BASIS CRSP
FINAL
Annual Report

Activities
and
Outreach

October 2007

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This publication was made possible in part through support provided by the
US Agency for International Development (USAID),
under the terms of Grant No. LAG-A-00-96-90016-00,
and by funding support from the BASIS Collaborative Research Support
Program and the **Department of Agricultural and Applied Economics,**
University of Wisconsin-Madison, USA.

Acknowledgements

Our thanks go to all who participate in the BASIS CRSP for helping make this document possible. Comments on this report and BASIS's work are encouraged. Please visit the BASIS website for more information about the projects, contact information, and upcoming events: http://www.basis.wisc.edu

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BASIS KNOWLEDGE, INTERVENTIONS AND TOOLS:
THE DIRECTOR'S REVIEW OF BASIS CRSP II

The World Bank's *Global Monitoring Report on the Millennium Development Goals, 2006* is cautiously optimistic that dollar-a-day income poverty can be halved by 2015. While this is good news, the report notes that this optimism does not apply to the poorest area of the world, sub-Saharan Africa, nor to some rural areas in lower and even middle income countries, such as southern Mexico and northeastern Brazil. Despite the spectacular rates of poverty reduction in China and India, substantial numbers of people appear mired in poverty.

The *Chronic Poverty Report, 2004-05*, from the Chronic Poverty Research Centre, notes that the current pattern of progress toward meeting the Millennium Development Goals means that the *chronically* poor—perhaps some 400 million people—will constitute an ever increasing portion of the world's poor. Chronic poverty, which perpetuates itself across generations, lies at the very heart of the contemporary development challenge in fragile and transformational countries, especially those included in USAID's Initiative to End Hunger in Africa.

Addressing the challenge of poverty requires multiple approaches, since the pathways from rural poverty are not the same for all people in all places. For some, escaping poverty requires relaxation of the capital, risk and vulnerability (financial market) constraints that prevent them from accessing the assets and complementary resources needed to realize returns to their labor and entrepreneurial skills. For others, it requires a broadly based, job-creating pattern of agricultural growth that raises wages for unskilled workers and absorbs them into the labor market. Whatever the pathway, eliminating chronic poverty also requires specific mechanisms to manage the constraints that undercut the nutritional, health and educational investments needed to bolster the human capital of the next generation and break the inequitable intergenerational transmission of poverty.

Success in these areas must be part of any deep-reaching transformational development. It also is likely a necessary condition to provide the material stability and buy-in needed to strengthen fragile states.

Over the past five years, BASIS has contributed to progress toward meeting the challenge of reducing poverty through innovative research that has offered:

1. stronger **knowledge** of the dynamics of rural and agricultural economies, and the constraints that make it difficult for some households to participate effectively in growth and get ahead economically over time
2. emerging ideas about **interventions** and programs that can be expected to relax those constraints
3. **tools** for designing, testing and implementing interventions so that their impact can be credibly evaluated and their full development impact realized.

BASIS has extended the results of this research to the policy and programming community through its BASIS Briefs, a variety of other publications, and four major policy conferences:

- *Impact Evaluation of Innovations in Rural Finance*, held June 2006 in Washington, DC.
- *Agricultural Factor Markets in Transition Economies*, held December 2005 in Budapest, Hungary.
- *Combating Persistent Poverty in Africa*, held November 2004 in Washington, DC.
- *Paving the Way Forward for Rural Finance: An International Conference on Best Practices*, held June 2003 in Washington, DC.

Prior annual reports have summarized the findings of the 12 major research projects funded by BASIS since 2001. The following summarizes work in the areas in which BASIS achieved a critical mass of research and made a particularly strong mark on the development research and programming communities.

Asset-based approach to poverty

BASIS research spearheaded a novel, asset-based approach to rural poverty. The key insight that emerged from this work is that there is a minimum bundle of assets without which successful and sustainable investment and asset accumulation is infeasible. For a summary, see Carter and Barrett, 2006, and the other papers included in the February 2006 special issue of the *Journal of Development Studies* that resulted from the 2004 BASIS Policy Conference: *Combating Persistent Poverty in Africa*.

This minimum bundle defines a critical asset threshold, the "Micawber Threshold," below which accumulation is not possible. Absent proactive microeconomic reforms that ameliorate the

conditions that create the threshold, the theory of poverty traps predicts a divergent pattern of economic growth in which those who begin above the minimum threshold improve their economic situation over time, and those below the threshold stagnate or fall further behind.

From the perspective of poverty trap theory, inclusive microeconomic reforms that enhance the credit, insurance and accumulation possibilities of poor households are necessary if growth is to be pro-poor. BASIS work on poverty traps offers two key policy-relevant insights:

1. Asset-building "cargo net" policies may be needed to lift families who find themselves below the Micawber Threshold, either because they started life with meager resources and assets, or because environmental disasters or other shocks destroyed the assets they had. This does not mean that these households need to be granted a non-poor standard of living. Instead it means that they must be put in a situation where they can feasibly move ahead with their savings and volition.
2. Productive social safety nets that keep households from falling below the Micawber Threshold may be needed to permit these households to take the risks and sustain the investments needed to improve their living standards over time. Without safety nets, these households will be faced with the awful choice of coping with the vagaries of the present at the cost of the future.

Research on rural finance

Rural finance is another area in which BASIS assembled a critical body of research that has influenced the fundamental conceptualization of development and offered policy-relevant insights. BASIS research signaled the importance of capital constraints. A study in a smallholder area of the north coast of Peru, nearly a decade after economic liberalization, finds that the regional value of agricultural output could be as much as 25% higher if capital constraints were alleviated (Guirkinger and Boucher 2006). The authors show that weak access to capital and lost output result from both the supply side (lenders offer limited credit to agricultural producers, especially smallholders) and from the demand side (many smallholders shy away from borrowing for higher productivity strategies because they are afraid of the risk).

A complementary study carried out in the Philippines was able to track the long-term effects of improved credit access by re-surveying families first interviewed in the mid-1980s (Quisumbing 2005). Her findings show robust positive effects of the credit access that some survey respondents were able to gain 20 years ago. The effects include better educated children as well other indicators of improved material wellbeing in the present. For more on the studies in Peru and the Philippines, see **BASIS Brief 44**.

With these potentially large effects on both growth and income distribution, findings ways of improving credit demand and supply has to be a top priority. A recent surge in creative ways to exploit pilot program and program rollouts has begun to give us concrete ideas about how to improve rural financial markets. Unlike an earlier generation of programs that tried to directly provision credit, these newer efforts target the material conditions of risk and information that result in thin rural credit markets. Recent BASIS work on this topic is summarized in McIntosh, Sadoulet, and de Janvry (2006), who find that credit reporting services improve the capital access of lower wealth borrowers by creating changes in the behavior of both borrowers and lenders.

Informal lending and social insurance arrangements often fill the gaps that exist in formal financial markets, yet when demand for credit or insurance is not met through direct financial services, the poor resourcefully find other means to resolve their latent demand for credit. These "displaced distortions" of financial markets can, however, have a high cost to the family or community's future welfare by impeding asset accumulation. The standard policy reaction is to create microfinance institutions (MFIs). Part of the solution may indeed lie in activating rural financial markets, yet a burgeoning evaluation literature offers mixed evidence on the efficacy of microfinance interventions. **BASIS Brief 32** examined other policy interventions where displaced distortions exist, including involvement in activities that make it easier to tap into financial networks that already exist, interventions into commodity and labor markets to resolve credit constraints, well-functioning safety nets that create opportunities for surplus labor in the face of adverse shocks, and one-time subsidies that allow farmers to adopt improved production technologies.

Findings on shocks

Several BASIS studies offer a better understanding of the direct impacts of environmental shocks on productive assets and income, and the long-term opportunity for recovery. BASIS researchers analyzed the asset dynamics of rural households in the wake of the prolonged drought in the late 1990s in Ethiopia and the sudden disaster in 1998 of Hurricane Mitch in Honduras (**BASIS Brief 28**). Whether a shock is sudden or prolonged, most households, both the wealthiest and the poorest, experience a loss of assets and a reduction of disposable household income. Yet, the full economic effects of an environmental shock go well beyond the shock itself.

If the shock destroys a family's assets, it may push it below the minimum asset threshold and into a poverty trap from which it cannot escape, even over time. In other cases, the shock may have little direct impact on the family's assets; however, a shock such as a lingering drought may expose the family to a sequence of poor harvests and real income shortfalls. The family faces a cruel choice: either sell assets in order to sustain consumption, or reduce consumption in order to defend assets. While the latter strategy may permit the family to ultimately rebuild its stock of productive assets, the costs of this coping strategy can be horrific. As shown in a study analyzing coping in Zimbabwe (**BASIS Brief 22**), children of families that choose to reduce consumption suffer permanent, irreversible growth losses that signal weaker educational and economic achievement later in life.

In drought-prone areas such as Ethiopia's famine belt, BASIS has shown that it is important to look at both the coping period during the drought and the recovery period following the shock. This allows for more fine-tuned conclusions about a shock's long-term effect. Case studies from Ethiopia reveal the strategies to recover wealth status following a three-year drought (**BASIS Brief 21**). Families with low or no herds confront special problems in the recovery period since they must purchase livestock rather than rely on breeding. These households were much more active than better off households in buying livestock during the recovery period. Yet, since these often were the same families that sold livestock during the coping period in order to live, they were at a financial disadvantage since they sold low during drought and bought high after the drought. Nor did these families have access to the more lucrative markets.

In the recovery period, when conditions improve and good harvests return, social networks become active again, which may help explain why recovery for some poor households can be rapid. Non-farm employment also can help people withstand the devastating effects of drought and recover more quickly afterwards. Remittances and food aid are less significant in recovery.

BASIS work shows avenues for successful policy in reducing the impact of shocks. Guaranteeing food needs or minimal cash income could allow the poorest households to avoid destructive coping strategies and instead engage in activities that build assets and pull them out of poverty. Building social safety nets could prevent vulnerable households from losing assets. Social networks and institutions play an important role in keeping households from falling into poverty, and development policy must be aware of how such social networks operate so as to minimize the potential negative impact of programs on existing social institutions.

Yet, programs must also build around the key role played by markets in creating livelihoods that help families avoid the erosion of valuable assets. Policies that improve non-farm employment opportunities, rural market infrastructure, and availability of credit—especially in the coping period—can help limit long-term asset depletion. Market conditions do make a difference in how shocks affect communities and regions. Policies that make markets more accessible to the chronically poor and vulnerable will mitigate the widespread human suffering now associated with natural disasters.

Looking forward

BASIS is building on its record of findings by studying and testing innovations and tools that can help put effective poverty-reduction policy into practice. Building on this foundation, the successor to the BASIS CRSP, the BASIS Assets and Market Access CRSP has emerged with a focus on three critical areas of particular interest to USAID: managing risk through financial markets, overcoming poverty traps through productive safety nets, and impact evaluation.

In the area of risk management, current BASIS projects look at new types of insurance products, which will allow farmers to manage risk and make higher return investment decisions. Researchers are piloting new types of weather and area-based yield

insurance designed to increase both the demand and supply of credit for agricultural producers (see **BASIS Brief 46**). In addition to insurance for common or covariant risks, BASIS is looking at products such as micro-health insurance, which will allow households to better manage health shocks and prevent them from unnecessarily sacrificing assets that have been built up as a pathway from poverty. Bundling health insurance with loan products can improve both the demand and supply for credit, which BASIS research has found to have a strong impact on the long-term wellbeing of households.

Under the AMA CRSP, BASIS plans more work on rural financial markets, credit bureaus and social safety net programs built around the poverty trap framework. BASIS studies have illustrated how random events, such as a flood, drought, illness or unemployment, can have permanent effects on family welfare, spelling ruin for a family. This suggests that vulnerability, and perhaps social protection against vulnerability, can be understood through the lens of poverty traps. If a productive social safety net is staked out at the poverty trap threshold, transferring resources to households that would otherwise fall below the threshold and be expected to collapse into hopeless poverty can be a very productive strategy in the sense that it maintains the households' stock of productive assets, enabling the household to viably rebuild assets and move ahead over time. Asset thresholds are a powerful concept for the design of more effective social protection, and BASIS researchers are currently working with humanitarian relief agencies in East Africa to innovate and pilot new and more effective forms of social protection.

Finally, researchers under the AMA CRSP are carrying out rigorous impact evaluations for development interventions worldwide. New projects will look at cash transfer programs and insurance products, with a view towards developing a methodology that could be applied to different types of programs. By working with development practitioners early on, researchers can gather reliable baseline data, help design the rollout and implementation of new programs, and be in a position to make concrete statements about their effectiveness. Understanding the true impact of development programming will help practitioners maximize the impact of their investments in new products and programs, and help generate pathways out of poverty. Given the increasing and well-placed interest in aid effectiveness, BASIS work in this area promises to offer a real service to USAID and other development agencies.

In summary, the past five years of the BASIS CRSP have provided a solid foundation on which these and other research activities can move forward with the goal of broadening the base of economic growth, and helping markets work for all.

REFERENCES

Barrett, C.B. 2005. *Displaced Distortions: Financial Market Failures and Seemingly Inefficient Resource Allocation*. BASIS Brief 32. University of Wisconsin-Madison.

Boucher, S. and A. Quisumbing. 2006. *Weighing Risks: Short and Long Term Impacts of Credit Constraints*. BASIS Brief No. 44. University of Wisconsin-Madison.

Carter, M.R., P.D. Little, T. Mogues, and W. Negatu. 2005. *The Long-term Impacts of Short-term Shocks: Poverty Traps and Environmental Disasters in Ethiopia and Honduras.* BASIS Brief 28. University of Wisconsin-Madison.

Guirkinger, C. and S. Boucher. 2006. "Credit Constraints and Productivity in Peruvian Agriculture." Working paper, Agricultural and Resource Economics, University of California-Davis.

Hoddinot, J. 2004. *Shocks and their Consequences across and within Households in Rural Zimbabwe*. BASIS Brief 22. University of Wisconsin-Madison.

Little, Peter D., M.P. Stone, T. Mogues, A. Peter Castro and W. Negatu. 2004. *"Churning" on the Margins: How the Poor Respond to Drought in South Wollo, Ethiopia*. BASIS Brief 21. University of Wisconsin-Madison.

McIntosh, C., E. Sadoulet, and A. de Janvry. 2006. *Better Lending and Better Clients: Credit Bureau Impact on Microfinance*. BASIS Brief 45. University of Wisconsin-Madison.

Quisumbing, A. 2005. "Credit Constraints Across Generations and the Life-Cycle: Evidence from the Rural Philippines." Unpublished manuscript, International Food Policy Research Institute, Washington DC.

Trivelli, C., M. Carter, F. Galarza, A. Tarazona, and J. Yancari. 2006. *Can Insurance Unlock Agricultural Credit and Promote Economic Growth?* BASIS Brief No. 46. University of Wisconsin-Madison.

BASIS CRSP:
Project Portfolio

The BASIS CRSP research portfolio consisted of global projects that sought to lessen the impacts of these global constraints to economic growth for rural households:

- Ineffective agricultural resource use in post-reform economies
- Unsustainable use of degradable resources
- Poverty and food insecurity traps

The carefully selected projects were designed to understand the nature of the constraints and then deliver innovative and creative policy solutions that remove, relax, or sidestep the constraints. Each project focused on a regional context where the constraints have particular salience, yet also sought lessons and innovations that inform efforts to overcome constraints in other regions of the world.

Of these multi-year core projects, those listed below came to a conclusion in 2006. Their findings are detailed in the first section of this report. See also the BASIS website for links to more project outputs.

Reports of research findings from BASIS CRSP projects that closed in 2006

- Pathways from poverty: A Multi-country Study
- The Long-run Effects of Access to Financial Services on Asset Accumulation, Economic Mobility, and the Evolution of Wellbeing: Revisiting Agricultural Commercialization in Bukidnon, 1984-2003
- Property Rights, Environmental Services and Poverty in Indonesia
- Regional Diversity in Pathways out of Rural Poverty in Brazil: Implications for the Design of Public Policies
- Credit Reporting Bureaus and the Deepening of Financial Services for the Rural Poor in Latin America
- Structure and Performance of Rural Financial Markets and the Welfare of the Rural Poor: A Comparative Study in Peru and Mexico

Those projects that came to a close prior to this last reporting year are summarized in the second section, along with listings of their outputs, where important findings are detailed.

BASIS CRSP online at http://www.basis.wisc.edu/basis_crsp/index.html

Acronyms

BANSEFI	Banco de Ahorro Nacional y Servicios Financieros
BASIS	Broadening Access and Strengthening Input Market Systems
CCT	Conditional Cash Transfer Programs
CF-CPR	Crédito Fundiário de Combate à Pobreza Rural (land credit for combating rural poverty)
CGIAR	Consultative Group on International Agricultural Research
CRSP	Collaborative Research Support Program
CSG	Child Support Grant
DFID	Department for International Development
EEPSEA	Environmental Economics Program for Southeast Asia
ERHS	Ethiopian Rural Household Survey
FGT	Foster-Greer-Thorbecke
GIS	geographic information systems
GPS	global positioning systems
ICRAF	International Centre for Research in Agroforestry
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IPEA	Applied Economics Research Institute
HKm	*Hutan Kamasyarakatan*, or community forestry
KIDS	KwaZulu-Natal Income Dynamics Study
MFI	microfinance institution
NGO	nongovernmental organization
PAM	premature adult mortality
PES	payment for environmental services
PNAD	national household survey-Brazil
PNCF	National Program of Land Credit
POF	household budget survey-Brazil
PSM	propensity score matching (PSM)
RES	reward for environmental services
RIMC	Research Institute for Mindanao Culture
RNA	rural non-agricultural (RNA)
RUPES	Rewarding Upland Poor for Environmental Services
SRI	system of rice intensification
TFP	total factor productivity
TIP	Temporary Inputs Program
UNP	United Nations Development Programme
USAID	United States Agency for International Development

PATHWAYS FROM POVERTY

A Multi-country Study: Ethiopia, Philippines, South Africa

Village in Madagascar.
(*Photo by Chris Barrett*)

Principal Investigators

Tassew Woldehanna: Addis Ababa University, Ethiopia
Linda Montillo-Burton: RIMCU-Xavier University, Philippines
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http://www.basis.wisc.edu/basis_crsp/global_pathways.html

PROJECT PROFILE

The Pathways from Poverty project targeted three countries—Ethiopia, Philippines, and South Africa—and addressed these questions:

1. How do poverty and other dimensions of wellbeing change over time?
2. What are the causal factors underlying pathways from poverty?
3. What role do policy, program and project interventions play in these pathways from poverty?

Ethiopia. The Ethiopian case study examines growth and changes in poverty in 15 communities between 1994 and 2004, studied as part of the Ethiopian Rural Household Survey (ERHS). The communities were chosen to broadly represent socioeconomic diversity across regions and the country, though it is not a nationally representative survey. Yet, the dearth of alternative data makes the ERHS unique in its ability to analyze the broad patterns of growth and poverty, as well as the determining factors.

Philippines. The Philippine case study examines factors contributing to movements out of poverty over almost two decades in Bukidnon, Philippines using the Bukidnon Panel Survey. The World Bank-funded Moving Out of Poverty Study built on the Bukidnon Panel Survey to examine the factors at the household and community levels that explain people's movements along the "ladder of life," a measure of self-reported wellbeing. With additional funding from the CGIAR Inter-Center Initiative on Collective Action and Property Rights, the Philippine case study also analyzes the impact of shocks on per capita consumption and the role of local and migrant networks in helping households insure against shocks.

South Africa. As apartheid came to an end, South Africa opened up to the world economy, employing a fairly conventional mix of liberalization policies within an environment of fiscal restraint and modest redistribution. The immediate results of these changes were not promising, as nearly all poverty measures increased over the 1990s. Making matters worse, the AIDS crisis hit South Africa hard in the late 1990s. At the same time, the government continued to expand social programs, introducing the Child Support Grant in 1998. In an effort to chart the course of poverty in South Africa, and to understand the impact of both the AIDS crisis and of government programs on pathways from poverty, the BASIS-supported research team employed a panel survey of South African households that offered three observations over the 1998 to 2004 period. The findings help show the evolution of poverty in South Africa, the impact of government transfer programs on poverty dynamics, and the impact of the AIDS crisis on poverty dynamics.

OUTPUTS

Many outputs are very recent reports, not yet published in journals or as working papers.
Please contact BASIS CRSP to inquire as to availability.

Ethiopia

Dercon, S., J. Hoddinott and T. Woldehanna. 2005. "Consumption and shocks in 15 Ethiopian Villages, 1999-2004." *Journal of African Economies* 14: 559-585.

Dercon, S. and J. Hoddinott. 2006. "Keeping Up with the Gebreselasies." International Food Policy Research Institute, Washington DC.

Dercon, S., D. Gilligan, J. Hoddinott and T. Woldehanna. 2007. "The impact of roads and agricultural extension on consumption growth and poverty in fifteen Ethiopian villages."

Dercon, S., J. Hoddinott and T. Woldehanna. 2007. "Growth and Poverty in Rural Ethiopia: Evidence from 15 Communities 1994-2004." Mimeo, International Food Policy Research Institute, Washington DC.

Dercon, S., J. Hoddinott, P. Krishnan and T. Woldehanna, 2007. "Collective action and vulnerability: Burial societies in rural Ethiopia." Mimeo, International Food Policy Research Institute, Washington DC.

Philippines

Echavez, C., E. Montillo-Burton, S. McNiven and A.R. Quisumbing. 2006. "Many Paths to the Same Moon? Moving Out of Poverty in Bukidnon, Philippines." National Synthesis Report Submitted to the World Bank's Moving Out of Poverty Study. Washington DC: International Food Policy Research Institute.

Godquin, M. and A.R. Quisumbing. 2006. "Groups, networks, and social capital in rural Philippine communities." Unpublished manuscript, International Food Policy Research Institute, Washington DC.

Godquin, M. and A.R. Quisumbing. 2006. "Separate but Equal? The Gendered Nature of Social Capital in Rural Philippine Communities." Submitted to a special issue of *Journal of International Development.*

Quisumbing, A.R., S. McNiven, and M. Godquin. 2007. "Collective Action and Vulnerability: Local and Migrant Networks in Bukidnon, Philippines." Mimeo, International Food Policy Research Institute, Washington DC.

Quisumbing, A.R, and Scott McNiven 2007. "Moving Forward, Looking Back: The Impact of Migrants' Remittances on Assets, Consumption, and Credit Constraints in Sending Communities in the Rural Philippines." Mimeo, International Food Policy Research Institute, Washington DC.

South Africa

Agüero, J., M.R. Carter and J. May. 2007. "Poverty and Inequality in the First Decade of South Africa's Democracy: What can be learnt from Panel Data?" *Journal of African Economies.*

Agüero, J.M., M.R. Carter and I. Woolard. 2006. "The Impact of Unconditional Cash Transfers on Nutrition: The South African Child Support Grant." Working paper, University of Cape Town.

Carter, M.R., J. May, J. Agüero, and S. Ravindranath. Forthcoming. "The Economic Impact of Premature Adult Mortality: Panel Data Evidence from KwaZulu-Natal, South Africa."

FINDINGS

A. Ethiopia

1. Substantial growth in per capita consumption and reductions in poverty

Dercon, Hoddinott and Woldehanna (2007) show that growth and poverty reduction in the study communities was substantial, although much deep poverty remains. Table A.1 shows considerably lower levels of mean or median consumption per month in the first two years of the survey (1994 and 1995), compared to 1999 and 2004. Poverty has gone down considerably, and the data suggest that these improvements largely occurred in the 1990s, and not subsequently.

Even if we ignore the 1997 data because it is seasonally non-comparable, and a rather exceptional year in agricultural terms, the improvements appear to be clear. Consumption growth of the mean was on average 2.6% per year, which is not much different from the average rate of growth of GDP per capita (2.1%). Even the nature of the fluctuations (1994 and 1995 were relatively low compared to 1997, while 1999 and 2004 were not very different) are remarkably consistent.

villages, just as elsewhere. The second half of the 1990s was a period of relatively good weather in most communities, just as in the rest of Ethiopia. The sample also contains a large number of communities affected by the 2002 drought, derailing rural areas across the country, followed by a gradual recovery.

The communities experienced on average large poverty declines. The Gini coefficient was calculated, and, within the data, inequality did not increase in this period significantly (declining from about 0.44 in 1994 to 0.42 in 2004, but generally fluctuating near these values in each round). In our data, growth in consumption was accompanied by substantial poverty declines, especially in the 1990s. Inequality changes are not at the core of changes in poverty.

