and Vanessa Castro. July 2007.

BASIS Brief no. 2008-02. "Using Natural Capital to Manage Risk and Reduce Poverty," by Arild Angelsen, Monica Fisher, Charles Jumbe, Gerald Shively, and Dick Sserunkuuma. February 2008.

AMA CRSP: Asset Building and Pathways from Poverty



CASH TRANSFERS, RISK MANAGEMENT, AND ASSET ACCUMULATION: POLICY EVALUATION FOR RURAL POVERTY REDUCTION IN NICARAGUA

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http://www.basis.wisc.edu/projects_ama/rural_poverty_reduction.html

Problem and objective

A lack of minimum endowment of assets can cause households to be stuck in long-term poverty traps, and negative shocks can cause households to fall below the minimum asset threshold necessary to pull themselves out of poverty. Conditional cash transfers are one mechanism to help increase asset endowments, as well as investment in education, health and nutrition. This project aims to look at the long-term impact of a cash transfer pilot program, and whether it increases the asset base and/or facilitates income diversification. It will also look at the changes in household's return on productive activities following their participation in the program.

Research context and policy relevance

The project will look at a recently complete pilot program by the Ministerio de la Familia (MIFAMILIA) in Nicaragua. This program combines a traditional conditional cash transfer program with additional interventions aimed at increasing the asset base and risk management capacity of rural poor households exposed to weather risk (droughts).

By providing evidence on the effectiveness of different types of interventions, this project will inform the recently inaugurated government team in charge of social policy and rural development, and inform the debate surrounding the restructuring of existing initiatives. The project addresses a number of the policy priorities of the new Nicaraguan government, including reduction of hunger and extreme poverty, malnutrition, gender empowerment and micro-finance, and will shed light on discussions regarding the effectiveness of conditional cash transfers as opposed to other programs, such as food aid.

Additional support

World Bank: \$329,069

Collaborations

This research builds on the randomized design of the pilot program "Atencion a Crisis" of the ministry of the Family in Nicaragua, implemented between November 2005 and December 2006.

The pilot program was implemented by the Ministry of the Family, with funding from a World Bank loan. There are strong synergies among our project and at least three activities related projects by the Ministry of the Family. The most direct synergies exist between the evaluation of *Atencion a Crisis* and a new evaluation (to be started in the fall of 2009) of the original CCT program in Nicaragua (the *Red de Proteccion Social*, which started in 2000 and was implemented in a different part of the country). This evaluation, financed by the IADB will build on lessons learned and capacity build during the evaluation of *Atencion a Crisis*, and will focus on the long-term impacts on human capital accumulation. To the extent possible, similar outcome measures will be used (e.g., same cognitive tests, labor market histories, etc.) in order to increase the potential lessons learned from both projects.

The Ministry recently restarted a centrum-based ECD intervention (PAININ), which partly covers the same communities than the *Atencion a Crisis* pilot and the complementary ECD pilot focused on parents. The sample of treatment communities for the ECD pilot is balanced between communities with and without PAININ. This will allow analyzing the complementarities and substitutabilities between the two approaches.

The Ministry is considering starting a new program focused on empowerment, early childhood, reduction of child labor, and labor market integration in urban areas of Nicaragua, financed by the IADB. Given the similarities with the objectives of some of the components of *Atencion a Crisis*, initial conversations have been held with the IADB team to coordinate between the evaluations in order to increase the potential lessons learned. More broadly, there has been a relatively extensive sharing of methods and approaches with other projects that focus on measuring early childhood development outcomes (in particular World Bank projects in Ecuador, Cambodia, and Mozambique). World Bank established a website aimed at information dissemination: www.worldbank.org/atencionacrisisevaluation

Outputs

BASIS Brief no. 2007-01. *Evaluating and Improving Interventions for Asset Accumulation, Risk Management, and Rural Poverty Reduction in Nicaragua*, by Karen Macours, Renos Vakis and Vanessa Castro. July 2007.

Del Carpio, Ximena, and Karen Macours. 2008. "Leveling the intra-household playing field: Compensation and Specialization in Child Labor Allocation." World Bank Policy Research Working Paper Report No. WPS4822. Also forthcoming in *Research in Labor Economics*.

Macours, Karen, and Renos Vakis, 2008. "Changing households' investments and aspirations through social interactions: Evidence from a randomized transfer program in a low-income country." Johns Hopkins University and World Bank Working Paper Report No. 45211.

Macours, Karen, Norbert Schady and Renos Vakis. 2008. "Cash Transfers, Behavioral Changes, and Cognitive Development in Early Childhood: Evidence from a Randomized Experiment." World Bank Policy Research Working Paper No. 4759.

Macours, Karen, Fernando Galeana and Renos Vakis. "Supply-side Responses to High Food Prices: Evidence from Small Farmers in Nicaragua."

Publications aimed at dissemination of market and community information gathered during qualitative fieldwork in Spanish: one children's tale (*la panadera emprendadora*), two comics (*Como comprar y vender; Como invertir tus ganancias*), and two informational brochures.

