

**Date**

November 14, 2008

**Technology Adoption for Water Systems and the Access to Credit**

A multiple use water project has been in the field in a very small scale since October 2007. It is being conducted in Central Kenya with a group of dairy farmers that all supply milk to a small rural dairy. This dairy also has a SACCO (savings and credit cooperative) attached to it that a lot of the dairy farmers are members of. We are working with this dairy and it's SACCO for this part of the MURRIS project. The project involved offering farmers loan contracts on water tanks that allow them to store water for some part of the dry season. The water tanks are also sometimes used to provide cows with a regular source of water. One early treatment group was offered a loan to purchase a 5000 liter water tank; a second a loan to purchase a 2500 liter water tank. A third, late-phase in group became eligible for the 5000 liter tanks in July (see more below). Take up in all three groups has been very high, 80% on average.

There are two main aims of this overall project. We have started the project on a very small scale, focusing mostly on take up of the credit contracts and the impacts of the technology. We plan to slowly scale this up to about 1000 households, if possible. The exact structure of this scale up is yet to be determined. The first main aim of this project is to understand this multiple use water technology and its impacts on various aspects of households' livelihoods, such as time use productivity, assets, wealth, child health, child education, labor supply, etc.

Second, we would like to better understand the structure of credit markets in the area, and in particular credit contracts that allow broader access to credit and at the same time hopefully do not compromise on default rates. So, in the scaling up of this project, we would like to analyze different structures of credit contracts to understand why there is not very much credit in this area. We would therefore plan to have treatments with not just different tank sizes, but also with different loan contracts. Not only are we interested in the roles of moral hazard and adverse selection, but also in the role played by the dairy in contracting with these farmers over their output.

In addition, we could combine the credit contracts with some version of insurance. This could be achieved by, for example, having farmers not pay a fixed sum each month, but a constant percentage of their sales to the dairy in payments. The former contract is what the dairy currently uses and what the small scale project in the field also currently uses. However, the latter contract would account for seasonality and shocks to cow health such that when milk production is low and sales to the dairy are low, farmers are expected to pay off less of their loans as opposed to when milk production is high when they will pay off relatively more of the loans.

A second part of the current credit contract used by the dairy is a system of having guarantors who have enough savings in the dairy to cover the entire amount of the loan. In our scale up, we would like to better understand the role of these guarantors – do they provide a monitoring device (to encourage borrowers to work hard to pay off their loans) or are they basically a screening device (to separate out the good (low risk) and bad (high risk) borrowers)? Finally, we are hoping this set up would also allow us to look at the role of reputation with the dairy and how the probability of farmers' default in these types of contracts (where the dairy provides a market for the farmers' milk) varies with the availability of outside options for the sale of their milk.

Water supply is seasonal in this part of Kenya. There are two main seasons of rain each year, known as the long-rains and the short-rains with dry periods in between. The tanks allow households to store water from the times when there is rain. During dry spells, farmers typically spend many hours a day, sometimes virtually all daylight hours, taking cattle to places where water is available. This is typically done by children, by the elderly, and by women. Based on conversations with farmers we

### **Repayment Schedules Write-up** *Rohini Pande and Erica Field*

When the Grameen Bank model was formulated in the 1970s, it provided an initial blueprint of how lending to the poor could be structured to maintain low default rates without requiring collateral. In the last few years, academic and policy attention has turned to the question of how the design of micro-finance contracts can be improved to lower transaction costs for MFIs, so as to make micro-credit easier to scale up and to ensure that the poor get credit in its most flexible form. Lowering transaction costs is now considered a key priority in the micro-finance sector, for it will allow MFIs to reach a set of clients that is broader, both in terms of geography and level of need.

Our research has focused on one such improvement to the micro-finance contract—specifically, the flexibility of micro-finance loan repayment schedules. In stark contrast to bank debt contracts, most micro-finance contracts require that repayment start almost immediately after loan disbursement and occur weekly thereafter. Even though economic theory suggests that a more flexible repayment schedule would benefit clients and potentially improve their repayment capacity, micro-finance practitioners have traditionally argued that the fiscal discipline imposed by frequent repayment is critical to preventing loan default. Despite the sharp disjunction in the predictions afforded by the rational economics model and the behavioral model, there is not enough evidence on whether repayment frequency influences default rates in micro-finance.

