Information Frictions and the Market for Climate Adaptation

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Abstract

Climate change poses significant risks to smallholder farmers across the developing world. Index insurance could provide risk mitigation, but has demonstrated persistently weak demand despite high theoretical value, consistent with lower than expected demand for many beneficial investments in the developing world. In this paper I develop a modern behavioral framework to separately identify two key barriers to technology adoption: low average trust of unfamiliar products versus difficulty evaluating them. With a framed field experiment with smallholder coffee farmers in Cauca, Colombia, I elicit incentivized demand across parametric rainfall contracts that vary orthogonally in payout probability and covariance with farm income. Farmers exhibit substantial difficulties in evaluating products: approximately 75% show extremely low responsiveness to product quality, with over 10% exhibiting positive demand for dominated products and 25% not purchasing products that pay out with probability one. I test two interventions targeting these different mechanisms: one designed to reduce evaluation difficulty and another to target average beliefs. A climate literacy treatment—providing rain gauges, WhatsApp-based rainfall monitoring, and historical correlation summaries—significantly increases quality responsiveness by improving farmers' mapping from contract terms to value by over 50%. Conversely, an advertising treatment does not affect average quality sensitivity while decreasing average demand by over 10% consistent with low insurer reputation. Finally, I develop a model that characterizes how limited quality responsiveness creates incentives for firms to offer low-quality products, potentially "poisoning" the market and sustaining persistent underdevelopment despite substantial possible welfare gains.

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