ACTIVITIES

In May 2009, the third round data collection, including extensive migration tracking (resulting in an attrition rate of only 3%), was finalized. The data will be used to measure the medium-term impacts of the original MIFAMILIA intervention pilot program (which ended in December 2006), as well as the short-term impact of the information intervention. Analysis of the third round started and aims at shedding light on the medium-term impacts of the MIFAMILIA pilot. In the first step, the research focuses on possible impacts of each of the three original interventions on household income diversification and risk management.

In June 2009, the complementary early childhood development (ECD) pilot intervention started, and is designed to last one year. Two different modalities of the intervention are being piloted (one targeted primarily at mothers, the other targeted primarily at fathers), and are randomly assigned to households in the

three original treatment groups and households in the comparison group. Given that the intervention has a community focus, the

randomization was done at the level of the community. This will allow a rigorous evaluation of the complementary impacts for different types of beneficiaries, and also capitalizes on the prior rounds of data, allowing for a difference-in-difference and/or fixed effects estimation.

CIASSES is working with 59 community educators, who are playing a key role in the capacity training and home visits during the year. These community educators (selected from the program municipalities) received a first intensive training course in August in early childhood development practices designed specifically for this pilot.

In November 2008, we participated and presented in a workshop organized by the World Bank on methods for monitoring and evaluation related to ECD.

In February 2009, working with the office of standardization in the Ministry of Health, we organized a one-day workshop on early childhood

development measurement methods and standardization; during the workshop there was discussion of the ECD-related research findings and policy dialogue.

FINDINGS

Research findings of the short-term impact evaluation were disseminated through a number of seminars and conferences.

Social interactions are found to affect households' attitudes towards the future and to amplify program impacts on investments in human capital and productive activities. The empirical evidence indicates that communication with motivated and successful nearby leaders can lead to higher aspirations and corresponding investment behavior.

The conditional cash transfer program had significant effects on cognitive outcomes,

especially language.

Impacts are larger for older pre-school aged children, who are also more likely to be delayed. The program increased intake of nutrient-rich foods,

early stimulation, and use of preventive health care—all of which have been identified as risk factors for development in early childhood.

Households increased expenditures on these inputs more than can be accounted for by the increases in cash income only, suggesting that the program changed parents' behavior. The findings suggest that gains in early childhood development outcomes should be taken into account when assessing the benefits of cash transfer programs in developing countries. More broadly, it illustrates that gains in early childhood development can result from interventions that facilitate investments made by parents to reduce risk factors for cognitive development.

Households that randomly received the conditional cash transfer compensated for some of the intra-household differences. They reduce child labor more for older boys who used to work more and for boys that were further behind in school. The results also show that households that randomly received a

Conditional cash transfer program can change parents' behavior, leading to gains in early childhood development

productive investment grant targeted at women, in addition to the basic conditional cash transfer benefits, show an increased specialization of older girls in nonagricultural and domestic work, but no overall increase in girls' child labor. The findings suggest that time allocation and specialization patterns in child labor within the household are important factors to understand the impact of a social program.

Past participation in the productive investment package increased responsiveness to food prices, probably by encouraging more social interactions. This result suggests that transfer programs can be an effective vehicle in changing behavior and subsequently affecting productive decisions.

TRAINING

- 130 practitioners, researchers and students, trained in monitoring and impact evaluation methods

- 60 practitioners (community educators) trained in program design and implementation for early childhood development intervention
- One US student with completed MA degree (Fernando Galeana) and one with completed PhD degree (Ximena Del Carpio). Ongoing course work by Nicaraguan students.
- One-week training of community educators in Managua, August 2008, with approximately 60 participants
- One-day workshop for the Ministry of Health, with 10 participants
- One-day ECD workshop for the World Bank, with 20 participants
- Presentation of research results at NEUDC (Boston University), PACDEV (San Francisco State University), LACEA, and BASIS annual technical meeting.
- Academic seminars at Harvard/MIT, Paris School of Economics, Toulouse School of Economics, Johns Hopkins University (SAIS and economics)

PATHWAYS FOR ENSURING ACCESS TO ASSETS: LAND REFORM AND BEYOND (LIBERIA AND UGANDA)

Principal Investigators

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http://www.basis.wisc.edu/projects_ama/land_tenure_reform.html

Problem and objective

Although there was a wave of land tenure reform in Africa in the 1990s, these reforms have demonstrated that legislation alone does not create property rights and tenure security. In addition, many reforms did not adequately address the issues of common property and women's access to assets. This project will analyze the social, economic and institutional barriers that women face in accessing and controlling assets, including land. It will also assess the interactions among various assets and provide concrete suggestions of how to improve policy and practice to enhance women's access to and control over assets.

Research context and policy relevance

Uganda legislated land reform in 1998, whereas Liberia is now emerging from 26 years of conflict and land reform is high on the agenda of the newly-elected government. More information is needed on land tenure security and asset ownership among rural people in order to develop secure tenure systems. It is hoped that the post-conflict experiences in Uganda can help inform the evolution of land reform policies in Liberia.

