Interlinking Insurance and Product Markets

Experimental Evidence from Contract Farming in Kenya

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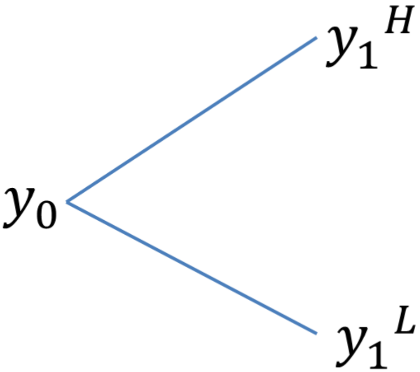
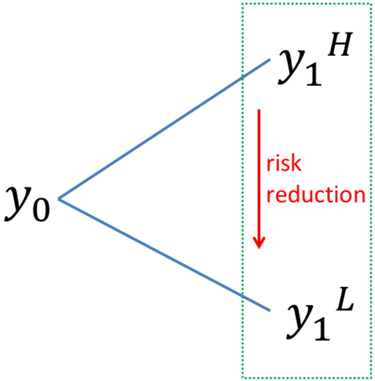
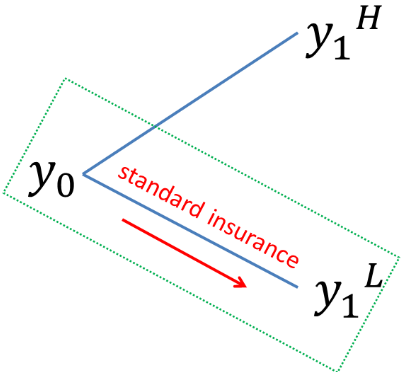
Introduction





y_0
$y_1{}^H$
risk
reduction
$y_1{}^L$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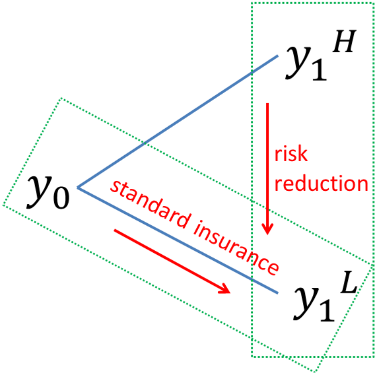
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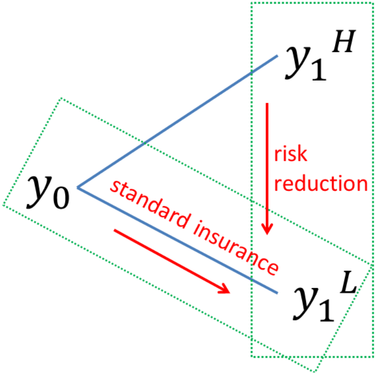
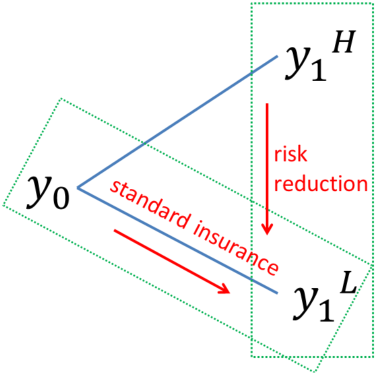


- Activating intertemporal distortions (Sarris, 2002; Carter et al., 2014)



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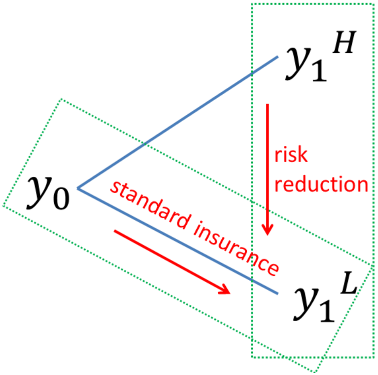
- Why no insurance with ex-post premium? **Enforcement concerns**



- 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**?

