PhD Defense: Pauline Castaing

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Mitigating the adverse effects of Climate Change in Developing countries: three essays

JURY

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ABSTRACT

This dissertation provides three empirical essays related to **environmental and agricultural issues in development economics**, documenting households' resilience to climate change in Sub-Saharan Africa.

Chapter 1 investigates whether **joint liability in agricultural cooperatives** negatively affects investments in climate change adaptation strategy through disincentives for increasing effort levels and free-riding behavior among group members. I explore the case of Burkina Faso where cotton farmers are organized under the joint liability system. Using a unique survey of 668 cotton producers, I proxy peer pressure by the size of the network and find it to be associated with reduced investment in self-protection against weather shocks.

Chapter 2 studies the **impacts and external validity of index insurance programs on agricultural**

decisions. Using data from six randomized controlled trials and a Bayesian framework, we show that index insurance has the potential to foster the productive investments of farmers but that these effects are much more uncertain than suggested by the pooling model. The substantial heterogeneity detected in the by-study treatment effects generates high uncertainty for the predicted effect of the programs in a new context. We also find some evidence that treatment effects are higher for households with low level of predicted outcomes and lower wealth index.

Chapter 3 uses the **implementation of the Great Green Wall (GGW) project in Nigeria** to document the local impact of environmental restoration activities on children's health. We exploit geographical heterogeneity of children in exposure to GGW projects and conduct a difference-in-difference analysis. We find a significant health improvement for children living next to community-based orchards whereas proximity to shelterbelts generates mixed impacts. Further results confirm that the observed increase in height-to-age occurs through better food security, in particular with higher dietary diversity score for children living near orchards.

KEYWORDS

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