

Impact Evaluation of Rainfall Insurance

Project Background and Significance

Individuals and households in rural India are vulnerable to substantial risks. Among the most severe is the risk that drought or excessive rain can cause crop failure, leading to substantial hardship. Economic activity in many rural areas is very sensitive to the quality of the monsoon. Because a negative weather shock affects virtually all households in a region, many of the coping mechanisms (informal insurance, credit, increasing labor supply) are of limited value. While local insurance has limited ability to insure against local shocks, larger financial markets, can in theory provide complete insurance.

Recent innovations in the insurance sector have led to the development of rainfall insurance, which may dramatically improve the livelihoods of rural poor (both farmers and landless laborers), by substantially reducing their vulnerability to adverse weather conditions. However, a substantial barrier to the success of rainfall insurance is the limited experience rural poor have with financial services. The concept of an insurance policy, based on a weather station they do not observe, which provides payouts only in some states of the world, is a difficult one, and individuals may be reluctant to purchase products with which they have limited familiarity. So-called “behavioral biases” (such as inconsistent time-preferences, limited math skills) may exacerbate this problem.

This project aims to: (a) evaluate the potential of rainfall insurance to improve the livelihood and sustainability of rural poor in Gujarat, India (b) understand how behavioral biases and risk aversion influence decision making at the household level; (c) evaluate the effectiveness of different marketing and communication strategies in encouraging take up of the product and (d) estimate the effect of providing future price information to farmers on their revenues.

Programme Description

Historically, high transactions costs have limited the scope for micro-insurance products such as crop-insurance. However, a new model in which NGOs cooperate with insurance providers has led to the emergence of micro-insurance products. This innovative delivery mechanism allows providing insurance against adverse events, with premiums low enough to be accessible to poor populations.

A recent innovation in the insurance sector, insurance against adverse rainfall (rather than output) allows claims settlement to be both fast, and more importantly, free of moral hazard or adverse selection problems that have plagued crop insurance schemes. ICICI/Lombard and other insurers have recently begun to offer such rainfall insurance to farmers.

Taking advantage of these developments, the Self Employed Women’s Association (SEWA) developed, in collaboration with ICICI Lombard, an insurance product to insure against risks arising out of deficit and excess rainfall. While the insurance product offered by ICICI/Lombard has gone through several cycles elsewhere in India, the product

requires customization to local agro-climatic settings. In particular, there is very little data on rural income, which would be very useful in setting optimal payout policies. A well-designed product would pay the poor precisely when they need income the most. A product innovation with this project is that by selling in units as opposed to being based on acres of land, the product is now made available to landless laborers as well, indeed to anyone whose income varies with the weather.

Research Design and Analysis

This project aims to evaluate the impact of rainfall insurance in mitigating risks and vulnerabilities that households are exposed to. More specifically, the study seeks to answer questions such as: how effective is rainfall insurance in reducing the negative effects of unfavorable weather? How will it affect local risk-sharing? Will policy-holders undertake more projects with a higher return (such as sowing more crops)? Will there be any affect on the local price of goods, or on wage rates? A careful evaluation of the efficacy of the program will provide great insight into how to reduce the vulnerability of poor households, and demonstrate the benefits of secure income.

For the purposes of rolling out the insurance product, 100 villages have been identified that are within 30 km of an IMD-recognized weather station in 3 districts - Ahmedabad, Anand and Patan. Since SEWA will initially be able to offer weather insurance to only a limited number of villages, 33 villages will be selected at random, where insurance will be offered. In the second year, this will be expanded to a group of 50 villages.

Before the product was rolled out and before the randomization was done, a baseline survey of 1500 households across the 100 study villages was completed in May 2006 to collect data on household vulnerability, income, consumption and economic activity. Following the first harvest, a follow-up survey was also conducted during November-December 2006. These surveys collected information on household characteristics, factors that affect household decision making, existing risk coping mechanisms, risk aversion and factors that affect take up of insurance. A unique aspect of this study is that cognitive tests are administered as well.

Two additional surveys will be conducted during this year before the endline during Summer 2008. These surveys will focus on measuring how insurance affects risk coping mechanisms, such as savings, informal risk sharing, and agricultural practices and decisions. At the individual level, it measures impact of insurance on consumption smoothing and food adequacy, while at the aggregate level on food and commodity prices and wage rates.

A large literature in psychology and marketing suggests that the manner in which risk is framed can have substantial impact on buyers' perceptions of the value of insurance. This study will also test the efficacy of the following message framing techniques: positive vs. negative framing; attribute framing; and goal framing. The population of each treated village will be divided into geographically distinct units. Individuals in different units

will be provided with different marketing messages. Marketing content will be delivered via movies (shown on television monitors in the village) and flyers, and potentially plays.

Contribution

While micro-insurance is a very promising mechanism for reducing risks faced by households, it has a relatively short track record in India (and very little elsewhere in the world as well). Several important questions need resolution before it can be scaled up to reach large segments of the rural population. While we know from experience and research that poor households in rural India are vulnerable to risk, it is still not clear how well a rainfall insurance program will reduce this risk and modify households' investment behavior, and whether the cost of implementing such a programme is worth the benefits it will result in. This research project attempts to answer this question. The study will also provide useful inputs in terms of awareness creation and marketing to other organizations willing to introduce such insurance products.

There is only one other paper studying the effects of weather insurance (Gine, Lilleor, Townsend, and Vickrey (2005)). This study attempts to minimize overlap with theirs: we focus on marketing techniques; we are studying a product designed for landless laborers; and we are tests for cognitive ability and financial literacy; we include a module on risk-sharing. Methodological differences include random assignment of treatment (which villages are treated, and who receives each marketing technique), and a larger sample (100 villages, rather than 38).

Timeline:

2006	2007
April-May: Household Baseline survey. May-June: Marketing of Rainfall Insurance June: End of sales period; coverage period begins. Nov-Dec: Midline Survey	March-August: Food and Wages Information Collection May: Training and Marketing of Rainfall Insurance May-June: Sales period July: Follow up Survey after seed planting Nov-Dec: Follow up survey after Harvest
2008: March-April: Endline Survey	