In Uganda, a study of the processes and pilot initiatives that have already been undertaken, and looking at their impacts, the research can contribute to improved programs on the ground to secure land rights of the poor, particularly women. In Liberia, the findings of this project on the state of tenure across different types of land uses as well as between areas with existing freehold title and customary tenure will be provided directly to the Governance Reform Commission, which will be creating a new land tenure policy for the country.

Additional support

IFPRI matching support from CGIAR Systemwide Program on Collective Action and Property Rights (funded by Government of Norway, Italy, and World Bank): \$16,272.

The University of Liberia provides salary and allowances for Jeanette Carter and office space at the Institute for Research. The Government of Liberia provides in-kind support through the Governance Commission.

Dr. Carter developed the land component of the Millennium Challenge Corporation Threshold Project that will bring approximately US\$7 million to the land sector if approved. She also developed a US\$200,000 proposal to the Norwegian Refugee Council that is funding several transitional activities for the Governance and Land Commissions, including research activities that will complement the BASIS project.

Collaborations

Ruth Meinzen-Dick co-leads an IFPRI research program on Strengthening Women's Assets for Better Development Outcomes, which deals with many different types of assets. This project is part of the overall research program, and the methods for assessing land property rights, in particular, under this project are contributing to the overall research program, while other studies help inform this project by examining asset trajectories of accumulation and loss of assets.

Meinzen-Dick is also involved in a SANREM CRSP project on decentralization and forest governance in 4 countries, including Uganda. She and Esther Mwangi conducted the gender analysis of that study, including the rights of women's and men's groups for forest resources, and presented that at the 2008 IASC meetings.

Further, this project is closely tied in to the CGIAR Systemwide Program on Collective Action and Property Rights (CAPRI), which Meinzen-Dick coordinates. The CAPRI program is now focusing on the links between property rights and conflict, including postconflict rebuilding. This BASIS projects helps to inform that overall program and network.

A close collaborative relationship has been established between the project and the Governance Commission in Liberia. As the Director of the Research Institute at the University of Liberia, Carter works with the GC on land and property rights issues. This work will involve interaction with the Land Commission that is newly established. She regularly meets with key stakeholders (e.g. government ministries and agencies, NGOs, donors, and civil society) on land issues.

Doss continues to work extensively on projects on women's access to assets. A collaborative project to collect sex-disaggregated asset data in Ecuador, Ghana, and India was funded by the Dutch government MDG3 program. This will provide additional comparative data on women's access to assets. The basic structure of the intrahousehold/household survey will be similar to that for this project, allowing for comparisons.

Outputs

BASIS Brief no. 2007-02. *Land Tenure Reform and Beyond: Ensuring Women's Access to Assets*, by Cheryl Doss, Ruth Meinzen-Dick, Jeanette Carter, and Gorette Nabanoga. July 2007.

Doss, Cheryl, and Ruth Meinzen-Dick. 2009. "Collective Action within the Household." Paper presented at International Association of Feminist Economists.

Doss, Cheryl, Caren Grown, and Carmen Diana Deere. 2008. "Gender and asset ownership : a guide to collecting individual-level data." World Bank Policy Research working paper no. WPS 4704.

McCarthy, Nancy. "Customary Land Use in Liberia: A Review of Supreme Court Decisions." Submitted to Governance Commission of Liberia.

Bibliographic database of relevant literature.

ACTIVITIES

Our 2008-09 workplan focused on completing the community surveys in Liberia and collecting household/individual data in both Uganda and Liberia, to provide the basis for the empirical analysis of women's access to land and other assets. The protocol for community tenure profiles were developed and tenure profiles completed in 11 communities in Uganda and seven communities in Liberia. We adapted survey methods for intrahousehold analysis of gendered control over assets, and the survey was conducted in 11 communities in Uganda; it will be administered in Liberia in 2010. A bibliographic database of relevant literature was compiled, with all collaborators adding items as they are found.

We engaged in policy work in several dimensions, including working closely with the Governance Commission in Liberia. This work culminated in the legislative establishment of a Land Commission, which has a broad mandate to consider all aspects of land issues, leading to policy formulation and legal reform. In Uganda, we continue to work with the Uganda Land Alliance as a means to influence land policy.

Uganda

The community tenure profiles were completed in Uganda and data entered, using the data entry program set up by IFPRI. Analysis of the community tenure profiles is being conducted together with analysis of the survey data.

Household/intrahousehold surveys were completed in all 11 communities where we conducted community tenure profiles: three in Kapchorwa district, four in Luweero, and four in Kibale, with 30-40 households per community. We interviewed up to four individuals in each household: the household head, a wife (randomly selected if more than one is in the household), and two other adults. Questions focused on individual level ownership of and access to assets, how the assets were acquired, measures of both tenure security and household and marital security. The data is being entered and preliminary analyses are underway.

