Insurance, Credit and Technology Adoption in Malawi

Researchers:

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Sector(s): Agriculture, Finance

Location: Lilongwe North, Mchinji, Kasungu and Nkhotakota, Malawi

Sample: 800 maize and groundnut farmers

Target group: Farmers

Outcome of interest: Technology adoption

Intervention type: Fertilizer and agricultural inputs Insurance

AEA RCT registration number: AEARCTR-0001327

Données: Download baseline survey data from the World Bank

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Partner organization(s): Commodity Risk Management Group (CRMG), Insurance Association of Malawi (IAM), Malawi Rural Finance Corporation (MRFC), National Smallholder Farmers Association of Malawi (NASFAM), Opportunity International Bank of Malawi (OIBM)

Policy issue

The classic economic view of poor farmers is that their lack of a savings cushion causes them to prefer agricultural approaches with more reliable, but lower average returns. Farmers may see adoption of new technologies as risky, especially early in the adoption process when proper use and average yields are not well-understood. Weather and environmental factors can also pose significant risks. Risk and uncertainty can lead to low levels of technology adoption, particularly where resources to help farmers deal with risk, such as insurance, are not available. However, few studies have evaluated whether providing insurance can increase adoption of profitable agricultural technologies.

Context of the evaluation

Nearly all Malawian households (97 percent in 2004-2005) are engaged in maize production, but only 58 percent use hybrid maize varieties. Hybrid maize adoption in Malawi has lagged behind adoption in Kenya, Zambia, and Zimbabwe. Aversion to risk, credit constraints and limited access to information are among the most cited reasons why hybrid seeds and other technologies have failed to take hold in Malawi. Within Malawi, varying rainfall risk is by far the dominant source of production risk in Malawi, followed by pests.



Farmers listen to credit options in Malawi

Mushfiq Mobarak

Details of the intervention

Researchers conducted a randomized field experiment to determine whether bundling rainfall insurance with a credit program (intended to finance adoption of a new crop technology) increased demand for credit. Researchers randomly selected 16 localities in central Malawi where farmers were offered credit to purchase high-yielding hybrid maize and groundnut seeds for planting in the November 2006 crop season. In another 16 localities, farmers were offered a similar credit package, but if taking the loan were also required to purchase (at actuarially fair rates) a weather insurance policy that partially or fully forgave the loan in the event of poor rainfall.

The microfinance institutions Opportunity International Bank of Malawi (OIBM) and Malawi Rural Finance Corporation (MRFC) offered loans for the hybrid seeds based on group liability contracts for clubs of 10-20 farmers. Take-up of the loan was an individual decision, but the subset of farmers who took up the loan were told that they were jointly liable for each others' loans.

The weather insurance policy was customized to each of the four project regions (Lilongwe North, Kasungu, Nkhotakota, and Mchinji). Payouts were based on the rainfall readings at the closest weather station to the individual in question, and premiums were lower in places where the likelihood of a bad rainfall shock was lower. Compared with the annual interest for the uninsured loan (27.5 percent), a farmer taking out an insured groundnut loan faced an effective interest rate ranging from 37.8 percent to 44.4 percent, depending on the area.

All farmers in the study were administered a household survey that covered income, education, assets, income-generating activities (including detailed information on crop production and crop choice), measures of risk aversion, and knowledge about

financial products such as credit and insurance.

Results and policy lessons

Loan Take-Up: Take-up was 33 percent among farmers who were offered the basic loan without insurance. Take up was lower, at only 17.6 percent, among farmers whose loans were insured against poor rainfall. A potential explanation is that farmers already were implicitly insured by the limited liability inherent in the loan contract, so that bundling a loan with formal insurance (for which an insurance premium is charged) is effectively an increase in the interest rate on the loan.

It is also possible that farmers may have been uncertain about the risks associated with the hybrid seeds. For those in the treatment group, the fact that they were offered insurance may have served as a signal that the seeds were a risky investment. Lower take-up of the credit plus insurance product would then be a rational response.

Analysis indicates that farmers who are wealthier and more educated were more likely to take up the insured loan. By contrast, there is no indication that farmer education, income, or wealth is related with loan take-up in the uninsured loan group.

Gine, Xavier, and Dean Yang. 2009. "Insurance, Credit, and Technology Adoption: Field Experimental Evidence from Malawi." Journal of Development Economics 89: 1-11.