Current Issues and Recent Developments in the U.S. Federal Crop Insurance Program

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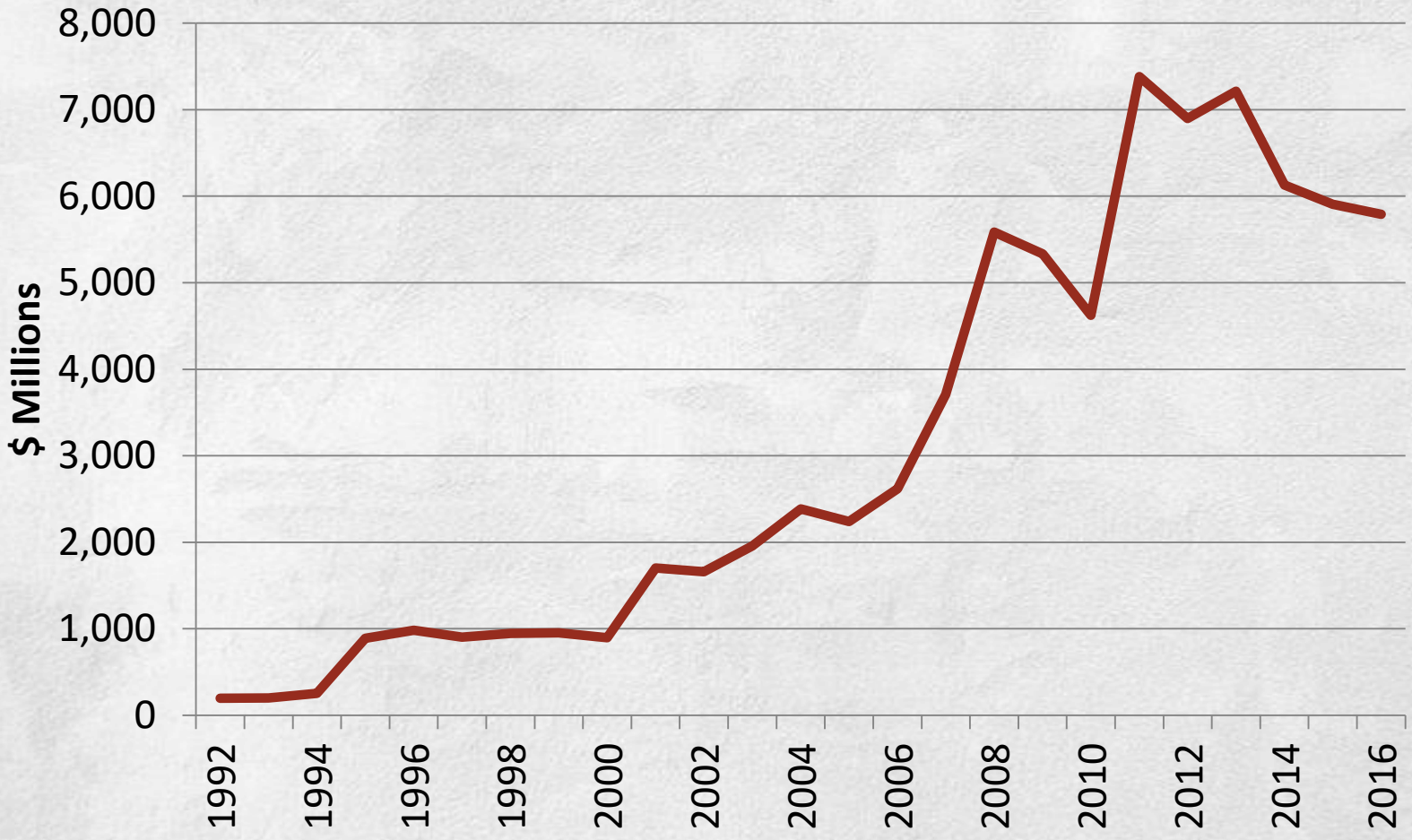
The U.S. Federal Crop Insurance Program

- Established as one of the “New Deal” programs during the Great Depression.
- Until 1980 it was a relatively small program administered entirely by federal employees.
- In 1980, the program changed to a public-private partnership.
- This change occurred when federal spending on crop insurance was small relative to federal spending on other farm programs.

U.S. Federal Crop Insurance

- Private insurance companies:
  - Conduct all sales and claims adjustment activities.
  - Must sell to any qualified applicant.
  - Share gains and losses with federal government through a reinsurance agreement.
- Federal government:
  - Reimburses administrative and operating costs (as a percentage of premium).
  - Provides reinsurance to private insurance companies.
  - Establishes policy language and premium rates.
  - Provides premium subsidies.