For policy impact we work closely with the Uganda Land Alliance to ensure that our questions and findings fit the Alliance's needs and interests, especially as Uganda develops a new Land Bill. We

determined that it would be more productive to participate in the land policy debates once we had our intrahousehold/household survey data analyzed, rather than the qualitative work from the community surveys. In the Ugandan policy debate, numbers carry much more weight than qualitative evidence, especially on gender issues.

Liberia

The Liberia work has been slower than the work in Uganda because of the need to create much more of the research infrastructure at the University of Liberia. Relatively little research has been done on land-related issues in Liberia so the project has had to help develop the contextual framework for the study.

This year, we completed five additional community profiles in the following communities: Zolowo, Lofa County; Kilema-Bendu, Lofa County; Nyehn, Todee District, Montserrado County; White Plains and Harrisburg, Montserrado County; Worhn, Margibi County.

Originally, the focus of the community profiles was on communities operating primarily under customary tenure. The remaining communities will provide a more complex pattern of land tenure. These are to be completed by December 2009 as previously indicated. It is anticipated that all these communities will be accessible by road with the conclusion of the rainy season in October.

The interview protocols are being shortened and more tightly focused on land and asset-related issues. Information on livelihoods will be obtained through key informant interviews independent of the community profile interviews. Funds permitting, the interview team will be fielded for a longer period to facilitate more substantive discussions and interviews.

In March we prepared for the intrahousehold/household survey, meeting with numerous officials and people involved in surveys in Liberia to determine how best to ask questions about agricultural patterns and land ownership in a country that has both deeded land and large amounts of land under customary tenure and shifting cultivation. The questionnaire has been

reworked to address the different patterns of land ownership in Liberia.

A workshop was held with LIBTRALO, a group that has worked at translation into local Liberian languages. Included were translators for eleven of Liberia's languages. The sessions focused on obtaining an understanding of key terms that are relevant to land ownership issues, both for this project and for the broader land policy discussions.

At the project meeting in New Haven, plans have been finalized for the intrahousehold/household survey. The 2008 Census will provide the sampling frame. The survey will target approximately 35 households in each of eight communities. IFPRI will make an intern available for three weeks in January-February to assist in launching the survey. Enumerators will be recruited from those who have worked on other surveys and they will be trained specifically on asking land tenure questions. Many are university students or recent graduates. A survey manager is being identified to supervise the implementation in the field. Data entry will be done in Monrovia.

We have been involved in the ongoing work of the Governance Commission on land issues and in the preparatory work for the Land Commission. The Liberian legislature passed the act establishing the Land Commission in mid-2009 and the President signed the act. Seven commissioners were named and confirmed by the Senate in September 2009.

FINDINGS

Uganda

Women's rights to land and other assets are mediated not only by the type of formal land tenure (ownership, rental, customary rights, or public lands), but also by the type of marriage they are in (customary, statutory [religious, state], consensual, unmarried, divorced, widowed).

In Uganda, for example, customary marriages predominate in more remote communities while those closer to Kampala have more consensual unions that are less secure. In addition, the areas closer to Kampala have more individuals who are unmarried, divorced, and widowed. We find preliminary evidence that in areas with less secure marriages, not all assets are brought into the household. Instead, they may be held individually,

sometimes without knowledge of the spouse or other household members.

Because property rights are social relations, rights to resources reinforce social relations and vice versa. Treating "rights" or "ownership" as relationships between individuals and the state can undermine these interlinked social relations—the "web of interests." The work in both Uganda and Liberia indicates that strengthening women's property rights does not necessarily mean that she should have exclusive rights. It is important to understand both individual rights and rights within the household. For example, in the debate on individual versus joint titling of land, the impact on women's tenure security depends on those with whom she shares title. For women, having joint rights to all household resources may provide rights and access to more resources than if they rely on what they can accumulate on their own. But if women's rights to household resources are being eroded (e.g., by decreasing marital security, or where other pressures decrease the tenure security of the household on customary land or the commons), then they may need formal backing for their rights.

As we have delved into complexities of property rights and their links to intrahousehold relations, we have begun to consider what factors can strengthen the household ties and sharing of resources. The literature on collective action in natural resource management has examined what factors facilitate groups working together to invest in and share output of common pool resources. Insights from this literature may also be helpful for strengthening household bonds and sharing. Therefore, we wrote a paper bringing the collective action and intrahousehold literature together, and have presented this at a number of forums. It will contribute to overall project outcomes and identify policies that can strengthen households to improve the welfare of all members.

In order to develop the intrahousehold/household survey questionnaire in Liberia, we explored the meaning of the terms such as ownership in that context. The terms "own" and "ownership" are often used by a male family head in relation to the people and properties over whom he has power, rights, and responsibilities. The person responsible for ensuring that customary rules are followed in an area is often translated as the "owner of the land,"

without the implications that they control the full bundle of rights over the land that Western countries define as ownership.