2. Perceptions of poverty reduction do not seem consistent with quantitative data, yet it is possible to reconcile these divergent assessments

Perceptions of changes in wellbeing within Ethiopia do not, at first glance, seem consistent with the findings. The national participatory research on poverty suggests that poverty declines have been limited. Dercon and Hoddinott (2006) use the ERHS data to shed light on the seeming conflict between

Table A.1: Consumption and poverty in the ERHS sample

	Mean monthly consumption per capita	Median monthly consumption per capita	Head count poverty	Poverty gap	Squared poverty gap
1994	71.1	51.6	0.48	0.21	0.12
1995	62.0	45.3	0.55	0.24	0.14
1997	90.9	70.7	0.33	0.12	0.06
1999	88.3	64.5	0.36	0.13	0.06
2004	91.5	65.1	0.35	0.13	0.07

Calculated from the ERHS. Head count poverty based on consumption per capita, poverty line 50 birr per month. Consumption is expressed in 1994 prices.

We should be cautious in considering this a reflection of the national pattern, given that this is not a nationally representative sample. Nevertheless, changes such as liberalization, infrastructure investments and agricultural productivity-oriented programs are likely to have had some impact in the

poverty statistics and poverty perceptions. In the 2004 ERHS, respondents were asked people to rank themselves (on a scale of 7 steps) as to how poor or rich they were. They were also asked at what level they would place themselves when thinking back at their circumstances in 1994. We also have the

sample's answers to the same question in 1995 (see table A.2).

A substantial proportion of households report that they are not particularly well off. Approximately 35% of households report in 2004 to be destitute, poor or never have quite enough. While the percentage is remarkably similar to the percentage of poor measured via consumption, one should realize that these are not necessarily all the same people, even though we can notice in the data that these perceptions are correlated with consumption levels.

Table A.2: Household (HH) perception of poverty status in (a) 2004, (b) 1994 (as recalled in 2004) and (c) 1995

	In 2004		In 1995
	Regarding your own HH circumstances, would you describe your household as …	Ten years ago, would you describe your household as …	How wealthy do you consider yourself?
Very rich	0.4	6.2	0.5
Rich	5.9	23.2	5.4
Comfortable	30.4	29.7	19.9
Can manage to get by	29.2	14.9	25.4
Never have quite enough	13.0	8.9	7.9
Poor	19.9	16.6	33.4
Destitute	1.1	0.5	7.6

Source: Dercon and Hoddinott (2006)

The second column gives data on how people in 2004 perceived their poverty in 1994. The sampled households report generally a worsening of circumstances, not unlike what one often observes in basic rapid appraisal style qualitative reports on poverty. Only approximately 26% reported themselves to have been poor 10 years earlier, while the reported number of rich or very rich was considerable.

This clearly does not square with our quantitative evidence on these communities. However, when we asked the same households in 1995 to describe their circumstances, about 49% reported to have never quite enough, poor or destitute. This panel of perceptions, contrary to the retrospective evidence, suggests a substantial reduction in poverty—in fact surprisingly close to our estimated consumption poverty reduction.

This evidence contains a lesson to be cautious when mixing quantitative and qualitative evidence, or when choosing one to be superior to the other. None of the information is wrong—it just measures something different. It may well be that people perceive that they have not improved even if their perceptions in 2004 compared to ten years earlier may suggest that they have improved. In fact, further investigations in Dercon and Hoddinott (2006) suggest that those that the perception of being better off (based on the retrospective data) is correlated not just with current consumption and wealth levels, but with their own changes in consumption as well as whether they have been improving at a faster rate than the community.

3. Improvements in market access and improved access to agricultural extension have been sources of growth

Dercon, Gilligan, Hoddinott and Woldehanna (2007) estimate a household level growth model that allows for transitional dynamics. The objective of this econometric analysis is to highlight the role played by three possible factors that may have affected consumption growth in the sample:

- expansion in road infrastructure,
- extension program aiming to increase productivity,
- role played by the recurrent drought.

We find that roads, extension and some shocks matter for growth and poverty reduction.

A 10% increase in rainfall increases consumption by 1.7%. Rainfall therefore is one crucial source of variability.

Improved road quality has a major effect on growth. Those with access to an improved road appear to have almost 16% higher growth per year than those without. Given the nature of the overall growth (a few percent per year in per capita terms), this is a crucial factor explaining divergence between communities. Another way to look at the evidence is that the data suggest that about 27% more households experienced good roads since 1994, leading to a growth acceleration of about 4% in our sample. Good roads reduce poverty.

We find positive growth and negative poverty impacts from extension services. Of course, by 2004, we are still talking only about 16% of the households but for them it appears to have contributed to consumption growth and poverty declines. Between 1994 and 2004, it contributed to about 0.7% higher growth, relatively small but significant.

4. Roads and agricultural extension seem to have benefited the persistently poor

The results reported in Dercon, Gilligan, Hoddinott and Woldehanna (2007) assess the benefits of investments in roads and agricultural extension to all households. Yet, it is of interest to explore whether the persistent or chronic poor experienced similar growth processes.

Table A.3 shows the households in the sample with persistent poverty. Did these families experience a different growth trajectory because they cannot benefit from roads or extension services and other factors *in the same way*, or is their growth trajectory different for example because they simply had fewer roads or extension services (or more negative shocks)?

Table A.3: Number of poverty episodes

	Percentage of HHs
Never poor	18
Poor once	22
Poor in 2 out of 5 rounds	23
Poor in 3 out of 5 rounds	16
Poor in 4 out of 5 rounds	14
Poor in all rounds	7

Note: These results are derived from looking at household poverty status in 1994, 1995, 1997, 1999 and 2004.

To explore this, we interacted these variables (and the shocks) with whether the household was chronically poor in this period. As this variable is an outcome of the whole period, we should be cautious in interpreting the results as we are faced with a simultaneity problem. However, it can offer suggestive evidence on whether the chronic poor were any different than the non-chronic poor in this period in their growth behavior.

The results suggest that those experiencing more systematic poverty, in the form of three or more periods in the data below the poverty line, have not followed a different growth trajectory. For the core variables used to capture the growth process—infrastructure and extension—we find no significant differences between the chronic poor and the others.

5. Households remain exposed to shocks, which continue to have welfare costs

Dercon, Hoddinott and Woldehanna (2005) use multivariate analysis to assess the links between these shocks and consumption levels in 2004 (controlling for the consumption position in 1999). They find that drought had a significant impact, leading to consumption decreases by about 16% *ceteris paribus*.

Other shocks mattered as well in this period, with effects of approximately similar orders of magnitude occurring when output prices collapsed for some (most notably for maize prices in 2003), or when non-agricultural activities were affected by a drop in demand. Illness shocks for a close family member were also found to be significant. A household experiencing an illness shock between 1999 and 2004 suffered a 10% loss in per capita consumption when observed in 2004 (see table A.4 for self-reports of the worst shocks).

This suggests that shocks cause fluctuations in household consumption outcomes (with implications for poverty). Because we are dealing with a five-year period during which shocks occur, it also means that there is no full recovery from some of these shocks. For example, the main drought period was 2002; two years later consumption was still considerably lower due to the drought shock and recovery is not yet

accomplished in this period. In other words, shocks have persistent effects.

Table A.4: Household self-reports of the worst shocks experienced 1999-2004

	%
Drought	46.8
Death of head, spouse or another person	42.7
Illness of head, spouse or another person	28.1
Inability to sell outputs or decreases in output prices	14.5
Pests or diseases that affected crops	13.8
Crime	12.7
Difficulty in obtaining inputs or increases in input prices	11.3
Policy/political shocks (land redistribution, state confiscation of assets, resettlement, villagization, or forced migration, bans on migration, forced contributions, or arbitrary taxation)	7.4
Pests or diseases that affected livestock	7.0

Source: Dercon, Hoddinott and Woldehanna, 2005

6. Collective action and indigenous institutions can mitigate some shocks, but not all

Dercon, Hoddinott, Krishnan and Woldehanna (2007) combine the ERHS data with some qualitative survey work to understand the role of groups and networks in determining how the poor manage their exposure to risks and cope with shocks to their livelihoods.

Nearly all households report that they have a network of individuals they can call on for help. These networks consist largely of other households in the same village. This suggests that the scope for addressing covariate risks is likely to be limited, a supposition borne out by the observation made above that drought shocks lead to reductions in household consumption levels. Individuals within these networks would appear to engage in reciprocal assistance. Furthermore, they typically have other ties, in particular by being members of the same *iddir* (burial society) or of the same labor-sharing group.

Better-off households tend to have larger networks as do households whose relations (parents or other relatives) had either status or connections within the village. In some localities, *iddir*, in addition to providing assistance when a member dies, also provide a limited form of health insurance. Where these *iddir* do so, illness shocks tend to have smaller effects on consumption. *Iddir* providing this assistance tend to be homogeneous along some dimensions (geography or religion) but heterogeneous with respect to others, such as age structure. They impose membership restrictions that reduce the cost of obtaining information and restrict assistance to an observable component of illness shocks (medical expenditures) that can be verified. Furthermore, they limit the extent of their assistance so that the provision of assistance does not come at the cost of financial sustainability.

The results point to the need for realism in assessing the pro-poor benefits of support to collective action. Because wealthier and better-educated households tend to participate more in groups and to have larger networks, more attention needs to be paid to identifying those barriers that prevent the poor from participating in collective action.

Realism is also needed in terms of the role of collective action in responding to shocks. Specifically, where households have limited ability to develop spatial networks, collective action has limited ability to respond to covariate shocks. Direct public action is more appropriate in this area. By contrast, collective action may be more suitable for providing an insurance function in response to idiosyncratic shocks. Public action and policy that supports forms of collective action in this area must recognize, as exemplified by the *iddirs* studied here, that successful collective action is based on norms of trust and reciprocity. As trust is easier to destroy than create, the principal of “do no harm” is important, particularly when government actions are aimed toward existing collective-action institutions.

B. Philippines

1. Although there has been substantial upward mobility, a significant proportion of the poorest groups did not improve their position in the expenditure distribution, and some even declined

Changes in the definition of the poverty line and the composition of consumption expenditures over the 19-year period make it difficult to examine changes in poverty incidence in the Bukidnon sample using standard methods. Therefore, we examine changes in the distribution of households across consumption expenditure quintiles between 1984 and 2003.

For child households (who had not yet formed separate households), the 1984 distribution reflects their parents' position in the distribution in 1984. Table B.1 shows the distribution of households by change in consumption expenditure quintile from 1984 to 2003. Among parent households in the bottom quintiles, 64% experienced upward mobility: 28% moved up one consumption quintile and 36% moved up by two consumption quintiles. In the second quintile, 38% of parent households moved up in the consumption distribution.

Among child households in the same village, 58% in the bottom quintile moved up relative to their parents' position in the consumption distribution in 1984, while 49% in the second quintile improved their positions relative to their parents.

Nevertheless, many households did not experience changes in their relative rankings, and while no households in the bottom quintile deteriorated in terms of their position in the expenditure distribution, 38% of parent households and 31% of child households in the second quintile in 1984 moved down by one quintile.

2. Both household-level and community factors play an important role in explaining movements out of poverty

Echavez, Montillo-Burton, McNiven and Quisumbing (2006) conducted a follow-up quantitative survey of households from the Bukidon Panel Study in 10 municipalities that experienced substantial movement out of poverty, together with qualitative work using focus group discussions and key informant interviews. The authors estimate a probit model for the probability of being poor, movement out of poverty, and changes in wellbeing. Initial levels of human capital (schooling) and assets (land) are associated with higher probabilities of being nonpoor as well as of moving out of poverty.

Household demographic factors are important. Households with a lower dependency ratio 10 years ago have a higher probability of being nonpoor now. Controlling for the dependency ratio, households with a larger household size 10 years ago that were nonpoor have a higher probability of remaining in that state. Households with better-educated heads are also more likely to be nonpoor now.

Physical capital also plays an important role. Nonpoor households that had more land 10 years ago are more likely to remain nonpoor. Community

Table B.1: Distribution of households (HH) change in consumption expenditure quintile, 1984-2003

	Original HHs						Child HH in the same village				
	Increasing wealth, 1984-->						Increasing wealth, 1984-->				
	1	2	3	4	5		1	2	3	4	5
Down 2+			15%	23%	23%	**Down 2+**			15%	24%	41%
Down 1		38%	26%	30%	15%	**Down 1**		31%	21%	22%	22%
0	36%	25%	21%	25%	62%	**0**	42%	20%	17%	27%	37%
Up 1	28%	18%	30%	23%		**Up 1**	27%	16%	25%	27%	
Up 2+	36%	20%	8%			**Up 2+**	31%	33%	21%		
Total	100%	100%	100%	100%	100%	**Total**	100%	100%	100%	100%	100%

characteristics are also important. Nonpoor households in communities that have a high perception of trust, and with a higher share that believes that the government is being run for the people, are more likely to remain nonpoor.

The construction of an upper secondary school in the last 10 years improves the probability of being nonpoor now as well as the probability of moving out of poverty. Implementation of land reform and a favorable credit index 10 years ago also increased the probability of remaining nonpoor. However, the number working outside the community 10 years ago is associated with a lower probability of moving out of poverty. Perhaps what matters to household mobility is the number of migrant kin that one can count on for support, rather than the proportion of possibly unrelated migrants outside the community. Unrelated migrants would not be reliable sources of support. Also, it is possible that they migrated because of a lack of opportunities within the community.

3. Improvements in infrastructure, positive developments in agriculture, and improvements in governance were identified by both women and men as factors affecting community prosperity

Echavez et al. (2006) conducted focus groups separately among men and women to identify the positive and negative factors that affected community wellbeing in the last 10 years. Infrastructure improvements were the most important positive factor mentioned by men (accounting for 38% of the positive responses), followed by the quality of governance (19%) and agriculture-related events (19%). For women, events related to agriculture accounted for 41% of positive events, followed by the quality of governance (29%), and infrastructure improvement (23%).

Within the infrastructure category, both men and women consistently mentioned water system construction as the most important positive development. Within the category of governance, the quality of local government officials (especially those at the *barangay* level) made a big difference. Among agriculture-related events, the introduction of sugarcane was the most important positive factor leading to community prosperity, although a small proportion of respondents viewed this as a negative influence.

Economic factors (such as the high cost of inputs and basic commodities and low product prices) and agriculture-related shocks negatively affected community prosperity. Eighty percent of male focus group responses and 56% of female focus group responses revolved around a variety of economic factors that impacted negatively on wellbeing, namely the high cost of basic commodities, high input costs, and low product prices.

Next to economic factors, agriculture-related factors were the second most important for both male and female focus groups—the El Niño-related drought, and pest infestation. While both male and female focus groups mentioned dissatisfaction with government officials (corruption) and the quality of community life (uncooperative residents or crime), governance and community cohesion were relatively unimportant compared to economic factors and agriculture-related shocks.

4. Shocks do not affect all households equally

The landless are more likely to be affected by drought, while the adverse impact of death depends on whom within the household died. Households in Bukidnon are exposed to a wide variety of shocks (see table B.2). Quisumbing, McNiven, and Godquin (2007) conducted a multivariate regression analysis of the impact of shocks and other covariates on log consumption per capita in Bukidnon. Regressions that do not disaggregate by household characteristics show insignificant impacts even of the worst shocks experienced by households—drought, crop pests and diseases, and illness—suggesting that, on the aggregate, households are actually able to insure their consumption against most shocks.

However, a closer analysis shows that households with no land are adversely affected by drought shocks. Input shocks—difficulty in obtaining inputs or high input prices—have a negative and significant effect on households with more than the median landholding size and more than six years of schooling. Given the extent of agricultural commercialization in Bukidnon—most farmers engage in commercial sugarcane cultivation or corn production for sale as livestock feed (production for own consumption is minimal), this result is not surprising. Better-educated households and households with more land under cultivation are more likely to use purchased inputs, and thus to be affected by increases in input prices.

Finally, the impact of death or illness depends on *whom* within the household is affected. Death of the head or spouse significantly reduces log consumption per capita for households that had land in 1984, households above the median landholding size in 1984, households with greater than the median net worth, and households whose head had fewer than six years of schooling. Households who have more land and assets were probably engaged in agricultural production, so their consumption is more vulnerable to the loss of an adult working member, particularly either the head or spouse. Households whose heads are less educated are also vulnerable to the loss of an adult working member. Illness of the head or spouse did not affect log consumption per capita, but illness of another household member increased it, possibly due to increased health care expenditures.

5. Membership in formal groups increases per capita consumption, but the size of one's informal networks does not

Households in the Philippines can count on various social and economic networks for support. Membership in formal groups is widespread, with 76% of parent households belonging to at least one group. Parent households belong to an average of 1.6 groups, with the proportion of households belonging to at least one group and the average number of groups to which the household belongs increasing steadily with asset quartile. Thus, the asset poor are less likely to participate in groups, with 44% of the bottom quartile not participating in any group.

Households also belong to a number of diverse networks, dealing with social and economic matters. Looking at various types of networks, 75% of households report having a network to turn to in case of economic loss, with the highest asset quartile the best insured with respect to economic loss. Similar to formal groups, the average network size is larger for households from higher asset quartiles.

Godquin and Quisumbing (2007) estimate the determinants of group and network membership as well as the impact of group membership on log per capita expenditures, taking into account the endogeneity of group membership.

A greater number of shocks experienced by parent households increases membership in both formal and informal groups and networks. Interestingly, households who have more daughters living outside the home village have smaller local networks, indicating a possible substitution between local and migrant social capital.

The total number of groups to which a household belongs has a positive and significant impact on log per capita expenditures. Regressions in which individual groups (rather than the total number of groups) are considered show that membership in burial, religious, and civic groups have a significant positive impact on per capita expenditures. While they do not investigate whether social networks yield economic benefits, owing to the lack of credible instruments that affect social networks but do not directly affect per capita expenditures, insights from the qualitative work suggest that local networks only have a limited ability to help households cope with shocks. Several respondents mentioned that they feel

Table B.2: Household (HH) self-reports of the worst shocks 1984-2003, Bukidnon, Philippines

Worst shocks	Parent HH in regression
Drought	38.7
Crop pests and diseases	27.5
Illness or disability of head, spouse, other person (including hospitalization)	31.8
Death of head, spouse, other person	23.6
Other weather (humidity, floods, winds, fires)	13.8
Crime/peace and order	12.8
Input shocks (lack of financing, high input process)	7.5
Livestock disease and deaths	5.6
Political shocks (property rights and contract disputes)	5.3
Divorce and abandonment	2.0
Output shocks (lack of demand for output) and unemployment	1.6
Number of households	305

Source: Quisumbing, McNiven, and Godquin (2007)

Notes: Data are taken from the 2003 round of the Bukidnon Panel survey. Among the 305 parent households analyzed in the shocks regressions, information on the first, second, and third most important shocks were reported by 88%, 52%, and 15% of parent households, respectively.

embarrassed to ask for help from their friends and neighbors, who are also poor and also face similar problems. When faced with negative shocks, households use a variety of coping mechanisms—working harder, relying on help from children who have left the home and who are now working, borrowing money from informal sources, and selling or mortgaging assets.

6. Migrant networks serve an important consumption-smoothing function

An interesting finding from the network analysis is the apparent substitutability of "migration" capital and "local" social capital. Migration is an important livelihood strategy in the Philippines, and rural Bukidnon is no exception. In our study sample, 47% of children 15 and older are migrants to rural, peri-urban, and urban areas in the Philippines, as well as overseas. Similar to the national pattern, a higher proportion of migrants is female.

Quisumbing and McNiven (2007) investigate the impact of migration and remittances on asset holdings and consumption of parent households, taking into account the endogeneity of the number of migrants and remittances received from outside the barangay. While shocks experienced by parent households do not affect the number of migrant children, the probability of receiving remittances and the amount received increase with the number of shocks experienced by parents.

Remittances significantly increase per capita consumption and holdings of housing and consumer durables. The biggest impact of remittances is on nonland asset holdings and educational expenditures per adult equivalent suggesting that they are used to finance asset accumulation as well as the education of younger siblings.

Despite its popularity, migration as a livelihood strategy has its tradeoffs. Possibly because parents bear the initial costs of financing migration and often have to support migrants until they are well established, a larger number of migrant children is associated with lower values of nonland assets and total expenditures per adult equivalent.

On the other hand, remittances have a positive impact on housing and consumer durables, nonland assets, and total expenditures (per adult equivalent). A thousand pesos received by parents can potentially increase values of housing and consumer durables by 5,000 pesos, and total nonland asset values by 12,000 pesos.

Educational expenditures increase significantly with remittances. A thousand pesos received by parents is reflected in a 2,200 peso increase in educational expenditures per adult equivalent. Thus, despite the costs that parents may incur in sending migrants to other communities, the returns, in terms of remittances, play an important role in enabling parent households to build up their stock of assets and invest in the human capital of the next generation.

Given that migration is likely to continue to be an important livelihood strategy for individuals and households in rural areas of the Philippines, the challenge may be to reduce barriers to migration as well as reduce transactions costs for migrants sending remittances. In the context of international migration, reducing the costs of sending remittances is effectively an improvement in the exchange rate faced by remittance senders. Reducing barriers to migration and creating employment opportunities for migrants in destination regions may stimulate investment in human capital, acquisition of assets, and entrepreneurship in sending regions.

C. South Africa

1. Evolution of poverty in South Africa

The KwaZulu-Natal Income Dynamics Study (KIDS) data offer a look at the evolution of a random sample of households in South Africa's KwaZulu-Natal province from 1993 to 2004. Table C.1 reports standard Foster-Greer-Thorbecke (FGT) poverty measures for these households. In calculating these measures, a household has been deemed poor if its monthly per-capita expenditures or income (inflated or deflated to 2000 prices) fell below the poverty line of R322 per month per person suggested for South Africa by World Bank researchers Hoogeveen and Özler in a 2005 publication.

Table C.1: Poverty measurement using income and expenditure

	Measure	1993	1998	2004
Expenditure	FGT-0	0.52	0.57	0.47
	FGT-1	0.20	0.26	0.22
	FGT-2	0.09	0.14	0.12
Income	FGT-0	0.65	0.54	0.52
	FGT-1	0.36	0.29	0.28
	FGT-2	0.24	0.28	0.20

Source: Agüero *et al.* (2007)

As can be seen in the table, using expenditure, the headcount index of poverty (FGT-0) increased from 0.52 in 1993 to 0.57 in 1998, before falling to 0.47 in 2004. When income is used, the headcount declines continuously from 1993.

Using expenditure, the poverty gap index (FGT-1) increases from 0.20 to 0.26 and then declines to 0.22, but also declines continuously when income is used.

Finally, using expenditure, the poverty severity index (FGT-2) increases from 0.09 to 0.14 before recovering slightly to 0.12. The income-based measure repeats this pattern. In all cases, the trends between 1998 and 2004 are consistent in terms of both expenditure and income-based measures.

While these aggregate numbers are informative, they do not tell us much about the individual experience of poverty, nor whether the same households tended to be consistently poor or whether most poverty was transitory. A closer look at the KIDS data reveals the following trends:

Chronic and transitory poverty. Twenty-eight percent of households were chronically poor in that they were recorded as being poor in all three waves. Put differently, 53% of households that were poor in 1993 were poor in 1998 and were still poor in 2004.

At the same time, there is some upward mobility among those who were initially poor, although there is also substantial downward mobility (53%) among those just above the poverty line. The result is that 45% (42% if using income) of the households can be thought of as transitorily poor.

These figures are consistent with the existence of a core group of persistently poor people, surrounded by a somewhat larger group of the sometimes poor, or "transitory poor," who move in and out of poverty over time. Finally, 27% of households were never recorded as being poor in terms of their expenditure (23% if income is used).

Instability and bifurcation among the nearly poor. The expenditure group just above the poverty line appears to be quite unstable. Some 41% of households that had expenditures between 1.0 and 1.5 times the poverty line in 1993 enjoyed expenditures more than 1.5 times the poverty line in 2004. Another 44% of these households had fallen below the poverty line in 2004, and 14% had maintained their position. This pattern of bifurcation (with some households slipping down, perhaps to a low level equilibrium, and others rising, perhaps toward a high level equilibrium) is partially consistent with the a poverty trap pattern.

Real expenditure growth at the top of the expenditure distribution. Consistent with studies of the earlier rounds of the KIDS data, those households that were well above the poverty line in 1993 largely maintained their positions or moved ahead over time. On average, households that had expenditures more than 2.5 times the poverty line in 1993 had 61% expenditure growth over the 11 years of the study. More than 44% of the households that had expenditures in 1993 between 1.5 and 2.0 times the poverty line moved ahead substantially over time and mean expenditure of this group grew by a massive 160%.

