

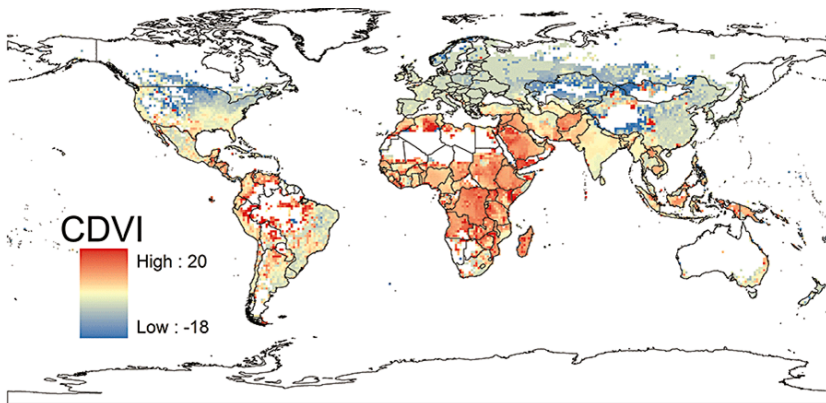
Impact of Insurance Indemnifications on Coping Strategies of Small Scale Farmers

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Microinsurance Workshop, 2014

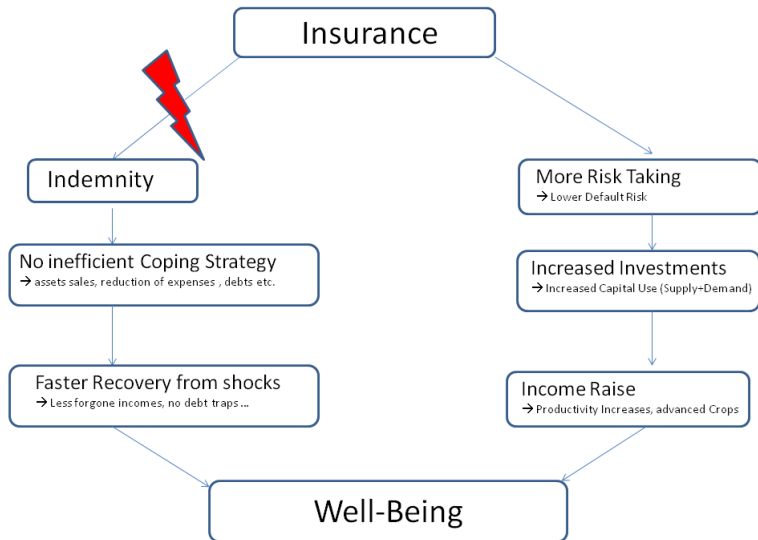
Vulnerability to Climate Change



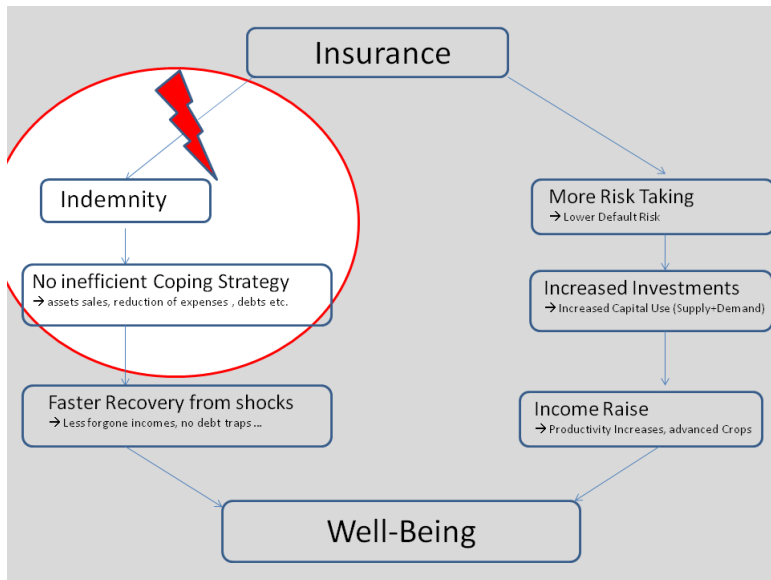
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Insurance Impact Channels



Research Questions



Insurance Scheme

- ▶ **Insurance Type:**

Yield Insurance against climatic shocks in Colombia
First insurance offered in 2004

- ▶ **Subsidy:**

up to 60% of premium subsidized by public fund
(budget approx. 16 mio.US\$ in 2011)

- ▶ **Objective:**

less emergency aid; investments in the aggr. sector

- ▶ **Coverage:**

Insurance covers several crops (45 740 hectares in 2010)
Only one insurance company (MAPFRE)

Tobacco Contract Farmers

- ▶ Small Scale Farmer
- ▶ Particularly vulnerable HH
- ▶ Implementation of the insurance

Research Area:

- ▶ Santander, Colombia (main tobacco area)

Survey data:

- ▶ 468 HH including
- ▶ HH information on 2010 + several retrospective questions 2009 (shocks, insurance, loans, assets, income, expenses, production)

Evaluation Setup

Tobacco Sector in Colombia:

- ▶ 2 companies dominate the market
- ▶ both companies are similar in mode of operation, size etc.