The results from the analyses of the Uganda intrahousehold/household surveys are preliminary. We are in the process of analyzing the data. We expect the findings to be available for a policy forum in February 2010.

Liberia

The initial analysis of the community surveys in Liberia provides useful policy insights. The 1986 Constitution of the Republic of Liberia provides for private ownership of property by all citizens. Property belonging to an individual upon marriage remains the property of that individual. Within the statutory system, women have equivalent rights to men to own and inherit property and do so. Women who lack economic resources and education, however, are disadvantaged. But men are similarly disadvantaged. In Liberia, the argument can be made that access to land and security of tenure is primarily a function of socioeconomic class, not of gender.

Most Liberians living in rural communities still function under customary land tenure.

Traditionally, rural Liberians have practiced a form of forest-based shifting cultivation that is broadly similar throughout the country. While there are approximately 20 ethnic groups in Liberia, initial research suggests that the customary tenure systems that they utilize are broadly similar. Underpinning shifting cultivation is the need for farmers to have access to more land than they utilize in any given year, especially for rice cultivation. The ultimate responsibility for allocating land lies with the elders. Individuals have access to land through their membership in social groups, most often kin-based. Their claims to land are exercised through patrilineal, matrilineal, or conjugal relationships. Once a farmer, man or woman, farms a plot of land, that farmer has first claim on that plot for an indefinite period of time. Anyone else wanting to use the plot must first obtain permission from the original farmer. In principal, land held under customary tenure cannot be sold. For “strangers,” those coming to a community who are not members of a local kin-group, access to land is obtained by establishing a relationship with a “stranger father” who allows the person to use land. Strangers,

however, are usually not permitted to plant trees or other permanent crops. Strangers also secure their access to land through marriage into local families or kin-groups.

Under customary tenure, all persons, men or women, gain access to land through these kin ties. The norms governing that access, however, are often different for men and women, especially as related to lineage exogamy and patrilocal residence. Widowed or divorced women often do not have access to land held by their husbands and/or his family unless she has children for that husband. A woman’s lineage may be concerned that if she marries, her husband will claim her family’s land. The systems of customary tenure have historical roots that go back several centuries in some communities. The systems, however, are not static and unchanging. Customary tenure is resilient yet adaptable to changing technological, demographic, ecological, socioeconomic and political conditions. In 2009, while customary tenure continues to be viable in many communities with residents feeling comfortable with the internal functioning of the system, stresses and tensions are developing. The following highlights some of the changes and tensions that are present.

There has been little change in the technology of shifting upland cultivation since farmers first settled in Liberia some centuries ago. Labor is manual and the basic tools are the cutlass, axe, and hoe. One innovation now widespread in Liberia is the power or chain saw. The reliance on manual labor and this simple technology seriously constrains the productivity of agriculture in Liberia. Demographically, population growth puts pressure on available land in some areas of Liberia, especially in two areas we are studying, Foya District (Lofa), and many districts in Nimba. Urban areas are also rapidly expanding, reducing land available for cultivation.

Ecological change is also occurring. In particular, shifting cultivation comes under serious pressure when the fallow cycle is reduced below seven years (the optimum in most parts of the country). Productivity begins to drop dramatically. The ecological changes are closely linked to the demographic changes but even more critical, to the competing uses for land. Land is being removed from the shifting cultivation cycle for uses such as tree crop cultivation and mineral concessions.

Changing rainfall patterns also affect farming systems.

Socioeconomic changes are multiple and complex. While the average size of households appears not to have changed dramatically in the last quarter century, the composition of households may have changed. People frequently commented on the shortage of agricultural labor, especially that of young men. Many households must hire labor at some point in the farming cycle. The impact of these changes upon land tenure is not yet clear. Women are particularly affected as they may not have access to sufficient male labor within their households for their agricultural activities.

For farmers, the major sources of cash include vegetable cultivation and several tree crops, including rubber, cocoa, coffee, and oil palms. Tree crops in particular pull land out of the upland rice cycle. People feel that by planting tree crops they establish permanent claim or “ownership” of the plot of land. Within families there may be disagreement about whether land is best used for rice cultivation or for tree crops.

Changing perceptions of the value of land creates concern about securing access and tenure. While a community may accept someone’s claim to a plot of land, external actors may not. Hence, people seek ways to establish permanent claim. For those with sufficient resources, this may mean acquiring land in fee simple through a public land purchase. For those without resources, many are using tribal certificates to establish their claim. Communities are also concerned about claims to land from individuals with ties to the community but who have been long absent.

The alienation of land for concessions, government use, and private ownership requires community residents to adjust land use to accommodate those now “landless.” Those without access to land through traditional kin ties may have to use land owned by others. The arrangements are usually informal, lack security, and require that people “pay toll” to the owner of the land.

Unlike in the past, concessions are now expected to provide benefits for communities under “social agreements.” As a result, people are concerned about the identification of which communities are to receive such benefits and about the boundaries or territorial demarcation of their land. Communities

are trying to figure out how to formalize boundaries that have historically been fluid and flexible.

