Crop Insurance in India: Drivers and Impact

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INTRODUCTION

- Crop insurance helps both farmers and Governments: After a bad agricultural season, it helps farmers to cope with risks through pay outs and reduce the burden of Government's disaster payments (Veermani *et al*, 2005)
- Insurance also allows farmers to take more risks in farming: use resources more efficiently and take up enterprises which they wouldn't have in absence of insurance coverage (Ahsan et al,1982).
- In-spite of 30 years of efforts and high subsidies, adoption of crop insurance by Indian farmers is low.
- This study tries to understand why.

OBJECTIVES

- To identify the correlates of adoption of crop insurance by farmers in India
- To assess the impact of insurance on farmers' input use in agriculture

DATA AND METHODOLOGY

- We use data from Situation Assessment Survey of Farmers (SASF) conducted by the National Sample Survey Office (NSSO) in 2013.
- Data collected from a representative sample of 35,200 agricultural households from all parts of India for two major agricultural seasons, Kharif (2012) and Rabi (2012-13), in two separate visits in 2013.
- If a household insured even one of the crops, we define it as an adopter of crop insurance
- Probit regression with state dummies and a rich set of controls to identify correlates of take-up of insurance
- We use Propensity Score Matching (nearest neighbour matching) to measure the impact of crop insurance on input expenditure, credit uptake, total cost of production and yield for rice growers.

RESULTS

Extent of adoption of crop insurance

	Crop insured	Kharif		Rabi	
		Freq.	%	Freq.	%
Insured	Mandatorily	2,212	4.07	1,335	2.79
	Voluntarily	398	0.73	180	0.38
	Sub total	2,610	**4.80**	1,515	**3.17**
Not insured	Not insured	51,749	95.20	46,314	96.83
	Total	54,359	100	47,829	100

Premium paid and compensation received by farmers

Variable	Kharif	Rabi
Average premium($/ farm)	32.15	19.90
Average crop loss ($/ farm)	437.28	553.70
Average amount received in claims ($/ farm))	102.77	172.35
Claims to loss ratio	0.24	0.31

- Only 4.80 percent and 3.17 per cent of all farmers insured their crop(s) in Kharif and Rabi seasons, respectively.
- Not even one in a hundred farmer insures her crop voluntarily.
- Out of 385 farmers who have voluntarily insured their crops, 260 farmers have reported losses in Kharif and the average loss amounts to 437.28 $/ farm.
- Similarly, in Rabi, 117 (Out of 175) farmers have reported losses averaging Rupees 102.77 $/ per farm.

Timeliness in settlement of claims

Timeliness in claim settlement	Kharif (in %)	Rabi (in %)
Claim received in time	5.9	7.3
Delayed receipt of claims	7.1	8.2
Not received claims (though suffered loss)	87	84.6

- 85 per cent of the farmers who insured their crop and suffered crop losses in the season did not receive any compensation.
- Even farmers who did receive some compensation, reported delays in settlement of claims.

Drivers of adoption of crop insurance

N- crop insured	Probit
Literate-non formally	0.3219**
	(-0.1261)
Literate-below secondary	0.1398***
	(-0.0435)
Literate-above secondary	0.1454**
	(-0.0614)
Received Ag. Training	0.2290***
	(-0.0855)
Scheduled Tribe	-0.5702***
	(-0.097)
Scheduled Caste	-0.3235***
	(-0.0876)
Other Backward Caste	-0.1557***
	(-0.0597)
Land (ha)	0.1319***
	(-0.0178)
Land^2	-0.0034***
	(-0.0009)
Land leased-in (ha)	-0.0605***
	(-0.0201)
Agriculture is primary source of income	0.2440***
	(-0.0532)
Total value of output (Rs./ha)	0.0008**
	(-0.0003)
If suffered crop losses in last year	0.2006***
	(-0.0601)
% of all farmers who reported crop loss in the same region	0.2114
	(-0.4081)
Subsidy	0.1723***
	(-0.0353)
Irrigated	0.0203
	(-0.0615)
Drought	-0.2685***
	(-0.0906)
Constant	-11.0571***
	(-1.8171)
N	30353

Standard errors in Parenthesis
State dummies are used in the regression

- Larger farmers and more educated farmers, specially those who have received some training in agriculture, are more likely to insure their crops.
- Experience of crop loss induces farmers to buy insurance.
- Subsidy on premium also has a positive influence on crop insurance uptake.
- Farmers from socially disadvantaged groups (SCs & STs) and tenants are less likely to buy crop insurance. Insurance uptake is also lower in drought-prone regions

Impact of crop insurance on selected variables :Result of propensity score matching

Variable	Treated	Controls	Difference	t-stat
Debt (($/ Household)	3101.96	1628.44	1473.52	**5.27**
Crop production cost ($/ farm)	476.11	215.83	260.27	**5.20**
Seed cost($/ farm)	29.37	20.77	8.60	**3.55**
Debt from informal source ($/ Household)	1616.59	823.48	793.12	**5.36**
Value of farm output($/ farm)	1061.51	939.36	122.16	0.98
Investment in agriculture($/ farm)	1179.87	1015.21	164.65	0.47

- Insured farmers have higher outstanding loans. This could be ($/ farm) cause insurance is bundled with crop loans for most farmers. However, insured farmers borrow more for agriculture, even from informal sources.
- Insured rice growers spend more on seeds, possibly because of adoption of high yielding varieties.
- We do not find a significant difference in investment in agriculture and average yields between insured and uninsured farmers.

CONCLUSION

- Adoption of crop insurance by farmers is very low in India. Rarely do farmers insure their crops voluntarily.
- A large percentage of insured farmers reported crop losses, but did not receive any compensation.
- Crop insurance adopted by small number of farmers from upper social strata (caste) with more land, better education and better access to formal extension services.
- Subsidy on premium does have a positive impact on insurance uptake.
- Insured farmers seem to take more risks in farming as reflected by their higher debts and higher input costs (particularly seed). However, we do not detect a significant impact on crop yields.

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