Interlinking Credit and Insurance:

EPIICA: Ethiopian Project on Interlinking Insurance and Credit for Agriculture

Index insurance for agriculture in Ethiopia
Addis Ababa, Ethiopia, 9 December 2010

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The interlocking puzzle of input use in agriculture:

- Rain-fed agriculture exposes farmers to huge risks in the purchase of inputs:
  - I pay for fertilizer today, will it rain tomorrow?
  - Risk is a commonly given reason for low input use in Ethiopian agriculture (Dercon and Christiaensen, 2009).

- Most farmers need credit in order to be able to make the purchase of fertilizer + seeds in the leanest season.
  - Research from Kenya indicating that many farmers indicate at harvest time they would like to use fertilizer in the next season, but then don't.

- The large correlated risks from weather make agricultural lending extremely risky.
  - Most developing countries have very thin rural credit markets, rely on government subsidies and guarantees.

The interlocking puzzle of input use in agriculture:

Implication:

The presence of large correlated risks prevent:

- banks from lending to agriculture.
- farmers from using inputs.

- Since the core source of correlated risk is weather, index insurance seems to provide a natural way to resolve this problem:
  - Provision of insurance to lenders means that they can take on the risk of lending to agriculture.
  - Provision of insurance to farmers means that they can afford to take on the risk of using and borrowing for inputs.
  - Simultaneous provision of credit and insurance allows us to create 'state-contingent loans':
    - Receive inputs on credit, if the weather is bad you pay nothing back, if the weather is good you pay loan + premium + interest on both.

Obstacles to Credit Provision on the Supply Side:

- Banks in most developing countries very reluctant to lend to agriculture:
  - Correlated shocks mean that even if average default probability is low, portfolio risk from agriculture to lenders is huge.
  - Predominant source of correlated risks is weather, rainfall.
  - Pressure to forgive loans to farmers when default is caused by weather may be irresistible.
    - Consequence: private capital to ag very scarce even in countries where agriculture provides the best avenue for export-driven growth.

Obstacles to Insurance uptake on Demand Side:

- Recent research:
  - Demand for index insurance products is typically quite low, even though they seem to solve a problem in a very natural way. Why?
    - Trust? Is a new institution credible when asking for money now in return for future promises of payouts?
    - Time inconsistency? Difficult to ask poor people to pay up front for a service whose benefits will not be realized immediately?
    - Credit constraints? The poor simply can't afford the premia?
  - In addition, Duflo, Kremer, & Robinson (2010) show that:
    - Time inconsistency is a major problem in the demand for fertilizer:
      - farmers understand that yields are higher with fertilizer, but the time gap between costs and benefits makes purchase hard.
- So, on the demand side as well, linking credit and insurance may overcome the behavioral problems that are barriers to the uptake of index insurance products.

The Interlinking solution:

- Provide loans to farmers that are explicitly weather-contingent:
  - Farmers take loans to purchase inputs, insurance premium is added on to the loan amount and paid immediately to the insurer.
  - The beneficiary of the insurance policy is the bank itself, so if the weather index triggers the bank is paid with certainty (no intermediaries between bank and insurer).
  - The Cooperative Unions sit between the financial institutions and the borrowers and serve several critical roles:
    - First, they aggregate transactions and decrease the fixed costs of making loans.
    - Second, they are entities with the legal authority to contract with banks, much easier for formal financial institutions to deal with than smallholder farmers.
    - Third, they can use their extensive relationships with primary cooperative and farmers to serve as enforcers of the loan contracts, minimizing default risks.
  - Credit contracts written with Unions.