Since 2006, we have been working with a large urban micro-finance institution in West Bengal, India – the Village Welfare Society – to investigate this issue. We have completed a field experiment in which clients were randomly assigned to either a weekly or monthly repayment schedule.<sup>1</sup>

Over the course of the loan cycle, we conducted a baseline survey, a series of group meeting surveys, and an endline survey. The baseline and endline surveys were used to help us better understand clients' repayment schedule preferences, credit history, business history, and household demographics. The group meeting surveys were used to calculate loan delinquency rates as well as to generate basic social capital measures (which were constructed based on questions about how often clients interacted with group members outside of meetings and how well clients knew one another).

Our initial findings suggest that, among micro-finance clients who are willing to borrow on either weekly or monthly repayment schedules, a more flexible schedule can significantly lower transaction costs without increasing client default. Using a sample size of 150 loan groups and a total of 1278 clients, we found clients on a weekly repayment schedule had a default rate of 1.7%, while we experienced zero default among monthly repayment schedule clients (the difference is significant at the 1% level).

<sup>1</sup>Random assignment addresses the key empirical concern in program evaluation that clients with different income levels or investment opportunities may prefer different schedules.

### **Reputation in a Public Goods Game: Taking the Design of Credit Bureaus to the Lab** Steven Back, Craig McIntosh, Tomas Roldán, and Elisabeth Sakollet

#### **Results**

We present the results of a new laboratory experiment designed to mimic the process of cooperation and ejection in microfinance groups. This modified public goods game was played with 292 Guatemalan microentrepreneurs, and is intended to inform the design of microfinance credit bureaus. The games allow us to study how different systems for building reputation alter player behavior, and particularly whether sharing information over individual quality or group quality is more efficient in an environment of strategic play at the group level. We present a simple theoretical model that derives the expected effects of each treatment on adverse selection and moral hazard. Our empirical results show that both information sharing systems result in significantly higher contributions to the public good, and higher ejection from groups conditional on contributions. As expected, we find that the group incentives make ejection decisions more sensitive to individual play, but we fail to find the expected concentration of individual incentives on moral hazard. Given the substantial costs of transitioning microfinance bureaus to the sharing of individual information, our results present no evidence that this change would be cost effective.

#### **Methodology**

This paper grows out of an extended empirical project designed to analyze the impact of the introduction of credit bureaus into microfinance markets. That larger project showed that bureaus are extremely effective at improving repayment performance while allowing for an expansion in access to credit, and that these beneficial impacts are fortified when borrowers have a clear understanding of the way the bureau operates. That analysis of Guatemala's new bureau, Cendirel, however, left unanswered an important and theoretically interesting question about the optimal design of bureaus for microfinance markets.

Microfinance credit bureaus, which must use individual identifiers to form unique identities, represent an individualization of the incentives in an environment which previously focuses on the use of group incentives. Moral hazard will be more effectively combated when these incentives are fully individualized, but adverse selection (meaning who is permitted into microfinance groups) can be weakened if group incentives are undermined. The aggregate effect of this individualization of incentives is thus unclear.

Because the design of a credit bureau is a network attribute, and not easily amenable to experimentation, we chose to address this policy question in a laboratory environment. The public goods game, where individuals are asked to contribute to a common pot which is then doubled and split evenly among members of the group, is the canonical laboratory setting for capturing dynamic prisoners' dilemma in groups. We create a more complex version of this game in which randomly



**The Entrepreneurial Finance Lab**  
Center for International Development - Harvard University

The Entrepreneurial Finance Lab (EFL) is a new initiative at Harvard's Center for International Development. Our mission is to help unlock the entrepreneurial potential of the developing world's 'missing middle'.

***The 'missing middle' and barriers to finance***

Emerging and developing economies have a large number of micro-firms and some large firms, but far fewer small and medium enterprises (SMEs) compared to developed economies. Despite evidence of high returns, most SMEs in developing countries are shut out of the financial system.

Existing lending models - microcredit, banks, and VCs - face fundamental barriers in this segment. Microcredit may reach micro-enterprises, but such firms rarely graduate to SMEs. The microcredit model falls short when larger and riskier investments are needed and cash flows are not immediate. For banks, the transaction costs in having an experienced officer evaluate a business plan are too large to make this segment viable, forcing them to focus on collateral rather than entrepreneurial potential. For VCs, SMEs in developing countries do not have traditional exit options like IPOs. VCs are experts in evaluating the potential of the entrepreneur and their business proposition, but the transaction costs of this type of screening are so high that only the highest-potential investments can be considered.

