

## RESEARCH BRIEF

# Credit, insurance and farmers' liability: Evidence from a lab-in-the-field experiment with coffee farmers in Costa Rica

Insurance is a key element for farmers' investment decisions, but only if the government clearly communicates that it cannot provide full debt relief to all.

BY MARÍA A. NARANJO, JANNEKE PIETERS AND FRANCISCO ALPÍZAR – DECEMBER, 2016

This research examines the effect of farmers' liability for debt on their demand for credit, with and without insurance. We test predictions of a theoretical model in a lab-in-the-field experiment with coffee farmers in Costa Rica.

Farmers often borrow money in order to invest in their farming operations, with the hope that they will be able to repay their debts after a successful harvest. However, droughts, floods, or extreme temperature – which are becoming less predictable because of climate change – can ruin crops. To cope with losses from extreme weather events, governments typically implement disaster relief programs and offer debt relief to affected parties (The World Bank 2007). Agricultural banks and governments in developing countries cooperate with poor agricultural borrowers by restructuring loans and through debt relief programs (Carter, Galarza and Boucher 2007). Governments in general, however, have limited capacity to help, especially in developing countries. This lack of capacity means that governmental assistance is not always certain; this in turn makes farmers uncertain about the amount of debt for which they will be liable in the event of a crop failure (Miranda and Gonzalez-Vega 2011; Carter et al. 2007).

In the context of climate change, debt relief practices are becoming less viable because the entire farming system is exposed to the same risk of extreme weather events, and therefore risk and losses can easily surpass most governments' debt relief budgets. Crop or weather insurance is an obvious alternative. However, in developing countries, a comparatively small proportion of farmers take advantage of available insurance. Farmers' decisions in this regard might be explained by the interaction among investment, insurance, and debt relief programs, which effectively reduce borrowers' liability. This study begins to answer these questions.

We carried out a lab-in-the-field experiment with coffee farmers in Costa Rica. In a game played for real money, farmers chose how much to invest in six different settings, described on the one hand by whether or not the loan is insured, and on the other by the probability that the government will provide full debt relief. The farmers were given an initial cash endowment that represented what a farmer might own, such as farmland, housing, or other properties that the lender can take in case of default. We explain that farmers' liability is the result of whether or not there will be debt relief by the government in case of bad weather. Farmers' return from the experiment will depend on the amount invested, their weather "luck" (randomly drawn), and whether or not their collateral is seized by the bank.

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We find that, as is currently the case in most developing countries, insurance is not an important factor determining how much a farmer invests – but this is the case only if the government offers full and certain debt coverage. In the opposite case, with uncertain or no government debt relief, insurance is a strong predictor of higher agricultural investment levels. In summary, our results show that insurance is a key element of the investment decision, but only if the government recognizes and credibly communicates it cannot provide full debt coverage to all.

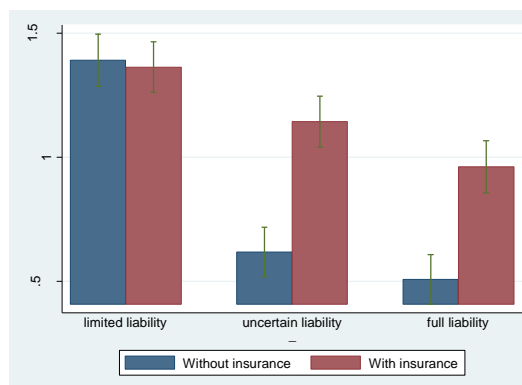


Figure 1. Differences in credit demand across treatments

## Conclusions

Governments in developing countries have made extensive use of total and partial debt relief as a way to encourage investment in key sectors and in agriculture in particular. In the context of climate change, such practices are not viable because risk is systemic and losses can easily surpass most government's debt relief programs. Insurance is an obvious alternative, but what is the interaction between insurance and debt relief programs? Our results show that when government debt relief is uncertain or absent, insurance is a strong predictor of higher investment levels. Hence, governments do not have to remove all the financial support to sectors affected by shocks; our results show high levels of investment already due to uncertainty about receiving help. Governments should recognize that, in the context of climate change, where risk is strongly systemic, it is impossible to provide credit coverage to all affected farmers. Therefore, adequate insurance can ensure that the level of agricultural investment remains high.

## About this brief

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