The Expansion of Federal Crop Insurance Program

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Outline

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Federal Crop Insurance Program

1. The U.S. Department of Agriculture operates the federal crop insurance program.
2. Private insurance companies deliver crop insurance products to farmers.
3. Farmers pay a part of total premium and the rest of premium is covered by the government.

Catastrophic vs Buy-up

1. Catastrophic
   Almost free. It insures 50% of the historical yield.

2. Buy-up
   Farmers do pay some premiums.

Type of Crop Insurance Products

1. Yield
   Insures output per acre.
2. Revenue
   Insures revenue (output x price) per acre.
3. Others

Premium and Subsidy Rates

1. The government sets the premium rates (Premium per dollar of insured liability).
2. The subsidy rates, the shares of the premium subsidy in total premium, are specified by the legislation and are same across crops and counties.
3. The subsidy rates are lower for higher coverage levels (share of expected revenue insured).

Subsidy Rates

The Subsidy Rates for Yield and Revenue Protection Products in 2014 are:

Coverage Level	Subsidy Rate
55-60%	0.64
65-70%	0.59
75%	0.55
80%	0.48
85%	0.38

An Example of Crop Insurance Purchase

A Rice Farm in Colusa County

Consider a rice farm with 300 acres with the historical yield of 85 cwt./acre. In 2014, the projected price was \$19.70/cwt.

The average premium rate for covering 85% of the historical yield in 2014 in Colusa was 0.047.

1. Liability: 300*85*19.70*0.85=\$426,998
2. Total Premium: Liability*0.047=\$20,069
3. Premium Subsidy: Total Premium*0.38=\$7,626