This was also a problem in the advanced economies until very recently. Banks finally penetrated the SME segment in the 1990s through the application of credit scoring to small business loans. They evaluate the entrepreneur's own abilities and trustworthiness as represented in their individual credit history, instead of focusing on the particular business proposition. Most importantly, they were able to do it in a low cost automated way, so that the smaller loan amounts weren't overwhelmed by large transaction costs.

But what does one do in developing countries? Traditional scoring is next to impossible in these low-information environments, yet this is precisely where access to finance in the missing middle is the most problematic. Is there another way to evaluate an entrepreneur's own abilities and trustworthiness more directly, and in a low-cost, automated, and reliable way?

***Our Flagship Project: Psychometric Screening***

Our flagship project is to examine the role psychometric testing can play in selecting entrepreneurs for financing, with the aim of developing technology that allows the private

## How to select entrepreneurs?

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**Abstract**

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**"Returns to Capital" Panel**  
**The Return to Capital for Small Retailers in Kenya: Evidence from Inventories**  
**Michael Kremer**

Standard textbook models suggest risk-adjusted rates of return should be equalized across activities within firms, and across firms. In general, measuring rates of return is difficult, but we take advantage of the characteristics of the retail industry to create bounds on the rate of return to inventories in a set of retail firms in rural Kenya. We collected two types of data and use two separate empirical strategies to estimate and bound the marginal rate of return to capital in this sector.

Our first method makes use of administrative data on whether firms purchased enough to take advantage of quantity discounts offered by their suppliers. The distributor offers discounts to retail shops of up to 1.5% based on the total purchase amount. Relative to a typical markup of 10 percent, these discounts are substantial. This analysis does not allow us to estimate the interest rates, but allows us to bound the marginal rate of return. The advantage however, is that these are administrative data and there is thus less of a concern about selection into the sample. A rough first-pass implementation of this strategy suggests a lower bound on rates of return of 142 percent per year for a median shop. However, this assumes perfect information and these rates may be sensitive to unforeseen demand shocks. Making a very rough adjustment for this, we calculate that a median shop would have an annual rate of return of at least 76 to 49 percent at some point during the year. We hope to refine this estimate in the future.

The second approach involves surveying shops on a regular basis to measure the number of stockouts – lost sales due to insufficient inventory – that shops experience. This estimate also allows us to calculate the number of additional sales that firms would capture if they incrementally increased their inventory, and to calculate a rate of return to a marginal increase in inventory. In our preliminary analysis, we find unexploited inventory investments which would yield a lower bound on the average annual real marginal rate of return of 33 percent, with 16 percent of shops having rates of return over 50% per year. These rates are well above rates of return to debt and equity both in Kenya and in international markets. We reject the hypothesis that the bounds on marginal rates of return are equal across shops (at 1 percent).

These results suggest that returns to inventory capital in the Kenyan retail sector are likely far greater than returns to investment in developed country equity markets, and suggest that these returns likely differ significantly across firms. However, while these estimates suggest high rates of return for the firms in this sample, several questions about the interpretation of our results remain unanswered. In particular, are these significant unexploited profit opportunities a result of substantial credit constraints at the firm level? Or are they reflective of behavioral or other biases? If firms are unable to realize profit opportunities because they are credit constrained, then microfinance or other credit provision programs could have substantial growth impacts. If, however, our estimated rates of return are symptomatic of behavioral biases, training programs could might help. We plan to address these questions directly in a series of surveys and field experiments in our future work.

**Investigating the Barriers to Female Microenterprise Growth**  
**Suresh de Mel, David McKenzie and Christopher Woodruff**

*Partner:* Sri Lanka Business Development Centre (SLBDC)  
*Methodology:* Randomized Experiments with Capital Grants, Business Training, and Information  
*Funding:* National Science Foundation; World Bank.

Many microfinance organizations lend predominately or almost exclusively to women. Many of the justifications are economic in nature. Women are argued to be poorer than men on average, have less collateral, and hence be more credit-constrained. But are female business owners in low-income countries more constrained by finance than men? There is surprisingly little evidence on this question. Studies of microfinance clients in several countries suggest that female-owned enterprises grow more slowly and generate lower profit than male-owned enterprises. But the samples for studies of clients of microfinance programs reflect selection decisions both on the part of enterprise owners as to whether or not to apply for a loan, and on the part of lenders as to whether or not to lend.