While these trends are ambiguous, the KIDS data also permits us to measure the economic status of the now adult children of the core KIDS respondent households. On average these children are doing much better than their parents. Further analysis reveals that this group is itself comprised of two very distinct experiences: a group of sharply upwardly mobile children who are doing much better than their parents, and a similarly sized group of children who have remained residents in their parents' homes and enjoy living standards identical to those of their parents.

2. Impact of government transfer programs on poverty dynamics

While the income distribution dynamics revealed by the KIDS data are complex, underlying the dynamics are a mix of both market outcomes and the redistributive impact of government taxes and transfers. In order to take a look at the impact of government programs on the wellbeing of the KIDS households (and especially on the improvements in the lower end of the income distribution seen between 1998 and 2004), Agüero et al. (2007) formed an expenditure measure purged of the effects of government transfers and taxes.

Table C.2 shows the results of this analysis. It reveals a sharp upward drift in market-generated inequality (subject to the caveats above), which is in line with global patterns of inequality. This upward drift is offset to some extent by the increasing inequality reduction effect achieved by the South African government through transfers and taxes. It is noteworthy that the biggest change in this effect took place between 1993 and 1998, which points towards improvements in the amount and coverage of the Old Age Pension that was initiated after the 1993 survey. Overall, the correlation between grants received and our market-generated expenditure measure is -0.30, suggesting that the system works in a progressive way despite limited means-based targeting of the Old Age Pension.

Table C.2: Gini coefficient of actual and market expenditure

Year	Actual per capita expenditure	Market per capita expenditure	Inequality reduction effect of government
1993	0.4858	0.5335	~4 points
1998	0.4980	0.5684	~7 points
2004	0.545	0.631	~8.5 points

Source: Agüero *et al.* (2007)

Note: If only transfers are netted out and taxes and rates are not added back, the Gini coefficient for market per capita-expenditure is 0.613, still indicating a substantial redistributive impact of government transfers

Another key government program in South Africa is the Child Support Grant (CSG), which was first rolled out in 1998. Like *Progresa* and its sister programs in Latin America, CSG cash transfers are targeted at women. Unlike those programs, CSG transfers are unconditional, and come with no strings attached, nor with any in-kind transfers.

Taking advantage of a slow program rollout that partially randomized the extent of CSG treatment received by beneficiaries, Agüero et al. (2006) estimates the impact of these transfers on child nutrition as measured by child height-for-age. Large dosages of CSG treatment early in life are shown to significantly boost child height. Drawing on the best estimates in the literature, these estimated height gains in turn suggest large adult earnings increases for treated children and a discounted rate of return on CSG payments of between a 160% and 230%. While these gains cannot be linked to the overall poverty patterns revealed in the data, they do create hope that such cash transfer programs can break through the poverty trap evidenced in the other data.

3. Impact of the AIDS crisis on poverty dynamics

At the end of 2003, 5.3 million people were estimated to be living with HIV in South Africa, the highest number of any country in the world. Further, HIV prevalence among adults 15-49 years of age in South Africa is estimated at 21.5%, compared to 7.5% in sub-Saharan Africa and 1.1% globally. As the epidemic moves from infection into impact, premature adult mortality rates are increasing rapidly, with an estimated 370,000 South Africans dying of AIDS-related illness in 2003, making the disease the leading cause of death in almost all South African provinces. Moreover, while it is thought that HIV prevalence in South Africa may be approaching its plateau, the majority of AIDS-related deaths have yet to happen.

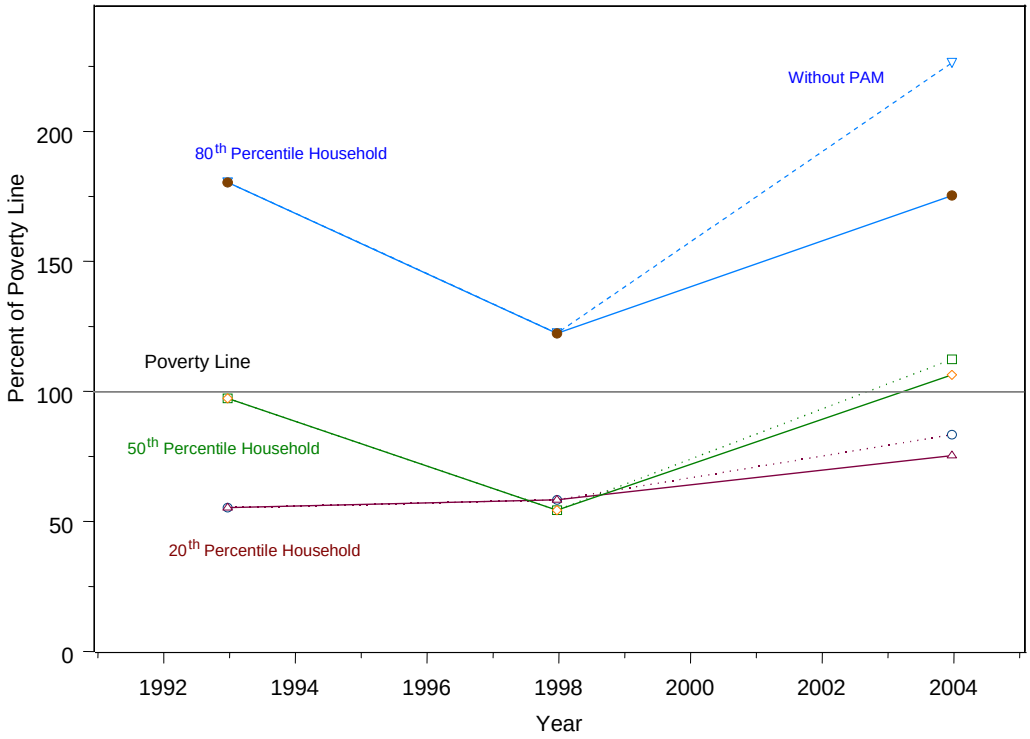
The KIDS data open a window of analysis on to a pre-HIV era, as well as the period leading up to these high mortality rates. Using impact evaluation

econometric methodology, Carter et al. (forthcoming) construct Figure 1, which shows the estimated impact of an AIDS-related prime age adult death on the evolution of family wellbeing for three types of households: one located in the 20th percentile of the 1993 income distribution, one in the 50th percentile, and one in the 80th.

For each household, an econometrically predicted growth rate (and resulting living standard level) was calculated both with and without premature adult mortality (PAM). As can be seen, the predicted impacts of a PAM on the household that began at the 20th percentile are slightly negative, but imperceptibly so. Impacts grow larger for the 50th percentile household, and are quite significant for 80th percentile household. Regarding the latter, these figures indicate that without PAM, the household would have grown to a living standard in excess of 225% of the poverty line. With PAM, the household's wellbeing is only 175% of the poverty line. This 50% drop is correctly interpreted as the impact of PAM on initially better-off households.

Summarizing the results, Carter et al. note that whatever the social and human costs associated with premature adult deaths, the impact on the growth of the economic wellbeing of the household is significantly larger on those just above the poverty line. Recovering some of these economic benefits may be possible, such as replacing assets or scrimping to make up for lost income; other benefits will not be easily replaced, such as the human capital embedded in the person who has died. In this regard, our data tell a rather provocative story: better off households tend to recover as time passes, while less well-off households do not.

Figure 3.1: Impact of premature adult mortality on livelihood trajectories



Source: Carter et al. (Forthcoming)

LONG-TERM EFFECTS OF ACCESS TO FINANCIAL SERVICES ON ASSET ACCUMULATION, ECONOMIC MOBILITY, AND THE EVOLUTION OF WELLBEING:

Revisiting Agricultural Commercialization in Bukidnon, 1984-2003

A dealer in agricultural machinery also set up shop as a microfinance lender. (*Photo by Agnes Quisumbing*)

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http://www.basis.wisc.edu/basis_crsp/bukidnon.html

PROJECT PROFILE

When families are constrained from accessing financial services, the impact can last generations. BASIS CRSP examined the long-term effects of access to financial services on asset accumulation, economic mobility and the evolution of wellbeing.

The study site of Bukidnon, Philippines saw the construction of a sugar mill in the 1970s that led many households to switch from a food crop (corn) to a cash crop (sugarcane). Subsequent changes in access to land, use of labor, and overall incomes provide a rich policy-relevant examination of households under different crop production regimes and land tenure distributions.

The project addressed these questions:

1. How have rural financial markets in the Philippines evolved over time?
2. What credit constraints do rural households face, and have these changed over time?
3. What is the long-term impact of credit constraints on physical asset accumulation, investment in children's human capital, and economic mobility?

The study tracked 448 families in 29 villages in rural Mindanao who were first interviewed in 1984/85 by the International Food Policy Research Institute and the Research Institute for Mindanao Culture, Xavier University. The original survey was fielded in four rounds at four-month intervals from August 1984 to December 1985, so that each round corresponded to a different agricultural season. The survey contained information on food and non-food consumption expenditure, agricultural production, income, asset ownership, credit use, anthropometry and morbidity, education and 24-hour food consumption recall.

The sample was drawn from 29 *barangays* (the smallest political unit) and stratified by agricultural production activities (particularly corn and sugarcane), proximity to the sugar mill (as a proxy for access to the new crop), and access to land, including ownership, tenancy and landlessness.

The follow-up survey closely reflected the one used in 1984/85. In the fall of 2003, we interviewed all original respondents still living in the survey area. We were able to contact 311, or 61%, of the original respondents. The respondents listed children who lived away from home and provided contact information. We sampled at random up to two children living in or near the origin household's village, yielding 261 households.

The second wave of data collection was from April to July 2004, during which the survey team interviewed any household formed by children who no longer live in their *barangay* of origin. This included a large group of households in three major urban areas in Mindanao: Valencia, the commercial center of Bukidnon; Malaybalay, the provincial capital; and Cagayan de Oro in the province of Misamis Oriental, a major port and metropolitan area in northern Mindanao. The study also included many households in *poblaciones* (municipality seats) and other rural areas of Bukidnon. The sample size from this migrant wave consisted of 257 households—about 75% of potential migrants to be interviewed.

The 19-year interval, prior qualitative work, and detailed household-level and community data in both rounds offer unique findings on the impact of credit constraints over two generations.

OUTPUTS

Many outputs are very recent reports, not yet published in journals or as working papers.
Please contact BASIS CRSP to inquire as to availability.

Gilligan, D. 2006. "The Effect of Childhood Nutritional Status on Adult Nutrition and Education: The Role of Credit Constraints." Presented at the American Agricultural Economics Association Annual Meetings, Long Beach, CA, July.

Gilligan, D., S. Harrower, and A.R. Quisumbing. 2006. "How Accurate Are Reports of Credit Constraints? Reconciling Theory with Respondents' Claims in Bukidnon, Philippines."

Godquin, M. and M. Sharma 2004a. "Salient Features of Household Financial Transactions in Bukidnon: Results from the 2003 Household Survey." International Food Policy Research Institute, Washington, DC.

Godquin, M. and M. Sharma 2004b. "If Only I Could Borrow More! Production and Consumption Credit Constraints in the Philippines." International Food Policy Research Institute, Washington, DC.

Montillo-Burton, E., editor. *A Bittersweet Harvest: Life Stories of Sugarcane Farmers and Workers in Bukidnon, Philippines.* Cagayan de Oro City, Philippines, and Washington, DC: Research Institute for Mindanao Culture, Xavier University, and International Food Policy Research Institute.

Morales, B. 2004. "Microfinance and Financial Institutions in Bukidnon." Research Institute for Mindanao Culture, Xavier University, Cagayan de Oro City, Philippines.

Quisumbing, A.R. 2006. "The Long-term Impact of Credit Constraints on Asset Accumulation, Intergenerational Transfers, and Consumption: Evidence from the Rural Philippines." International Food Policy Research Institute, Washington, DC.

Quisumbing, A.R. and S. McNiven. Forthcoming. "Migration and the Rural-urban Continuum: Evidence from the Rural Philippines. *Philippine Journal of Development.*

Sharma, M. 2006. "How Persistent are the Effects of Past Credit Market Constraints on Current Financial Transactions? An Illustration from Bukidnon, Philippines." International Food Policy Research Institute, Washington, DC.

FINDINGS

1. Financial markets expanded greatly over the past 20 years, with both the size and diversity of loan transactions increasing; yet, the percentage of households engaged in borrowing transactions has decreased, and the bulk of borrowing continues to be from informal sources (see table 1).

Table 1. Household (HH) credit transactions in 1984 and 2003

	Parent HHs 1984	Parent HHs 2003	HHs of children in same survey villages 2003
HHs engaged in borrowing	**78%**	**63%**	**56%**
… from informal lenders		57%	60%
… from private commercial lenders		11%	8%
… from commercial banks		17%	10%
… total loans involving interlinked contracts		1%	9%
… total loans from special projects		14%	14%

Source: Sharma 2006

In Bukidnon between 1984-2003, financial institutions greatly expanded in number and type (Morales 2004). During this time, however, the rate of participation of parent households in credit transactions fell from 78% in 1984 to 63% in 2003 (Sharma 2006). This rate is nonetheless higher than the rate of participation of the children's households, which was 56%.

The average loan amount in real terms (in 2003 pesos) increased considerably for parent households, from 7,471 pesos in 1984 to 30,391 pesos in 2003, while borrowing levels of children's households were significantly lower.

Parents and children use loans differently. While child households use credit primarily to finance current consumption, parent households use it quite evenly to finance consumption, health and education, and farm inputs. Both parent and children households depend primarily on private informal lenders for most of their credit transactions. More than half the borrowing transactions take place in the informal sector—private informal lenders or interlinked contracts with employers and landlords.

Consistent with higher ownership of collateral assets such as land, parent households tend to transact more in the formal sector compared to children households. While 28% of the transactions of parent households are with formal bank and non-bank financial institutions, only 18% of the transactions of children households are of this nature. However, both children and parents households appear to have credit transactions with similar frequency (14% each) with special credit projects run by both government and non-government agencies.

The percentage of loan transactions that required the pledging of collateral is similar between parent and children households (40% and 37%, respectively). However, parent households on the average have much larger loans. Since it is reasonable to assume that, all else being equal, collateral requirement increases with size of loans, then the collateral burden is less for parent households than for children households.

2. The proportion of households that are "quantity rationed" has remained approximately the same over the past 20 years; yet, there is a substantial increase in the proportion of households that are "risk rationed" (see table 2, next page).

We tracked the distribution of agricultural households by credit constraint status in 1984/85 and 2003. Quantity-rationed households are those that would have wanted to borrow more, but did not. To arrive at a broader definition that takes into account risk-rationed households, we include those households that did not want to borrow either because they were afraid of being unable to repay the loan, afraid of losing collateral, unaccustomed to borrowing, or afraid of having too much debt.

If we use the first definition of risk constrained, and add households that were afraid of being unable to pay to the quantity-rationed households, risk-constrained households amount to 75% of parent

Table 2. Distribution of HHs by credit constraint status, agricultural producers only

	Parent HHs 1984/85	Parent HHs 2003	HHs of children in same village 2003
Quantity constrained: credit constrained if wanting more credit	36%	33%	32%
Risk constrained: wanting more credit, or avoiding default risk (Definition 1)	59%	75%	74%
Risk constrained: wanting more credit, or avoiding default risk (Definition 2)	60%	39%	36%

Definition 1: does not want to avail of more credit because of fear of being unable to repay.
Definition 2: does not want to avail of more credit because of fear of losing collateral, too much debt, and not being used to borrowing.
NOTE: The 1984/85 figures are an average over the relevant rounds, each of which has a recall period of four months; the 2003 figures refer to the past 12 months.

households and 74% of child households. If we use the second definition, including those who are afraid of losing collateral, unaccustomed to borrowing, or afraid of having too much debt, we cover only 39% of parent and 36% of child households.

While the proportion of quantity-rationed households changed little, decreasing slightly from 36% to 33%, the proportion of risk-rationed households (using the first definition) has increased significantly from 59% to 75%. Fear of losing collateral is not an important motivation underlying risk rationing, since nearly 60% of loans do not involve collateral (Godquin and Sharma 2004a). Indeed, only 5% of parent households and 1% of child households mention fear of losing collateral as the reason for refusing additional credit.

Discussions with local researchers and policymakers suggest that agriculture has become more risky as it has become more commercialized, and borrowers are afraid of being cut off from future borrowing if they are unable to repay.

3. There has been substantial movement across credit constraint categories over the past 20 years, and being credit constrained in the past does not imply that one will be constrained at present (see table 3).

Even though the proportion of quantity-rationed households has remained steady, many households have moved across credit constraint categories over the past 20 years.

Of the 198 agricultural households for which we have data on credit constraints in both periods, 55% have not changed credit constraint status: 27% who were not credit constrained in the past are still unconstrained in 2003, and 28% of those who were constrained have remained so. Forty percent of those who were quantity-rationed in 1984/85 are no longer rationed, while 6% of those who were not quantity-rationed in 1984/85 report being rationed in 2003.

Sharma (2006) shows that past credit constraint status affects neither current credit market behavior nor current credit constraint status, probably owing to the growth of the financial sector and the evolution of financial (and other) institutions over the past two decades.

4. Although being credit constrained in the past does not predict being credit constrained at present, the long-term impact of past credit constraints is felt both by parents and children.

Credit constraints may have persistent long-term impacts. The data show that parents who were credit constrained in the past have lower levels of land and assets now, made fewer asset transfers to their children, and have lower levels of per capita consumption. Furthermore, children whose parents

Table 3. Past and current credit constraint status, quantity-constrained definition, parent HHs

Credit constraint status in 1984/85	Credit constraint status in 2003		Total in 2003
	Not quantity rationed	Quantity rationed	
Not quantity rationed	11 (26.8%)	53 (5.6%)	64
Quantity rationed	55 (39.9%)	79 (27.8%)	134
Total in 1984/85	66	132	198

Percentages are in reference to the total number of households

were credit constrained in the past have lower levels of assets and per capita consumption.

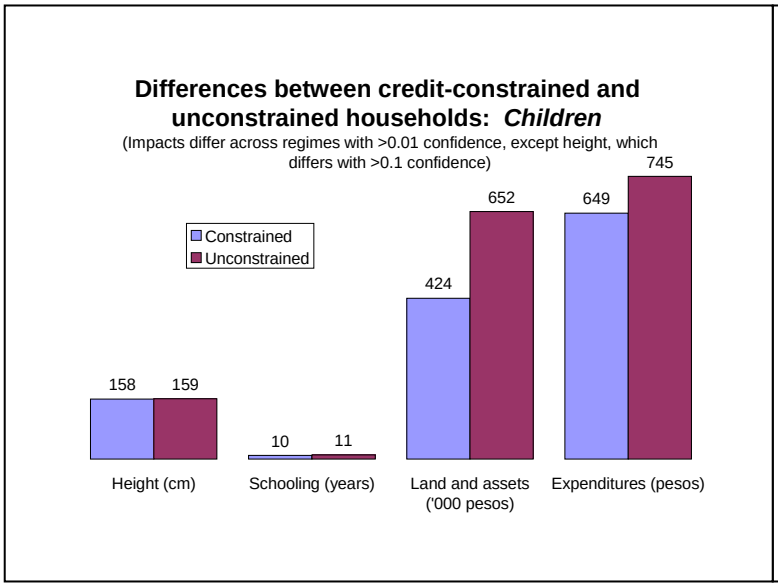
Quisumbing (2006) suggests that past credit constraints, defined as being quantity rationed in at least one round in 1984/85, have negative impacts on current asset holdings, intergenerational asset transfers from parents to children, and current consumption. Analysis shows that, compared to unconstrained households, parent households that were credit constrained in 1984/85 have significantly lower predicted values of land and nonland assets in 2003 as well as significantly lower predicted values of nonland assets transferred to children.

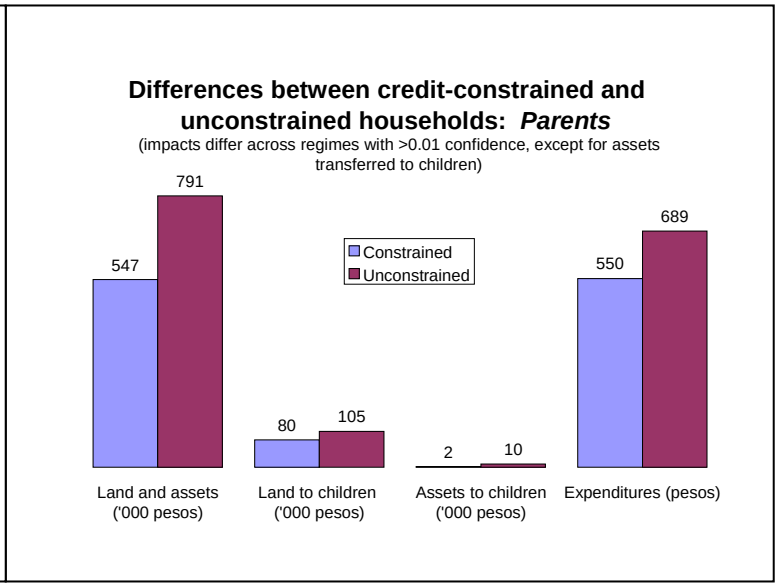
Predicted values of current weekly expenditure per adult equivalent are significantly lower for parents who were credit constrained in the past compared to those who were unconstrained. Similarly, predicted values of land and asset holdings are lower for children whose parents were credit constrained in the past, compared to those who were unconstrained; predicted values of current consumption are also significantly lower for children whose parents were credit constrained.

Credit constraints have long-term impacts on the accumulation of human capital. Children whose parents were credit constrained complete fewer years of schooling and are significantly shorter as adults than those who grew up in unconstrained households.

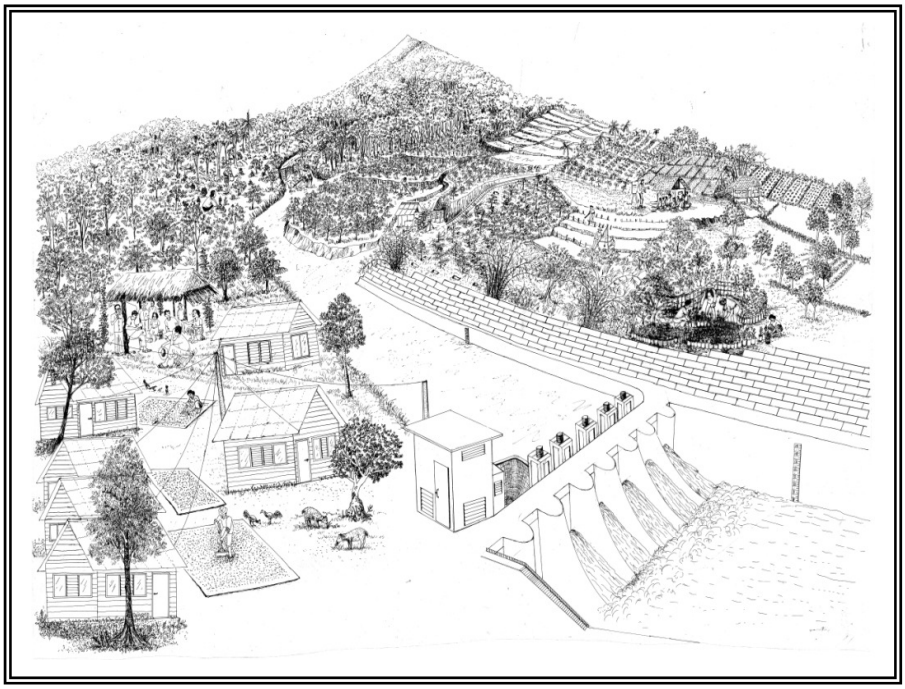
Other evidence using this data set (Gilligan 2006) suggests that constrained households are also disadvantaged with respect to completed schooling and adult nutritional status, with children from constrained households completing fewer years of schooling, and having lower stature as adults, compared to those from unconstrained households.

Our findings on credit constraints show widespread impacts across generations on physical asset accumulation, intergenerational asset transfers, human capital investment, and consumption. The impacts are serious and deserve careful attention from policymakers.





PROPERTY RIGHTS, ENVIRONMENTAL SERVICES AND POVERTY ALLEVIATION IN INDONESIA



Drawing of the Sumberjaya site in Indonesia.