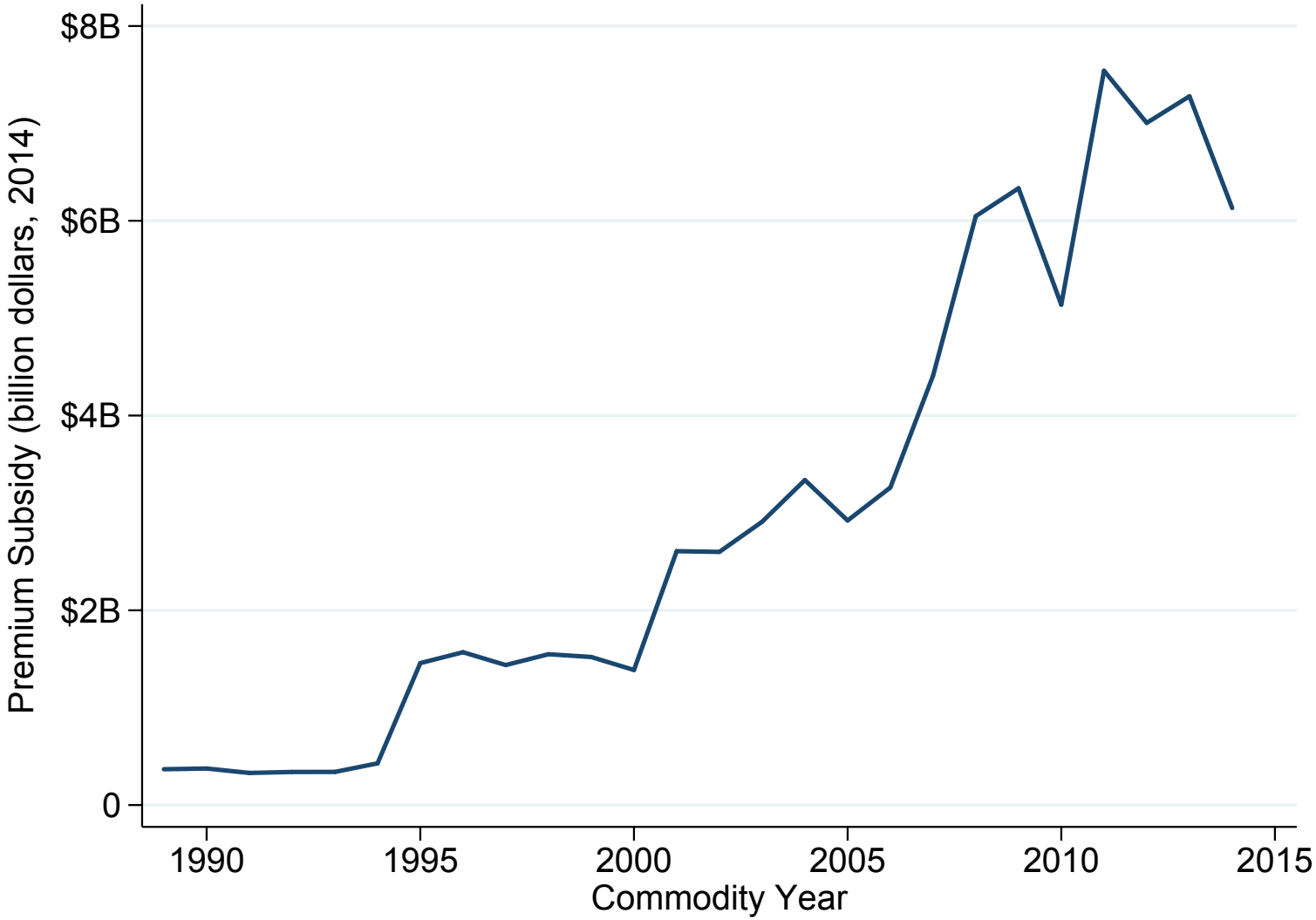
Outline

U.S. Crop Insurance Expanded

1989 vs 2014

1. Number of Policies: 1 million $\rightarrow$ 2.2 million policies
2. Insured Acres: 101 million $\rightarrow$ 295 million acres
3. Insured Liabilities (2014 dollar): \$24 billion $\rightarrow$ \$106 billion
4. Premium Subsidies (2014 dollar): \$0.4 billion $\rightarrow$ \$6.1 billion

Premium Subsidy Increased



Institutional History

Legislative Changes

1. The Crop Insurance Reform Act of 1994
   1. Catastrophic Risk Protection Program (CAT) - Mandatory Provision (Repealed in 1996)
   2. Subsidy Rate Increase for Buy-up Products
2. The Federal Crop Insurance Act of 2000
3. The 2008 Farm Bill
4. The 2014 Farm Bill

Institutional History (Continued)

Introduction of Crop Insurance Products: Revenue Products, Area-based Products, Weather Index Products and Margin Products

Expansion to Additional Crops or Counties

Other Commodity Programs: Shift to Risk Management

Outline

Crop Insurance in California

Share of Insured Acres for Major Crops (CAT Included)

	1989	2014
Almonds	27%	83%
Grapes (Wine)	12%	88%
Walnuts	2%	51%
Tomatoes (Processing)	24%	95%
Pistachios	N/A	41%
Rice	1%	107%

Crop Insurance in California

Share of Insured Acres for Major Crops (Buy-up Only)

	1989	2014
Almonds	27%	50%
Grapes (Wine)	12%	49%
Walnuts	2%	16%
Tomatoes (Processing)	24%	91%
Pistachios	N/A	15%
Rice	1%	98%

An Example of Rice

Insured Acres

Crop Insurance and Planted Acreage

An Example of Colusa County, California: Rice

	1989	2014
Planted Acreage	102,000	115,000
Share of Insured Acreage	1%	113%
Average Premium Rate	0.035	0.041
Average Subsidy Rate	0.198	0.437
Average Subsidy per Dollar of Liability	\$0.007	\$0.018
Average Subsidy per Planted Acre	\$4.70	\$20.70

Note: 2014 dollar

Rice Yield

Crop Insurance and Planted Acreage

An Example of Colusa County, California: Tomatoes (Processing)

	1991	2014
Planted Acreage	21,400	16,000
Share of Insured Acreage	19%	90%
Average Premium Rate	0.074	0.020
Average Subsidy Rate	0.206	0.594
Average Subsidy per Dollar of Liability	\$0.015	\$0.012
Average Subsidy per Planted Acre	\$30.40	\$23.53

Note: 2014 dollar

Outline

Research Questions

1. How does subsidized crop insurance affect crop acreage?
2. What are the effects of premium subsidies on crop acreage?
3. In particular, how do crop insurance premium subsidies affect the acreage of primary field crops?

Background and Motivation

1. The 2014 Farm Bill: Farm policy is shifting toward risk management.
2. WTO disputes: Market distortion from the crop insurance subsidy?
3. Crop insurance is expanding globally.

Data

1. 179,180 County-crop-year Observations, Annual Data from 1989 to 2014
2. Barley, Corn, Cotton, Rice, Sorghum, Soybeans, Wheat
3. Crop Insurance Characteristics by County, by Crop, and by Year
4. Planted Acreage by County, by Crop, and by Year
5. Price by State, by Crop, and by Year

Acreage Effect of Premium Subsidies

I found that a 10% increase in crop insurance premium subsidy induces a 0.2% increase in crop acreage.