Our first randomized experiment addresses directly whether lack of capital is a constraint on female microenterprise growth in Sri Lanka. We sampled microenterprises with less than US\$1000 in equipment and working capital in three districts in southern Sri Lanka. We provided random grants, half in cash and half as purchases of inputs or equipment selected by the enterprise owner, to about 60 percent of the sampled enterprises. Two thirds of the grants were \$100 and the other third were for \$200, representing about 50 and 100 percent of the median capital stock. We find returns of around 9 percent per month in enterprises owned by males, but not different from zero in enterprises owned by females. Thus, not only does the average female owner have a lower return than the average male owner, but on average female-owned enterprises see no return from grants which averaged 50 to 100 percent of the pre-experiment capital stock.

These stark results raise three important questions for microfinance policy:

1. What explains the dramatic difference in results between male and female business owners?

## Examining Underinvestment in Agriculture: Measuring Returns to Capital and Insurance Among Farmers

*A project led by Dean Karlan and Chris Udry*

### Project overview and background

Managing business and personal finances can be an immense challenge for rural farmers, whose financial fortunes are frequently determined by forces beyond their control, such as weather and crop prices. Farmers who might increase their productivity and their incomes by making new investments in agricultural inputs are wary of the potential riskiness of the outcomes. In Ghana, where 52% of Ghana's population lives in rural areas and 44% of the rural population lives below the poverty line, the situation seems particularly acute.<sup>1</sup>

Farmers face a unique set of risks that makes the decision to invest very complex. Crop prices and weather patterns beyond farmers' control have an enormous impact on farmers' fortunes – and on their ability to repay any loans they have taken. As such, some farmers are reluctant to take loans to finance seemingly profitable ideas for fear of not being able to repay. That farmers often abstain from potentially productive investments may be explained by two distinct hypotheses. It may be that farmers are risk averse, and fear the unknown outcomes of new ventures. Equally likely, farmers may refrain from investments because they lack the initial capital to do so.

By examining how insurance products and capital shocks impact farmers' investment decisions, this study will distinguish between the effects of risk aversion and of capital constraints on farmers' behavior.

Traditional insurance is not an easy sell for those unfamiliar with the concept, and with the exception of the new National Health Insurance in Ghana, formal insurance of any sort is not common in rural areas. In Ghana, certain non-governmental organizations plan to begin marketing crop insurance products in the next few years, further highlighting the immediate need to learn more about farmers' interest in crop insurance.

Another critical outcome of the project is the measurement of returns to capital for farmers.

### Study Design

Complete lists of maize farmers will be collected from the Millennium Development Authority (MDA) sample in Tamale, Waikwale and Savelugu districts. Working within MDA-targeted districts provides access to a great deal of rich data. Detailed surveys have just been completed at the household level which will serve as a baseline. MDA surveys will be repeated every three years in the same districts. The three selected districts are both MDA districts and also districts with working rainfall stations.

The 470 Maize farmers selected for this study will be randomly allocated into one of four groups. Three different treatments will be marketed to farmers and measured in this study: the direct transfer of capital (116 farmers), a rainfall insurance product (116 farmers), or both the transfer of capital and the insurance product (84 farmers). The fourth group of farmers will receive no treatment, but be monitored and surveyed as the control group.

Maize was selected as the focal crop because it is widespread in the three districts, sensitive to rainfall and inputs, and grown by farmers of all socio-economic levels. Shea nuts, groundnuts, and soybeans require few inputs, so that a capital drop may not be required or used effectively.

<sup>1</sup> World Bank, Ghana Poverty Reduction Strategy, February 2003.

## Financial Literacy

### Summary for FAI/IPA October Conference

Shamika Ravi and Jonathan Morduch

There are two projects involving financial literacy and training that we have undertaken in India over last one year. One is for ultra poor households who are not microfinance clients and the second involves urban microfinance clients.

#### 1. Financial training for ultra poor household who are not microfinance clients:

this study is with SKS Microfinance and involves the ultra poor households in Madak district of Andhra Pradesh. These households are too poor to be microfinance clients and the baseline survey of 1350 households reveals that most of their financial transactions are with local shopkeepers, relatives and moneylenders. Here the primary aim is to capture habit formation. We would like to see if a simple exercise like budgeting has any effect on spending pattern and saving. Each week the household plans an ideal budget and at the end of the week they match this to the actual expenses. We collect weekly data on household spending and ideal budget. The main aim is to see if people change habits and match goals. And eventually what impact this has on expenditure pattern and savings. The exercise is being done as a randomized control trial on 600 ultra poor households. The intervention is scattered over time – and the households that received the treatment later are a control for those who received the early treatment.