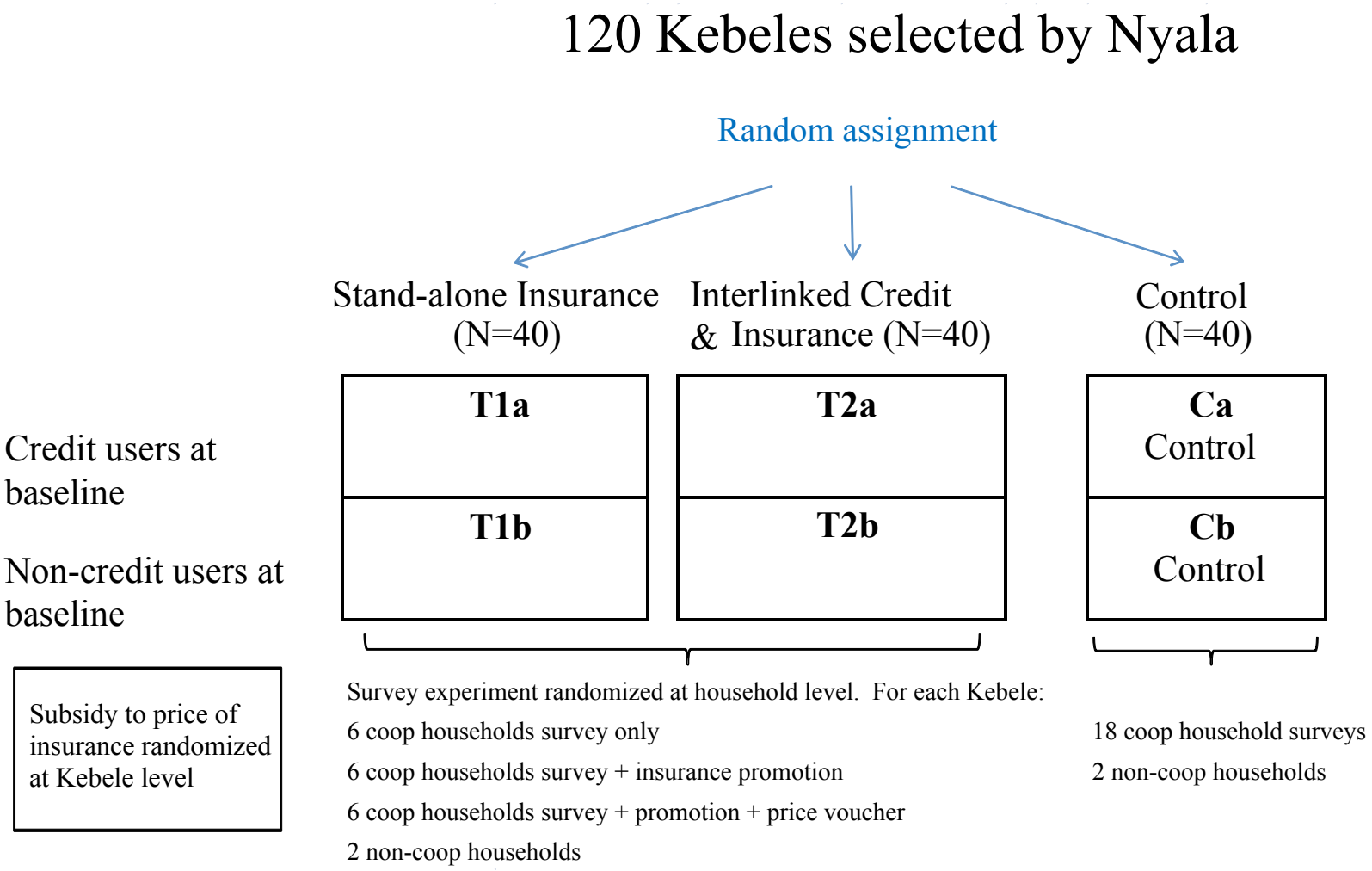
Our research partners:

- Nyala Insurance:
  - Provide rainfall & frost-based index insurance to farmers in Northern Shoa, North & South Wollo, and Gojam.
  - Insurance is intended to cover the *inputs* to production, not the output of the farm.
- Dashen Bank:
  - Will provide credit to farmers that will be backed up by the Nyala product; serves as a form of collateral substitute in ag lending.
  - Contracting is done through Cooperative Unions, who recruit farmers through Kebele-level cooperatives. No loan contracts with farmers.
  - This means that Dashen can contract with only a few, financially sound and legally well-founded intermediaries, who in turn use their relationships with farmers to enforce contracts.

The research design:

- Randomized controlled trial to provide simple, statistically robust measures of impact.
- Two arm trial:
  - A control group receives no insurance and no credit.
  - A ‘standalone’ arm receives only the index insurance product; we don’t prevent the use of credit but we also don’t provide any explicit form of interlinking.
  - The ‘interlinked’ arm receives state-contingent loans.
- The study will then be conducted by comparing each of the two treatment arms to the control, and to each other.
  - Provides a simple, transparent measure of the impact of insurance, the impact of interlinked insurance, and the impact of the interlinking itself.
- Three years of household surveys to track farmer behavior.

The research design:



Longer-term question on supply side:

- Can the provision of index insurance crowd in private sector credit to agricultural markets?
  - Long history of government 'amnesties' on agricultural loans when drought occurs.
  - Historically, virtually all credit to ag has been provided or backed by the government.
  - Government is now interested in trying to have the private sector take over more of this role, but a viable commercial model has yet to emerge.
- The empirical strategy: Track over the course of time as index insurance is switched on in new parts of the country:
  - Use institutional data from Dashen to track the spatial coverage of agricultural lending to see the extent to which they expand credit in the *places* that the insurance will cover them.

Concluding Points:

- There is a surge of interest in the provision of index insurance products, but the modalities are still unclear.
- Our project focuses on:
  - Interlinking on the demand side
    - What are the determinants of uptake and how do they differ between the standalone and the interlinked treatment arms.
    - Experimental estimation of demand curves for insurance with and without interlinking.
  - What is the impact of the product on farmer behavior*:*
    - Does insurance provision increase the use of inputs by farmers?
    - Do we see an increase in yields as a result?
    - Can the provision of intelligent financial services be a part of triggering a 'green revolution' in Ethiopia?
  - Ultimately, can cooperation between index insurers and banks be the vehicle to expand private-sector credit to farmers?