Given the small share of crop insurance premium subsidy in crop revenue, the effect is significantly large.

For Example... Rice in Colusa County

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Tentative Conclusions

1. Crop Insurance expanded rapidly.
2. The estimated acreage effect of the premium subsidy is positive and significant.
3. The effect is different across crops and counties.

Thank you

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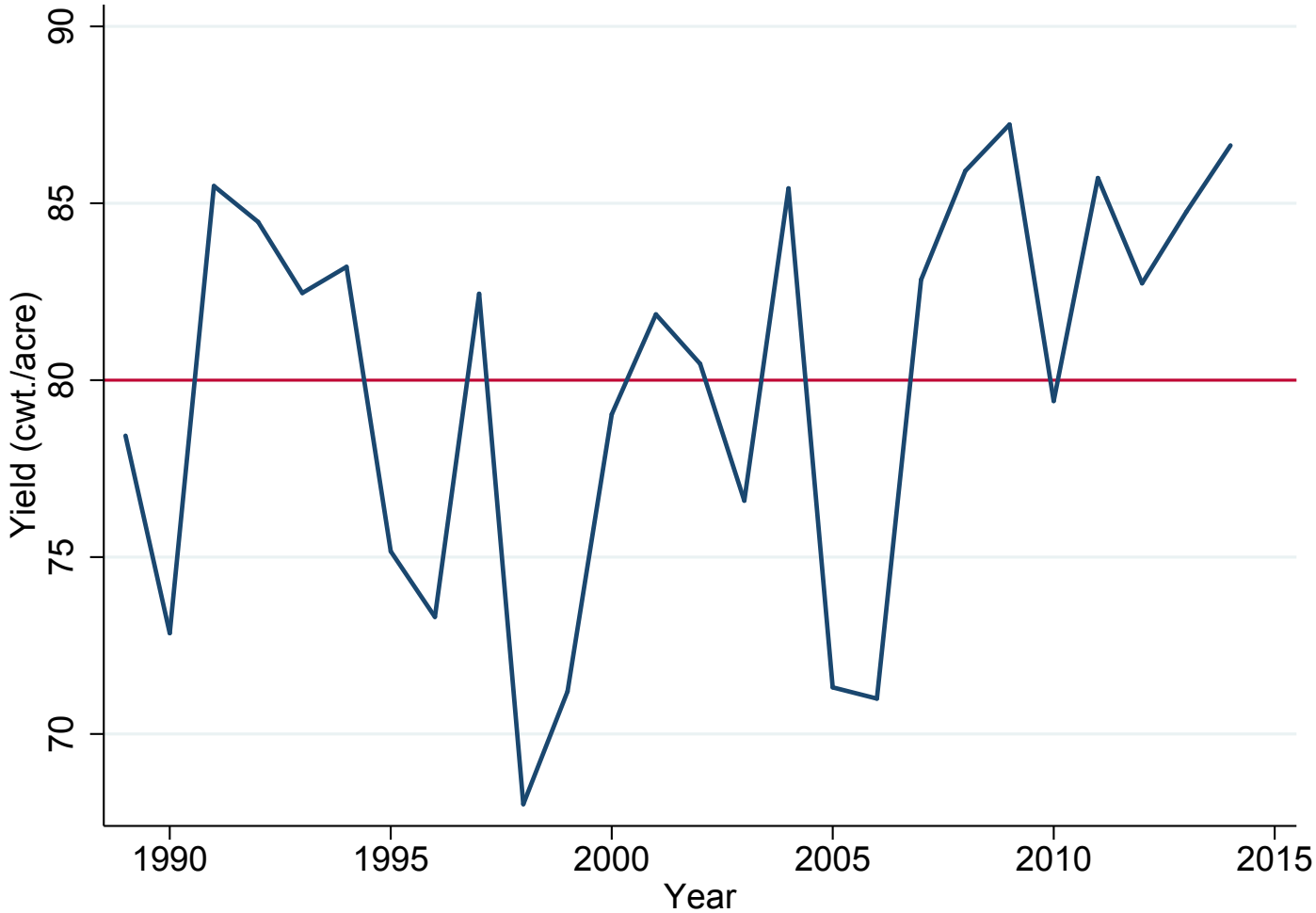
Rice Yield in Colusa County



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