#### 2. Financial training for Microfinance clients: this project is with Swadhaar – an urban microfinance institution based in Mumbai. The aim of this project is to study the effect of a literacy module on borrowing and saving pattern of microfinance clients.

- a) On the borrowing side, we are interested in seeing how well people understand loan contract terms – and whether this matters? As an experiment, we would like to study whether information related to interest rates, alternative sources of credit etc. is going to have any effect on amount borrowed, duration of loan and source of credit. The driving motivation for this aspect of the study is to find out what information should be declared to clients and how. From a regulatory point of view – this has crucial implications for customer protection and transparency in the microcredit market. From the institution's point of view – it is important to know whether financial training should go hand in hand with rapidly growing and changing financial instruments.

#### A SURVEY OF HOUSEHOLD WELFARE AND BUSINESSES IN HYDERABAD, ANDHRA PRADESH

Microfinance institutions (MFIs) have expanded rapidly in recent years. Microfinance proponents argue that access to MFI loans will allow poor households to start or expand businesses, smooth consumption in the face of job loss or illness, and reduce the rates of interest that they pay on their loans. While randomized designs have been used to explore the effect of microfinance product design<sup>1</sup>, and natural experiments used to examine the effect of the intensive margin of microfinance<sup>2</sup>, to date there have been few, if any, large-scale randomized trials with the potential to examine what happens when microfinance becomes available in a new market.

##### Setting

120 areas of Hyderabad, India's fifth-largest city, were selected by Spandana, a large microfinance lender, as areas in which they were interested in opening branches. These areas were selected based on having residents who were desirable potential borrowers: poor, but not "the poorest of the poor." Areas with high concentrations of construction workers were avoided because people who move frequently are not desirable microfinance clients.

In each area, a baseline survey was conducted in 2005. Households were randomly selected, conditional on having a woman between the ages of 18-55 in the household. Information was collected on household composition, education, employment, asset ownership, decision-making, expenditure, borrowing, saving, and any businesses currently operated by the household or stopped within the last year.

Sixteen areas were dropped from the study; of the remaining 104, Spandana began operating in 52, selected at random, in 2006-2007. A census of each area was undertaken in early 2007 to gauge loan takeup and establish a sampling frame for the followup study, which began in August 2007 and ended in April 2008. The followup survey in each area was conducted at least 12 months after Spandana began disbursing loans. The census revealed very low rates of MFI borrowing even in treatment areas, so the followup sample consisted of households whose characteristics suggested high propensity to borrow: households who had resided in the area for at least 3 years and containing at least one woman aged 18 to 55. Spandana borrowers identified in the census were oversampled. In general, baseline households were not purposely resurveyed in the followup, except for a sample of households who indicated they had loans at the baseline, with the goal of understanding the impact of an increase in credit availability for those households who were already borrowing (though not from MFIs).

<sup>1</sup> eg. Gini, X. and D. Karlan (2006). "Group versus Individual Liability: Evidence from a Field Experiment in the Philippines." Yale University Economic Growth Center working paper 940; Fischer, G. "Contract Structure, Risk Sharing, and Investment Choice." MIT working paper, 2008.

<sup>2</sup> eg. Kaboski, J. and R. Townsend, "Policies and Impact: An Analysis of Village-Level Microfinance", *Journal of the European Economic Association*, 2005.

#### Impact of Microcredit for Women in Mexico

**Country:** Mexico

**Principal Investigators:** Jonathan Zinman, Dean Karlan, Manuela Angelucci

**Other Researchers (Field Staff):** Kerry Brennan, Asya Troychunsky, Anna York

**Partner Organization:** Compartamos Banco

##### Background

While proponents of microfinance tout its benefits, few studies have rigorously quantified the unbiased impacts of microcredit loans on the lives of their clients. Seeking to fill this gap and contribute to the collective knowledge regarding the impact of microfinance, IPA has partnered with the Mexican microfinance bank Compartamos Banco to evaluate the social and economic impact that the bank's women-only village banking product has on its clients. What is the impact of introducing a microcredit product for women on their lives, and the lives of other family and community members? What determines take-up of this microcredit product and what is the profile of new microfinance clients?

Increasing commercialization of microfinance has been accompanied by an increasing worry within the microfinance sector that there might be a "mission drift", i.e. more focus on financial sustainability and profit generation than on social impact. It is therefore critical, in this context, to evaluate the impact of microfinance when offered by commercially sustainable institutions. A rigorous impact evaluation of credit offered by a market-leading microfinance organization in Mexico will contribute vital evidence to the debates around the true economic and social outcomes of microfinance on the lives of its clients, and whether or not microfinance programs achieve their social goals. The study, by providing detailed information on the profile of people who choose to enroll into microfinance programs, will also provide useful information to microfinance institutions who aim to reach out to a larger segment of households.

