

Crop index insurance: Laying the foundation for more production decisions in drought-prone Uzbekistan



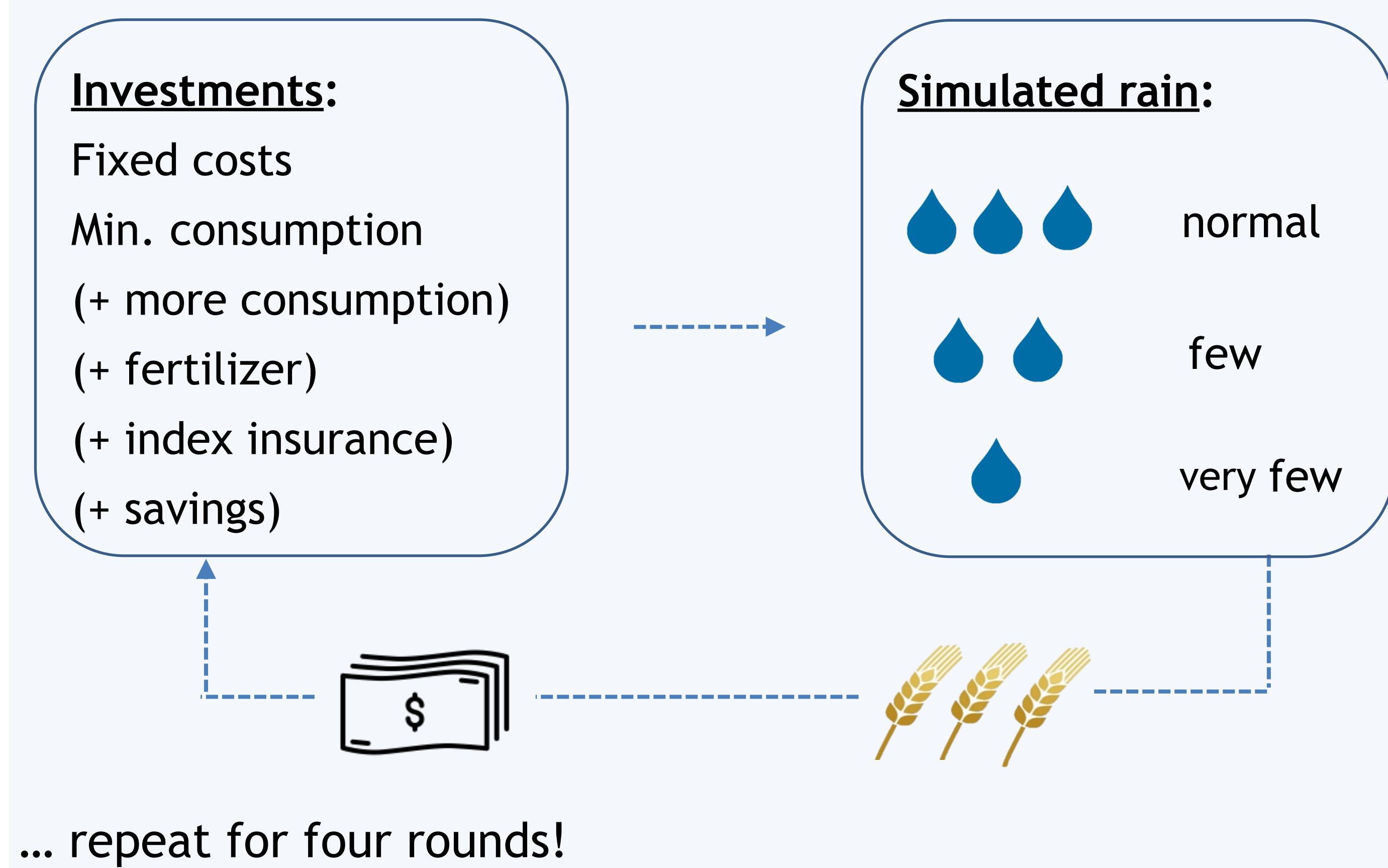
Laura Moritz, Lena Kuhn, Ihtiyor Bobojonov

Introduction

- Weather shocks call for climate adaptation strategies. One promising solution is agricultural index insurance.
- Index insurance literature focuses on (1) adoption behavior, and/or (2) ex-ante (EA) or ex-post (EP) impact.
- A causal analysis requires the simultaneous EA & EP estimation, but this has been rarely realized (Noritomo & Takahashi, 2020).
- **Research aim:** better understand *true* EA and EP index insurance impacts
- **Research questions:** index insurance impact on welfare and financial climate resilience
 - (1) ... ex-ante (*sole adoption*)?
 - (2) ... ex-post (*payout*) in lag 1?
 - (3) ... ex-post in lag 2?