Politically, changes in local government affect land tenure. Statutory tenure preempts customary tenure in urban areas and in townships. Constitutional issues also affect land tenure, including the right to own private property, the right of women to own and inherit land, the right of all citizens to equal protection, and the right to citizenship. The jurisdiction of courts, both traditional and statutory, is critical. Rural residents generally perceive that they are at a serious disadvantage in a court case. Resolving land disputes through the statutory courts is expensive, both in time and money. While often preferring to resolve disputes at the local level, people report that even at that level there is corruption, and that the system needs to be revisited. Women indicate that they would like more voice in the resolution at the local level. The interface between the customary and statutory judicial systems is blurred and ambiguous.

Changes in marital patterns may be occurring. People comment that young people often establish their own households at an earlier age, in part because of the conditions that prevailed in refugee or internally displaced persons camps. Consensual unions appear common. The impact of these changing patterns on access to land is not yet clear.

TRAINING

We have two students enrolled in the Master’s program in Forestry at Makerere. The first is Alan Bomuhangi, who completed his second year in the Community Forestry program. He helped with data collection and will use the household/ intrahousehold data for his thesis. He will return to two of the districts to collect additional data for his thesis. A second student enrolled in August and will also use the project data for a thesis.

Two students were selected in Liberia to pursue a master’s degree at Makerere. Both are graduates of the University of Liberia in forestry. Gertrude Korvayan-Nyaley has worked as the special assistant to the Managing Director of the Forestry Development Authority. Jerry Yekeh has worked with a local advocacy NGO. Both began their work at Makerere in August 2009. Korvayan-Nyaley will major in forest management, while Yekeh is focusing on agro-forestry.

NATURAL CAPITAL AND POVERTY REDUCTION (MALAWI AND UGANDA)

Principal Investigators

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http://www.basis.wisc.edu/projects_ama/Natural_capital.html

Problem and objective

In many countries poor households turn to resource extraction to generate income, manage risk and secure livelihoods. However, this strategy that prevents them from participating fruitfully in other activities and escaping their poverty. This project will document the ways in which natural capital serves as informal insurance and a safety net against income variability and transitory shocks. It will also examine household dependence on natural resources, and how this varies with wealth, gender and market conditions. Finally, it will look at whether income from natural resources can serve as a pathway out of poverty by helping households accumulate physical, financial and human capital.

Research context and policy relevance

Income from resource extraction accounts for up to 45% of total income for rural households in some countries. The importance of resource extraction is amplified in the presence of risk, which will likely increase as climate change threatens productivity, especially in marginal agricultural areas.

Improved information about how households use natural resources and their role in income generation and risk management will help governments generate natural resource management policies that will not disadvantage the poor. In addition, researchers will look at the long term sustainability of resource extraction, and will look to inform policies in directions that improve both economic and environmental outcomes. The project will work to highlight ways to ensure that a larger share of resource rents go to local people, and articulate ways to enhance poverty alleviation without increasing environmental degradation.

Additional support

SANREM CRSP support for synergies between CRSP projects: \$49,670.

National Science Foundation supports data collection in Malawi: \$50,000.

CIFOR supports data collection: approximately \$1,000,000.

Borlaug-LEAP fellowship for student research in Malawi: \$20,000.

Collaborations

CIFOR's Poverty Environment Network (PEN), which involves collection in more than 25 countries of environmental and socioeconomic data using a consistent survey instrument and implementation approach. These surveys include a very detailed recording on a quarterly basis of all income sources including all uses of forests. Further, the PEN global data set, because it contains information from more than 200 communities in 25 countries, will eventually allow us to study how the role of natural resources in supporting and insuring rural livelihoods varies according to forest type, forest tenure, market access, and other contextual factors. PEN household panel data from Malawi and Uganda are being used to study the role of natural insurance in those countries.

National Science Foundation (NSF)-funded project from the division of Human Social Dynamics, which focuses on examining causes for poverty at the household level in Malawi and involves quarterly household surveys. This work allows us to expand a previously-conducted household cross-section data set into a panel so as to better capture income dynamics in the area of Mt. Mulanje in southeastern Malawi. This will complement our other Malawi fieldwork, most of which is likely to be undertaken in central and western regions of the country. Development and Natural Resource Economics (DNRE) at the Norwegian University of Life Sciences, which brings student collaborators to our research projects in Malawi and Uganda, working on thesis topics that feed into the project goal of examining the role of environmental income in risk management, asset accumulation, and poverty reduction.

Benchmarks of progress

- Number of host country individuals trained at the degree level in the U.S. and Norway: nine in progress (33% female); three completed (66% female).
- Number of host country individuals participating in non-degree training either inside or outside the host country: 95 to date (35% female).
- Number of policymakers and high-level host-country stakeholders (NGO, research community, etc.) contacted through project activities, including policy workshops and formal meetings: 39 to date.
- Research publications and citations to those works: 32 to date (no citation data reported or available at this time).
- Coverage by local media: interviews by print and radio media in Malawi.

