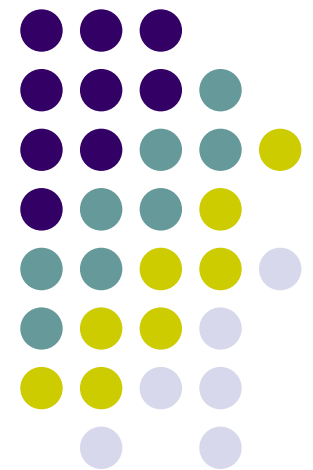
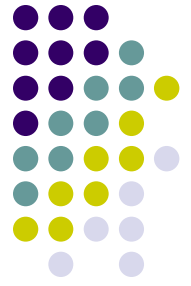


# “Patterns of Rainfall Insurance Participation in Rural India”: for Discussion

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April 20  
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# The structure of the paper

- Empirical investigation on the (microeconomic) determinants of rainfall insurance participation by farmers in rural India using survey data.
- Innovative insurance product
  - Rainfall index insurance (publicly observable, easily verifiable and contractible product), payouts depend on rainfall deficiency, little issues of adverse selection or moral hazard at a cost of basis risk
- Participation is regressed on measures of farmers' characteristics, including utility function, basis risk, credit constraints, knowledge of insurance, and wealth.



# Main findings of the paper

Benchmark hypotheses: participation is

- decreasing in basis risk & increasing in the size of risk: (mostly) **yes**
- increasing in risk aversion: **no**

Modified hypotheses: participation is

- decreasing in more severe credit constraints: **yes**
- increasing in familiarity: **yes**

→ Estimation results highlight dominant role for wealth, credit constraints, and information/network effects over risk aversion and basis risks

→ Insurance scheme is not reaching the most vulnerable sector (poverty reduction impact might be limited)

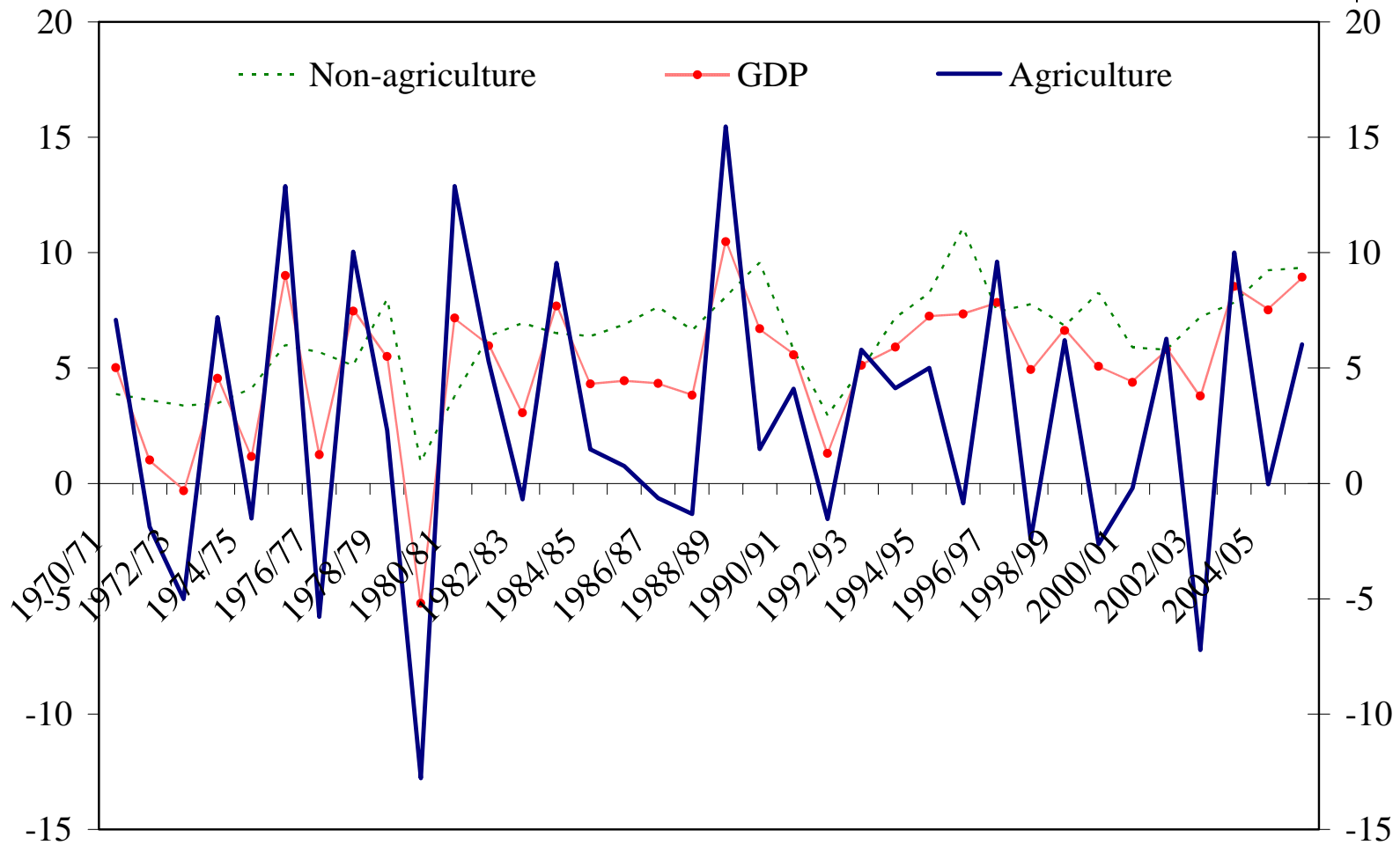
# Agriculture in India: Macroeconomic context