##### The intervention

Compartamos was founded in 1990 to offer credit as a means to make micro businesses grow in Mexico, and has now acquired the status of a bank<sup>1</sup>. The organization offers several credit products, but this evaluation will focus on their main product, "Crédito Mujer" (Women Credit), offered to women in groups of 12 or more, with a solidarity guarantee. In addition, women are eligible to take a credit extension if they have a current credit in Crédito Mujer.

<sup>1</sup> Compartamos has recently entered the market by issuing bonds and is the first microfinance company in the world to issue debt on the stock market with its own collateral. It has occasionally been heavily criticized for this, as increasing commercialization of the microfinance sector makes some stakeholders worry about "mission drift". This impact evaluation is therefore of particular interest to organization.

## Village Banking and Microenterprise Development: Evidence from a Randomized Experiment in Kenya

Pascaline Dupas, UCLA  
Jonathan Robinson, UCSC

Hundreds of millions of people in developing countries earn their living through small-scale businesses (World Bank, 2004; de Soto, 1989), but many of these businesses have no employees other than the owner and very low levels of working capital (Banerjee and Duflo, 2007). In Kenya, employment in small and medium enterprises has been estimated to account for more than 20% of adult employment and for 12-14% of national GDP (Daniels and Mead, 1998). Small-scale entrepreneurship of this sort has long been identified as a mechanism to alleviate poverty. However, while substantial attention has been paid to microfinance as a strategy to enable small businesses, the impact of credit schemes on business outcomes, especially for the very poor, is still very unclear.<sup>1</sup> Further, many banks that target the ultra-poor realize low or negative profits.<sup>2</sup> As a result, microfinance has been moving increasingly towards for-profit ventures that focus on relatively richer clientele (i.e. Malkin, 2008).

A complementary approach to enabling the poorest is to focus on savings instead of credit. Recent research has suggested that significant demand exists for formal bank savings, even in the absence of credit, and that the provision of these services can have substantial impacts. For instance, Johnston and Morduch (2007) show that over 90% of Bank Rakyat Indonesia clients save but do not borrow, and Kaboski and Townsend (2005) find that pledged savings accounts have a significant impact on long-term asset growth in Thailand. However, little is known about the impact of these savings products on individual or household outcomes, particularly among the poorest.

In this paper, we present the results from a randomized field experiment which provided poor daily income earners (market vendors, bicycle taxi drivers, and self-employed artisans) with formal savings accounts in a village bank (sponsored by K-REP) in Western Kenya. To estimate the impact of the program on individual outcomes, we make use of a unique dataset collected from 185 self-reported, daily logbooks. These logbooks include detailed information on income, expenditures, market investment, and health, and so make it possible to examine the impact of the accounts along a variety of dimensions that typically are not easily measured. On average, we find that the accounts had substantial positive impacts on investment and expenditures for women, but no effect for men. Four to six months after the opening of the account, the daily average private expenditures of women sampled for the account was about 36-43% higher than those of women in the comparison group. Our preferred estimate of the increase in productive investment is about 114 Kenyan shillings (US \$1.75), which is equivalent to roughly a 42% increase in average investment. We also find some suggestive evidence that the accounts increased the amount of market credit that women gave out. The

<sup>1</sup> One of the few randomized controlled trials of which we are aware is Karlan and Zinman (2007).

<sup>2</sup> For instance, Morduch (1999) shows that banks that target the "rich poor" are more successful than those that target the poorest.

## Savings-led community finance in Mali and Ghana

Lori Beaman, Dean Karlan, Bram Thuysbaert

### Background

MFIs have been successful at providing financial services to hundreds of thousands of poor people. But outreach to rural areas where the majority of the world's poor are located is still limited. On the supply side, the operational costs to deliver financial services in rural areas are high and the financial stakes are small. On the demand side, the very poor may be reluctant to take on the risk of business loans.

Financial services could allow the rural poor to invest more, build up assets and reduce their vulnerability to shocks. The potential benefits are big. But how can it be realized? The basic observation behind savings-led community finance models is that the poor are not too poor to save. Even the rural poor have income streams that allow them to save small amounts of money. Instead of relying on external finance, savings-led community-finance models attempt to mobilize savings in the community and use the collected funds to finance capital needs. The ambition of community-based finance models is to be an easy to implement, low-cost, flexible and safe mechanism for saving and credit that works even for the very poor.