Outputs

BASIS Brief no. 2008-02. "Using Natural Capital to Manage Risk and Reduce Poverty," by Arild Angelsen, Monica Fisher, Charles Jumbe, Gerald Shively, and Dick Sserunkuma. February 2008.

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Debela, B. L. 2009. "Can the Poor Insurance Against Income Shocks? Evidence from Uganda." MS Thesis. Department of Economics and Resource Management, Norwegian University of Life Sciences, Aas.

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ACTIVITIES

Activities in 2008-09 focused on continuation of research, training, and outreach activities in Malawi and Uganda. We maintain a third research trajectory focused on cross-cutting issues, comparative studies, and analysis of a broader set of data and issues. We anticipate much of the cross-cutting analysis to take place in the next two years, with preparatory analytical work in the near term.

Uganda

Extensive data collection was undertaken in Uganda. We prepared the start up of fieldwork, which included two household surveys, one focusing on charcoal production ($n=600$) in the districts of Hoima, Masindi, and Nakasongola and a second focusing on timber production ($n=180$) in Kabale and Chamba. In addition, an extensive market value chain survey was completed for the charcoal trade between producing villages and the Kampala retail market ($n=273$).

These surveys help us directly address one of the key project objectives of examining factors influencing household dependence on natural resources, and how this reliance varies with levels of income or wealth, gender, and market conditions. We also look at how reliance on natural resources impacts the poverty status of households and natural resource conditions.

Two of the first-year surveys were designed to provide a "stump to stove" analysis of charcoal production in three charcoal producing districts in Western Uganda. The aim of these studies is to better understand who produces charcoal and how charcoal production fits into the overall livelihood and risk-management strategies of rural households and communities.

Importantly, the districts chosen for the surveys differ in their forms of forest-related governance. Initial evidence from the surveys suggest that extraction patterns and rates differ markedly by district, in ways that are not necessarily related to wood availability or market proximity. Accordingly, we have formulated hypotheses related to the impact of local governance on resource extraction and household exposure to risk-mitigating resources.

Through the value chain surveys, we collected data from nearly 300 market participants, reaching from producing villages to retail markets of Kampala. Analysis of these data focuses on decomposing resource revenues along the supply chain to examine issues related to market access, market organization and market power along the supply chain. Through this effort we anticipate being able to describe how market structure and performance influence household welfare and risk exposure, which should be critical for the design of policies related to this sector.

Our third survey covered communities in southern Uganda that provide migrant labor for seasonal timber cutting and sawn wood production in the central part of the country. Key hypotheses of interest for this work relate to the role of off-farm labor in mitigating idiosyncratic and covariate (village-level) agricultural risks, and the role of off-farm labor arising from forest resource extraction in asset accumulation. A key feature of the survey design is that the two locations chosen for the study have similar access to forests but different land tenure systems, allowing us to examine the role of the latter in influencing rates of resource extraction.

Malawi

In January 2008, working with collaborators, we launched a household survey with 200 randomly-selected households in three southern Malawi villages in around Mulanje.

A key element of the survey was a quarterly income questionnaire similar to the Poverty Environment Network (PEN) survey instrument. One main revision of the PEN format is the use of separate interviews for husbands and wives in the income recording for the purpose of improving data completeness and accuracy. In rural Malawi, husbands and wives perform some income-generating activities separately and often are unwilling to share information on income generation in the presence of a spouse.

In addition to the income recording, separate questionnaires were used to collect information on household demographics, landholding, wealth holdings, food security, expenditure shares for various goods and services, change in economic situation in the last five years, crises and

unexpected misfortunes in the last three years (e.g., crop failure, serious illness of family member), change in forest use in the last five years, perceptions of forest values, willingness to participate in forest co-management, awareness of climate change, adaptation and response to changing climate, and receipt and use of agricultural input subsidies.

A series of economic experiments were used to collect information on householder risk attitudes and trust. In addition, geo-coordinates of all dwelling units and various locations of production and distribution were recorded. GIS data (climate surfaces, land cover, etc.) were acquired to develop a geodatabase to be merged with the household-level data.

Between May and August 2009 an additional household survey (n=400) was conducted in Kusungu and Liwonde districts of Malawi. These surveys are follow-ups of 2002 and 2006 surveys and our goal is to combine these surveys to construct a household panel. The surveys were supervised by Purdue M.S. students Christopher Chibwana and John Mazunda, and will serve as the basis for their thesis research to be completed in 2010 and 2011, respectively. The focus is the nexus between maize, tobacco and forest pressure. Current observations motivate a series of questions related to market- and policy-induced forest degradation, the role of institutions in shaping resource extraction patterns, and tradeoffs between short-term and long-term poverty alleviation. We also finalized research topics and a questionnaire for an 800-household survey being conducted by the Norwegian University of Life Sciences.

Data processing is complete and analysis underway. The surveys include extensive information on household-level (idiosyncratic) and village-level (co-variate) shocks and household response to these events.

