Interlinking Insurance and Product Markets
Experimental Evidence from Contract Farming in Kenya

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Introduction
Activating intertemporal distortions (Sarris, 2002; Carter et al., 2014)
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Why no insurance with ex-post premium? **Enforcement concerns**
Activating intertemporal distortions (Sarris, 2002; Carter et al., 2014)

Why no insurance with ex-post premium? Enforcement concerns

What if the insurer were the product buyer?
Experimental Setting and Design

Sugarcane Contract Farming firm in Western Kenya
- Inputs on credit to farmers. Payment through harvest deduction
- A growing phenomenon in developing countries (UNCTAD, 2009)

Insurance: *Double trigger* based on individual plot and area yields (Carter et al., 2013)
- Admin plot-level data to predict yields

Experimental Design (∼600 farmers):
- **A1** Premium paid **upfront** at full price
  - “Full premium"=85-100% of actuarially fair value
- **A2** Upfront premium at 70% of full price
- **B** *Interlinked Contract*: premium **deductible** from harvest revenue
  - NPV equivalent: premium includes interest
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Related Literature

- **Demand for agricultural insurance**
  - Many nice papers. For fairness, we are not citing any of them here (we do in the paper).

- **Interlinked transactions**
  - Large theoretical literature (Bardhan, 1980; Bell, 1988)
  - Limited empirical evidence
    - Casaburi and Reed (2014), Macchiavello and Morjaria (2014)

- **Insured loans** (Gine and Yang, 2009; Karlan and Udry, 2011)
  - Does risk affect demand for credit?
  - Lower take-up than standard loans: limited liability insurance
  - Hard to enforce for banks

- **Technology diffusion through credit contracts**
  - Tarozzi et al. (2014), Guiteras et al. (2014)
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Among largest take-up rates at actuarially fair premium

Casaburi, Willis (Stanford, Harvard)  Interlinking Insurance and Product Markets
Among largest take-up rates at actuarially fair premium
Potential (Intertemporal) Explanations

Liquidity Constraints
- "I don’t have cash" as most common answer for not subscribing

Intertemporal Preferences
- Impatience rates higher than company interest rates

Trust
- Delayed payment reduces concerns insurance company may be a scam or may default

Reference Point
- Future payment as “lower gain” as opposed to “loss”
  - Koszegi and Rabin (2007)

Relative Thinking
- Paying amount \( X \) is less salient if \( X \) is related to large denominator

Koszegi and Rabin (2007)
Liquidity Constraints: Small Scale Experiment

Cash drop $\approx$ insurance premium (Cole et al., 2013), cross-cut

Insurance Take - up Small Experiment
N=120

Casaburi, Willis (Stanford, Harvard)
### Liquidity Constraints: Heterogeneity

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Side-Selling Concerns

Our Setting
- Limited side-selling because of crop characteristics
- Experiment in locations with low competition

General Points
- Premium is small increase in overall debt (compared to inputs)
- Imperfect observability of whether payment is going to be triggered
- Continuation value of relation with buyer higher than premium
  - Much higher than value from relationship with stand-alone insurer
High take-up of interlinked insurance with ex-post payment

- If insurance leads to extra investment and buyers get a share of the extra profits, then buyer does not need to make profits on the insurance.

Feasibility of ex-post premium in other settings (i.e. non exclusive buyers)?

- Cooperatives; partnership between buyers and banks

Addressing the low re-insurance puzzle?
(Cole et al., 2014; Karlan et al., 2014)

- Feasibility of interlinked multi-year commitment contracts?
- Opt-out vs. of opt-in
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