

BULLETIN

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MAKE IT RAIN

Weather index insurance protects farmers against losses from extreme weather and facilitates investment in their farms, but randomized evaluations in South Asia and sub-Saharan Africa have shown low demand for these products at market prices, suggesting the need for alternative approaches.

Floods, droughts, heat waves, cold spells, and other natural disasters are large sources of risk for farmers. For instance, in some rural areas of India, 80 percent of farming households cited drought as the largest risk to agricultural production. Climate change may make weather patterns more extreme and unpredictable, further exposing already vulnerable smallholder farmers.



A drought, heat wave, or other disaster can lead to a poor harvest, leaving uninsured farming households with little income for the season. In order to cope with unpredictable weather, farmers often plant low-risk, low-return crops instead of investing in more profitable crops that are more sensitive to weather. In India, farmers may plant sorghum, a low-risk crop, instead of groundwater, a higher-risk cash crop. Furthermore, farmers wary of bad weather may hesitate to make other investments in their farms, such as increasing fertilizer use. As a result, the threat of extreme weather can trap farmers in a cycle of low productivity.

Weather index insurance, which makes payouts based on an easily observable variable such as rainfall, is an innovative financial product designed to make insurance accessible to poor smallholder farmers. Weather index insurance was first offered in the early 2000s, and it is now marketed to individual farmers in over fifteen countries. The ten randomized evaluations summarized in this bulletin tested take-up of weather index insurance products and, in three cases, effects on agricultural production decisions.

Key Findings:

Without substantial subsidies, take-up of insurance was low. Large discounts increased take-up substantially, and interventions designed to increase financial literacy or reduce basis risk also had positive effects. However, at market prices, take-up was in the range of 6–18 percent, which cannot sustain unsubsidized markets.

Insured farmers were more likely to plant riskier but higher-yielding crops. In the three studies that measured changes in farmer behavior, farmers who felt protected against weather risks shifted production toward crops that were more sensitive to weather but more profitable on average.

While self-sustaining markets for weather index insurance have not emerged, finding ways to address weather risk remains a priority for agricultural development. Some possibilities are improving index quality, providing subsidized insurance, setting insurance to institutions, and exploring other risk-mitigating technologies, such as irrigation and stress-tolerant crops.

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