Insurance Implementation:

- ▶ one company started to offer insurance in 2008
- ▶ farmers of other company have no access
- ▶ voluntary take-up decision
(insurance adoption: 2009:65%; 2010:85%)

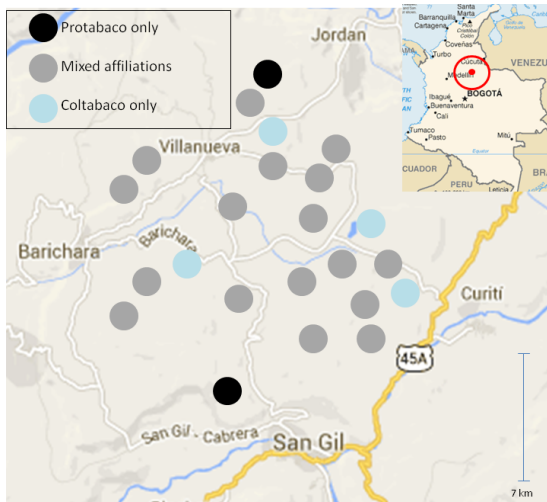
Econometric Framework

$$ATE = E [C_{1i} | I_i = 1, S_i = 1] - E [C_{0i} | I_i = 0, S_i = 1]$$

Assumption:

Coping Strategies of HH the same in the absence of treatment

Research neighborhoods and tobacco company affiliation



Source: google maps and <http://atlasdesantander.blogspot.de/> (8.10.2013)

Balance Table (I)

indemnified vs. non-indemnified households

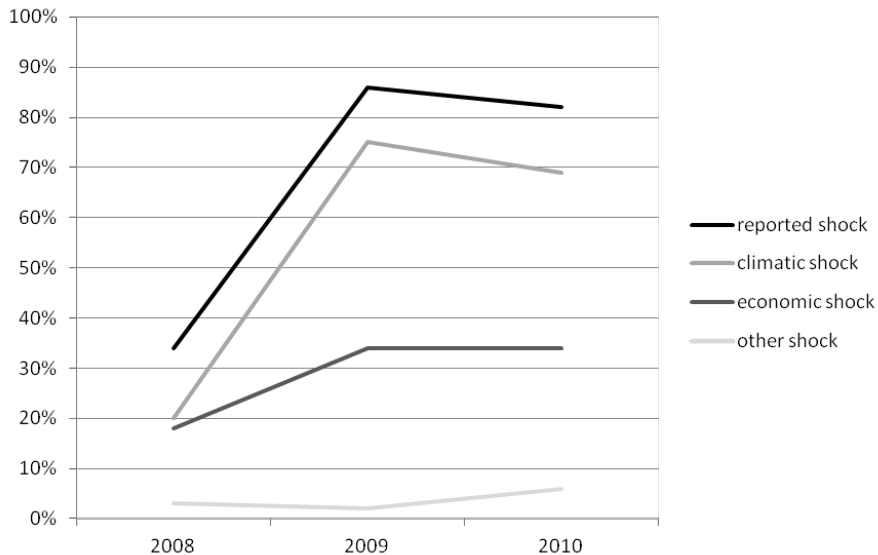
HH Characteristics	indemnified vs. non-indemnified			
	2009		2010	
	Coeff.	P	Coeff.	P
Age	-0.04	(-0.03)	-2.79	(-1.57)
Education Head	-0.30	(-1.14)	-0.26	(-0.78)
Children	-0.05	(-0.36)	-0.21	(-1.24)
Man	-0.01	(-0.38)	0.00	(0.03)
Renter (2005)	0.07	(1.20)	0.04	(0.55)
Remoteness	-6.60**	(-2.79)	-4.83	(-1.57)
More than 4 mio. Pesos Debts (2005)	0.05	(0.92)	-0.00	(-0.07)
Assets in mio. Pesos (2005)	-3.21	(-0.90)	2.49	(0.54)
Asset Index (2005)	0.20	(1.69)	0.04	(0.27)
Land size farm ha. (2005)	-0.12	(-0.90)	-0.07	(-0.41)
Land diversification (2005)	0.03*	(2.22)	0.03*	(2.04)

Balance Table (II)

