



Tropentag, September 11-13, 2024, hybrid conference

“Exploring opportunities ...
for managing natural resources and a better life for all”

Farmers’ adaptation strategies to extreme weather events: Insights from an insurance game experiment

ALEXANDER CANO¹, MARGARITA GÁFARO², CÉSAR MANTILLA³, LINA RESTREPO-PLAZA⁴

¹*Justus Liebig University Giessen, Intern. PhD Program for Agricultural Economics, Bioeconomy and Sustainable Food Systems, Germany*

²*Banco de la República de Colombia, Colombia*

³*Universidad Loyola Andalucía, Loyola Behavioral Lab, Spain*

⁴*Universidad Europea de Valencia, Departamento de Empresa, Spain*

Abstract

Climate change significantly impacts the agricultural sector, leading to changes in weather patterns, land suitability, water availability, and crop yields; and extreme weather events, like landslides and droughts, are becoming more frequent and severe, jeopardising the productive capacity of farmers. Understanding adaptation responses to these events is crucial for developing effective adaptation strategies. In this study, we conducted a lab-in-the-field experiment with 360 farmers from 12 villages in central Colombia subject to either several landslides, droughts, or none (i.e., a control group). We designed and implemented an insurance game: participants must allocate some endowed tokens between production and protection against three types of shocks: landslides, droughts, and pests. After the farmers had decided on how to invest their tokens, a six-sided die was used to represent which of the possible shocks might occur. Three faces represented the shocks they were insuring against while the other three represented that none of them would occur. Depending on how they invested and the outcome of the die, they received payouts representing the returns on their investment. We find that, despite the prevalent risk associated with droughts, farmers demonstrated a greater propensity to invest in landslide protection measures. This inclination seemed to be influenced by past experiences and immediate environmental conditions, notably the occurrence of heavy rainfall as a consequence of the La Niña phenomenon during the study period, which likely heightened concerns about landslide events. This result reveals that the more salient events to protect against may be driven by recency rather than long-term magnitude.

Keywords: Climate change adaptation, Colombia, experimental game, extreme weather events, farmers