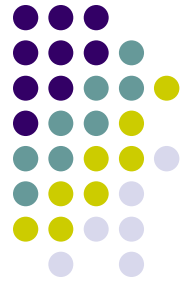
- Share in GDP has declined (from 50% in 1950 to about 20% in recent years)
- Major dragger for economic growth (10 year average: agriculture (2.4%), industry (6.7%), services (8.6%))
- Major (and aggregate) source of volatility for economic growth (30-year standard deviation of growth rate in the agriculture sector is 6.3 compared to 2.1 in non-agricultural growth), partly owing to lack of irrigation (only 30-40% of cultivated land is irrigated)
- But share in employment is still high at 60%
- India is still a poor country with 800 million living below \$2 per day, many of them are in rural area.
- Importance of the agricultural sector for poverty reduction, employment creation, and, ultimately, for inclusive growth.



## India: Sectoral growth (Annual in percent, fiscal year basis)



# (Policy) implication/ question



- Will micro-insurance help reduce poverty among farmers?
- Will micro-insurance help raise investment and productivity growth in agricultural sector?
- Should micro-insurance be subsidized (either for poverty reduction or growth enhancement)?
  - Will it be effective in increasing participation? (price elasticity of demand)
  - Can subsidies be well-targeted?
  - How does it compare to income support or public investment in irrigation (reduction in production risk)?
- If micro-insurance takes off at a larger scale, how should/can insurers cope with the aggregate risks?
  - Need for (domestic) weather derivative market development?
  - Need for the use/involvement of international investors?



# For discussion

Farmers' income, debt, access to finance

- Is the policy really affordable for vulnerable farmers?
- Offering a combined product (insurance and low cost loans) might indeed work (interest cost of informal financing—70% of outstanding loans in AP—is said to be 50-60%)

**Income, Expenditure, and Indebtedness of Farmer Households: July 2002-June 2003**

State	Annual cultivation income	Annual total income	Annual cultivation expenditure	Annual consumption expenditure	Net cultivation income	Net total income	Indebted-ness (% household)	Extent of indebted-ness
	(1)	(2)	(3)	(4)	(5)=(1)-(3)	(6)=(2)-(4)	(7)	(8)
AP	198	436	269	636	-70	-201	82	513
All India	258	564	195	739	63	-175	49	280

Source: Economic and Policy Weekly 2006 (based on NSSO 2005)



# For discussion

Risk aversion and crop/irrigation choice

- Could interaction term between crop (risk of production) or irrigation (production risk mitigation) measure also explain the lack of explanatory power for risk aversion measures?