Data

- We conducted a framed field experiment with 199 Uzbek farmers from the pilot region in 04/2019.
- Introduction to index insurance and played an insurance game:

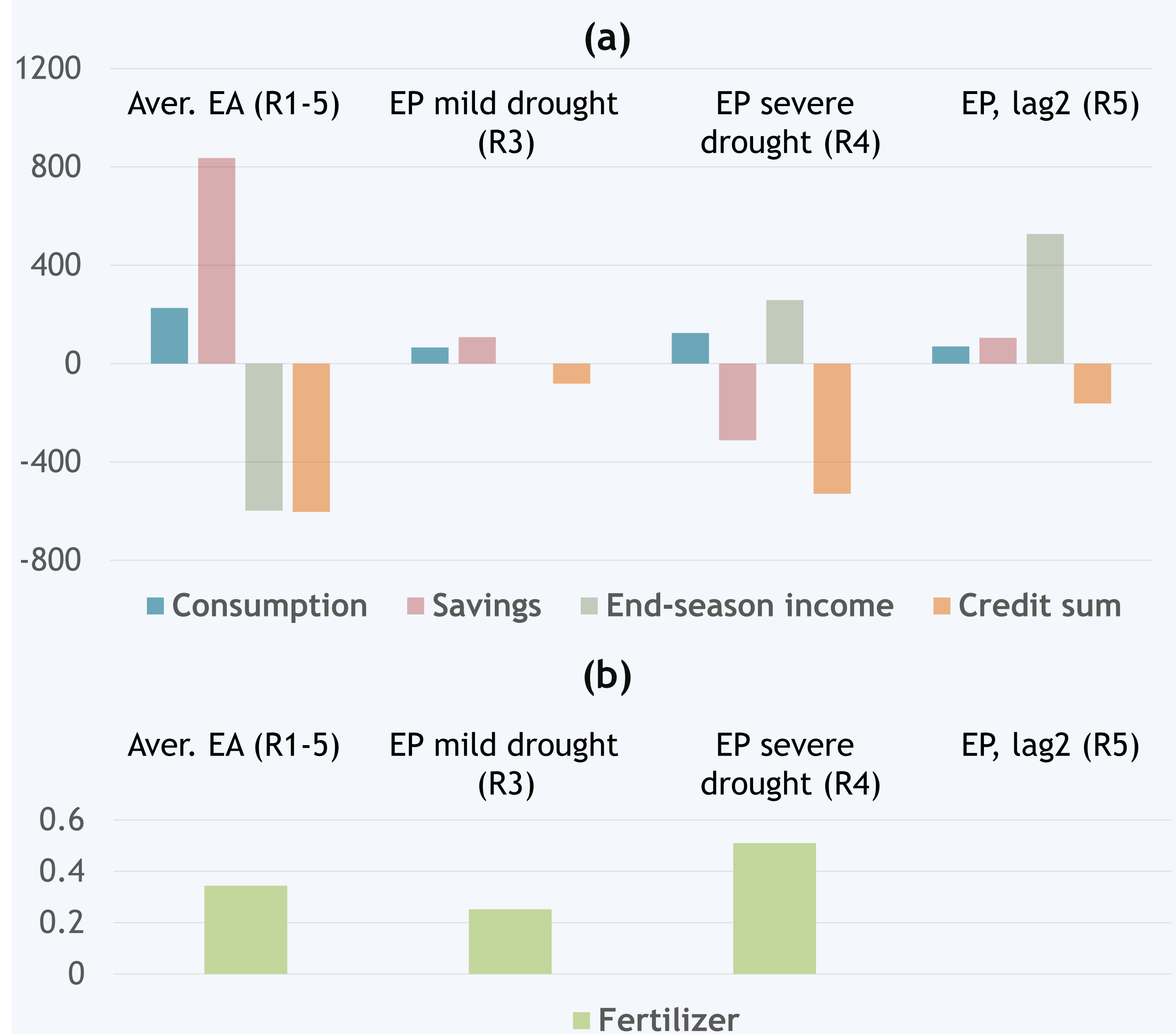


Estimation strategy

- Main input variables are the sole insurance adoption (EA) and insurance payout (EP).
- Insurance adoption is endogenous.
- We employ two estimation approaches:
 - (1) **Instrumental variable estimation** with one's peer insurance behavior as a valid instrument (average impacts)
 - (2) An **iterated seemingly unrelated regression** (post drought impacts).
- Outcome variables are investments into consumption, fertilizer, savings, as well as end-season income and external borrowing.

Results

Fig. 1: EA and EP index insurance impacts



Note: Impacts in (a) expressed in 1000 UZS. All displayed impacts are significant ($p \leq 0.1$). Covariates: endowment lost, consumption, fertilizer, savings, credit, individual FEs. $N_{EA} = 994, N_{EP} = 196$.

- Positive impacts on consumption, fertilizer, (savings, income) and financial climate resilience. Effects are stronger after severe drought and remain for more than one season.
- Size effects: consumption < savings, credit

Conclusion

- **Index insurance improves insured farmers' EA AND EP welfare and financial climate resilience:**
 - Index insurance is a promising climate adaptation strategy.
 - Implementing promising narrative into promotion activities may stimulate real adoption rates.
- **Limitation:**
 - (1) Experimental design simplifies reality, and
 - (2) simultaneity in investment decisions (except insurance!).
 - Best approximation of EA and EP impacts prior to the real implementation.

References

Noritomo, Y., & Takahashi, K. (2020). Can insurance payouts prevent a poverty trap? Evidence from randomised experiments in northern Kenya. *The Journal of Development Studies*, 56(11), 2079-2096.



More information:
Laura Moritz



KlimALEZ project



KlimALEZ



Partners:

