The potential for generic weather products and group contracts

IFPRI and the University of Oxford

Three main ideas

1. Simple, generic weather insurance
   - Insure many crops and cropping practices
2. Contracting groups not individuals
   - Insurance is something that benefits everyone, not just an individual product
3. Strengthening groups as well as insuring them
   - Combining insurance with contingent credit and group reserves products

1. Simple generic weather insurance

- Instead of offering a single insurance contract, offer a series of "building block" contracts
- Each insurance contract pays depending on the monthly rainfall total at the nearby weather station
  - "if rainfall is less than 100 mm in July the contract will pay 500 Birr"
- Each farmer has different weather concerns based on:
  - what crops they grow (e.g. barley farmers more concerned about September, wheat more concerned about August)
  - also how they grow their crops (when did they plant, what kind of soil did they plant on)
- Split the season up into different months, and allow farmers to choose which month they want to insure based on the weather needs they know they have

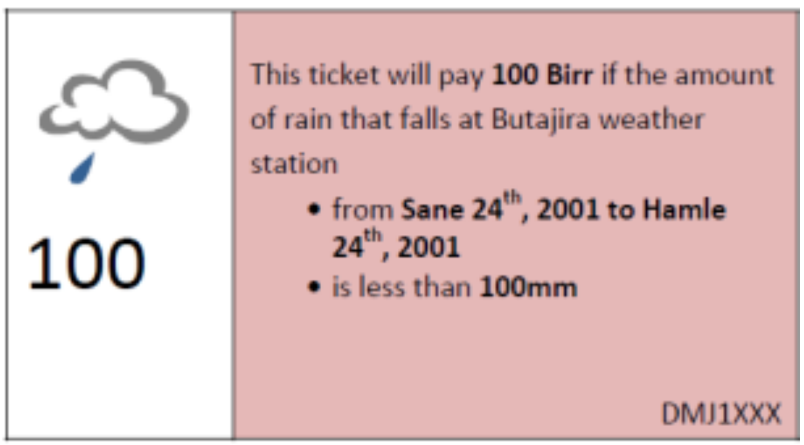
1. Simple generic weather insurance

- And how much they want to insure:
  - Severe yield loss (pays 1 in 10 years on average): pays out in the event very low levels of monthly rainfall recorded in mm at a given weather station
  - Moderate yield loss (pays 1 in 5 years on average): pays also for more moderate shortfalls in rainfall

1. Simple generic weather insurance

- Each contract is the simplest insurance contract one can think of: a fixed payout for one cut-off
- Can provide farmers with information on historical payouts easily

Front



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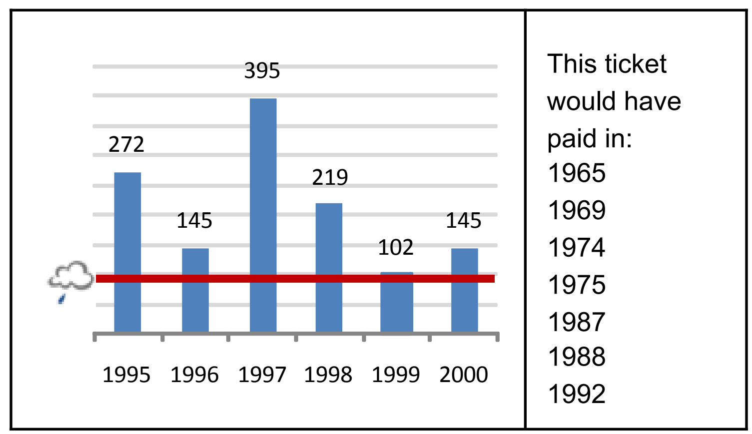


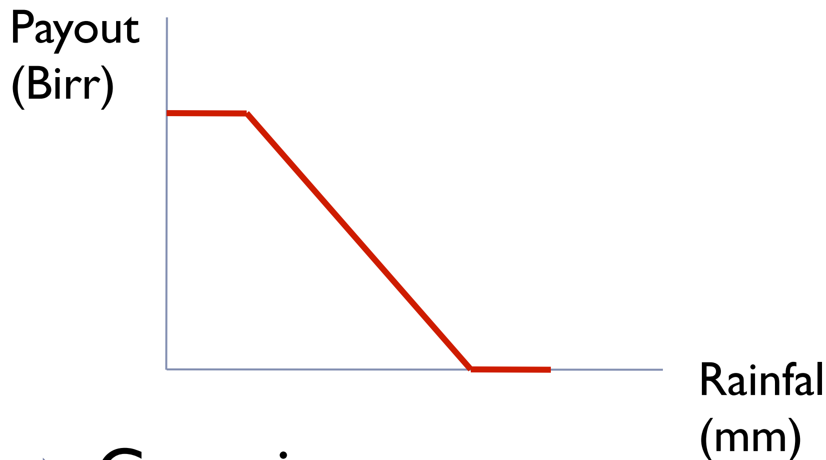
1. Simple generic weather insurance

- Flexible: they can be used as building blocks to insure the aspects of risk a farmer is most concerned about.
- Inclusive: Farmers growing many different types of crops in one area can be insured using different combinations of contracts:
  - E.g. Barley: August and September, Wheat: July and August.
  - Share other challenges of indexed products: particularly basis risk.

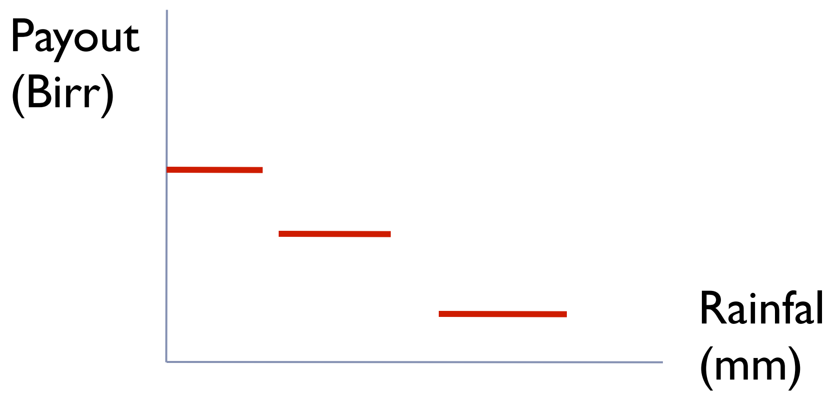
1. Simple generic weather insurance

- Difference between standard crop index contracts:
  - Allows each farmer to be different rather than designing for the average farmer
  - But they are less sophisticated and have a less smooth payout scale

- Standard:



- Generic:

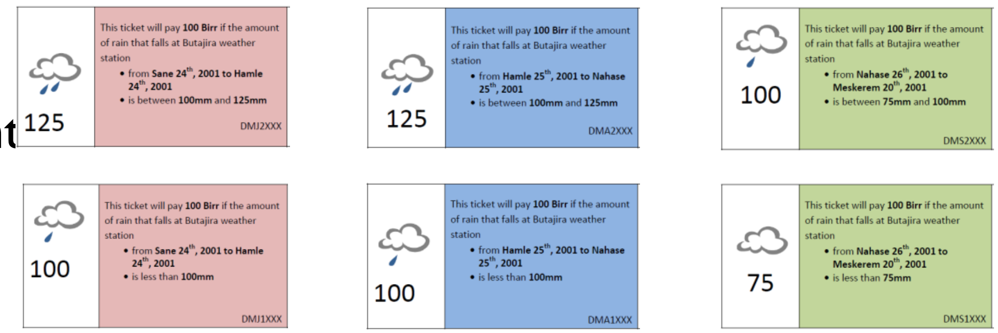


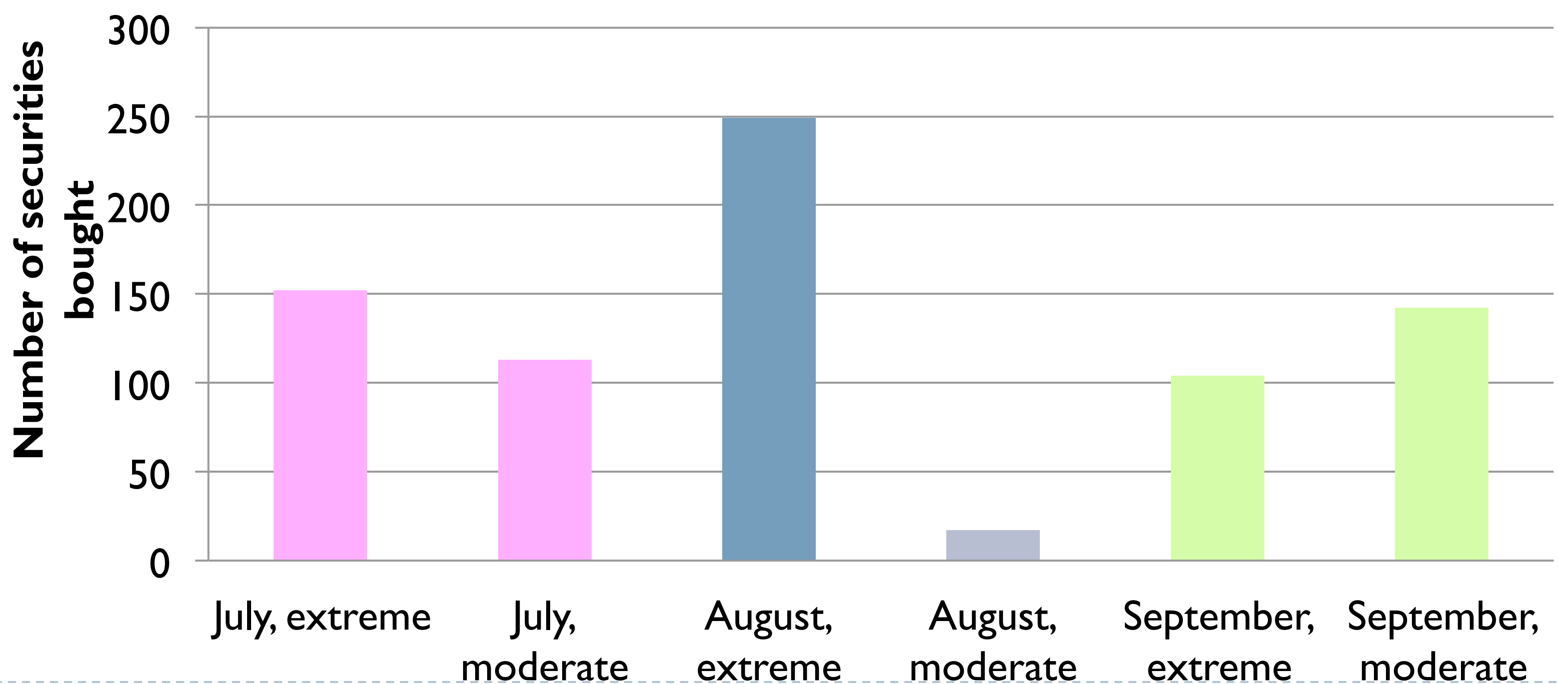
1. Experience thus far

- Tested in a research pilot in one kebele in 2009
- IFPRI and Nyala Insurance were one of 5 winners in the Marketplace for Innovations in Finance in Paris with this idea. The prize financed work with Oxford University in 2010.
- Was offered by Nyala Insurance in 24 kebeles in SNNPR and a number of locations in Amhara and Oromia in 2010.
- Similar experience elsewhere:
  - Similar product now also being tried by Microensure this season in the Philippines.
  - Mimics reinsurance markets for flood risk in the US.