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PROJECT PROFILE

Since the mid-1990s there has been a rapid increase in interest in payment for environmental services (PES). While high profile PES programs have emerged in Latin America, elsewhere in the developing world they remain uncommon. Hopes for using PES to benefit poor people are balanced by fears that the mechanisms might bypass poor land users or even make them worse off. Challenges related to high transactions costs of dealing with small landholders and the unclear property rights in areas with high conservation value would need to be overcome. Moreover, where land rights are unclear, there are concerns that PES systems might compel powerful people to usurp otherwise marginal lands and evict poor land users.

The RUPES (Rewarding Upland Poor for Environmental Services) project was established in 2001 to address possibilities for these mechanisms in Asia, with particular emphasis on benefits to the upland poor. RUPES conducts action research at sites across Asia to examine the provision of environmental services, who benefits, who pays, and the institutional and policy environment to enable fair and equitable distribution. RUPES takes an inclusive view on payment, including rewards that provide upland farmers with enhanced land tenure security in exchange for following land use agreements. To distinguish that broader class of mechanisms, we follow RUPES in referring to Rewards for Environmental Services (RES) rather than the narrower PES.

BASIS CRSP conducted research related to the experience of RUPES in promoting pro-poor RES. The research addressed three main concerns:

1. social-spatial placement of RES mechanisms
2. within-village distribution of costs and benefits of RES mechanisms, particularly those related to enhanced property rights
3. appropriate institutional mechanisms to enhance the benefits of RES mechanisms for the poor.

The research program was conducted in Sumberjaya in Lampung Province on the island of Sumatra, Indonesia, where RES mechanisms are operating for the protection of natural forests and sensitive watersheds.

In 2000 the government initiated its *Hutan Kemasyarakatan* (Community Forestry) program, known as HKm. The BASIS CRSP research began in January 2005 with village level surveys to understand the factors associated with where the program is located, and a survey of HKm groups regarding their understanding of the program requirements and expectation of the benefits it might bring.

In May 2005 a household survey was initiated in a sample of 640 farmers with a focus on analyzing the program's impacts. A subset of the sample group was also surveyed for the investigation of preferred contract characteristics.

Additional work was undertaken to collect biophysical data associated with the performance of the HKm groups in adhering to the requirements of the HKm agreement. Also, a study began in early 2006 using experimental economics to understand the willingness of Sumberjaya farmers to accept payment to change their land use practices to protect the water quality of a river that provides drinking water to the town of Simpang Sari.

Under HKm, community groups are granted secure tenure on the government forest land they farm, conditional on managing the land in a way that provides environmental services. They must: (a) establish multi-strata, coffee-based agroforestry systems, which have been shown to protect against soil erosion while freeing water for downstream use, (b) protect the remaining natural forest in the area where they operate, and (c) invest in soil and water conservation techniques such as terracing and pitting in their coffee gardens.

Early evidence appears to show that local communities have successfully rehabilitated degraded land, including land designated as state forest area, through establishment of coffee-based agroforestry. The main incentive for local communities to manage land more sustainably was the expectation of more secure land rights to state forestland. This indicates that land rights for local communities on state forestland can be used as a "reward" for upland farmers for their role in maintaining environmental services of forest land.

OUTPUTS

Many outputs are very recent reports, not yet published in journals or as working papers.
Please contact BASIS CRSP to inquire as to availability.

Arifin, B., Suyanto, and B. Swallow. No Date. "The Use of Conjoint Analysis to Examine Preferences on HKm Contracts in Sumberjaya Watershed, Sumatra, Indonesia."

Ekadinata, A., S. Dewi, D.P. Hadi, D.K. Nugroho. 2007. "Can secure tenure help reduce deforestation? Lessons learned from Sumberjaya watershed, Lampung, Indonesia."

IFPRI. Forthcoming. "Property Rights, environmental services and poverty alleviation in Sumberjaya, Indonesia." IFPRI Research Report.

Kerr, J. and R. Jindal. "Primer for practitioners on the use of payment for environmental services for improved natural resource management." Prepared for an event at USAID in July 2007.

Kerr, J., J. Pender, and Suyanto. 2006. "Participation in the HKm Program in Sumberjaya." Presented at BASIS Technical Committee meeting in Washington, DC, September 2005, and at the Biennial Meeting of the International Association for the Study of Common Property in Bali, Indonesia, June 2006.

Kerr, J., R. Meinzen-Dick, J. Pender, Suyanto, B. Swallow, and M. Van Noordwijk. 2005. "Property Rights, Environmental Services and Poverty in Indonesia." **BASIS Brief 29**.

Leimona, B. "Experiment of Direct Incentive Scheme through Auction for Environmental Service Provision in Watershed Management."

Pender, J., Suyanto, J. Kerr, and E. Kato. 2007. "Impacts of the HKm program in Sumberjaya."

Suyanto, with contributions from N. Khususiyah, P. Purnomoshidi, E. Jonson, Rasna, C. Suryadi. No Date. "Conditional Land Tenure: A Pathway to Healthy Landscapes and Enhanced Livelihoods." RUPES Sumberjaya Brief 1.

Suyanto, with contributions from R.H. Widodo, P. Purnomoshidi, Susanto, B. Verbist. No Date. "Clean Rivers, Lighted Lights: Monetary Rewards for Reducing Sediment." RUPES Sumberjaya Brief 2.

FINDINGS

A. HKm program participation

Kerr, Pender, and Suyanto (2006) focused on who participates in the HKm program in Sumberjaya, factors associated with participation, how groups organize themselves, and people's understanding of the program requirements and benefits.

Participation in the program and factors associated with program placement. The HKm program made the most progress in Sumberjaya compared to other parts of Lampung. Nearly all farmers in Sumberjaya's protection forest area organized into groups for pursuing HKm agreements. Our analysis focused on the factors associated with early entry into the HKm program.

The key factor associated with early entry is personal relationships with people in important positions, including forest officials helping to promote the program or even the specific person helping the group prepare the application. Groups with a HKm license have on average 40% more motorcycles per member, which is an indicator of wealth and access to the outside world. Licensed groups are predominantly composed of the ethnic groups that dominate the government.

Operators of plots with a HKm permit or HKm application pending tend to be poorer than owners of private land because people on protection forest land (eligible for HKm) are poorer than those with private land. Protection forest inhabitants also tend to be younger and more recent migrants to the area.

Past evictions affected nearly a third of plots with a HKm permit, and smaller shares of plots with a HKm application pending or no application. Apparently the experience of a past eviction encouraged the recipients of HKm permits to apply earlier than other land users.

Access to HKm appears to have been influenced by households' and communities' human and social capital, access to markets and technical assistance.

How groups organize. Bonding social capital refers to factors that strengthen relationships within a group, helping them act collectively to take action and solve problems. In this regard groups with a HKm license are more ethnically homogeneous, with a higher concentration of the largest ethnic group. Another factor is that members of licensed groups are much more frequently members of other kinds of social groups such as user groups, labor sharing groups, etc.

Understanding the program. We used group-level and household-level data to explore how well HKm participants and applicants understand the program. Group members often do not understand the requirements of the HKm agreements. They understand that they are receiving the benefit of more secure tenure, but the idea that they must provide something in return is somewhat elusive. For example, they question the idea that program participants should pay an annual fee, given that the program is supposed to help them.

Nearly all participants understand that they are supposed to plant trees as part of the HKm group, but there was little awareness of the number and type of trees. There was also little understanding of the requirement to invest in soil conservation.

The household survey revealed that many respondents had never heard of the program even though they were members of HKm groups. In groups with a HKm permit, about 20% of respondents were not aware that they were members; in groups without a permit this was the case for about half the respondents. This raises obvious questions about program effectiveness. How can the program work if its members don't understand its requirements?

Nonetheless, the group-based nature of the program and the use of secure tenure as a reward mean that even participants who don't really understand the program can benefit from it. This would not be the case in an individual program or possibly one with cash rewards that would be easy to embezzle.

Regarding program benefits, people generally understand that the program comes with the benefit of secure tenure, but many people also think that it will bring other kinds of benefits such as increased access to government services.

B. HKm program impacts

Pender, Suyanto, Kerr, and Kato (2007) carried out a statistical analysis of the household survey to address impacts of the HKm program. The following are implications.

- The HKm program appears to benefit poorer households, compared to owners of private land, though among users of protection forest land, access to human and social capital and technical assistance appears important to access the program.
- Program participants believe HKM increases tenure security and land values, and will increase their incomes. However, the expected impacts on land values are not supported by data on land purchase prices.
- The program appears to promote investments in tree planting, especially by households who were evicted in the past. Accordingly, HKm may have greater impacts where more evictions occurred.
- The impacts of increased tree planting on profitability of land use are mixed, with increased profits resulting from increased planting of multi-purpose trees but reduced profits due to increased planting of timber trees. The negative impact of timber trees on profits and income could be ameliorated if cutting and replanting of such trees were permitted in the future; otherwise, this may cause a tradeoff between environmental and poverty objectives, or non-compliance with program requirements.
- Over time these investments may increase participants' income and provide environmental benefits, though these impacts haven't been assessed yet.
- Other ICRAF research shows environmental benefits of multi-strata agroforestry investments.
- Further research is needed to assess economic impacts that may take time to materialize.

Profile of beneficiaries and applicants. Overall, HKm beneficiaries and applicants are poorer than private landowners in assets and credit access, but are younger and more educated, and their asset base is growing faster. Compared to other users of protection forest who haven't applied for HKm, they have similar asset levels but tend to have greater social capital and access to infrastructure and technical assistance.

HKm participants (with permit and applicants):

- use varied amounts of land but generally less than private landowners and more than users of National Park land
- own fewer total assets than owners of private land but similar asset levels to other categories
- had higher percentage growth in assets since 2000 than private land users
- have poorer housing quality (more likely than owners of private land to have a house with dirt floor, less likely to have brick walls)
- have less access to bank credit than private land owners
- are usually long-term residents; especially those who were evicted
- are mostly Javanese or Sundanese
- are slightly younger and more educated than private landowners
- have more education, social capital (more likely to have participated in coffee producers group or labor sharing group) and better access to roads and technical assistance from the Forest Department than users of protection forest who haven't applied for HKm or users of National Park land.

Impacts on perceived tenure security. Large impacts of HKm on tenure security were perceived/expected by both permit holders and applicants, especially for households who were evicted in the past and especially after 25-year contracts are provided (no HKm groups had received such long-term contracts at the time of our survey).

Impacts on land values. As with tenure security, large impacts on land values were expected by respondents, especially with 25-year permits. This supports perceptions of tenure security. However, data on actual land purchases show less clear impact of HKm:

- There has been no trend in increasing the value of protection forest plots since HKm was established.
- Protection forest plots are worth much less than private plots, and even less than National Park land.

- Econometric analysis of purchase data confirms the lower value of protection forest plots, even when controlling for plot quality, trees on plot and year of purchase, and finds no significant impact of a HKm permit, relative to protection forest plots without a permit. However, the stock of coffee trees on plots at the time of purchase has a large and significant positive impact on land values, so avoiding future evictions in which trees are uprooted has a strong positive impact on farmers' wealth.

Impacts on tree planting. Tree planting was greater on HKm plots where evictions occurred in the past, and after a tree planting program called GNRHL was established. Econometric analysis and propensity score matching (PSM), controlling for household characteristics, plot quality, access to the GNRHL program and other services and infrastructure, confirms this result:

- Planting of timber trees and multi-purpose trees between 2000 and 2005 was greatest on plots with a HKm permit or application pending (econometric analysis).
- There was no statistically significant difference in tree planting between plots with a HKm permit and plots with an application in process, but there was significantly more planting of both timber and multi-purpose trees on plots with a HKm permit than protection forest plots where no application for a permit had been made (econometric analysis and PSM).

Since we find that only planting of trees that are prescribed by the HKm program (i.e., timber and multi-purpose, but not coffee trees) is increased by the program, the impacts of the program on tree planting may be due to the requirements of the program, rather than to increased tenure security. This inference is consistent with the limited impact found of the program on actual land values.

Impacts on land investments and soil fertility management practices. The most common land investment on coffee and agroforestry plots in Sumberjaya is sediment pits. Such investments were most common on private plots, followed by plots with a HKm permit or application pending where an eviction had occurred in the past. Some other less common investments (land clearing, terracing) were most common on plots with a HKm permit or application pending, as was inorganic fertilizer use. By contrast, use of compost was most common on private and National Park plots. Econometric analysis and PSM confirmed that land clearing is greater on plots with a HKm application pending than protection forest land without HKm, but found insignificant differences in other land investments due to HKm status. Econometric analysis also confirmed that compost use was greater on National Park plots than plots with a HKm application pending or protection forest land without HKm.

Expected impacts on income and profits. Communities and HKm participants expect HKm to increase their income, some by a substantial amount. Group discussions early in our research indicated that this was because, with greater tenure security, they would be comfortable farming their land more intensively. Actual impacts on household income have not been assessed, but it may be too soon to see impacts.

We did assess impacts on the profitability of land use. In the descriptive statistics, we found the highest profits per hectare on private plots, and the lowest on protection forest plots where no HKm application had been made. Using econometric analysis, we found statistically insignificant differences in profits per hectare across HKm and tenure categories, though using PSM we found higher profits on plots with a HKm application pending than protection forest land without HKm.

These results do not provide much support for positive impacts of HKm permits on profits and income. However, the econometric and PSM results controlled for differences in the stock of trees, which we found to be affected by HKm. There are offsetting effects of the tree planting impacts of HKm on profitability, since timber trees were found to reduce profits while multi-purpose trees increase profits. The overall benefit of the HKm program on profits and income appears to be limited at present, and may continue to be so in the long term, unless HKm beneficiaries are allowed in the future to cut timber trees planted under the program; presently, this is not allowed.

C. Secure tenure and reduction of deforestation

Only protection forest is eligible for HKm, and there are three categories of HKm status: 5 groups with a HKm permit, 10 groups with a HKm permit application in process, and 2 groups with no HKm application. Evictions in the 1990s took place only on protection forest land and affected all three groups. This leaves eight strata for the household survey:

1. private land
2. national park land
3. protection forest with HKm permit granted, evicted
4. protection forest with HKm permit granted, not evicted
5. protection forest with HKm application in process, evicted
6. protection forest with HKm application in process, not evicted
7. protection forest without HKm, evicted
8. protection forest without HKm, not evicted

Ekadinata, Dewi, Hadi, and Nugroho (2007) draw on satellite imagery of Sumberjaya from 1973 to 2005 to examine deforestation rates in Sumberjaya as a whole and specifically on the eight categories of land that defined the strata for the household survey. The paper focuses on differences in deforestation rates on the different land categories, assesses impact, and provides a critical piece of evidence on one aspect of the HKm program, namely the requirement that local people help protect against further deforestation of the natural forest.

We use satellite images to classify forest and agroforest at several time steps and calculate the areas of forest and agroforest in all tenure systems, i.e., national park, private land, and protected area including HKm area. A forest cover map was produced from eight different image snapshots, with the earliest from 1973 and the most recent from 2005. We calculate deforestation rates between pairs of consecutive post-classified images and compared the results across different tenure systems in Sumberjaya.

Our results showed that farmers do commit to HKm conditions. Under HKm, the areas of forest loss decreases and agroforest area increases. Deforestation is not completely eliminated, but our analysis showed that since 2000, deforestation has reached the lowest level since 1973. Within the protection forest area, deforestation remains high in the area where farmers are waiting to get their HKm permit. This should encourage the government to rapidly process HKm applications.

In addition to *in situ* impact of HKm on reducing deforestation, HKm could also effectively function as a buffer zone to reduce deforestation in the surrounding protected area. The forested area of Bukit Rigis, which is classified as protection zone, is surrounded by land managed under HKm. This area experiences the lowest deforestation rate compared to any other tenure systems in Sumberjaya. The findings of this study support the hypothesis that increasing land tenure security can help to reduce deforestation and increase tree cover, and therefore promoting conservation.

D. HKm contract preferences

Arifin, Suyanto, and Swallow address the research question regarding preferences for different contract characteristics in a RES arrangement. It draws on the household survey.

Conjoint analysis is based on consumer theory, assuming that utility is derived from the attributes of goods or services. In conjoint studies, respondents choose between alternate products or scenarios that display varying levels of selected attributes. These comparative evaluations, which outline a respondent's preferences and the tradeoffs he or she is willing to make, can be used to impute the partial utilities of each attribute, which can be combined to estimate relative preference for any combination of attribute levels.

Data for the conjoint analysis were generated through a survey in which respondents were asked to rate realistic but hypothetical alternative HKm contracts with different attributes. The household survey data was analyzed to test whether there are significant differences in preferences among groups of respondents.

The contract attributes investigated in the analysis include:

- duration of the contract (currently a 5-year probationary period followed by a 25-year extension)

- requirement to grow a certain number of timber trees per hectare (currently at least 400)
- required percentage of shade trees (currently at least 30%)
- right to sell timber (currently no right except for occasional noncommercial use)
- annual fee (currently no fee in Sumberjaya but a fee elsewhere)
- requirement of unpaid labor contributions (currently not clearly written by the Forest Department)
- access to government extension services (currently not clearly written but strongly desired).

The survey was conducted among households in groups that have already received a HKm permit or have applied for one. A total of 216 farmers were sampled. With 12 HKm attributes per farm survey, there were 1296 possible combinations under investigation and each respondent was given a unique survey. The analysis found that farmers strongly prefer a longer contract period (which means more secure tenure) and a smaller required number of timber trees. They would like to be able to cut trees and they do not want to pay fees. They also want extension services and roads.

Tradeoffs among these attributes could be assessed using these results; for example, the extent to which farmers would accept fees in exchange for being able to cut timber trees. Attributes without statistically significant coefficients are the percentage of shade trees and tree composition, and the requirement of a labor contribution. These factors appear to be less important (or subject to more variation across households) in determining farmers' preferences for HKm contracts.

E. Policy impact

The RUPES project drew heavily on BASIS results to provide support for the negotiation process between the local community and the government in the effort to find a balance between local people's rights and the government's desire for environmental protection in the watershed.

In 2004 when RUPES started its work in Sumberjaya, only five farmer groups had been awarded permits and these were only for five years. Covering only 7% of the protection forest, the area with conditional land use permits was too small to bring measurable improvements to watershed functions.

RUPES aimed to facilitate the entry of Sumberjaya farmers into the HKm program. This involved the development of a negotiation support system in conjunction with a local NGO, and also technical assistance to farmer groups to help them submit an application to the program. RUPES was successful in helping several additional HKm groups establish, but they were unable to gain access to the program because the government put it on hold, apparently due to concerns about whether farmers could really be trusted to fulfill their part of the agreement.

The BASIS research played an important role in helping the government understand program impacts on both livelihoods and natural resource conservation. Since early 2006, the BASIS findings have been used in policy dialogues at the district, provincial, and national levels, and resulted in a change in the knowledge and thinking of policymakers.

In late March, 2006, a workshop was held in Bandar Lampung, the capital city of Lampung Province. Provincial forest department officials, as well as farmers and officials from Sumberjaya attended the meeting. Initial findings from Sumberjaya were presented and helped ease officials' skepticism that farmers could be trusted to manage land in an environmentally friendly way.

On 26 June 2006, a workshop was held in Sumberjaya for both local farmers who are HKm group members, and officials of the Forest Department in Lampung Barat District, the part of Lampung Province where Sumberjaya is located. The workshop provided in-depth findings of the BASIS CRSP research and served as a forum for discussion between HKm participants and officials.

Farmers were very enthusiastic about the presentation. Forestry officials were more skeptical about the findings, and there were interesting debates between farmers and officials. Yet on the whole the local forestry officials were supportive of the program, most likely because they recall the previous antagonism between farmers and the Forest Department and the futility of the heavy-handed efforts to protect the forest in the past.

On 29 June 2006, we presented findings to members of the Ministry of Forests in Jakarta. Central government forestry officials have a very

different perspective on HKm than local government officials. HKm has limited popularity among people in the Ministry of Forestry and officials are often skeptical of the idea that local people can be entrusted to protect forests and prevent soil erosion.

In July 2006, shortly after the series of workshops we held with district, provincial, and national level officials, an award ceremony was held in Sumberjaya in which all 18 farmer groups received community forestry permits under the HKm program. This increased the area covered by HKm permits from 1,367 to 11,633 hectares. Nearly 6,400 farmers now have HKm permits. With 70% of the protection forest now covered by conditional land use permits, Sumberjaya should start to see measurable improvements in watershed functions.

The challenge now is to influence policymakers at the national level. The Forestry Department is in the process of revising the HKm decree to simplify it and make it more suitable to poor farmers.

REGIONAL DIVERSITY IN PATHWAYS OUT OF RURAL POVERTY IN BRAZIL:

Implications for the Design of Public Policies

Plowing land to plan cassava in Brazil.
(*Photo by Israel Leoname F. Klug*)

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http://www.basis.wisc.edu/brazil.html

PROJECT PROFILE

Roughly half of the rural population in Brazil was estimated to be living in poverty in 2002, with half of these living in extreme poverty. Rural poverty is tremendously heterogeneous across regions, with the percentage of the poor living in extreme poverty varying by a factor of six across states.

In light of this situation, the Brazilian government has made poverty reduction and the elimination of hunger two of its highest priorities. Unfortunately, the information base necessary to accurately measure rural poverty at a disaggregated level does not exist. Thus, the ability to analyze the impacts of policies on rural poverty is severely constrained.

This project proposes a solution to these problems based on state-of-the-art methods for combining existing small and large data sets to take advantage of the strengths of each one. After estimating a consumption based measure of rural poverty at the municipal level, we will extract policy lessons from an analysis of alternative pathways out of rural poverty. Special attention will be given to regional diversity in pathways and policy implications.

Five broad themes structure the project:

1. mapping and explaining changes in rural poverty since the early 1990s
2. farm size, agricultural productivity, and poverty
3. non-agricultural sources of income: earned income and government transfers
4. land, credit, and labor market reforms
5. migration and rural poverty.

Policy recommendations will be derived for existing government programs, improving official data on rural incomes, and new programs in need of creation. The lessons will have direct relevance for USAID's goals of rural poverty reduction throughout Latin America.

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OUTPUTS

Many outputs are very recent reports, not yet published in journals or as working papers.
Please contact BASIS CRSP to inquire as to availability.

Assunção, J.J., and F. Chein. Forthcoming. "Condições de Crédito no Brasil Rural." [Credit Conditions in Rural Brazil.] *Revista de Economia e Sociologia Rural.*

Assunção, J.J., and F.L. C. Feres. 2007. "Benefícios Previdenciários e Pobreza Rural no Brasil." [Social Security Benefits and Rural Poverty in Brazil.]

Buainain, A.M., P.J. de Almeida, F. Lima and J. Maria F.J da Silveira. 2007. "O Arrendamento de Terras no Brasil: Condicionantes, Funcionamento e Perspectivas," [Land Rental Markets in Brazil: Current Situation and Perspectives.]

Corrêa, A.M., C. J. Nelly, M. S. Figueiredo. 2007. "Pobreza Rural / Agrícola no Brasil: 1992-2005." [Agricultural and Rural Poverty in Brazil: 1992-2005.]

Figueiredo, F.M.R. and E.S. Levine. 2007. "Income versus Consumption Measures of Rural Poverty and Inequality in Brazil."

Golgher, A.B. 2006a. "Diagnóstico do Processo Migratório no Brasil." [Diagnosis of the Migratory Process in Brazil.] Belo Horizonte, UFMG/Cedeplar, Texto Síntese.

Golgher, A.B. 2006b. "Diagnóstico do Processo Migratório no Brasil 1: Comparação Entre Não-Migrantes e Migrantes." [Diagnosis of the Migratory Process in Brazil 1: A Comparison Between Non-Migrants and Migrants.] Belo Horizonte, UFMG/Cedeplar, Texto para Discussão 282.

Golgher, A.B. 2006c. "Diagnóstico do Processo Migratório no Brasil 2: Migração Entre Estados." [Diagnosis of the Migratory Process in Brazil 2: Inter-State Migration.] Belo Horizonte, UFMG/Cedeplar, Texto para Discussão 283.

Golgher, A.B. 2006d. "Diagnóstico do Processo Migratório no Brasil 3: Tipos de Migração." [Diagnosis of the Migratory Process in Brazil 3:

Types of Migration.] Belo Horizonte, UFMG/Cedeplar, Texto para Discussão 284.

Golgher, A.B. 2006e. "Diagnóstico do Processo Migratório no Brasil 4: Migração Entre Municípios." [Diagnosis of the Migratory Process in Brazil 4: Inter-Municipal Migration] Belo Horizonte, UFMG/Cedeplar, Texto para Discussão 285.