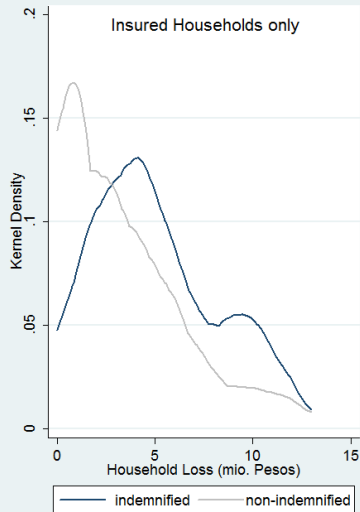
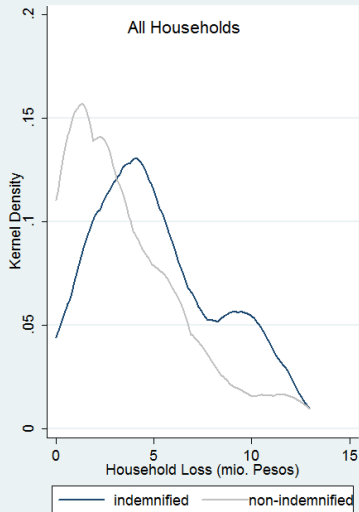
indemnified vs. non-indemnified households

Productive Characteristic	indemnified vs. non-indemnified			
	2009		2010	
	Coeff.	P	Coeff.	P
2 Harvest cycles (2008)	0.11*	(2.19)	0.23**	(3.66)
Tobacco size main ha. (2005)	0.06	(0.87)	0.10	(1.13)
Burley main harvest % (2005)	0.02	(0.67)	0.07	(1.81)
Irrigation System (2005)	0.03	(1.19)	-0.00	(-0.02)
Production Techn. Index (2005)	-0.17	(-1.56)	-0.15	(-1.05)
Input Loan main ha. (2007)	0.50**	(2.96)	-0.01	(-0.04)

Prevalence of Shock Types



Loss overlap of indemnified and non-indemnified HH



Insurance events, 2009-2010

	N	2010	N	2009
Indemnification if insured (%)	276	20	276	56
Value per payout (mio COP)	54	0.53	105	1.55
Satisfaction with the Insurance:				
satisfied (%)	271	52		
unsatisfied (%)	271	47		

Note: only insured households are included.

Estimation Strategy

$$\text{Coping Strategy} = \beta_0 + \beta_1 \text{Indemnity} + \beta_2 \text{Loss}_i + u_i$$

1. Controls = observed differences
2. HH Fixed Effects if possible

Impact on Coping Strategies, 2009-2010

Coping Strategy	Pooled		Fixed Effects		Multivariate Probit	
	N	Mean	Coeff.	z-Val.	Coeff.	z-Val.
No active Strategy	724	0.36	0.29	(0.57)	0.29*	(2.12)
Resource Liquidation	724	0.18	-2.50**	(-3.23)	-0.51**	(-2.98)
Loans	724	0.33	0.46	(1.04)	0.18	(1.29)
Consumption Reduction	724	0.08	0.71	(0.57)	-0.14	(-0.70)
Income Diversification	724	0.06	1.00	(0.71)	0.49	(1.93)

* $p < 0.05$, ** $0. < p < 0.01$. Controls: Loss; Loss²; input loan; #harvests

ITT Impact on Financial Well-Being, 2010

	N	Mean	Coeff.	z-Val
Loan (%) ¹	936	0.54	-0.51	(-1.60)
Loan (mio.COP) ¹	935	2.00	-1.33**	(-4.33)
Outstanding Loan 2011	468	1.98	-0.73	(-1.75)
Savings < 0.5 mio	359	0.77	-0.06	(-1.04)
Savings 0.5-1 mio	57	0.12	0.07	(1.66)
Savings > 1 mio	48	0.10	-0.01	(-0.25)
log Assets	434	1.72	0.00	(0.02)
Expenses (mio. p.c.)	452	3.06	0.31	(1.10)
Income (mio. p.c.)	464	2.86	0.14	(0.42)

* < 0.05, ** < 0.01. ¹Available for 2009 and 2010. Controls: Loss, Loss², input loan,

#harvests, debts 2005, children, remoteness, burley, asset index.

Conclusions

Findings

1. Inconsistencies in the allocation of indemnities
2. Indemnity protected HH resources after shocks
3. Indemnified HH better equipped to face future shocks

→ **Indemnity increased resilience but still uninsured risk!**

THANK YOU!

Insurance adoption and HH shocks (%) by neighborhoods

Neighborhood	N	Insurance Adoption (%)		
		2008	2009	2010
Alto de Martha	11	27	82	100
Carrisal	9	33	100	89
Chapala	7	29	50	71
Choro	29	22	61	48
Higueras	3	50	100	100
La Laja	1	100	100	100
La Peña	7	0	100	100
Las Joyas	14	18	47	100
Limoncito	3	0	33	67
Macaregua Hato	30	9	58	87
Macaregua Rincon	35	20	60	89
Montecitos	20	10	75	100
Palo Blanco Alto	18	10	21	83
Palo Blanco Bajo	46	7	61	89
Pomarroso	4	50	75	75
Quebrada Seca	3	33	33	67
San Francisco	17	23	71	100
San Jose	4	36	50	0