1. Experience thus far: 2009 research pilot

- Half of endowment spent
- Purchases different for different farmers depending on the risk they faced



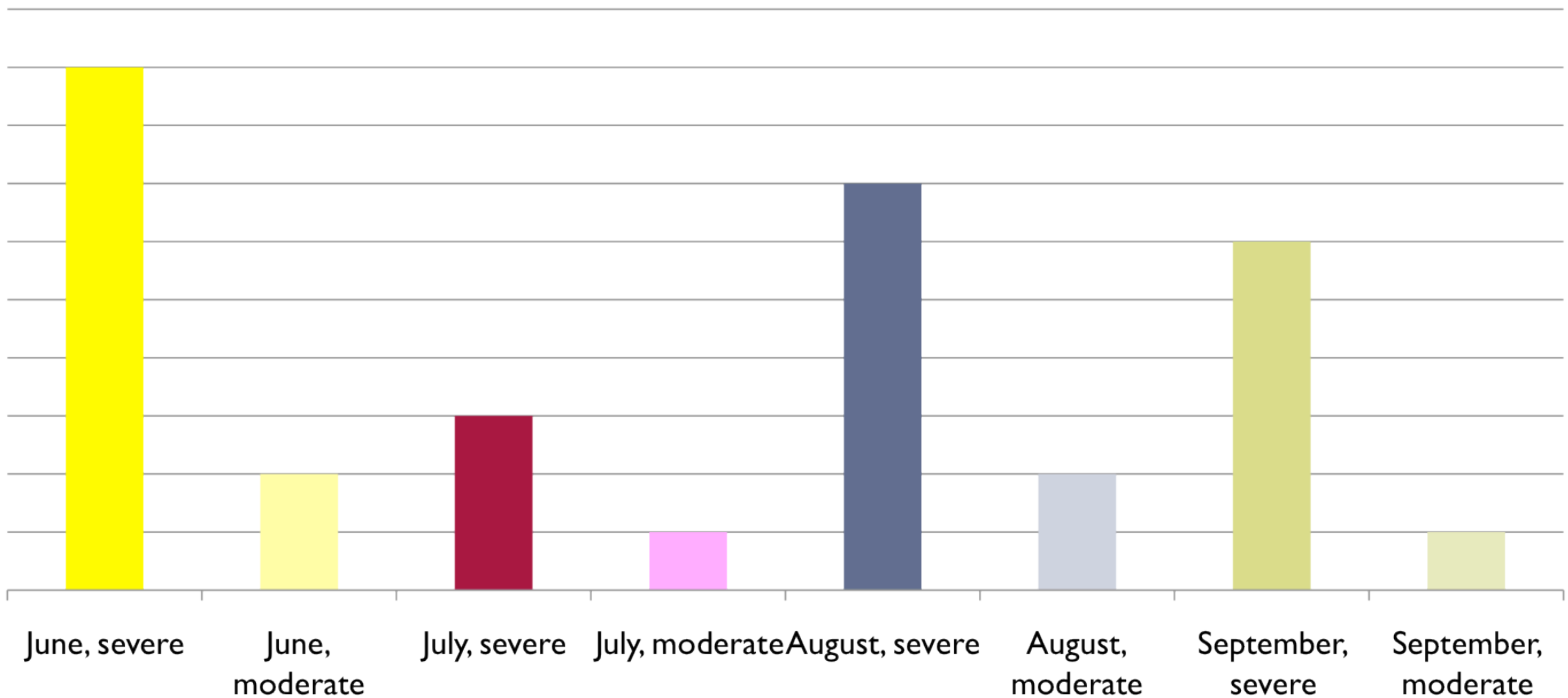


1. Experience thus far: 2010 sales

- In 2010 we worked with Nyala Insurance Company
- Two securities for each month of the main cropping season (extreme and moderate risk), each paying out 500 Birr
- Priced at their expected value.
- Survey carried out for 480 farmers in villages in which insurance was sold.
- Insurance purchases were high (42% of those trained requested insurance)

1. Experience thus far: 2010 sales

- Purchases again reflected differences in price risk:
  - Barley farmers more likely to buy in September and less likely to buy in July and August.
  - Soil quality and fertilizer also influenced which months were purchased.