### The model

The model – initially developed by CARE in the early nineties as the Village Savings and Loan (VSL) model – builds on the tradition of rotating saving and credit groups (ROSCAs) that exist in many developing countries but attempts to introduce more flexibility. VSL groups are self-managed groups of about 20-30 women. Participants meet regularly and at each meeting save an amount they committed to at the beginning of the cycle. Unlike ROSCAs where each member receives the collected funds as a lump sum in turn, the VSL groups use the collected funds to make loans to group members. All financial transactions and loan requests are made in front of the whole group and the group collectively decides about the allocation of loans. Loans are repaid with interest which makes the fund grow over time. Typically, loans are small (\$10-50) and are repaid over a period of 1 to 3 months. At the end of the cycle the fund is divided according to each member's share in the savings.

After its initial development, the model has been further refined focusing on transparency, inclusiveness and easy dissemination. To prevent illiteracy from being an obstacle a system of oral record-keeping has been developed. If we take outreach as a measure of success, the program can be called extremely successful. In Mali, for example, Oxfam started Saving for Change (SFC), its version of savings-led community finance, in 2005 and by the end of 2007 the program had reached 72,000 participants. In many villages the participation rate among adult married women is 80% or higher. Besides the apparent demand for the services provided by the program, an important reason for the program's rapid expansion is to be found in its simplicity, which permits groups to form with limited outside support. After the initial formation of a first group by NGO trainers, the group members themselves become trainers of other groups in their village and other villages.



#### Index Insurance

Xavier Gine and Shawn Cole

Index-based insurance is an innovative financial product, which has been introduced in recent years in countries as diverse as India, Mongolia, Malawi and Thailand. It allows individual smallholder farmers to hedge against agricultural production risk, such as drought or flood. The product pays out in events that are triggered by a publicly observable index, such as rainfall recorded on a local rain gauge. Advocates argue that index insurance is transparent and inexpensive to administer, enables quick payouts, and minimizes moral hazard and adverse selection problems associated with other risk-coping mechanisms and insurance programs.

Figure 1 presents an example of a policy against deficient rainfall. As one can see, upper and lower rainfall thresholds are specified in the x-axis. The policy pays zero if accumulated rainfall exceeds the upper threshold; otherwise, the policy pays a fixed amount for each millimeter of shortfall relative to the upper threshold, until the lower threshold is reached. If rainfall falls below the lower threshold, the policy pays a fixed (higher) payout.

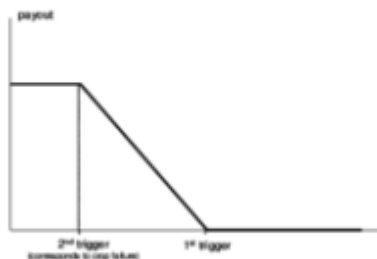


Figure 1: Phase-wise Payout as a function of rainfall

This financial innovation holds significant promise for rural households. Shocks to agricultural income, such as a drought-induced harvest failure, generate fluctuations in household consumption that are not perfectly insured; at the extreme they may lead to famine or death. The evidence suggests that households in developing countries are only partially insured against income shocks. Moreover, weather events tend to affect all households in a local geographic area, making other risk-sharing mechanisms, such as inter-household transfers and local credit and asset markets, less effective at reducing the impact of the shock.

#### The Impact of Health Insurance in Rural India

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##### Background

Worldwide, most poor households do not have health insurance coverage, even for catastrophic health events requiring hospitalization. While public facilities are available and free in some countries, adverse health events often lead to drops in consumption, sales of assets, and indebtedness. The lack of health insurance may also have adverse consequences on health outcomes by leading households to under-invest in health. In India, childbirth constitutes a striking example of this phenomenon: most deliveries take place at home, a factor that may contribute to the country's high maternal and infant mortality rates. Public health facilities are free but often inadequately staffed and equipped, and private facilities are expensive.

The provision of formal health insurance is likely limited by the traditional concerns of health insurers, concerns which are often heightened in the developing world. For example, the lack of a formalized system of health provision makes it difficult to administer health insurance and verify claims while avoiding superfluous claims or outright fraud. In addition, adverse selection (where individuals that are more likely to need the insurance are more likely to buy insurance) is a problem for insurance markets throughout the world.