Core/cross-cutting activities

PEN data collection is now complete for Malawi, Uganda and approximately 20 other countries. Work during the year focused on the establishment of the database. Some preliminary analysis took place and work on a methods book and several papers is in progress.

FINDINGS

We examined a broad set of *major shocks* encountered by rural households in Uganda over a retrospective three-year period (2005-2008). We measured shocks in terms of their frequency and magnitude, focusing on those that can be most clearly identified as exogenous and unanticipated. Examining shocks in terms of their relative value enables us to exploit variation in losses across households to investigate the extent to which different coping strategies are used depending on the intensity of losses.



Household Survey in Malawi. Photo by Chris Chibwana.

We examine these issues using household survey data collected in a forested area of Masindi district, in Uganda, where vulnerability most frequently takes the form of the loss of a productive household member or crop failure. On average, our data suggest such shocks result in income losses of 40% or more for many households.

As in other developing regions, financial services and other institutions that might be used to mitigate losses are poorly developed. This places a limit on the range of coping mechanisms available to households, especially

those that are asset poor and headed by women. In addition, because of a long history of migration into the study area the

social and economic fabric of the area is rather weak. As a result, forest extraction constitutes an economically significant part of many households' livelihood portfolios, providing as much as 70% of subsistence and cash income in some villages.

Charcoal production observed in Uganda is highly heterogeneous, ranging from small-scale clandestine production to large-scale production in which large land holders who are establishing livestock ranches contract land clearing to urban charcoal traders who employ specialized crews of workers. In other situations, small-scale pastoralists who are trying to establish pastures may sell trees to charcoal burners who provide their own labor.

These patterns suggest a complex dynamic relationship between charcoal producers and agriculturalists. In some cases, it appears that agriculture and livestock production is a precipitating factor in forest loss and in other settings that forest degradation is occurring as an independent outcome of household exposure to idiosyncratic risk. Using propensity score matching techniques we find positive and statistically significant effects of participation in charcoal-related activities on household income and poverty levels, with income impacts of participation equal to approximately \$1 per day. Charcoal production is found to be especially important for households with low agricultural capacity and limited stocks of human and physical capital. In contrast to popular views and results from other studies, we find that those engaging in charcoal production are not the poorest cohorts in our sample.

Profit margins in charcoal production in Uganda, including those for transporters and wholesalers appear to vary widely across

locations, and are weakly correlated with patterns of district-level law enforcement and regulation. Among 12 sampled producing villages, charcoal prices varied from a low of 83 shillings per kilo to a

high of 200 shillings per kilo, suggesting that the point-in-time price variability for charcoal far exceeds that observed for many agricultural

products. We find that approximately 70% of the value of the charcoal value chain is captured by intermediaries and traders. Margins among producers and retailers are generally small. These patterns indicate low barriers to entry for producers and retailers and some degree of market power among a relatively small number of intermediate agents.

TRAINING

The clearest impacts achieved thus far in the project are associated with overall contributions to improving research capacity at Makerere University and the University of Malawi, through week-long research trainings for students and staff. We consider the training in ethical conduct of research

In the study areas shocks result in income losses of 40% or more for many families



Maize storage in Malawi. Photo by Chris Chibwana.

an especially noteworthy and novel contribution in this area. We believe this has the potential to create a ripple effect among the staff.

Training in Uganda in 2008 was extensive, focusing on strengthening research capacity at Makerere University. Three related M.S. degrees were completed at the Department of Economics and Resource Management at the Norwegian University of Life Sciences (UMB). The theses focus on poverty dynamics and the role of forests in this regard. The students were co-supervised by Angelsen and Shively and papers are being prepared from two of the theses, with one student scheduled to spend the spring semester 2010 at Purdue University.

For Malawi, the training of our first M.S. degree Malawian student (Christopher Chibwana) began in the fall semester 2008. His degree coursework is complete and thesis preparation is underway. His expected completion is July 2010. The training of our second M.S. degree Malawian student (John Mazunda) began in the fall semester 2009. His degree coursework is in progress. His expected completion is July 2011.

Among the non-degree training activities we have undertaken are an “Ethics in Research” training conducted at Bunda College, University of Malawi in June 2009. Participants included 18 males and 8 female staff members. We also completed a three-day training workshop for members of the Ministry of Agriculture and Food Security staff in Malawi. The title of the workshop was “Policy-Oriented Research for Improved Policy Making in Malawi.” It was conducted at the University of Malawi Center for Agricultural Research and Development (CARD) and included hands-on data analysis training using Stata and household data from Malawi. Participants included 26 males and 10 females. Workshop details are provided in our training report.

During the year we worked with several members of the Ministry of Agriculture and Food Security on issues related to analysis of the Malawi Integrated Household Survey II. Jumbe was involved in a number of expert meetings, including stakeholder consultations and five international conferences related to biofuels. Fisher completed a transition from CIFOR to IFPRI Malawi.