Helfand, S.M., and E.S. Levine. Forthcoming. "The Impact of Policy Reforms on Rural Poverty in Brazil: Evidence from Three States in the 1990s." In *Human Development in the Era of Globalization: Essays in Honor of Keith B. Griffin*, edited by J. Boyce, S. Cullenberg, P. Pattanaik, and R. Pollin, 29 pages. Northampton: Edward Elgar.

Jonasson, E., and S.M. Helfand. 2007. "Rural Poverty in Brazil and the Role of the Non-agricultural Sector."

Levine, E. 2007. "Small Area Estimation of Municipality-Level Consumption-Based Rural Poverty in Brazil for Inter-Temporal Comparison."

Moreira, A., S.M. Helfand, and A.M.R. Figueiredo. 2007b. "Determinantes da Pobreza do Produtor Agrícola no Brasil." [Determinants of Poverty among Agricultural Producers in Brazil.]

Moreira, A.R.B., S.M. Helfand, and A.M.R. Figueiredo. 2007a "Explicando as Diferenças na Produtividade Agrícola no Brasil." [Explaining Differences in Agricultural Productivity in Brazil.] Rio de Janeiro, IPEA, Texto para Discussão 1254.

Rezende, G.C. de and A.C. Kreter. 2007. "Legislação Trabalhista Agrícola e Pobreza no Brasil: Uma Abordagem de Custos de Transação." [Labor Legislation and Poverty in Brazil: A Transactions Cost Approach.]

Rezende, G.C. de, and P.S.B. Tafner. 2006. "Legislação Trabalhista e Sazonalidade na Agricultura." [Labor Legislation and Seasonality in Agriculture.] In *Brasil-O Estado de uma Nação-Mercado de Trabalho, Emprego e Informalidade*, pp. 240-42. IPEA.

Rezende, G.C. de, and P.S.B. Tafner. 2006. "Política Agrária: Modernização sem Exclusão." [Agrarian Policy: Modernization without Exclusion.] *Cadernos Adenauer* VII (3): 85-104.

Rezende, G.C. de. 2006a. "Políticas Trabalhista, Fundiária e de Crédito Agrícola no Brasil: Uma Avaliação Crítica." [Labor, Land and Agricultural Credit Policies in Brazil: A Critical Evaluation.] *Revista de Economia e Sociologia Rural*, 44/1, January/March: 47-78.

Rezende, G.C. de. 2006b. "Políticas Trabalhista, Fundiária e de Crédito Agrícola e Pobreza no Brasil." [Labor, Land, Agricultural Credit Policies and Poverty in Brazil.] In *XLIV Congresso da Sociedade Brasileira de Economia e Sociologia Rural.* Fortaleza (CE). Anais do XLIV Congresso da Sociedade Brasileira de Economia e Sociologia Rural.

Rezende, G.C. de. 2006c. "Políticas Trabalhista, Fundiária e de Crédito Agrícola e seus Efeitos Adversos sobre a Pobreza no Brasil." [Labor, Land and Agricultural Credit Policies and their Adverse Impacts on Poverty in Brazil.] Rio de Janeiro, IPEA, Texto para Discussão 1180.

Schmidt, A.M., A.R.B. Moreira, T.C.O. Fonseca and S.M. Helfand. 2006. "Spatial Stochastic Frontier Models: Accounting for Unobserved Local Determinants of Inefficiency." IPEA, Texto para Discussão 1220, October 2006.

Souza, A.P. 2007a. "The Impact of Conditional Cash Transfer Programs on Human Capital Formation in Rural Brazil: A Structural Approach." EESP/FGV.

Souza, A.P. 2007b. "The Impact of Conditional Cash Transfer Programs on Human Capital Formation in Rural Brazil: An Instrumental Variable Approach."

Sparovek, G. 2007. Reforma Agrária Negociada." [Negotiated Land Reform.]

Vicente, J.R. 2007. "Disponibilidade de Serviços Públicos e Pobreza na Zona Rural do Brasil." Availability of Public Service and Poverty in Rural Brazil.]

FINDINGS

A. Mapping and explaining changes in rural poverty

1. Income-based measures of rural poverty

In Brazil, rural poverty has been declining steadily for the past 15 years. According to the Demographic Censuses, the rural poverty headcount ratio fell by 16% between 1991 and 2000 (see table 1). According to the annual National Household Surveys (PNAD), rural poverty fell by another 13% between 2001 and 2005. Nearly all sources of income have been growing. Also, after rising throughout most of the 1990s, inequality began to fall and has contributed to poverty reduction.

Something has been working in Brazil, and our research attempts to better understand better what that is.

Regional heterogeneity in poverty reduction was substantial. Annual data confirms that the North-South divide continued to grow between 2001 and 2005. Rural poverty is increasingly a problem of the North and Northeast regions of the country. These two regions had 66% of the rural poor in 1991. This share rose to 73% in the year 2000, with 14% in the North and 59% in the Northeast. In the year 2000, rural income per capita in the South was double that of the North, and triple that of the Northeast.

The most important sources of income growth at the national level were social security and non-agricultural incomes. These two sources accounted for 48% and 38% (or a combined 86%) of rural income growth in this period. It would appear that agriculture contributed little to poverty reduction.

However, the sub-national picture is quite different. Each region had a different composition of dynamic sources of income. In the South, for example, where income grew the most, agriculture, non-agriculture, and social security each contributed about a third to income growth. In the Center-West, agricultural and non-agricultural earned income were the two most dynamic sources. In the Southeast, agriculture contributed almost nothing to income growth. In the Northeast, where income grew by only a tenth of what it did in the South, growth in social security transfers was by far the most important source of income growth. Thus, although social security transfers are not targeted at the rural poor, there is no doubt that they played an important role in contributing to poverty reduction in the 1990s.

Inequality in the rural distribution of income grew in the 1990s. According to the Demographic Census, the Gini rose by 4 percentage points. The

Table 1. Descriptive statistics: Brazil and macro regions rural only, 1991 and 2000

Region	Income Per Capita			Inequality			Poverty (1/2 MW pc)			Extreme Pov. (1/4 MW pc)		
	1991	2000	% ch	1991	2000	% ch	1991	2000	% ch	1991	2000	% ch
	(R$ of 1/2002)			(Gini)			(Headcount)			(Headcount)		
Brazil	90	119	32	0.58	0.62	7	0.72	0.61	-16	0.45	0.36	-19
North	98	95	-3	0.57	0.63	11	0.69	0.70	1	0.40	0.44	10
Northeast	57	64	13	0.53	0.57	8	0.85	0.77	-10	0.60	0.51	-14
Southeast	120	177	47	0.57	0.58	2	0.61	0.42	-30	0.32	0.19	-40
South	127	201	57	0.55	0.55	0	0.56	0.35	-37	0.28	0.15	-47
Center-West	136	200	48	0.58	0.63	10	0.57	0.43	-25	0.27	0.19	-29

reasons for rising inequality were a combination of regional divergence in income growth, changes in sources of income and the distribution of those sources. The two poorest regions of the country—the North and Northeast—experienced the slowest income growth in this period. The most important factor that explained rising rural income inequality was the rising inequality in the distribution of agricultural income. Thus, where agricultural income grew, it did so in a disequalizing fashion.

Rural income inequality has been falling since around 1998. We did not analyze this in detail, but it no doubt contributed to poverty reduction in the new millennium. We suspect that the maxi-devaluation of 1999 contributed to a pattern of income growth that was more equalizing. Also, the expansion of conditional cash transfer programs targeted at the poor has contributed to a reduction in rural income inequality.

2. Income- vs. consumption-based measures of rural poverty

Figueiredo and Levine (2006) laid out the case for a set of decisions about how best to use available data to make the most reliable possible estimates of consumption-based welfare. More specifically, we dealt with the mismeasurement of food consumption in the Household Budget Survey (POF) 2002/03 data. We propose a new method for imputing food expenditures for households for which the information on consumption is most likely to present errors. In addition, we estimated a flow of services from the durables in the inventory data in POF.

The consumption measure resulting from the inclusion of imputed food consumption and the flow of services for durables showed important differences in terms of poverty profiles and inequality for macro regions of rural Brazil. In the South and Center-West regions, for example, the poverty headcount based on our preferred measure of consumption was, respectively, 5 and 7 percentage points lower than the headcount that did not address the problems of food and durables (see table 2).

Additionally, we have compared the changes—in welfare, poverty, and inequality at the national and macro regional levels—that result from using a consumption expenditure measure rather than a monetary income measure of welfare similar to what is commonly used based on PNAD. In contrast to the results of a 2006 World Bank report, we found that poverty measured with consumption, rather than income, is 15 percentage points lower in rural Brazil as a whole. Similar effects occur in each macro region (see table 3).

The differences between the two analyses are largely due to differences in the definition of the income measure. Most importantly, we exclude non-monetary sources of income from the income measure. The reason is that a primary motivation of our study is to look at the effects on estimated welfare of using a consumption measure that captures non-monetary sources, rather than the

Table 2. Effects of alternate estimation approaches to measure consumption, poverty and inequality

		Baseline	Food			Durables		Preferred Setting
			Only zeros	*Strict cutoffs*	*Gradual cutoffs*	*Inclusion*	*Flow of service*	
Mean per capita	**Brazil**	**156.44**	**157.37**	**159.62**	**160.20**	**160.83**	**162.46**	**166.22**
(R$ in Jan 2003)	North	133.33	133.93	132.60	132.12	136.46	136.13	134.92
	Northeast	110.48	111.06	112.01	111.72	113.34	113.74	114.98
	Southeast	201.91	203.14	205.45	206.22	208.17	210.90	215.22
	South	231.37	232.58	238.95	242.16	237.97	243.19	253.98
	Center-West	217.91	220.86	231.27	233.71	224.81	227.12	242.92
Gini	Brazil	**0.440**	**0.437**	**0.437**	**0.439**	**0.439**	**0.440**	**0.440**
	North	0.405	0.404	0.411	0.412	0.405	0.405	0.413
	Northeast	0.404	0.401	0.399	0.401	0.403	0.403	0.401
	Southeast	0.425	0.421	0.418	0.419	0.421	0.423	0.418
	South	0.375	0.371	0.368	0.367	0.372	0.372	0.365
	Center-West	0.456	0.447	0.437	0.438	0.452	0.452	0.436
Headcount ratio	Brazil	**0.439**	**0.433**	**0.428**	**0.430**	**0.422**	**0.419**	**0.412**
	North	0.493	0.487	0.500	0.505	0.474	0.478	0.493
	Northeast	0.585	0.583	0.582	0.588	0.569	0.569	0.571
	Southeast	0.295	0.288	0.277	0.275	0.278	0.272	0.255
	South	0.198	0.185	0.175	0.169	0.178	0.171	0.145
	Center-West	0.297	0.281	0.241	0.237	0.285	0.271	0.221

Source: Authors' calculations based on micro data from POF 2002/03

Table 3. Welfare statistics for rural Brazil by macroregions using income and consumption

	Income (R$ Jan 2003)			Consumption*			Consumption - Income		
	Mean	Gini	Headcount	Mean	Gini	Headcount	% Dif	Dif	Dif
Brazil	**147.10**	**0.577**	**0.561**	**166.22**	**0.440**	**0.412**	**13.00**	**-0.137**	**-0.149**
North	131.51	0.621	0.651	134.92	0.413	0.493	2.59	-0.209	-0.158
Northeast	86.63	0.522	0.725	114.98	0.401	0.571	32.73	-0.121	-0.155
Southeast	216.03	0.551	0.371	215.22	0.418	0.255	-0.38	-0.133	-0.115
South	221.63	0.492	0.312	253.98	0.365	0.145	14.60	-0.127	-0.167
Center-West	224.12	0.583	0.391	242.92	0.436	0.221	8.39	-0.147	-0.170

Source: Authors' calculations based on micro data from POF 2002/03

* Preferred scenario

usual PNAD data that solely capture monetary income.

Furthermore, we classified rural households working in agriculture by employment position and occupation. We observed that poverty reductions are similar for employees, subsistence workers, and the self-employed taken as whole groups. However, we found substantially greater effects for the poorest two quartiles of self-employed households (see table 4). For these two quartiles, consumption was two to three times larger than income, and poverty was 23 and 55 percentage points lower.

Thus, one of the most important conclusions of this study is that not only does monetary income overestimate poverty, but the mismeasurement of welfare—when monetary income is used in stead of consumption—is greatest for the poor.

3. Small area estimation of municipality-level consumption-based rural poverty

Levine (2007) produced a municipality-level database of consumption-based poverty and inequality measures that will be useful in subsequent research to analyze the determinants of poverty reduction. This is a significant advance over the dominant, income-based approach, primarily because of the severe problem of unmeasured subsistence income in rural Brazil. Comparison of these consumption-based measures with income-based measures revealed that the income-based measures are a poor proxy for the consumption-based measures, particularly when studying changes in rural poverty.

The findings suggest caution in using income-based measures of welfare as a proxy for consumption based measures.

The study found that average monetary income is higher than average consumption in regions (Southeast and Center-West) where agriculture is commercialized and monetary incomes are relatively high; average monetary income is lower than average consumption in regions where monetary income is lower (North and Northeast), and where small family farms play a large role in production (South, North and Northeast).

Income-based inequality is consistently much higher than consumption-based inequality. Those at the top end of the income distribution save (rather

Table 4. Welfare statistics for rural Brazil by position in occupation using income and consumption

Sub-groups			Income		Consumption*		Difference	
			Mean	Headcount	Mean	Headcount	Mean (%)	Headcount
Agriculture			132.46	0.626	152.30	0.458	14.98	-0.168
Non-Agriculture			188.14	0.446	200.43	0.300	6.53	-0.145
Nobody employed			152.60	0.429	209.34	0.331	37.18	-0.098
Other [1]			141.37	0.414	156.43	0.408	10.65	-0.006
Agriculture	**Employee**		94.08	0.697	126.64	0.527	34.60	-0.170
	Employer		533.30	0.234	337.67	0.173	-36.68	-0.061
	Subsistence		82.63	0.713	123.40	0.551	49.34	-0.163
	Self-employed		143.47	0.590	163.48	0.413	13.95	-0.177
	Self-employed	**1st quartile**	23.46	1.000	79.04	0.769	236.86	-0.231
		2nd quartile	64.18	1.000	125.31	0.445	95.27	-0.555
		3rd quartile	137.95	0.036	196.55	0.174	42.47	0.138
		4th quartile	471.80	0.000	323.66	0.057	-31.40	0.057

Source: Authors' calculations based on micro data from POF 2002/03

[1] This group comprises the households where someone other than the head is employed

* Preferred scenario

than consume) a larger portion of income, so that the rise in consumption over the distribution is not as steep as the rise in income. Those at the bottom end of the income distribution have proportionately more non-monetary consumption (and income) than those at the top.

Monetary-income-based poverty is a poor proxy for consumption-based poverty, and an even poorer proxy when the lower, extreme poverty line is used. Consumption-based rural poverty is substantially lower than income-based rural poverty across macro regions and in the majority of municipalities within a given macro region. Even bigger relative divergences are seen when we consider extreme poverty, reflecting the fact that families lower on the monetary income distribution are more likely to produce partially or fully for their own consumption.

The correlation between income-based and consumption-based rural poverty across municipalities is not generally strong, and weakest in the same regions (Northeast, North and South) where average consumption exceeds average income in 2000. Divergences between growth in average rural income and consumption are generally even greater than divergences among levels. In the two regions with extremely poor income growth performance from 1991-2000 (North and Northeast), consumption growth was substantially higher than income growth. In the remaining regions, consumption growth was substantially lower than income growth.

Growth in rural consumption inequality is consistently lower than growth in rural income inequality in every region but the South, where inequality remained constant by either measure.

The correlation between municipality-level change in income-based and consumption-based poverty was extremely low across macro regions, and generally much lower than the correlation among levels.

B. Farm size, agricultural productivity, and poverty

Moreira, Helfand, and Figueiredo (2007a) analyze productivity in rural areas of the five macro regions of Brazil, and disaggregate the analysis by family(F)/non-family(NF) (defined as hiring labor or not), and intensive(I)/non-intensive(NI) (defined as the lower and upper halves of the distribution of purchased current inputs per hectare). Thus, by interacting F and I, in each region we have four types: FI, FNI, NFI, and NFNI.

The international literature on the relationship between farm size and productivity has almost unanimously concluded that there is an inverse relationship. This literature, however, has almost exclusively used land productivity as its measure of performance. We find important differences between land and total factor productivity (TFP), suggesting that the commonly accepted stylized facts need to be qualified. Consistent with the international literature, we find that the relationship between size and land productivity is inverse in all five macro regions. The relationship between size and total factor productivity (TFP), however, is only inverse in 3 of the 5 regions, and for some types of producers in the other regions.

The inverse relationship is always associated with less intensive producers. With intensive producers in the three more developed regions (Southeast, South, Center-West), there is a direct relationship between size and productivity. This conclusion supports the authors' argument that imperfections in input markets that tend to lower the use of purchased inputs contribute to the inverse relationship. As the level of technology rises, and market imperfections fall (in part due to increased supply of public goods and services), the inverse relationship is likely to disappear.

Based on land productivity, the international literature also agrees that family farms are more productive that non-family farms. Again, we see a need to qualify this view. Family farms (i.e., those farms that don't hire labor) have higher land productivity in 7 of 10 cases, with a productivity advantage around 20%. When TFP is measured, family farms have lower productivity in 8 of 10 cases, with an average difference of -26%.

The intensive producers are always more productive than the non-intensive farms, with an average difference of 100% in land productivity and 40% in TFP.

Without a doubt, the most important factor that explains the difference in land productivity across types are differences in the levels of inputs that enter the production function. Differences in size, access to public goods and institutions, climate and soils, are all relevant but of a much smaller magnitude.

The supply of public goods, and access to institutions that provide credit and technical assistance, are important factors for increasing TFP in all regions. These factors have direct relevance for public policy.

Moreira, Helfand, and Figueiredo (2007b) first describe the relationship between farm size, TFP, and poverty. Then they use a non-parametric approach to explain differences in poverty rates among types of producers (those in different regions, family vs. non-family, intensive vs. non-intensive, etc.).

The paper studies poverty among agricultural producers based on data from the 1995/96 Agricultural Census. Poverty is defined in terms of income from agriculture alone (thereby excluding non-agricultural income and government transfers). Although the paper focuses on agricultural producers only, and uses a narrow definition of income, we show that there is a high correlation across municipalities between this measure of poverty and an income based measure calculated from the 2000 Demographic Census. The correlation across municipalities in poverty measured with both approaches is 0.80. In addition, both approaches rank the Northeast and North respectively as the two regions with the most poverty, and both approaches rank the South as the region with the least poverty.

Neither land nor productivity is likely to solve the problem of poverty on its own. In the Northeast, where over half of Brazil's rural poor live, around two thirds of the establishments have fewer than 10 hectares. At the level of productivity observed for farms in the 5th decile of productivity, an increase of farm size from 5-10 hectares to 20-50 hectares would not reduce the incidence of poverty—calculated solely with agricultural income—below 70%. Similarly, even if all farms with 5-10 hectares could be as productive as those in the 9th decile of productivity, 60% would still be classified as poor. However, for farms with 20-50 hectare and in the 9th decile of productivity, poverty was under 25%. Thus, there is little doubt that more land and higher levels of productivity must go hand in hand if agriculture is going to contribute to reducing rural poverty in the Northeast.

In the South, the situation is much more promising. Based on agricultural income alone, about 65% of the farms that had 5-10 hectares and in were in the 5th decile of productivity were poor. Poverty could be reduced to under 15% either by increasing farm size to 20-50 hectares or by increasing productivity to the 9th decile. If both were done simultaneously, poverty for these farms would be close to zero. Thus, in the South of Brazil, with more land and higher levels of productivity, agriculture alone could eliminate poverty for most family farmers.

We also addressed the question of why agricultural producers are poorer in some regions than in others. Analysis revealed the following.

- Differences across regions in the size of poor producers is a key factor.
- Differences across regions in the profitability of producers was only important when the Northeast and South were involved (profitability in the Northeast was significantly lower than in the other regions; profitability in the South was considerably higher).
- Increases in family labor (and thus family size) contributed to poverty rates, but not by a significant amount in most cases.

This result, which was confirmed in other simulations within each region, suggests that "surplus labor," which drives the marginal productivity of labor down towards zero, is not one of the most important explanations for the high levels of poverty in agriculture in the North and Northeast of Brazil.

Within each macro region, we explored reasons for differences in poverty rates between types of producers: poor/non-poor, family/non-family, intensive/non-intensive, tractor/no tractor, and owner/non-owner. With the exception of the dichotomy owner/non-owner, all other pairs exhibited important differences in poverty rates. In all cases

- farm size was one of the most important factors that explained differences in poverty rates
- differences in profitability were also important, except in the cases family/non-family and owner/non-owner
- demographic differences across groups mattered little
- the supply of public goods, and differences in municipal level characteristics of soil and weather, all only had small impacts on differences in poverty rates.

C. Non-agricultural sources of income

Souza (2007) looked at conditional cash transfer programs in rural areas of Brazil. The paper finds that participation in social programs increases the probability of school participation and has some effect on school progression. It does not have an effect on the incidence of child labor.

In 2003, around 7.5 million children participated in a social program conditioned on education. This represented around 10% of all children aged six to fifteen, or 31.6% of poor children aged six to fifteen. The Northeast was the region with the most participants. In rural areas, approximately two-thirds of the beneficiaries were in the Northeast. Of all rural children six to fifteen years old, 19% were covered by these programs, while in urban areas this was 8%. The programs were fairly well targeted to the poor. Targeting the extreme poor appears to have been more successful in rural areas than in urban areas.

Being a recipient of the program is associated with more school attendance, higher school delay and greater child labor, particularly in rural areas. The data suggest a participation selection process where those who are poorer, those more likely to work as a child, and those who are delayed in school are more likely to participate in the program.

Unobservable characteristics are very likely to be positively correlated with siblings characteristics, family's characteristics (e.g., parent's education), and with program participation itself. It might be that those participating in the program are ones with higher tastes for education. It may be that those participating in the program are ones selected by some characteristics known by the policymaker (e.g., poverty conditions beyond income). Below, we focus on the results from families with exactly two siblings, as this had the largest sample size and thus the most robust results.

The findings suggest that the program raises the probability of a child in a two-child family attending school by 10 percentage points in rural areas, and by 0.5 percentage points in urban areas. The results for school delay are negative and significant. The results imply that the program reduces the delay by 0.4 years among rural children and by 0.115 years among urban children. Finally, there is no impact of program participation on child labor incidence. Thus, both in terms of school participation and school delay, the conditional cash transfer programs appear to have a larger impact in rural than urban areas.

Assunção and Feres (2007) investigated the impact of the social security benefits on poverty and key household decisions in rural Brazil. The study considered the impact of the reform on poverty and indigence, as well as the labor supply responses from the elderly, other adult members, and children, both in terms of labor participation and occupational choices. The study also investigated school achievement.

The source of econometric identification is the social security reform implemented in 1991, which reduced the minimum age for eligibility, dropped the restrictions on the number of recipients per household, and increased the benefits. As a result, the percentage of household receiving any sort of social security benefits increased from 14.3% in 1989 to 22.9% in 1995.

There is evidence that the retirement pension benefits are an important source of income for rural elderly. The increase in the percentage of households with benefits was accompanied by an increase in the average per capita income of eligible households. Between 1990 and 1995, the average eligible household per capita income increases from R$85.34 to 122.08, while the average non-eligible household per capita income increases less then R$4.00 during the same period (see figure 1, next page). This seems to be an effect of the new rules of social security system implemented in 1991.

Results show that the social security reform had a substantial effect on poverty and indigence. There was a reduction ranging from 10.8 to 14.7 percentage points in poverty for the years of 1992 to 1995 when compared to the baseline 1989. Considering the pre-reform poverty level, this result implies a reduction of more than 30% in the poverty level. Although there is a statistically significant effect on indigence it is much lower than the effect on poverty, ranging from 2.7 to 5.8 percentage points.

Results also show a significant income effect on the intrahousehold decisions for the labor supply of elderly. There is a clear reduction in labor participation and intensity of work, accomplished by a shift from paid to unpaid activities. There is a substantial increase of 2.6 percentage points

representing a 60% expansion in the proportion of unpaid workers. In principle, the reform might affect the labor supply of other adults within the recipient household. However, results suggest no significant effect on the labor supply and occupational choice of other adults. There is no robust effect of the social security reform on child labor or education.

