PROJECT BRIEF

The Value of Forecasts: Experimental Evidence From Developing Country Agriculture

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Researchers use a randomized controlled trial across 250 villages in Telangana to evaluate a new ex-ante approach to improving farmer welfare.

The Research Question

Climate risk is a key driver of low agricultural productivity in poor countries. In this study, researchers use the novel long-range monsoon forecast to answer a series of key research questions, informed by a theoretical model of decision-making under risk – What is farmer willingness-to-pay (WTP) for a forecast of the monsoon's onset date? How does such a forecast impact farmer beliefs? How does a forecast affect up-front investments such as crop choice, area planted, and fertilizer use? Do these impacts translate changes in key outcomes such as yields, off-farm labor, consumption expenditure, and migration? How do the impacts of forecasts compare to a canonical benchmark: weather-based index insurance?

The Approach

In this project, researchers use a cluster-randomized trial to evaluate a novel risk-mitigation approach: long-range forecasts that provide information about the onset of the Indian summer monsoon well in advance of its arrival. In contrast to traditional ex-post risk coping approaches, this novel ex-ante technology provides accurate information significantly before the monsoon's arrival, enabling farmers to alter major upfront input decisions. Moreover, forecasts have the potential to be disseminated cheaply, even at scale.

Implementation

Researchers assign 250 villages to one of three groups: a control group; a group that receives an opportunity to purchase the forecast; and a group that is offered insurance. This design allows us to investigate farmers' willingness to pay for forecasts; how forecasts affect farmer beliefs, up-front investments, and welfare; and benchmark these effects against the canonical ex-post loss mitigation tool: index insurance.

Findings

Researchers found that long-range forecasts enable farmers to make the best possible decisions about whether to plant at all, how much to plant, what to plant, and how to make adjustments across crops by providing critical information about the coming growing season. As such, providing farmers with better access to forecasts can help them adapt to the less predictable conditions that come with climate change. However, forecasts with proven accuracy are rare and often inaccessible. Improving forecasts and making them available to farmers could increase the wellbeing of farmers and boost the economies of farming communities around the world.

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