Microfinance institutions (MFIs) are potentially well-placed to deliver health insurance to their clients for three main reasons. First, they have the ability to reach a large rural client base in a cost effective way, which lowers transaction costs and increases the risk pool. Second, making insurance mandatory for loan clients can mitigate adverse selection if the main reason clients join the organization is to get a loan. Third, insuring major health shocks can reduce the default risk for the MFI's loans.

##### The Program

SKS Microfinance is piloting a program that bundles its loans with a mandatory catastrophic health insurance policy. The policy covers costs related to maternity, hospitalizations, and accidents. The client must insure herself, and can include her husband as well as up to two children. The premium, including administration fees, varies from Rs. 350 to Rs. 525 depending on the number of family members covered. There is no co-payment or deductible, but there is an annual cap on expenditures that varies from Rs. 10,000 to Rs. 20,000. Network hospitals provide cashless service, while valid non-network hospital claims are reimbursed. The loans and insurance products are administered by SKS in the state of Karnataka, and ICICI Lombard underwrites the insurance policy.

From 201 candidate villages, we randomly selected 101 villages to receive the program. In the treatment villages, clients are required to purchase health insurance at the time they renew their loan or take out a mid-term loan. The pilot was rolled out from June to November 2007, with all clients being signed up within the year following the rollout.

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# Microfinance, entrepreneurship and the poor: some open questions

Abhijit V. Banerjee



2008 Microfinance Conference  
Innovations for Poverty Action, Financial Access Initiative, and Yale University  
October 17-18, 2008 at the MacMillan Center at Yale University

## Panel 1: Credit Product Design – Monitoring and Enforcement

Chair: Nigel Biggar, Director of Social Performance at Grameen Foundation

- Dairy farmer loans in Kenya - Billy Jack, Michael Kremer, Joost de Laat and Tavneet Suri  
Dairy farmers are offered loan contracts on water tank, which provide a regular water source for farming and household purposes, to analyze the impact on livelihoods and the structure of credit markets. Pilot data indicates that less time was spent on water related chores, and other preliminary findings are detailed in: [Dairy Loans](#)
- Changing repayment schedules in India - Erica Field and Rohini Pande  
Although frequent repayment is believed to be one of the most important premises for successful micro-credit programs they also include large transaction costs for both borrowers and lenders. Testing this belief, this study finds no evidence that a less frequent repayment schedule increases either the likelihood of default or delinquency. For more information: [Repayment Schedules](#)
- Reputation in a public goods game: Taking the design of credit bureaus to the lab - Craig McIntosh  
As many credit bureaus in developing countries track group rather than individual loan behavior, these games examine whether sharing information on individual quality or group quality is more efficient. This study found no evidence that a change in credit bureau reporting would be cost effective. For more information: [Credit Bureaus](#)

## Panel 2: Microfinance and Entrepreneurship – Clients Selection

Chair: Gaamaa Hishiguren, International Finance Corporation

- Psychometric tools for entrepreneurship screening - Asim Kheaja  
SMEs in developing countries lack access to finance, and traditional credit scoring is next to impossible in these low-information environments. The Entrepreneurial Finance Lab at Harvard is examining the role psychometric testing can play in screening entrepreneurs, with the aim of developing technology that allows the private sector to finance this segment in a profitable and sustainable way. For more information: [Psychometric Tools](#)
- How do lenders select entrepreneurs? - Matthieu Chemin and Joost de Laat  
This study looks at MyC4, an online microfinance institution where investors may bind on small scale entrepreneurial projects in Africa, to determine if lenders are solely interested in financial returns or also social returns and the implication of these finding on selection of entrepreneurs and the credit market in general. For more information: [Selecting Entrepreneurs](#)

## Panel 3: Returns to Capital

Chair: Jonathan Morduch, Professor of Public Policy and Economics at New York University and Managing Director of the Financial Access Initiative

- Returns to capital for small Kenyan retailers: Evidence from inventories - Michael Kremer  
Analysis of data on purchasing behavior and inventory estimate high rates of return to capital in this sector, and likely far greater than those in developed country equity markets. Future research will explore whether unexploited profit opportunities are a result of credit constraints or

# 2008 Microfinance Conference - Innovations for Poverty Action, Financial Access Initiative, and Yale University

**Innovations for Poverty Action, Financial Access Initiative, and Yale University** will hold a conference that brings together leading researchers to present latest findings from field research focused on financial access. The conference will include panels on Credit Product Design, Microfinance and Entrepreneurship, Returns to Capital, Financial Literacy, Credit Impact, Savings, and Risk Mitigation.

[Conference Agenda and Panel Summaries](#)

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