Rainfall Insurance and Informal Groups

Evidence from a Field Experiment in Ethiopia

Ruth Vargas Hill, Alemayehu Seyoum Taffesse
International Food Policy Research Institute

Daniel Clarke, Stefan Dercon, Ingo Outes,
Oxford University

Alebel Bayrou
Ethiopian Development Research Institute

Washington DC, June 2011

Background

- Risk is prevalent in rural Africa and seems to constrain technology adoption:
  - In Ethiopia, fertilizer is available on credit but often not used because of the losses it implies in the face of uninsured weather risk (Dercon and Christiaensen 2011)
- Given malign effects of uninsured weather risk, insurance innovations would seem to offer potential.
- One much talked about innovation is weather index insurance–insurance that pays on the basis of an observable index rather than on losses an individual experiences.

Promise and reality

- By linking insurance payments to an easily observable index, index-based insurance:
  - Avoids adverse selection and moral hazard problems
  - Has lower administrative costs - mostly thanks to no expensive loss adjustment

- However, early field experiments so far have not lived up to expectations: demand for insurance has been low (Giné et al. (2008), Cole et al (2009) and Giné and Yang (2008).
- Basis risk (specifically, probability of no payout when bad event is realised) is likely a large determinant of low demand, particularly for farmers that are risk averse.
  - Basis risk reduces the quality of the products, and makes them expensive for what they promise.

IFPRI®

Basis risk and risk-sharing groups

- Can index insurance be used as a tool to transfer large covariate shocks (extreme shortfalls in rain) away from groups, whilst encouraging group members to share smaller agricultural risks among themselves?
- Risk-sharing within groups is commonly practiced in rural Africa, but groups find it hard to manage risks that affect all group members simultaneously.

This Study

- Introduce an individual index-based rainfall insurance in rural Ethiopia.
- Policies are marketed through pre-existing risk-sharing groups: funeral societies called iddirs.
  - Primarily funeral societies, but becoming engaged in other forms of insurance provision to their members—a third provide cash payouts for other types of adverse shocks such as fires or illness; and a quarter offer loans.
  - Inclusive, often quite formalized (regular payments made monthly), and pervasive throughout most regions in Ethiopia.
- We selected leaders of iddirs to be trained in general concepts of insurance and the details of the products.
- We randomize the content of the training sessions:
  - In some iddirs, training emphasizes the benefits of sharing the policies, and thereby pool basis risk.

IFPRI®

Intervention Design: randomization of content

Training A: Focused on the individual benefits of insurance, and illustrated how to choose the right policy for individual farmers.

Intervention Design: randomization of content

Training A: Focused on the individual benefits of insurance, and illustrated how to choose the right policy for individual farmers.

Training B: Focused on the group benefits of insurance, and illustrated how to choose the right policy for a group, and how groups could enable risk sharing.

Results

- Look at the impact of training allocation on demand within the group.
- Focus on cohesive groups where leaders all received the same type of training.
- We find that:
  - Purchase of an insurance policy was 78% more likely (take-up increased from 35% to 62%)
  - The average number of policies purchased per person increased from 0.36 to 0.77.
  - The value of insurance purchased increased from $1.46 Birr to $3.15.
- There is no evidence to suggest that this was because the quality of training was better – individuals in iddirs whose leaders received the group-training did not have a better understanding of the insurance.

IFPRI®

Conclusions

- Study suggests substantial potential for using index insurance to insure groups, when groups are cohesive and high-functioning.
- Future work:
  - What would be the magnitude of the effects in less cohesive groups, or groups that are not as familiar with formalized risk-sharing?
  - Do sharing rules have to be formalized at the time of insurance purchase? What kind of rules can members credibly commit to?
  - How much sharing of basis risk is needed to encourage update? How can groups best finance this?
  - There are potentially other advantages to group contracts (reduced per unit transaction costs, increased trust in insurer), what is the combined effect of this advantage?

IFPRI®