The effect of the social security reform seems to be restricted to poverty, and labor supply of the rural elderly. Other adults members and children were not affected in terms of labor supply and education.

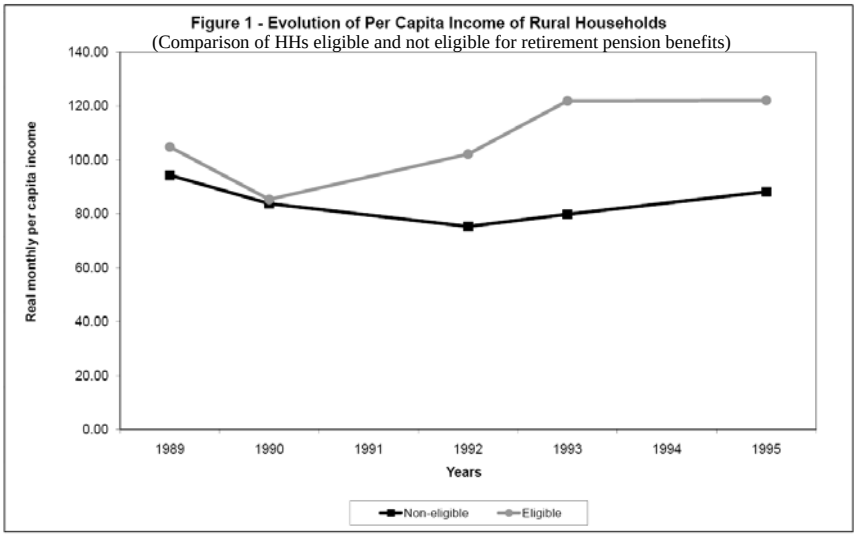
Jonasson and Helfand (2007) show results on the geographical distribution of non-agricultural employment and poverty, raising serious questions about the extent to which non-agricultural employment can provide an exit path for rural households in all locations.

Proximity to large urban centers is a key in explaining the importance of non-agricultural employment. Eighty-six percent of the rural population live in isolated rural areas, 11% live in isolated towns located in rural areas, and 3% live in towns that are formally in rural areas but in practice are part of urban extensions. The headcount poverty ratio is highest in isolated rural areas (62% poor), and lowest in the rural areas that are urban extensions (42%). Isolated rural towns have poverty rates slightly lower than the isolated rural areas (58%). The depth of poverty follows a similar pattern.

Eighty-nine percent of the people employed in the rural areas that are urban extensions are employed in non-agricultural jobs (principal occupations). Thus, these areas are still formally rural but are essentially urban and non-agricultural. Fifty-one percent of the people employed in rural towns have non-agricultural jobs, yet only 24% of the people in the isolated rural areas can be classified in this way. Thus, where 86% of the rural population lives (i.e., isolated rural areas), the opportunities for non-ag employment are considerably smaller. Rural areas of municipalities that are outside of the sphere of influence of state capital cities have an even lower share of people working in non-agricultural employment (23% for all of Brazil.)

In an attempt to assess to what extent rural non-agricultural employment constitutes a potential pathway out of poverty for rural people, we analyzed what determines participation in the rural non-agricultural (RNA) sector and what determines the earnings potential of people in this sector.

Employment opportunities in the RNA sectors depend on both supply-side factors (individual and household-specific characteristics) and demand-side factors (the local economic geography). Keeping the local economic conditions constant, people with higher education have a higher probability of engaging in non-agricultural activities. Education is the key determinant that separates people who are engaged in high-productivity RNA employment from those who are engaged in low-productivity activities.



On the other hand, keeping individual characteristics constant, the local economic conditions fundamentally influence the non-agricultural employment opportunities. First, aggregate local demand (estimated by distance-weighted population size) matters: the larger the local population, the higher the probability of RNA employment. Second, market access and transactions costs matter: the more urbanized the municipality and the higher the level of rural infrastructural development, the more people are engaged in non-agricultural activities. Third, as a

consequence of the above, distance to large population centers matters.

Even though earnings, on average, are higher in non-agricultural sectors than in agriculture, the earnings potential in these sectors, just as the employment opportunities, are contingent on both supply and demand-side factors. Education is the single most important individual earnings determinant, and without education the income prospects for the rural workers are unlikely to be any better in the RNA sector than in agriculture. The separation of RNA employment into low- and high-productivity activities shows that approximately half of the non-agricultural labor force have jobs that offer no higher income than the local agricultural wage rate.

In sum, RNA employment is unlikely to be the appropriate pathway out of poverty for the majority of the rural poor, given that opportunities are lowest in locations where poverty is highest, and given that access to well-remunerated non-agricultural jobs depends on human capital assets that the poor are most likely to lack. In the larger context, however, it is evident that the RNA sector is viable and important, given that there exists a certain level of aggregate local demand combined with a certain level of local infrastructure.

D. Land, credit, and labor market reforms

Buainain et al. (2007) looked at land rental markets as a potential form of access to land in Brazil. Given that rental markets permit potential gains to both parties in a land rental contract, the study examined the paradox that there is idle land that could be rented, while there is also a large contingent of landless or smallfarmers who potentially are willing to rent that land. What imperfections in the land market could explain this situation in which landowners and landless both appear to lose?

The institutional framework in place, as expressed in the legislation, property rights and contracts, interferes in the development of a land rental market, particularly when contracting between landowners and poorer producers, with or without land involved. Land rental contracts, albeit regulated by the land laws in such a way as to satisfy the interests of both parties, seem to be more an obstacle than a solution. Moreover, the few field surveys performed on the subject suggest that the law is not enforced most of the time. Contracts are usually of short duration and drawn up in terms that meet the interests of landowners, rarely taking into account the tenant's interest in security of tenure.

Smallfarmers producing on leased land have no incentives—let alone the conditions—to effect the investment required to raise productivity and reduce risks. They face restrictions on access to credit and markets in general, and they tend to consider tenancy a highly transitory situation rather than a solution to lack of land access. In such conditions and for the reasons mentioned above (limited access to markets, little capital, lack of qualifications and experience, etc.), small tenant farmers are almost condemned to perform poorly in terms of producing a marketable surplus and obtaining sufficient income to pay the rent for the land they use.

An analysis of the experience of municipal land rental programs in Brazil shows that the proposed aims—occupation of underutilized and/or idle land, regeneration of degraded pasture, reduction of land conflicts, etc.—have not been achieved at all or have met with only limited success in most of the cases studied. Even in cases considered successful, programs have not proved sustainable, falling into decadence or disappearing without a trace after a few years. One of the reasons for failure is that in the final analysis the programs neither interested landowners nor provided conditions for small tenant farmers to operate profitably on leased land.

To function dynamically and involve small producers, the land rental market in Brazil does not depend only on the availability of underutilized or idle land, along with rural workers who lack land of their own on which to produce. Above all it requires an institutional framework capable of assuring the viability of tenancy contracts and making them attractive. The outlook does not seem promising.

A key issue is security of property rights. On the one hand, leasing land to small producers or landless laborers is still seen as a way of exploiting the weak and poor, as evidence of absenteeism, and as proof that the land in question is not being put to productive use by the owner. Under such conditions landowners are reluctant to enter into rental contracts because this would place their property at risk of being confiscated by the government and/or

being occupied by social movements. On the other hand, the peasant leagues and associations that represent landless workers and small producers do not seem to accept tenancy as a solution for the lack of access to land. Until ways are found to solve the problem of land tenure insecurity and win the acceptance of the beneficiaries themselves, small-scale farming on leased land is unlikely to flourish as a facilitator of access to land even though from the theoretical standpoint land rental could be an attractive option that could contribute to a solution to the land problem in Brazil.

Sparovek (2007) looked at negotiated (or "market assisted") land reform in Brazil. The paper briefly reviews World Bank land policies and the experience of countries such as Colombia and South Africa with negotiated land reform programs. It then provides an exhaustive review of studies on the Brazilian case.

The paper traced the roots of the program in Brazil to the São Jose project in the state of Ceará in 1997, where 23,000 hectares of land were purchased, and 700 families were involved. Initial results were promising, and the program was expanded to other states in the Northeast of Brazil under the name Land Reform and Poverty Alleviation Pilot Project, or Cédula da Terra.

Between 1997 and 2002, the project financed land purchases of nearly 400,000 hectares for approximately 15,000 families. A Land Bank was created by law in 1998, which was significant because it was no longer a pilot project, but it also did not include the poverty alleviation component of the Cédula da Terra. The program that was created to replace Cédula da Terra was called Crédito Fundiário de Combate à Pobreza Rural (CF-CPR), or Land Credit for Combating Rural Poverty. An extremely important development related to this program was that the national confederation of unions that represent rural workers, broke ranks with other social movements that were opposed to negotiated land reform and decided to support and participate in CF. This provided needed legitimacy for the program.

In 2003 the Ministry of Agrarian Development expanded the program, now called National Program of Land Credit (PNCF) and combined it with several other land programs. From 1997 to the present, around 80,000 families participated in negotiated land reform programs in Brazil. This makes Brazil the country to have experimented the most with this type of program.

Sparovek led a team of researchers that gathered data to evaluate 174 of the 226 CF projects that existed in 2003. In a subsequent study in 2005, the researchers revisited a sub-sample of the 174 projects surveyed in 2003. The findings follow.

- There was adequate targeting. The selection of beneficiaries conforms to the rules of the program and, among eligible families, there was a tendency to include the poorest of the poor.
- Illiterate families have less than proportionate access to the program, even though the illiterate families that did participate in the program performed as well as other families.
- Income increased significantly. The income of these families was lower than the average income of the universe of eligible agricultural producers and workers in 2003 (as measured with the PNAD household survey), but higher than this group in 2005.
- The increase in income was due to many factors: access to land that facilitated production, better insertion in the wage labor market (which might have been due to the increased stability of the families), increased non-agricultural sources of income, and increased income from government transfers (including social security and anti-poverty programs).

Comparing 2003 and 2005 the researchers found that the share of beneficiary families that lived exclusively on the project rose from 8% to 66%, average annual family income increased from R$1,656 to R$4,064, and families with agricultural production rose from 37% to 82%. In sum, the evaluation of the CF in its initial years is positive in terms of targeting and results.

As in many countries in the world, there is a fierce ideological debate in Brazil between proponents of negotiated (or market assisted) land reform and those of traditional (or state led) land reform. It is quite plausible that the models have more in common than the proponents would like to admit, and that both models have succeeded in changing many beneficiaries' lives. In both cases, the beneficiaries are able to keep their families united, provide for their own subsistence in a dignified way with their own labor, and invest in improving their

land and in educating their children beyond the level of education that the parents have.

The PNCF program no longer depends on external (World Bank) resources, has involved many different actors (federal and state governments, technical assistance agencies, NGOs), and has gained a certain amount of legitimacy due to the support that at least some organizations have provided (most notably from the national confederation of agricultural workers). Due to the dimensions and diversity of rural poverty in Brazil, negotiated land reform can necessarily only provide a partial solution. Nevertheless, it could have a significant impact on rural poverty in the Northeast of Brazil and in many local communities.

Rezende (2006) explored the question of the concentrated pattern of agricultural development in Brazil, as expressed in the predominance of large-scale production, high level of mechanization and low absorption of non-qualified labor. The paper assigns the major responsibility for this problem to the agricultural labor, land, and credit policies instituted since the 1960s. These policies undermined the agricultural temporary labor market and reduced the competitiveness of the family farm. At the same time, they stimulated agricultural mechanization and the predominance of large-scale production. The paper suggests that a more equitable pattern of agricultural growth would require de-regulation of agricultural labor and land markets, as well as a substantial reduction in the subsidy to agricultural credit.

E. Migration and rural poverty

While migration out of rural areas is likely to improve the lives of the migrant's children, is it a pathway out of poverty for migrants in the short run? Golgher (2006a, 2006b, 2006c, 2006d, 2006e) concludes that migration out of rural areas does appear to be a successful strategy for increasing income in the short run.

Migration from and to rural areas may have an impact on income and poverty levels for these individuals. The human capital model of migration was one of the theoretical foundations of the paper. This model assumes a rational individual migrates if the expected net return of migration is positive, and if so, he/she maximizes his/her utility among the possible destinies. It is believed that the costs of migration are an increasing function of the distance between the origin and the destiny of the migrant. Other factors also influence the costs of migration, and, among them, the presence of effective social nets may diminish decisively these costs. However, as migration requires monetary and other types of costs, the individual must hold a minimum amount of capital to have migration as an option. Poor people, especially the chronically poor or destitute, may not have this option.

Migrants are not a random sample of the population. The increase in earnings that is attributed to migration without taking into account the self-selection of individuals may present problems of bias. Migrants may present the same observable characteristics of non-migrants but might have some non-observable features that distinguish them from those who do not migrate. After using various techniques to overcome these selectivity bias difficulties, the paper finds that migration does impact positively on wages, especially for non-skilled workers. This suggests that migration does have a positive impact on poverty for those who leave rural areas.

F. Policy outreach

The project's efforts to improve the quality of data in Brazil will have high payoffs for researchers in the future and, ultimately, better policies designed as a result of better data.

The project's final conference was held in Brasilia, 16-17 April 2007. Opening panel participants included the Minister of Agrarian Development, the Executive Secretary of the Ministry of Social Development, the President of the Applied Economics Research, and the Latin American regional director of FAO and former Minister in the Lula government. The program included participants from three Ministries (Agrarian Development, Social Development, and Agriculture), the Brazilian Institute of Geography and Statistics, the Brazilian Agricultural Research Company, FAO, the UN Economic Commission for Latin America, the World Bank, eleven Brazilian universities, two American universities, and one Swedish university.

In total, 140 people participated in the conference. A CD, available upon request, was produced that contains the papers presented at the conference.

CREDIT-REPORTING BUREAUS AND THE DEEPENING OF FINANCIAL SERVICES FOR THE RURAL POOR IN LATIN AMERICA

Field research in San Cristobal, Guatemala.
(*Photo by Karina Vargas Rebatta*)

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http://www.basis.wisc.edu/basis_crsp/credit.html

PROJECT PROFILE

The past decades have seen tremendous growth in the microfinance sector of developing countries. As the number of microfinance institutions has increased, it has become easier for credit clients to default on a lender and move onto another lender without fear of a formal record following them. To reduce such opportunistic behavior, microfinance institutions (MFIs) in some countries have developed credit-reporting bureaus.

Since these bureaus are likely to become more common in developing countries, BASIS CRSP investigated the efficiency of credit-reporting policies. The project collaborated with Genesis Empresarial, the largest microfinance lender in Guatemala. The project helps in understanding how credit bureau information is used by credit agents and how it affects client behavior. The project also helps in understanding the efficiency and welfare gains (and losses) from the introduction of a credit bureau into microfinance lending.

The project has yielded findings in several key areas. **BASIS Brief 45** showed that credit bureaus help to substantially improve the performance of loans while also creating a large *initial* shift away from lending to the poor and toward wealthier clients. Credit bureaus also helped decrease arrears at MFIs. There was evidence that after the initial shift away from the poor, MFIs moved back toward lending to the poor over time. In fact, credit bureaus seemed to allow MFIs to select better clients from among the poor.

The project also examined the supply and demand side effect of credit bureau. Analysis of the use of the credit bureau by Genesis and subsequently of the informing the clients about the credit bureau indicate that credit bureaus generate large efficiency gains for the lender, that these gains are augmented when borrowers understand the rules of the game, and that economic mobility both upwards and downwards is likely to increase.

Finally, we developed a theoretical model that illustrates three separate effects of a credit bureau. The first is an adverse selection effect, whereby lenders are able to eject the riskiest clients from the portfolio. The second is a moral hazard effect, whereby borrowers rein in multiple borrowing when they realize that a bureau is in place. The third is a loan expansion effect, whereby those that continue to receive loans after the bureau is in place will receive substantially larger loans.

We show that this third effect, loan expansion, undermines but cannot overwhelm, the beneficial impacts of the reduction in asymmetric information on default in the lender. We confirm these results using information from a unique pair of experiments, and using the use of the bureau as an instrument for loan size we demonstrate the significant increase in both loan sizes and defaults for ongoing borrowers, and illustrate that the overall impact on the institution is positive.

In this final report of activities, we focus on our work identifying an efficient credit reporting bureau policy for group loans, and understanding the optimal design of credit bureaus.

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OUTPUTS

Many outputs are very recent reports, not yet published in journals or as working papers.
Please contact BASIS CRSP to inquire as to availability.

Buck, S., C. McIntosh, T. Rosada, and E. Sadoulet. 2007. “Using Experimental Games to Understand the Optimal Design of Credit Bureaus.”

de Janvry, A., C. MaIntosh, and E. Saduoulet. 2007. “The Supply and Demand Side Impacts of Credit Market Information.”

McIntosh, C., and B. Wydick. 2007. “Adverse Selection, Moral Hazard, and Credit Information Systems: Theory and Experimental Evidence.”

McIntosh, C., and B. Wydick. 2007. “A Decomposition of Adverse Selection and Moral Hazard Effects in Credit Reporting Systems.”

FINDINGS

A. Efficient credit reporting bureau policy for group loans

This study looked at how different information sharing policies within a credit bureau for MFIs affect incentives for repayment on group loans.

Recently, the credit reporting bureau called Corporación de Referencias Crediticias (CREDIREF) was established for Guatemalan MFIs to prevent loan recipients from defaulting at several different lending institutions. Since MFIs often use group lending technology, a logical question is whether an individual's credit performance should be based on their group's performance or on their individual performance in the group loan.

The convention is to report only at the group level; however, theory suggests that using group-lending technology with individual reporting may improve repayment performance. MFIs, however, are resistant to assume an individual reporting policy because they fear undermining the group lending technology.

To capture the dynamic incentives present under different information reporting schemes we designed a laboratory experiment designed to capture two effects. One is the incentive of information type on punishing poor performing group members. The second is repaying your portion of the loan.

As MFIs become more prolific in developing countries so will credit bureaus. Therefore, our investigation addresses a policy decision that the many developing countries will soon face: How should performance information on group lending loans be reported to credit bureaus?

Acquiring insight into this question may help enhance the long-term impacts of a credit bureau on client welfare and their ability to move up the credit ladder.

With the support of the Instituto de Investigaciones Economicas y Sociales and Genesis Empresarial we collected survey and experimental data on 400 microfinance clients in urban and peri-urban Guatemala. The sample of 400 microfinance clients included both group loan and individual loan clients of Genesis Empresarial.

The majority of the field efforts in the study were devoted to completing eight trials of an economic experiment designed to capture individual and group responses to different credit bureau reporting policies. Each of the eight trials included 50 microfinance clients and required an entire day to complete.

In each trial the 50 participants were randomly assigned into ten groups of five people each. The size of the groups was chosen in order to mimic the group lending technology. The 50 participants completed three different treatments, each composed of ten rounds where each round required participants to make a financial decision mimicking the incentives involved in a group loan. In other words, each round required participants to individually make a financial decision that would affect both themselves and their respective groups.

The three treatments were identical, except in one essential way. One treatment can be characterized as having no credit reporting bureau in the sense that an individual's performance in previous rounds did not factor into their eligibility to participate in subsequent rounds. The other two treatments are characterized as having a credit reporting bureau, each with a distinct information sharing scheme. In one, the participant's *past group performance* determined their eligibility to participate in subsequent rounds of play. In the other, the participant's *past individual performance* determined their eligibility to participate in subsequent rounds of play.

Therefore, individuals and groups alike were exposed to three different information reporting schemes: (a) no information sharing, (b) group information sharing, and (c) individual information sharing. The experimental design allows us to capture how group performance changed with a shift in the information reporting scheme. We were also able to observe how different reporting schemes changed the incentives within groups to eject poorly performing group members given a fixed cost of ejecting a group member. MFIs are hesitant to make a drastic policy shift in how information is reported to the credit bureau because

of concern that using individual information sharing in the credit bureau may undermine the group lending technology. Our laboratory setting allows us to evaluate how credit clients may respond to a new credit reporting bureau policy without actually implementing the new policy.

NOTE: When findings of this study are available, they will be reported on the BASIS website.

B. Understanding optimal design

Buck, et al. (2007) report the results of a set of experimental games that we played in Guatemala using clients from a microfinance lender. A multi-year study of a new credit bureau that had been introduced in the country's microfinance sector generated an interesting empirical puzzle: the bureau reported on group behavior for group loans, and individual behavior for individual loans.

Since we were unable to observe the same borrowers under two different reporting mechanisms, we were unable to disentangle the theoretical issues. While group reporting delivers a more blunt informational signal and therefore should be less effective in combating moral hazard, it also creates stronger incentives for groups to screen their members carefully, thereby inducing a more effective check against adverse selection.

In order to be able to tell each of these stories separately, we designed a new experimental game and played it over the course of eight sessions in Guatemala City and Chimaltenango. The games used group and individual borrowers of Genesis Empresarial. Individuals are asked to make anonymous contributions to a collective pot of money, which was then multiplied and divided evenly among the members of the group.

The game induces free-riding behavior, wherein individuals realize that they receive money from the pot even if they don't contribute, and so in the selfish strategic equilibrium nobody contributes anything and the pot is empty at the end of each round. Evidence from many different contexts around the world illustrates that people typically begin playing the game with a positive level of contributions, but these decline across subsequent rounds as individuals realize that others are free-riding.

We suggest that this game presents a strategic analogy to microfinance borrowing, where individuals can benefit from selfish, risky behavior whose costs must be borne by all the members of their group, thereby creating a similar free-riding problem. Successful microfinance groups must find ways of overcoming this problem. Our addition to the game was to create a mechanism under which randomly assigned group leaders were able to observe the play of fellow group members, and to eject bad members from the group. Random individuals were also pulled out of their groups, and at the end of such selection rounds, the best players were re-assigned to new groups. Group leaders were ejected in the subsequent selection round.

From this basis we created three information-sharing systems which mimic the workings of a credit bureau. Each system of rules was played for ten successive rounds. In the "no information-sharing" system, all play was entirely anonymous and the reassignation to groups was done randomly. In the "group information-sharing" system, players carried through the game a reputation that was based on how much their group had contributed. In the "individual information-sharing" system, players carried an individual reputation based on their own personal contributions.

We find that both information-sharing systems created a sharp increase in contributions relative to the no information-sharing system. While contributions with no "bureau" in place conform to results from other parts of the world (lower contributions that also decline over time), both of our treatments caused a substantial jump in contributions, and caused them to increase over time. The increase in individual-level contributions were largest when we moved from no information sharing to an individual bureau. There was slightly more ejection activity in the group reporting system and the difference between the behavior of those playing and those not playing was sharpest when group information was shared.

Overall, we find no significant difference in average contributions between the individual and group bureau, but contributions were 25% higher when information was shared than when it was not. These results have important implications for the optimal design of microfinance credit bureaus, and indicate that group reporting can achieve similar results while fortifying the group incentives that make microfinance possible.

Other BASIS CRSP Core Projects and BASIS CRSP Policy Conferences

PROFILE

Many BASIS CRSP core projects lasted several years. The previous section detailed the findings of those that closed most recently. The following core projects closed prior to this final reporting year.

- "Input Market Constraints upon the Growth of Russian Agriculture"
- "Institutional Dimensions of Water Policy Reform in Malawi"
- "Rural Markets, Natural Capital, and Dynamic Poverty Traps in East Africa"
- "Assets, Cycles, and Livelihoods in Ethiopia and Honduras"
- "Institutional Innovations to Improve Equity Sharing under Privatization and Farm Restructuring"

Their key findings are detailed in earlier annual reports. Summarized in this section are the goals of each project and listings of BASIS CRSP outputs, where findings and policy recommendations can be found in detail.

In addition to research, BASIS CRSP disseminated findings and policy recommendations through its series of policy conferences.

The 2006 conference was **"Impact Evaluation of Innovations in Rural Finance,"** held in June, in Washington, DC. The conference brought together leading researchers, key development professionals, and financial service practitioners to discuss new impact evaluation research about innovations designed to enhance microfinance and deepen rural financial markets. The goal was to devise a set of well-grounded policy and programming recommendations for governments, donors and private sector actors interested in strengthening micro and rural finance. A summary of the conference and a list of outputs is found in this section.

Also summarized are previous policy conferences:

"Promoting Agricultural Growth through Policy in Transition Economies," held 2-3 December 2005, Budapest, Hungary

"Combating Persistent Poverty in Africa: Structure, Causes and Solutions," held 15-16 November 2004, Washington, DC.

INPUT MARKET CONSTRAINTS UPON THE GROWTH OF RUSSIAN AGRICULTURE:

Land, Labor, Capital, and other Inputs under Alternative Economic Reform Policies

PROFILE

The project helped quantify the extent to which factor market constraints impair the ability of Russian agriculture to function efficiently and profitably, establish which constraints are most important in the short- and long-term, and provide the analytical knowledge needed to formulate policies to remedy constraints.

In the first two years, BASIS carried out a literature review and conducted a survey of large-scale producers, individual farms, and commercial operations. In the second year, the project carried out preliminary data analysis. The third year was spent refining the analysis, further surveying previously sampled farms for additional information on labor use and worker characteristics, developing papers for the BASIS CRSP Policy Conference "Agricultural Factor Markets in Transition Economies," held in Budapest, Hungary, December 2005.

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Outputs

BASIS Brief 41. "Rural Labor Markets in Transition: Differences in Past Trends, Current Constraints, and Future Policies," by Karen Macours. November 2005.

BASIS Brief 40. "Expanding the Market: Financial Institutions and Agricultural Lending," by Jacob Yaron. November 2005.

BASIS Brief 39. "The Purchased Agricultural Input Market in Russia," by Eugenia Serova and Olga Shick. November 2005.

BASIS Brief 38. "Farms and the Financial Market: Russian Farm Performance, Access to Credit and Government Support," by David Epshtein, Aleksandr Subbotin, and Olga Yastrebovai. November 2005.

BASIS Brief 37. "*Too Many Workers? Changes in Agricultural Employment in Russia*," by Vladimir Bogdanovskii. November 2005.

BASIS Brief 36. "Living with Constraints: Russia's Agricultural Land Market," by Natalya Shagaida. November 2005.

BASIS Brief 35. "Russia's New Agricultural Operators: Emergence, Evolution, and Impact," by Dmitri Rylko and Robert Jolly. October 2005.

BASIS Brief 34. "Adapting to a Market Economy: Changes in Russia's Farm Structure," by Vasilii Uzun. October 2005.

BASIS Brief 31. "Factor Markets in Russian Agriculture: Current Conditions and Policy Options," by Eugenia Serova and Bruce Gardner. July 2005.

BASIS Brief 7. "Constraints to Growth in Russian Agriculture," by Bruce Gardner and Eugenia Serova. January 2002.

http://www.basis.wisc.edu/basis_crsp/russia.html

INSTITUTIONAL DIMENSIONS OF WATER POLICY REFORM IN MALAWI:

Addressing Critical Water-Land Intersections in Broadening Access to Key Factors of Production

PROFILE

The project focused on irrigation reform in the context of Malawi's new land and water policies by asking the following broad questions:

- How are the new initiatives to reduce poverty identified in the irrigation policy likely to be affected by the reforms underway in the land and water sectors?
- Do these initiatives broaden disadvantaged groups' access to irrigated land or entrench already privileged interests?
- How can equitable and efficient systems of access, use, and management of irrigated land be achieved in the context of the new irrigation, water, and land reforms?

To address these issues, researchers adopted a grounded research approach involving intensive investigation of the Likangala and the Domasi watersheds in the Lake Chilwa Basin in the most densely populated and poorest region of Malawi. The study focused on two kinds of small-scale irrigation identified as central to poverty alleviation and income generation in the irrigation policy:

1. Government-run, smallholder schemes transferred to farmers organized into "water users' associations."
2. Informal irrigation carried out in the dry season by smallholders along rivers and in wetlands adjacent to the Likangala and Domasi Rivers and irrigation schemes.

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Outputs

BASIS Brief 23. "The Differential Effects on Rural Income and Poverty during a Decade of Radical Change in Malawi, 1986-97," by Pauline E. Peters, October 2004.

BASIS Brief 12. "Gender and Broadening Access to Land and Water in Southern Africa," by Pauline E. Peters and Anne E. Ferguson, with input from Mark Darroch, Bill Derman, Ben Fuller, Francis Gonese, Michael Lyne, Wapu Mulwafu, Joel das Neves, Ragan Petrie, and Lovemore Rugube. August 2002.

Basis Brief 9. "Promoting Equitable Access to Water Resources," by Bill Derman, Anne Ferguson, and Pauline Peters. February 2002.

"Irrigation Reform on Malawi's Domasi and Linkangala Smallholder Irrigation Schemes: Exploring Land-Water Intersections," by A. E. Ferguson and W. O. Mulwafu. October 2004.

"Informal Irrigation in Lake Chilwa Basin: Stream-Bank and Wetland Gardens," by Pauline Peters. October 2004, 24 pages.

"Patterns of Access and Use in Wetlands: The Lake Chilwa Basin," by Daimon Kambewa. October 2004, 17 pages.

"Decentralization, Participation and Access to Water Resources in Malawi," by A. E. Ferguson and W. O. Mulwafu. April 2004, 36 pages.

http://www.basis.wisc.edu/basis_crsp/water.html

RURAL MARKETS, NATURAL CAPITAL, AND DYNAMIC POVERTY TRAPS IN EAST AFRICA

PROFILE

The project had the goal of identifying best-bet strategies to help smallholders escape the interrelated problems of dynamic poverty traps and on-farm natural resource depletion. Degradation of soils and access to factor and product markets were the primary foci. Empirical analysis, based on panel data collection, qualitative fieldwork and soil sample collection in five sites in Kenya and two in Madagascar, along with context-driven simulation modeling, were used to determine the incidence, severity and causal linkages behind poverty traps.

The project identified the most promising approaches to reducing the incidence and severity of chronic poverty, especially in ways that support agricultural productivity growth and repletion of degraded soils.

The project also engaged in discussions with policymakers involved in the poverty reduction strategy programs in each country, with the most senior levels of the agricultural research communities in each country, and with local communities about practical, science-based strategies for improving access to productive inputs and markets necessary for poor people to be able to improve their livelihoods over time.

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Outputs

BASIS Brief 32. "Displaced Distortions: Financial Market Failures and Seemingly Inefficient Resource Allocation," by Christopher B. Barrett. August 2005.

BASIS Brief 24. "Poverty Dynamics in Rural Kenya and Madagascar," by Christopher B. Barrett, Paswel Phiri Marenya, John McPeak, Bart Minten, Festus Murithi, Willis Oluoch-Kosura, Frank Place, Jean Claude Randrianarisoa, Jhon Rasambainarivo and Justine Wangila, October 2004.

Basis Brief no. 14. "Education, Nonfarm Income, and Farm Investment in Land-scarce Western Kenya," by Paswel Phiri Marenya, Willis Oluoch-Kosura, Frank Place, and Christopher B. Barrett. February 2003.

Basis Brief no. 6. "Poverty Traps and Resource Degradation," by Christopher B. Barrett, Lawrence E. Blume, John G. McPeak, Bart Minten, Festus Murithi, Bernard N. Okumu, Alice Pell, Frank Place, Jean Claude Randrianarisoa, and Jhon Rasambainarivo. January 2002.

Basis Brief no. 6-F. "Le piège de la pauvreté et la dégradation des ressources," par Christopher B. Barrett, Lawrence E. Blume, John G. McPeak, Bart Minten, Festus Murithi, Bernard N. Okumu, Alice Pell, Frank Place Jean Claude Randrianarisoa, et Jhon Rasambainarivo. Octobre 2002.

"Prospects of integrated soil fertility management using organic and inorganic inputs: evidence from smallholder African agriculture systems," by Frank Place, Christopher B. Barrett, H. Ade Freeman, Joshua J. Ramisch, and Bernard Vanlauwe. Forthcoming in *Food Policy*.

The following available at http://www.aem.cornell.edu/special_programs/AFSNRM/Basis/.

"Poverty Traps and Safety Nets," by Christopher Barrett and John McPeak. December 2003.

"Dynamic Poverty Traps and Rural Livelihoods," by Christopher B. Barrett and Brent M. Swallow. December 2003.

"Rural Poverty Dynamics," by Christopher B. Barrett. September 2003.

"Fractal Poverty Traps," by Christopher Barrett and Brent M. Swallow. September 2003.

"Smallholder Identities and Social Networks: The Challenge of Improve Productivity and Welfare," by Christopher B. Barrett. July 2003.

"Educational Investments in a Spatially Varied Economy," by Andrew Mude, Christopher Barrett, John McPeak and Cheryl Doss. July 2003.

"An Asset Risk Theory of Share Tenancy," by Marc F. Bellemare and Christopher B. Barrett. June 2003.

"The Complex Dynamics of Smallholder Technology Adoption: The Case of SRI in Madagascar," by Christine M. Moser and Christopher B. Barrett. June 2003.

"Better Technology, Better Plots, or Better Farmers? Identifying Changes in Productivity Among Malagasy Rice Farmers," by Christopher B. Barrett, Christine M. Moser, Joeli Barison and Oloro V. McHugh. June 2003.

"Technology and Policy Impacts on Performance, Nutrient Flows and Soil Erosion at Watershed Level: The Case of the Ginchi in Ethiopia," by B.N. Okumu, N. Russell, M.A. Jabbar, D. Colman, M.A. Mohammed Saleem and J. Pender. May 2003.

"Chronic Poverty in Rural Western Kenya: Its Identification and Implications for Agricultural Development," by Frank Place, Paul Behinck, and Mary Omosa, April 2003.

"The Impact of High Yielding Varieties of Wheat on Economic Performance, Nutrient Flows and Soil Erosion in the Ethiopian Highlands: The Case of the Ginchi Watershed," by Ben Okumu. December 2002.

"Social Identity and Manipulative Household Transfers Among East African Pastoralists," by Marieke Huysentruyt, Christopher B. Barrett and John G. McPeak. October 2002.

http://www.basis.wisc.edu/basis_crsp/poverty.html

ASSETS, CYCLES, AND LIVELIHOODS:

Addressing Food Insecurity in the Horn of Africa and Central America

PROFILE

The research project included three different research sites—South Wello/Oromiya, Ethiopia, Samburu/Baringo, Kenya, and rural Honduras—that provide very different market and policy conditions. The research design also allowed comparisons and assessments under different policy frameworks. The major research site was South Wello/Oromiya, Ethiopia where the greatest data collection effort was focused, followed by Honduras where the project built on existing studies and databases, and finally Kenya where minimal update of an existing study took place.

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Outputs

BASIS Brief 43. "Are Ethiopia's Farmers Dependent on Food Aid?," by Peter D. Little. February 2006.

BASIS Brief 28. "The Long-term Impacts of Short-term Shocks: Poverty Traps and Environmental Disasters in Ethiopia and Honduras," by Michael R. Carter, Peter D. Little, Tewodaj Mogues, and Workneh Negatu. May 2005.

BASIS Brief 21. "'Churning' on the Margins: How the Poor Respond to Drought in South Wollo, Ethiopia," by Peter D. Little, M. Priscilla Stone, Tewodaj Mogues, A. Peter Castro and Workneh Negatu, October 2004.

BASIS Brief 15. "The Unfinished Business of Liberalization: Making Markets Work for All, by Steve Boucher, Brad Barham, and Michael R. Carter. April 2003.

BASIS Brief 5. "Building Assets for Sustainable Recovery and Food Security," by Peter D. Little, Abdel Ghaffar M. Ahmed, Michael Carter, Micahel Roth, and Workneh Negatu. January 2002.

Shocks, Sensitivity and Resilience: Tracking the Economic Impacts of Environmental Disaster on Assets in Ethiopia and Honduras, by Michael R. Carter, Peter D. Little, Tewodaj Mogues, and Workneh Negatu. October 2004. 38 pages.

Reasons for Food Insecurity of Farm Households in South Wollo, Ethiopia: Explanations at Grassroots, by Workneh Negatu. July 2004, 22 pages.

Small Businesses in Small Towns of the Eastern Amhara Region: Nature and Economic Performance. A Research Report, by Tegegne Gebre Egziabher and Mulat Demeke. January 2004, 59 pages.

Summary of Proceedings of the Workshop on BASIS/IDR Research Programme in the Eastern Amhara Region, Ethiopia, edited by Peter Little. January 2004, 86 pages.

Retrospective Accounts of Responses to Drought by Female and Male Heads of Household in Bati and Dessie Zuria Woredas, South Wello and Oromiya Zones: Preliminary Field Report, 2002, by M. Priscilla Stone, based on fieldwork by M. Priscilla Stone and Mengistu Dessalegn Debela. January 2003, 24 pages.

Post-drought Recovery Strategies among the Pastoral Households in the Horn of Africa: A Review, by Abdel Ghaffar M. Ahmed, Alemayehu Azeze, Mustafa Babiker, and Diress Tsegaye. Addis Ababa : OSSREA, 2002, 80 pages. (Development Research Report Series, no. 3) Posted with permission of OSSREA.

Understanding Community Perceptions of Livelihoods, Assets, and Recovery Strategies: Preliminary Findings from Northern Kenya, by Kevin Smith and Peter D. Little. October 2002, 46 pages.

The Geographic Dimensions of Food Security in South Wello: A Preliminary Analysis of Survey Data from 'Round 4 (November/December 2001)' Using Geographic Information Systems (GIS) and Global Positioning Systems (GPS), by Michael E. Shin. September 2002, 13 pages.

Social Capital, Assets and Responses to Drought: Preliminary Observations from Interviews, South Wello and Oromiya Zones, Amhara Region, Ethiopia, by A. Peter Castro, based on fieldwork by A. Peter Castro and Mengistu Dessalegn Debela. September 2002, 29 pages.

The Influence of the State and Market on Local Level Management of Natural Resources: Case Studies of Forests, Irrigation and Pasture Sites in South Wello, Ethiopia, by Alula Pankhurst. June 2002, 119 pages.

IDR-BASIS Workshop: Formation of Zone Research and Development Liaison Committee. March 2002, 5 pages.

A Brief Status Report for the Dessie Mini-Workshop, by Workneh Negatu. March 2002, 10 pages.

Report of a Research Trip to Explore Gender and Intrahousehold Dynamics: South Wello and Oromiya Zones of Amhara Region, Ethiopia, June 10-14, 2001, by Priscilla Stone. June 2001, 13 pages.

http://www.basis.wisc.edu/basis_crsp/assets.html

INSTITUTIONAL INNOVATIONS TO IMPROVE EQUITY SHARING UNDER PRIVATIZATION AND FARM RESTRUCTURING:

Helping Land Reform Beneficiaries Gain Access to Land and Financial Resources in Central Asia and Southern Africa

PROFILE

To identify and resolve the underlying causes of management and financial problems associated with group ownership in the Kyrgyz Republic and South Africa, BASIS researchers conducted in-depth studies of transformed enterprises.

The case studies yielded a set of best institutional practices to serve as guidelines when establishing other land reform projects where beneficiaries share inclusive rights to resources.

Project goals included:

- identifying institutional and organizational practices that constrain the success of group enterprises and deprive the poor of current income, capital gains and livelihood
- determining best institutional practices that broaden and deepen beneficiaries' access to resources and encourage their productive use
- applying best practices to the design or redesign of one or two equity-sharing enterprises
- assessing how organizational and institutional innovations can improve project performance measured in financial health, environmental sustainability, and empowerment of beneficiaries, especially women.

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Outputs

BASIS Brief 48. "Farmland Redistribution in KwaZulu-Natal, 1997-2003," by M.C, Lyne and S.R.D. Ferrer. June 2006.

Basis Brief 20. "Making Co-ownership Work: Helping Land Reform Beneficiaries Access Land and Financial Resources through Equity Sharing in South Africa," by Mike Lyne and Michael Roth. May 2004.

Basis Brief 8. "Innovating Institutions to Help Land Reform Beneficiaries," by Mike Lyne and Michael Roth, with assistance from Malcolm Childress and Roman Mogilevsky. February 2002.

Farmland Transfers in KwaZulu-Natal, 1997-2003: A Focus on Land Redistribution Including Restitution, by MC Lyne and SRD Ferrer, April 2006. 16 pages.

Establishing Farm-based Equity-share Schemes in KwaZulu-Natal: Lessons from USAID's BASIS Research Programme, conference proceedings edited by Michael Lyne and Michael Roth, November 2004, 70 p.

Criteria to Monitor the Poverty Alleviation, Empowerment and Institutional Performance of Equity-share Schemes in South African Agriculture, by B.C. Gray, M.C. Lyne, and S.R.D. Ferrer. (Revised) December 2004, 26 pages.

Are Rural Women Disadvantaged in Asset Ownership and Business Relations in the Kyrgyz Republic? by Renée Giovarelli. September 2004, 19 pages.

Possible Causes of Poverty within a Group of Land Reform Beneficiaries in the Midlands of KwaZulu-Natal: Analysis and Policy Recommendations, by L.H. Shinns and M.C. Lyne. (Revised) December 2004, 13 pages.

Measuring the Performance of Equity-share Schemes in South Africa: A Focus on Financial Criteria, by B.C. Gray, M.C. Lyne and S.R.D. Ferrer. June 2004, 18 pages.

A Linear Discriminant Analysis of Market Modes of Land Redistribution in Kwazulu-Natal from 1997-2002, by A. Semalulu, M. Lyne and S. Ferrer. June 2004, 14 pages.

Land Redistribution in KwaZulu-Natal, South Africa: Five Census Surveys of Farmland Transactions, 1997-2001, by M.C. Lyne and MAG Darroch. April 2004, 26 pages.

Perceptions of Farmworker Equity-share Schemes in South Africa, by S.L. Knight and M.C. Lyne. April 2004, 20 pages.

Symptoms of Poverty within a Group of Land Reform Beneficiaries in the Midlands of KwaZulu-Natal: Analysis and Policy Recommendations, by L.H. Shinns and M.C. Lyne. May 2003 (revised March 2004), 15 pages.

Land Redistribution in KwaZulu-Natal: An Analysis of Farmland Transactions from 1997 until 2002, by S.R.D. Ferrer and A.K. Semalulu. March 2004, 20 pages.

Taxes and Other Payments of Agricultural Entities, by M. Bobukeeva. December 2003, 12 pages.

Legal Organizational Structure in the Kyrgyz Republic, by M. Bobukeeva. December 2003, 26 pages.

The Investment Climate in the Kyrgyz Republic, by M. Bobukeeva. December 2003, 17 pages.

Legal Framework Regulating Credit Relations in Kyrgyzstan, by M. Bobukeeva. December 2003, 20 pages.

Legal Regulation of Contract Relations in Kyrgyzstan, by M. Bobukeeva. December 2003, 16 pages.

Bankruptcy in Kyrgyzstan, by M. Bobukeeva. December 2003, 13 pages.

Symptoms of Poverty within a Group of Land Reform Beneficiaries in the Midlands of KwaZulu-Natal: Analysis and Policy Recommendations, by L.H. Shinns and M.C. Lyne. May 2003, 15 pages.

Best Institutional Arrangements for Farmworker Equity-Share Schemes in South Africa, by Sharon Knight, Mike Lyne, and Michael Roth. February 2003, 22 pages.

Land Redistribution in South Africa: Past Performance and Future Policy, by M.C. Lyne and M A.G. Darroch. February 2003, 25 pages.

Literature Review: Strengthening the Theoretical Framework of BASIS Project "Institutional Innovations to Improve Equity Sharing under Privatization and Farm Restructuring," by Michael Roth and Mike Lyne. December 2002 (revised September 2003), 23 pages.

http://www.basis.wisc.edu/basis_crsp/institutions.html

IMPACT EVALUATION OF INNOVATIONS IN RURAL FINANCE

BASIS CRSP Policy Conference
Washington, DC

PROFILE

Rural households and producers must have the ability to borrow, insure and save in order to take advantage of growth opportunities, protect themselves in the face of shocks, and maintain their asset base. Many people, though, do not have access to adequate financial services and therefore must adopt alternate, less desirable production strategies. BASIS CRSP projects across the globe focused on ways in which both policy and institutions can be strengthened to provide key financial services to rural producers and enterprises.

The policy conference outlined provocative new evidence from the projects indicating that the costs of constraints to credit and finance are high in terms of foregone income and growth, lost opportunities for long-term accumulation and welfare gains, and poverty in smallholder agricultural environments and among lower-wealth households.

An earlier generation of failed interventions inadvertently demonstrated that when markets fail to deliver it is usually because of structural impediments that cannot simply be wished or legislated away. Relaxing credit constraints requires understanding the impediments and devising innovative ways to remove them.

In large measure, credit constraints are pervasive because fixed transactions costs makes small loans expensive, because lenders find it difficult to distinguish between different types of borrowers and monitor borrower behavior, and because correlated risk common to agriculture means that many borrowers are likely to fail at the same time.

The conference gauged the effectiveness and impact of four key policy and product innovations in credit markets: (i) credit bureaus that enhance microfinance institutions' access to information, (ii) provision of index-based weather insurance that helps institutions engage in agricultural lending, (iii) micro-health insurance as a feature of microfinance contracts, and (iv) bundling business training with microfinance loans.

While many of these innovations have been implemented before, the conference outlined the ways that BASIS projects have fully evaluating the impacts either through a strict experimental design or through a rollout that permits reliable measurement of their effects. The conference showed what we have learned from this innovative method of program design and impact evaluation.

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Outputs

BASIS Brief No. 44. "Weighing Risks: Short and Long Term Impacts of Credit Constraints," by Steve Boucher and Agnes Quisumbing.

BASIS Brief 45. "Better Lending and Better Clients: Credit Bureau Impact on Microfinance," by Craig McIntosh, Elisabeth Sadoulet, and Alain de Janvry.

BASIS Brief 46. "Can Insurance Unlock Agricultural Credit and Promote Economic Growth?" by Carolina Trivelli, Michael Carter, Francisco Galarza, Alvaro Tarazona, and Johanna Yancari.

BASIS Brief 47. "Teaching Entrepreneurship: Experiments to Improve Microfinance," by Dean Karlan and Jonathan Zinman, with Martin Valdivia.

http://www.basis.wisc.edu/basis_crsp/events.html

PROMOTING AGRICULTURAL GROWTH THROUGH POLICY IN TRANSITION ECONOMIES

BASIS CRSP Policy Conference
Budapest, Hungary

PROFILE

A decade after the initial reforms of the former Soviet economy, the results in agriculture remain disappointing. Barriers to marketing agricultural output are still present in many regions, and access to modern inputs is very limited. Agricultural output remains about one-third below the pre-reform levels of 1989-91. Incomes of workers employed in agriculture remain depressed.

Yet, new arrangements are springing up in which input suppliers or other businesses related to agriculture establish vertically integrated or other contractual arrangements with agricultural producers. These arrangements supply needed inputs in ways more promising than the barter arrangements that characterized the dealings of many former collective farms. Even without fully developed landownership rights, rental transactions are increasing and becoming economically important.

"Promoting Agricultural Growth through Policy in Transition Economies," held 2-3 December 2005, identified the types of institutions and policies that allow for the most positive growth in agricultural production in transition economies.

The conference assessed policies and progress in Russia and other transition countries in four primary categories: organizational structure and performance of farms, land and property rights, rural labor, and financial institutions, credit and capital.

For each theme, comparisons were drawn between the experience in Russia and other countries in the region. The conference identified lessons to inform future agricultural policy and outlined recommendations to ease the constraints that exist in each of these areas.

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Outputs

BASIS Brief No. 42. "Promoting Strong Land Markets in Transition Economies," by T. Ferenczi.

BASIS Brief No. 41. "Rural Labor Markets in Transition: Differences in Past Trends, Current Constraints, and Future Policies," by K. Macours.

BASIS Brief No. 40. "Expanding the Market: Financial Institutions and Agricultural Lending," by J. Yaron.

BASIS Brief No. 39. "The Purchased Agricultural Input Market in Russia," by E. Serova and O. Shick.

BASIS Brief No. 38. "Farms and the Financial Market: Russian Farm Performance, Access to Credit and Government Support," by D. Epshtein, A. Subbotin, and O. Yastrebova.

BASIS Brief No. 37. "Too Many Workers? Changes in Agricultural Employment in Russia," by V. Bogdanovskii.

BASIS Brief No. 36. "Living with Constraints: Russia's Agricultural Land Market," by N. Shagaida.

BASIS Brief No. 35. "Russia's New Agricultural Operators: Emergence, Evolution, and Impact," by D. Rylko and R. Jolly.

BASIS Brief No. 34. Adapting to a Market Economy: Changes in Russia's Farm Structure, by V. Uzun.

http://www.basis.wisc.edu/basis_crsp/events.html

COMBATING PERSISTENT POVERTY IN AFRICA

BASIS CRSP Policy Conference
Washington, DC

PROFILE

With the majority of poor Africans residing in rural areas and depending on agriculture for their livelihood, it is crucial to ignite rural farm and non-farm productivity growth. To help households climb out of poverty and prevent others from falling into poverty traps, it is important to increase productivity of assets, facilitate asset building and protection, and remove exclusionary mechanisms.