1. Summary and future work

- Offer potential: simple, flexible and inclusive
- Need to ensure they are the best design possible: make sure they correlate well with insurable losses
- We continue to conduct data work on the design for this season in more sites:
  - Perfecting design: Now using data collected of farmer yields over 15 years to see how these products would have performed for different farmers and to improve their design
  - Coming up with clear suggestions on purchases: data work and continued discussions with agricultural extension workers to come up with clear recommendations of months and crops
- Basis risk in particular will remain a problem with these products

2. Contracts for groups not individuals

- All index products carry basis risk
- Basis risk may be high for an individual farmer
  - Correlation between weather at contractual weather station and crop yield from individual plot is likely to be low
  - Perhaps not surprising demand from an isolated farmer is low
- Basis risk may be much lower for groups of farmers that pool local idiosyncratic agronomic risk
  - Correlation between weather at contractual weather station and average crop yield in local area is likely to be higher
  - Demand from a group of risk-pooling farmers may be higher because group can soak-up basis risk via risk-sharing

2. Contracts for groups not individuals

- Question: Can insurers do better by selling insurance products to groups of policyholders?
- Answer: YES
- In quite general circumstances demand for formal index insurance should be higher when individual variations are mutualised within a community.
  - Basis risk = Idiosyncratic element of basis risk + systematic element of basis risk
  - Mutual insurance group can internalize idiosyncratic part of basis risk
  - Selling to a group of farmers who are insuring each other against the individual element of basis risk improves the quality of the insurance and increased demand

2. Contracts for groups not individuals

Groups can help increase demand:

1. Increase the **quality of decision making**
   - Group may better placed than individuals to understand, use and evaluate products
2. Reduce **administrative costs** of providing insurance
3. Increase the level of **trust**
   - Increase trust when used as intermediaries
4. Increase the **suitability of indexed products**
   - Soak up basis risk through within-group pooling of idiosyncratic risk
   - Avoid crowding out of informal arrangements, even if they are faced with enforcement problems (individual participation constraint is not affected – Rios-Rull/Attanasio)

2. Experience thus far: 2010 sales

- In 2010 first attempt to market weather products to informal risk-sharing groups, in collaboration with Nyala Insurance

- Simple insurance contract was marketed to iddirs in SNNPR. Kebeles chosen because iddirs were:
  - Mostly premium based : regular premiums, payout in cash and kind at time of funeral of member's family
  - Many are also involved in other idiosyncratic risks (oxen, fire, etc)
  - About 50-100 members per iddir, multiple iddirs in each kebele

- All iddirs shared the benefits of training leaders, increased trust, reduced administrative costs

- Only some iddirs were encouraged to use the provision of index contracts to encourage insurance sharing within the group

2. Experience thus far: 2010 sales

- All iddirs offered the same individual product marketed through the group
- All iddirs had leaders and members selected to attend training exercises explained the basic concepts of insurance and discussed in detail the workings of the Nyala insurance policies.
- But some iddirs participated in training A and some in training B:
  - **Training Exercise A: Focused on the individual benefits of** insurance, and illustrated how to choose the right policy for individual farmers.
  - **Training Exercise B: Focused on the group benefits of insurance.** It illustrated how to choose the right policy for a group of farmers and how iddirs could play a role by both providing encouraging sharing within the group.

2. Experience thus far: 2010 sales

- 42% take-up among all trained farmers.
- 1% take-up among non-trained farmers. Survey data suggested those trained did not seem to be aware of the products.
- The type of training mattered:
  - In iddirs who received training A (insurance is for yourself): 37% take-up
  - In iddirs who received training B (insurance is something for your community and iddir that you can share): 58% take-up
- Study suggests that thinking of insurance as a group product can help generate higher insurance take-up.

2. Future work

- Work in selected clusters in the main regions in 2011.
  - Sites where we already worked collecting data and identifying risks.
- Work on designing a group product, and group sharing rules.
  - Offer some groups individual products for their members (as before)
  - Offer some groups an individual product with training that strongly encourages sharing rules
- Evaluate how well this works by using before and after data collection.
  - What kind of sharing rules help groups manage common basis risk
  - What kinds of groups does this work for?

3. Strengthening and insuring groups

- Combine insurance with saving into group reserves and access to contingent credit:
  - **Group reserves:** groups will save into an account that they can use to pay for bad years based on agreement of all groups members.
  - **Contingent credit:** groups will complete the paper work to ensure they have access to credit at a time when they really need it and the index insurance contract does not pay out.
- By combining insurance with these groups will be in a stronger position to deal with idiosyncratic and systematic basis risk
- As a result insurance take-up may be higher
- This work is planned for 2012