DISASTER RISK FINANCING & INSURANCE CASE STUDY

Weather Index-based Crop Insurance in Malawi

Facilitating Farmers' Access to Agricultural Credit

Background

Agriculture, mostly smallholder farming, constitutes approximately 38% of Malawi's economy. Banks in Malawi are unwilling, however, to lend to smallholder farmers, primarily because of the risk that they would not pay back their loans if there were a drought. As a result, prior to 2005, only 50,000 of the millions of smallholder farming households in the country were able to secure credit from formal financial institutions. Without access to loans, farmers could not purchase high quality seeds that would increase productivity and raise their living standards.

Traditional crop insurance is difficult to deliver in smallholder economies as it involves costly individual loss assessments and is prone to moral hazard and adverse selection. Index-based crop insurance, on the other hand, uses weather observations as proxies for losses in production or quality and does not require loss assessments. Index-based crop insurance systems have lower administrative costs and are less technically complex than traditional crop insurance, but are exposed to basis risk (that is, mismatch between actual loss and insurance indemnity) and only cover selected perils.

The World Bank, in close collaboration with Malawi's National Association of Small Farmers (NASFAM), developed an index-based crop insurance contract that is more efficient and cost-effective than traditional crop insurance and can easily be distributed to individual smallholder farmers to increase their access to finance and to protect farmers and loan providers from weather risk. The program was piloted in 2005.

Objectives

- Help farmers manage weather (drought) risk;
- Facilitate farmers' access to agricultural credit by reducing the risk of smallholder loan default;
- Allow banks to expand their lending portfolio to the agriculture sector without increasing default risk.

Structure and Description

The weather-based crop insurance contracts were initially offered to farmers as a pilot program in the areas of Kasungu, Nhkotakota, Lilongwe North, and Chitedze. The contracts were designed to provide compensation when rainfall during a crop growing cycle was insufficient for farmers to grow and to optimize their yields. Weather index insurance does not measure changes in yields; instead, it measures changes in rainfall, assuming that if rainfall is low, then farmers' yields will also be poor.

The Malawi index-based crop insurance measures the amount of rain recorded at local meteorological stations. In case of severe drought, it is assumed that all farmers within a 20-30 kilometer radius will be similarly affected. The insurance contract is bundled with loans to farmers that cover the cost of high-quality seeds. The insurance pays off part or the entire loan in case of severe drought. The sum insured is the loan amount and interest payable. Payouts are automatically made to the bank if the index hits the specified contract threshold at the end of the contract.

Highlights

- Prior to 2005, only 50,000 of the millions of smallholder farming households in Malawi secured credit from formal financial institutions.
- The World Bank worked with the National Association of Small Farmers in Malawi to develop an index-based crop insurance contract.
- Payouts are automatically made when the index crosses the specified contract threshold at the end of the contract period.

Outcome

In 2005, 892 groundnut farmers purchased weather-based crop insurance policies for a total premium of US$36,600. As the crop insurance contracts mitigated the weather risk associated with lending, local banks came forward to offer loans to insured farmers. The farmers used these loans to purchase certified groundnut seed. This arrangement — lending coupled with crop insurance — allowed farmers in the pilot areas to access finance that would not have been available to them otherwise. Credit, in turn, allowed them to invest in higher yield, higher return activities. In 2007, the pilot was expanded to cash crops. By 2008, the number of participants had increased significantly, with 2,600 farmers buying policies worth US$2.5 million.

Lessons Learned

1. Index-based weather insurance is not a panacea. It is necessary to raise awareness of the limited role that weather insurance has in managing the larger spectrum of risks farmers face and to control these risks as much as possible within the program. The two pilot phases in Malawi illustrated that problems related to production, marketing, and sale of crops can undermine credit repayment. Insurance programs must be integrated into supply chains so that other risks related to agricultural production can be managed.

2. Effective index-based weather insurance contracts require reliable, timely, and high quality data weather station networks. A committed meteorological services authority is essential to ensure adherence to strict quality requirements, including trustworthy ongoing daily collection and reporting procedures, daily quality control and cleaning, and an independent source of data for verification. Also required is a long, clean, and internally consistent historical record to allow for a proper actuarial analysis of the weather risks involved.

3. An enabling legal and regulatory framework is necessary for the expansion of the program. Nine insurance companies worked together to underwrite the risk from the program in Malawi. If the private sector is interested in expanding the program, it will need to engage regulatory authorities in revising the existing legal and regulatory insurance framework to explicitly reference weather-based index insurance.

4. Client/stakeholder education and outreach is essential to establish successful micro-level insurance programs. Lack of understanding of insurance can lead to dissatisfaction with the program and resistance to insurance purchase. In Malawi, monthly meetings are held with smallholder farmer groups to disseminate financial education and technical agricultural knowledge.

Further Reading

World Bank. (2009). *Micro- and Meso-Level Weather Risk Management: Deficit Rainfall in Malawi.* Washington, DC: Bryla, E., and Syroka, J.

World Bank Agricultural Risk Management Group: www.worldbank.org/agrm

Main Features: Malawi Index-based Crop Insurance in Chitedze Research Station

Crop	Groundnut
Participants	NASFAM members
Peril Covered	Drought
Proxy for Peril	Rainfall Deficiency
Weather Station	Chitedze Research Station
Term	One crop cycle (three stages)
Trigger	60 mm (in establishment and vegetative growth stage) 160 mm (in flowering and pod formation stage) 100 mm (in pod filling and maturity phase)
Maximum Payout	Loan given by bank

Glossary

Bundled loan: In this context, the packaging of a loan for agricultural inputs with a rainfall index-based insurance policy. The premium for the insurance policy is added to the interest payment for the loan. In the case of a drought, the insurance policy repays a portion of the loan recipient's obligation.

Weather index-based insurance: Contingent claims contracts for which payouts are determined by an objective weather parameter (such as rainfall, temperature, or soil moisture) that is highly correlated with farm-level yields or revenue outcomes.

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