Increased productivity of assets can be achieved through market access and improved technologies. Access can be improved by reducing the cost of market participation by improving roads to facilitate travel to and from markets, as well as establishing favorable contracts for a wider variety of producers. Providing smaller producers with business skills, support services, and access to farmer groups can help improve their competitiveness in markets.

Human, natural and physical capital can give households the asset base they need to stay out of poverty. Human capital can be improved through education, which leads to more lucrative off-farm employment and helps facilitate uptake of new technologies that can improve production. The improvement (or maintenance) of natural capital requires soil and water conservation, soil nutrient replenishment, and sound water management. Finally, physical capital can be built through improved access to credit, as well as access to, and use of, savings instruments.

To help protect themselves, households need the ability to borrow, insure and save. Access to these financial tools can help people make decisions regarding productive assets that can prevent them from falling into a poverty trap. Additionally, there are many mechanisms of socio-political exclusion that keep certain populations from getting ahead. A way to address this is to improve access to public goods: roads, electricity, education and health care.

"Combating Persistent Poverty in Africa: Structure, Causes and Solutions," held 15-16 November 2004, emphasized the importance of both cargo nets, which help households climb out of poverty, and safety nets which help keep them from falling into poverty. The goal is to give households the ability to make asset decisions that allow them to stay above critical thresholds while still meeting their subsistence needs.

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Outputs

BASIS Brief 21. "'Churning' on the Margins: How the Poor Respond to Drought in South Wollo, Ethiopia," Peter Little, Peter Castro, Priscilla Stone, Workneh Negatu, and Tewodaj Mogues.

BASIS Brief 22. "Shocks and their Consequences across and within Households in Rural Zimbabwe," John Hoddinott.

BASIS Brief 23. "The Differential Effects on Rural Income and Poverty of a Decade of Radical Change in Malawi, 1986-97," Pauline Peters.

BASIS Brief 24. "Poverty Dynamics in Rural Kenya and Madagascar," Christopher Barrett, Paswel Phiri Marenya, John McPeak, Bart Minten, Festus Murithi, Willis Oluoch-Kosura, Frank Place, Jean Claude Randrianarisoa, Jhon Rasambainarivo and Justin Wangila.

BASIS Brief 25. "Sense in Sociability? Social Exclusion and Persistent Poverty in South Africa," Michelle Adato, Michael Carter, and Julian May.

BASIS Brief 26. "Persistent Poverty in North East Ghana," Ann Whitehead.

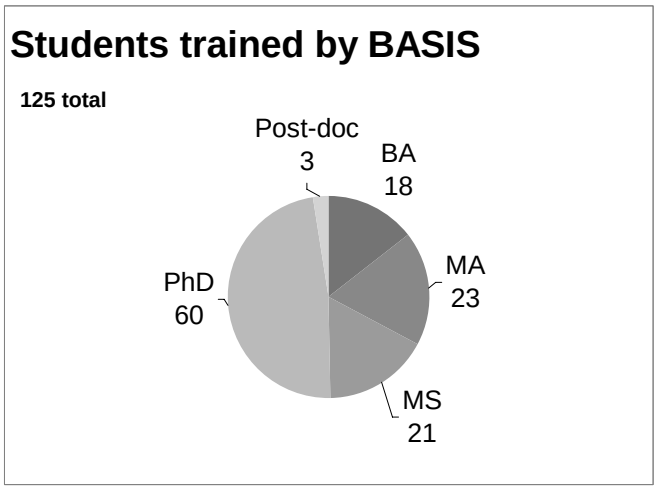
http://www.basis.wisc.edu/basis_crsp/events.html

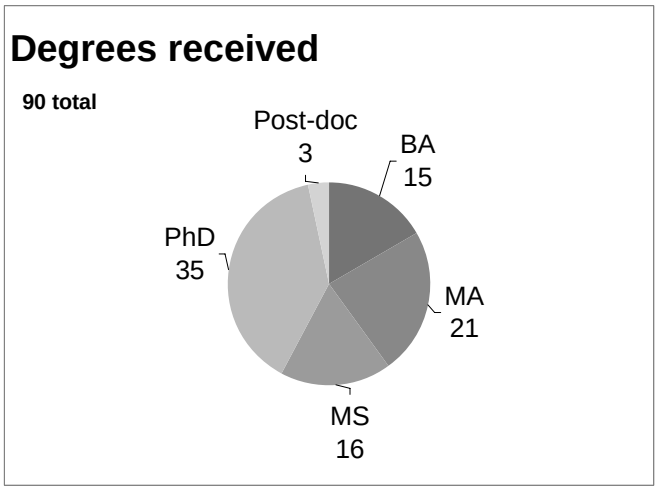
ANNEX 1. TRAINING AND PARTNERSHIPS

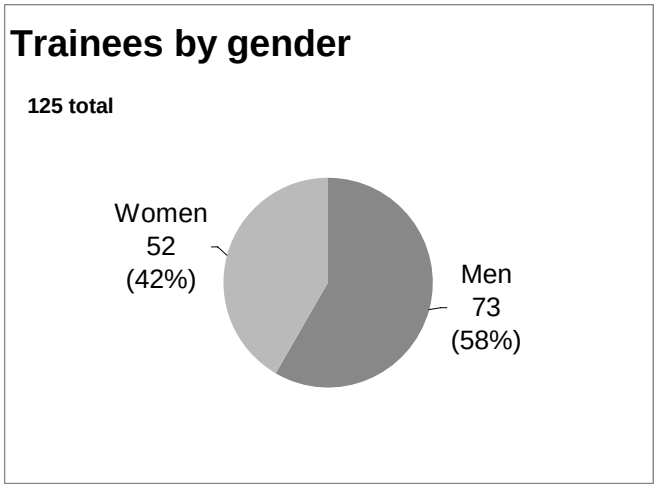
Student training

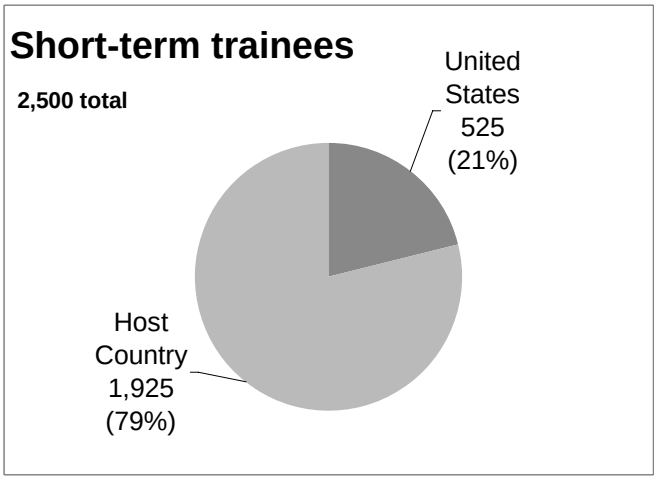
The following charts show the student training carried out by BASIS CRSP. From 2001 to 2006, BASIS CRSP trained 125 students. Ninety of these students received degrees during these years. Of the total number of students, 52 are women and 73 are men.

BASIS also engaged in extensive short-term training, with 2,500 people receiving short-term training, nearly 2,000 of whom are from the host countries where research projects were carried out.









Countries of citizenship for BASIS CRSP trainees, 2001-2006

Thirty-one countries were represented by those receiving training.

Bolivia	**Indonesia**	**Peru**
Brazil	**Japan**	**Philippines**
Cameroon	**Kenya**	**Russia**
Canada	**Madagascar**	**South Africa**
Costa Rica	**Malawi**	**Spain**
El Salvador	**Mexico**	**Sweden**
Ethiopia	**Mozambique**	**Turkey**
France	**Namibia**	**USA**
Germany	**Nicaragua**	**Uzbekistan**
Holland	**Norway**	**Zimbabwe**
India		

Partnerships

BASIS CRSP projects were designed to promote collaboration between researchers from the United States and those from the host countries; therefore, each project had a PI from a US university who formed a partnership with a host country PI.

The tables on the following page show the representation of partnerships across US universities, international research partners and other institutional partners:

- 18 US universities
- 31 international partners
- 9 other institutional partners.

US university partnerships	
Cornell University	University of California-Riverside
Dartmouth College	University of California-San Diego
Georgia Southern University	University of Kentucky
Harvard University	University of Maryland
Iowa State University	University of Minnesota
Michigan State University	University of Oregon
Princeton University	University of San Francisco
University of California-Berkeley	University of Wisconsin-Madison
University of California-Davis	Yale University

International research partnerships	
Addis Ababa University	Kenya Agricultural Research Institute (KARI)
All-Russia Institute of Agrarian Problems	LIMA Rural Development Foundation, South Africa
All-Russia Institute of Labor and Management in Agriculture	Methodist University of Piracicaba, Brazil
Canter for Social and Economic Research, Kyrgyz Republic	Moscow State University, Russia
Colegio de Mexico	OSSREA (Ethiopia)
Federal University of Mato Grosso, Brazil	Pontifica Universidad Catolica, Brazil
Federal University of Minas Gerais, Brazil	RIMCU-Xavier University, Philippines
Federal University of Rio de Janeiro, Brazil	State University of Campinas, Brazil
FOFIFA, Madagascar	Universidad Rafael Landivar, Guatemala
Grupo de Analisis para el Desarrollo, Peru	University of Central America, El Salvador
Institute for Economies in Transition, Russia	University of KwaZulu-Natal, South Africa
Institute of Natural Resources, South Africa	University of Lampung, Indonesia
Institute of World Economy, Russia	University of Malawi
Instituto de Estudios Peruanos, Peru	University of Natal-Pietermaritzburg, South Africa
IPEA, Brazil	University of Sao Paulo, Brazil
	University of the Philippines-Diliman

Other institutional partnerships	
AGREX Moldova	IFPRI (USA)
Bannock Consulting	Rural Development Institute
CCA Moldova	WOCCU
Economic Research Services	World Agroforestry Centre ICRAF (Indonesia)
World Agroforestry Centre ICRAF (Kenya)	

ANNEX 2. BASIS PHASE I FINDINGS

In September 1996, USAID awarded the BASIS Collaborative Research Support Program (CRSP) to the Land Tenure Center at the University of Wisconsin-Madison. The Director was Michael Roth. BASIS Phase I (1996-2001) began with four research priorities: (1) targeting and sequencing market liberalization and development, (2) market organization and support under privatization and agrarian reform, (3) natural resource management, environmental protection, and common property, and (4) water rights and social conflict. Research emphasis was on Central America, Eastern Europe and Eurasia, the Greater Horn of Africa, and Southern Africa.

1. Missing or imperfect factor markets and tenure insecurity create poverty and constrain the poor's ability to access land, labor and financial capital

Institutional Framework for Land Market Transactions, El Salvador. Government land transfer programs have contributed little to alleviating rural poverty and have introduced a male bias to land access. BASIS researchers questioned the historical emphasis on land redistribution as the only approach to strengthening access to land in El Salvador. Findings suggested the need to complement redistribution with an institutional infrastructure that would facilitate private land transfers: (a) devise better mechanisms for financing land transactions, (b) complete land titling efforts, (c) improve information about land transactions and improvements in land records, (d) simplify the administrative machinery managing land reform, (e) reduce the ceiling on land holdings to facilitate development of contract farming and agribusiness development.

Land Market Liberalization and Land Access of the Rural Poor, Honduras and Nicaragua. The titling process is flawed in Nicaragua and there is substantial unmet demand for titling services. Research showed that full titling and registration of land had an impact on fixed land investment, even though it did not have an impact on access to credit. Land values were found to be enhanced by land titles; the capitalized value of the additional income that the investment increment is estimated to create is very close to the estimate of the additional value that full title gives to agricultural land (approximately US$50/hectare). Yet, analysis detected significant signs of land re-concentration.

Farm Restructuring in Uzbekistan. Rural financial markets in Uzbekistan are comprised of repressive and inefficient formal financial institutions, underdeveloped semi-formal agents, and rudimentary informal arrangements. Inflation, late payments, inter-enterprise arrears, and a farm liquidity crisis have undermined farm purchasing power and, in some cases, pushed farmers towards a barter economy, thus further reducing their creditworthiness and debt servicing capacity. Farms have no economic incentive to produce, although they are legally obligated to fulfill production quotas for cotton and wheat. They have no financial incentive to minimize costs, because they know government will bail them out. With a lack of private markets, how is this cycle of low profitability and indebtedness broken? One recommendation is to adjust the producer price to levels that reflect the world market, and charge landholders an economically determined land rental fee that compensates government for all or part of the current marketing margin the government enjoys. If accompanied by a futures contract with partial advance payment, this would enable suppliers and workers to be paid in a timely manner.

2. Innovations in the way markets are organized can help broaden market access for the poor who are disenfranchised from markets by tenure insecurity, high transactions costs and market segmentation.

Determinants of Access to Financial Services, El Salvador. In 1995, fewer than 12% of all rural households had received loans from any source and only 20% had loans outstanding. Data from the 1997 National Rural Household Survey showed that only 13% of all rural households received loans from any source. Innovations in lending technologies are required to broaden the poor's

access to financial services. A BASIS study of Financiera Calpiá, a leader of new lending technologies in El Salvador, documented the reasons for its successful expansion into rural areas and agriculture: (a) extending its well-tested urban lending technology, (b) cautiously adapting this technology to rural areas, (c) building into its strategy a strong human capital formation component with rigorous recruitment and training of loan officers. Moreover, by providing individual rather than group loans, it has enhanced the value of the organization-client relationship. A combined urban-rural component is also critical for diluting fixed costs and diversifying lending operations.

Irrigation, Participation, and Factor Markets in Tanzania. Informal discussions with landowners, tenants, and laborers revealed widespread demand for training in soil conservation, gully and water control that constrain farmers ability to adequately respond to increased water supply provided by the new irrigation project. Leadership's lack of training in financial planning and management, conflict resolution, and methods for teaching farming, field leveling and water management skills to farmers seriously undermine the sustainability of the irrigation scheme. Finance is a serious constraint: 17% of villagers in Mtandika applied for loans from government or other financial intermediaries, but only 1% received them. BASIS revealed considerable problems and costs farmers face in gaining access to financial information. Serious structural problems were also revealed in the way irrigation schemes are organized.

BASIS helped overcome some problems. For example, women's need for land access was rendered more socially acceptable as a result of gender training provided by an NGO affiliated with BASIS. In Msosa village, where a government project brought new land under irrigation, project advocacy and training resulted in a village plan to distribute small newly irrigated plots to female household heads and to married women. The research also provided persuasive evidence that government and NGO-promoted irrigation and credit projects need to bring younger *men* into planning and scheme management activities. These successes help demonstrate the value of gender training in communities.

Broadening Access to Land Markets, Southern Africa. Government assisted land transfers have attempted to redress the unequal legacy of commercial farming in Zimbabwe, Namibia and South Africa. Researchers found that government-assisted transfers were not as important as private transactions in redistributing land wealth to the historically disadvantaged. Even the quality of land purchased privately by disadvantaged people appears to have been higher than that associated with white-to-white transactions in more recent years. Women are well represented in private transactions, except those financed with mortgage loans, but they acquired farms of much smaller size and of lower quality than men. Private land transactions thus contribute substantially to secure asset ownership for the historically disadvantaged in southern Africa. Government-assisted land redistribution programs should therefore aim to strengthen both the demand for, and supply of, private mortgage finance through innovative contract designs.

In 1999, the Department of Land Administration in South Africa launched the Land Reform Credit Facility to help draw private sector finance and human capital into commercially viable land reform projects. This facility, the development of which was advised by BASIS researchers, offers loans with graduated repayment schedules to reputable banks and venture capitalists who finance equity sharing projects and land purchases by historically disadvantaged and aspiring farmers. Early response to the scheme exceeded expectations. According to a BASIS researcher, the loan target of R15 million set for the first year was reached after only 8 months.

BASIS collected and assembled data for use in a geographical information system that allows the Namibian Government to see ownership patterns so that land can be more efficiently acquired for distribution purposes.

3. Diversifying earnings with off-farm income can improve rural livelihoods

Rural Land and Labor Market Participation Strategies, El Salvador. Researchers traced the impact of an economic downturn in 1997. The significant fall in incomes among poorer families was driven by an abrupt decline in agricultural and non-agricultural wage employment. Households had only limited access to formal credit, savings

accounts or to public safety nets; hence, their main response was to increase labor supply, fall back on self-employment activities, and cutback on planned investments. Households with more educated heads were better able to preserve their income levels after the economic shock, and were less inclined to remove children from schools.

The study confirms the important role of non-farm self-employment activities in rural household income generation, but also suggests the very fluid ways that households juggle labor between different types of employment activities. The analysis clearly points out the need to better integrate households in the market, both through increasing the availability/productivity of farm and non-farm self-employment activities.

Agriculturalists' Asset and Income Diversification Patterns to Ensure Sustainable Livelihoods, Kenya, Rwanda and Cote d'Ivoire. The research revealed that livelihood strategies that include non-farm income sources are associated with higher income realizations and upward earnings mobility. Those households with limited access to non-farm activities or productive assets (land and livestock) to devote to on-farm production, typically must rely on a low-return strategy of dependence on the agricultural sector, and are often trapped in poverty. Improved agricultural productivity and broader access to land can help improve the livelihoods of the poor. Analysis clearly points to the need for a vibrant rural non-farm economy and to secure access for all to attractive niches within the non-farm sector through improved liquidity and market access. The land poor and those with limited education were especially likely to depend on livelihood diversification strategies with low returns and limited risk reduction because they are structurally unable to enter higher-return niches of the non-farm economy or to engage household labor fully in their own farm production. This population depends especially on unskilled, low-wage labor and has very poor prospects for upward income mobility.

4. Accumulating physical, social and human capital makes rural livelihoods more secure and protects against climatic and economic shocks.

Dynamics of Poverty, El Salvador. Between 1995 and 1997, the rural household average annual income declined 2.5% (excluding remittances). Agricultural income declined sharply, while non-agricultural income had an appreciable increase. Climate changes caused by El Niño were a primary determinant of these changes. The most important effect was a decrease in the demand for agricultural labor. Households dealt with these losses of income by developing household-based non-agricultural enterprises. Incredible household mobility was observed as a consequence of income volatility. While incomes stagnated or declined between 1995 and 1997, capital accumulation was unaffected for poor and non-poor households.

KwaZulu-Natal Income Dynamics Study, South Africa. Some two-thirds of South African households below the poverty line in 1993 remained there five years later, and relatively large numbers of households that were just above the poverty margin in 1993 fell below that line in 1998. Education and social capital changed substantially from 1993 to 1998, and initial endowments predicted growth in future material well-being. Households that enjoyed initial endowments of transfer income were also positioned to improve their situation over time. However, without these assets, household wellbeing at best held steady and, especially for households with only unskilled labor power, deteriorated over time. About half of the South African families observed to be poor at any point in time are *transitorily* poor in the sense that some shock rendered them temporarily poor, or they are well enough positioned to work themselves out of poverty over time. The other half are stuck in a poverty trap and are in need of targeted interventions. Government housing programs and improved social welfare payments have helped some members of this group. However, social capital appears to play a very large role in explaining why some households get ahead economically while others fall behind. There is also strong evidence that when women control more assets and income, expenditure patterns tend to

favor investments (food and education) that benefit the next generation.

Community Assessments, Ethiopia. Community assessments focused on perspectives of drought, markets and food security. Research found that female-headed households, families with many children, those without cattle/oxen, the elderly, and the landless are the most insecure. Food secure households have relatively abundant land, adult labor, oxen, and private and social capital. Purchases and sales of livestock and grain are key strategies to weathering the initial phases of drought. As drought worsens, however, private livestock and grain markets become increasingly risky, particularly as purchasing power dissipates and markets become disconnected. Poor households turn to foraging for wild roots and leaves, out-migration, and selling oxen and farm implements. Well-off households assist poorer households by hiring labor, loaning oxen, giving or lending grain, and providing cash loans or gifts. These transfers eventually begin to erode differences in socioeconomic status. With long-term, prolonged drought, land loses productive value, livestock herds become depleted, surpluses disappear, seed is consumed, and households converge toward states of poverty. Households emerge from droughts with depleted labor stocks and low levels of labor productivity. Land regains productive value but seed, labor and oxen are in short supply. Pasture becomes plentiful, but households lack borrowing power to purchase cattle. The ability of households to mobilize productive resources determines the rate of their return to productive livelihood.

BASIS Phase II research provided policy options for dampening the severity of these asset swings and improving the ability to rebound from shocks.

5. In addition to missing factor markets, economies undergoing privatization are constrained by organizational inefficiencies in the design of emerging farm/farmer enterprises.

Farm Size, Farm Type and Competitiveness, Kyrgyz Republic. BASIS monitored and evaluated net farm returns by farm type during land reform. Neither farm type nor farm size were major determinants for economic success. This finding is important for a set of policy issues: the lease value of the Land Redistribution Fund, the political debate about the economic viability of smaller units, and the strategy of rural extension services. Findings suggest that producers in all farm type and farm size categories are being affected by perpetuating subsistence-oriented production strategies on both smaller and larger farms. Investment and intensification decisions continue to be constrained by lack of financial capital, trade restrictions, restrictions on land sales and rentals, small internal markets and limited off-farm wage opportunities. Kyrgyz officials use BASIS results for public education, training, and policy.

6. Achieving sustainable use of water resources is a major policy issue in many developing regions; solutions—market or non-market—remain under debate or are untested

Land Reform and Farm Restructuring in Uzbekistan and Kyrgyzstan. Most farmland in Central Asia is irrigated. Under the former Soviet water management system, which survives in most areas, water resources were centrally managed. Water misallocation and pollution are serious problems. Privatization requires the design of new decentralized water management systems. BASIS research determined a series of remedies in this region, including: (1) increase efficiency of irrigation systems, (2) improve land quality via better drainage systems, crop rotation, and modification of chemical application regimes, and (3) introduce water pricing schemes with proceeds to be used to improve water management. BASIS researchers propose that water users associations be established where all types of enterprises would be represented, and that the associations would introduce water pricing and manage water allocation to benefit all members.

Broadening Access to Water Resources in Southern Africa. The water resources project was designed to inform policy on water resources management—particularly decentralized management systems—in the context of ongoing water sector reform in three countries: Zimbabwe, Mozambique, and Malawi. Findings suggest ways water management be improved to alleviate poverty and increase water use efficiency: (1) revise existing water resources management policy and

strategies, legislation and institutional roles, (2) restructure water resources boards into a national water resources board, (3) adopt a *river basin* as a unit for water resources management and establish river basin authorities, (4) formulate strategic plans for national and river basin development, (5) promote rural community organizations, (6) improve rural potable water supply and sanitation, (7) enhance catchment conservation and river bank protection, (8) enhance hydropower development and multi-purpose use water storage, (9) provide capacity building and develop research in water resources, and (10) improve water resources data collection, analysis, storage and dissemination.

7. High transactions costs hinder the integration of factor markets and product markets; priority needs are for investments in human capital formation, health and physical infrastructure

Determinants of Market Integration, El Salvador. According to the *Second National Rural Household Survey*, 11% of the households did not participate in the market at all and 40% devoted all of their labor supply to market-related activities. Market participation was found to be critically linked to household location and education levels. A 100% increase in the level of education (number of grades approved) increases participation in the market by 32% and household income by 27%. Gender, education, and access to land differences characterize labor market segments. Women participate more easily in informal markets and less in agricultural activities. Education is the most important prerequisite for a better market segment, and location also influences its quality. Households with low degrees of integration to the market tend to earn lower per capita incomes compared to more integrated households. If access to markets matters, the key role for the state in combating rural poverty will be the provision of the most basic public goods which brings down barriers to market integration. This includes providing education, health, physical infrastructure (rural roads and communications), information, and the institutional infrastructure needed for the smooth operation of markets to the whole population.

Cross-Border Trade and Food Security in the Horn of Africa. Supply response to price changes across borders is weak in the region reflecting poorly integrated markets. A number of constraints inhibit cross-border trade in the region including border policies that regard the trade as illegal; lack of formal capital markets and imperfect informal substitutes; incomplete and poorly disseminated market information; undeveloped livestock routes; and difficult access by Ethiopian traders to the larger markets in Kenya. Because most pastoralists in the border region finance food purchases through livestock sales and much grain is imported with revenues from livestock trading, any change in cross-border commerce affects pastoral welfare and food security. Market imperfections could be reduced and incomes could be improved for herders, traders and government employees if the Kenyan and Ethiopian governments officially recognize and lift border controls.