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 ($\sim$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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Experimental Setting and Design

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  - 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)

Related Literature

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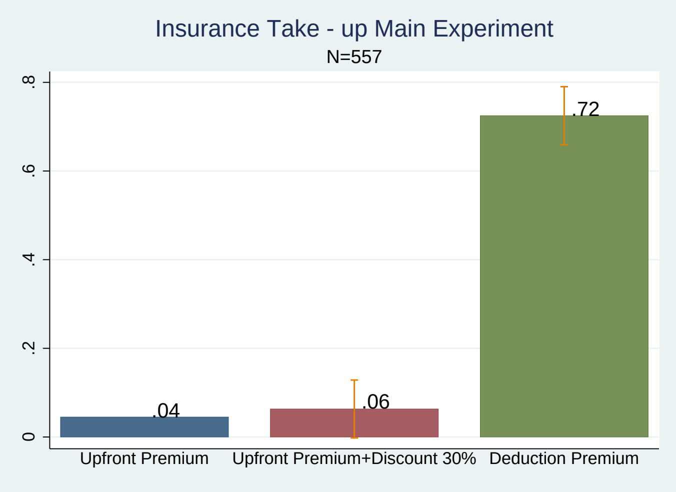
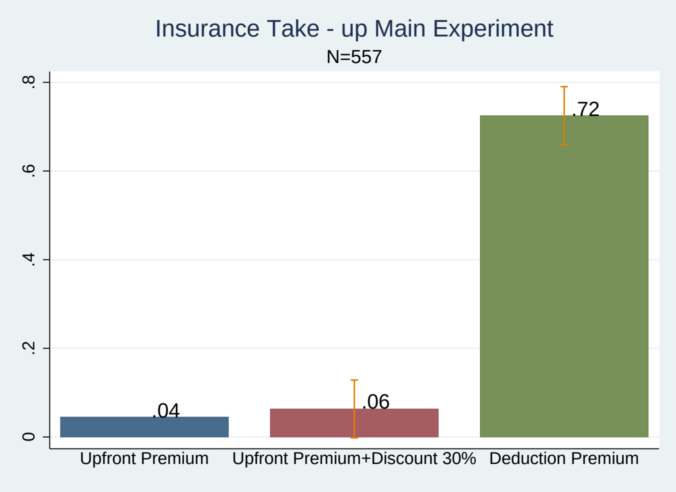


- Among largest take-up rates at actuarially fair premium



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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

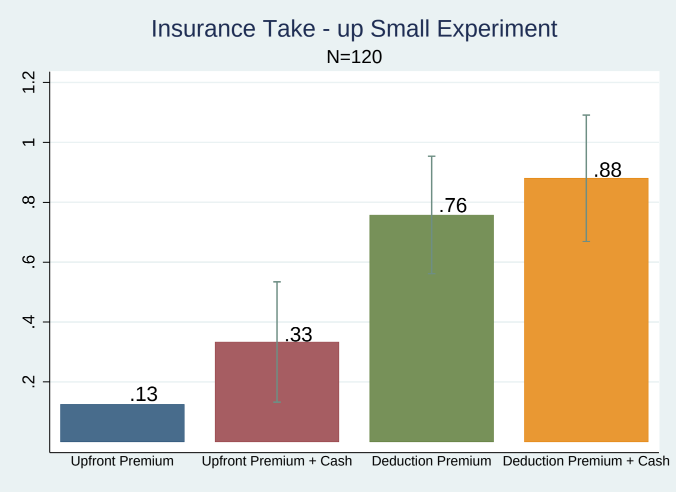
- Future payment as “lower gain" as opposed to “loss”
  - Koszegi and Rabin (2007)

Relative Thinking

- Paying amount X is less salient if X is related to large denominator

Liquidity Constraints: Small Scale Experiment

Cash drop ≈ insurance premium (Cole et al., 2013), cross-cut



Liquidity Constraints: Heterogeneity

	(1)	(2)	(3)	(4)	(5)
B: Deferred Premium	0.682***	0.762***	0.804***	0.771***	0.893***
	[0.029]	[0.041]	[0.073]	[0.037]	[0.111]
Land Cultivated (Acres)		-0.000			
		[0.005]			
... *B		-0.018*			
		[0.010]			
Any Cow			0.068		
			[0.049]		
... *B			-0.114		
			[0.084]		
Savings for Sh1,000				0.006	
				[0.045]	
... *B				-0.180**	
				[0.072]	
Yield (t-1)					0.001
					[0.001]
... *B					-0.004**
					[0.002]
Dep Var Mean	0.054	0.054	0.054	0.054	0.054
p-value $\gamma + \delta$		0.029	0.498	0.002	0.042
Observations	557	522	528	526	557

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 betweens 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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