Federal Crop Insurance Premium Subsidies



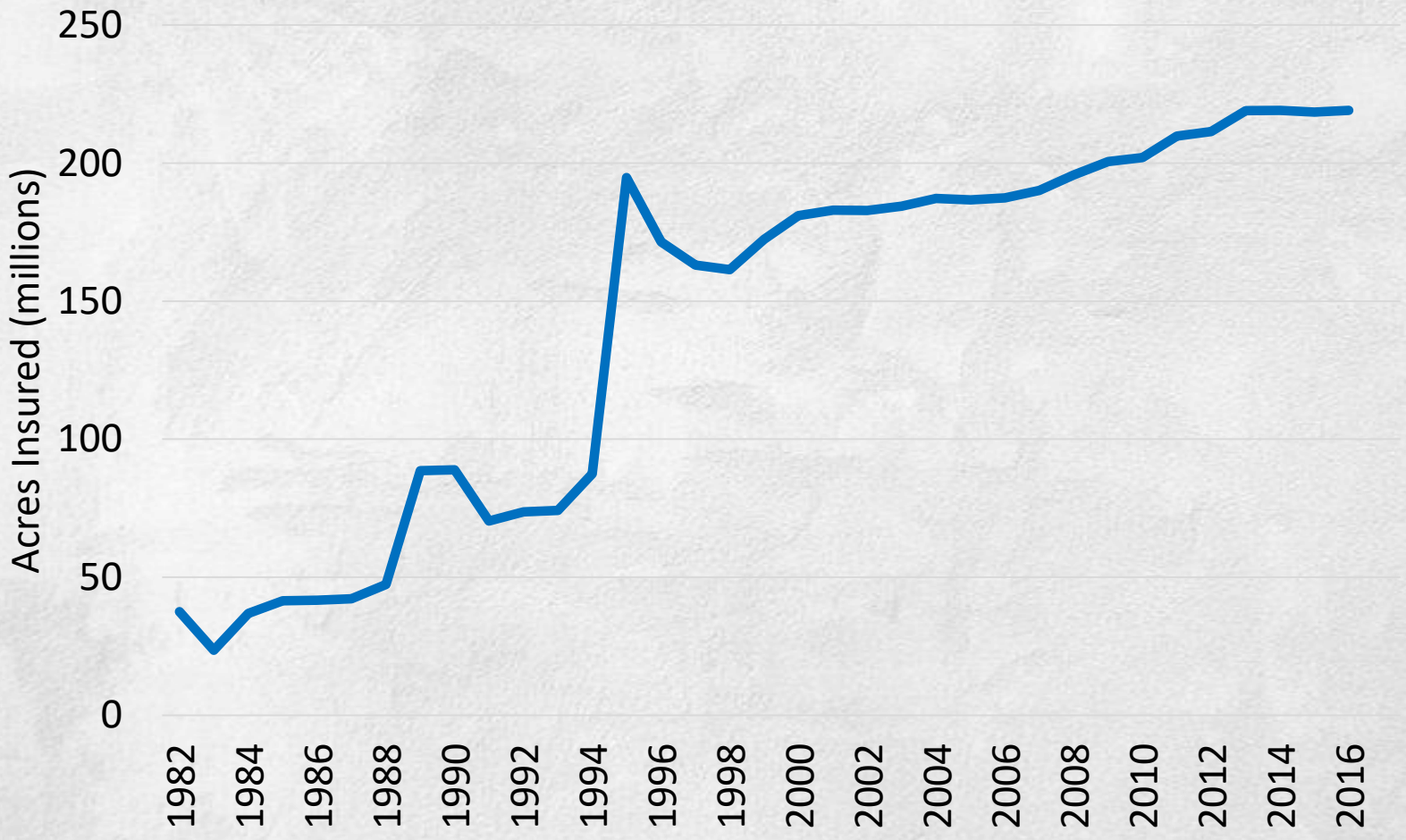
Why a Public-Private Partnership?

- Elected policy-makers wanted to expand crop insurance usage to reduce political pressures for ad hoc disaster assistance.
- A public-private partnership:
  - Allowed for federal subsidization and control without a large increase in the number of federal employees;
  - Leveraged existing private-sector insurance delivery system; and
  - Provided federal reinsurance (in 1980, it was argued that the international reinsurance sector did not have sufficient capacity to absorb catastrophic crop insurance losses).

Today

- Since 1980 there has been a tremendous increase in crop insurance uptake.

Acres Insured (6 largest crops)



Today

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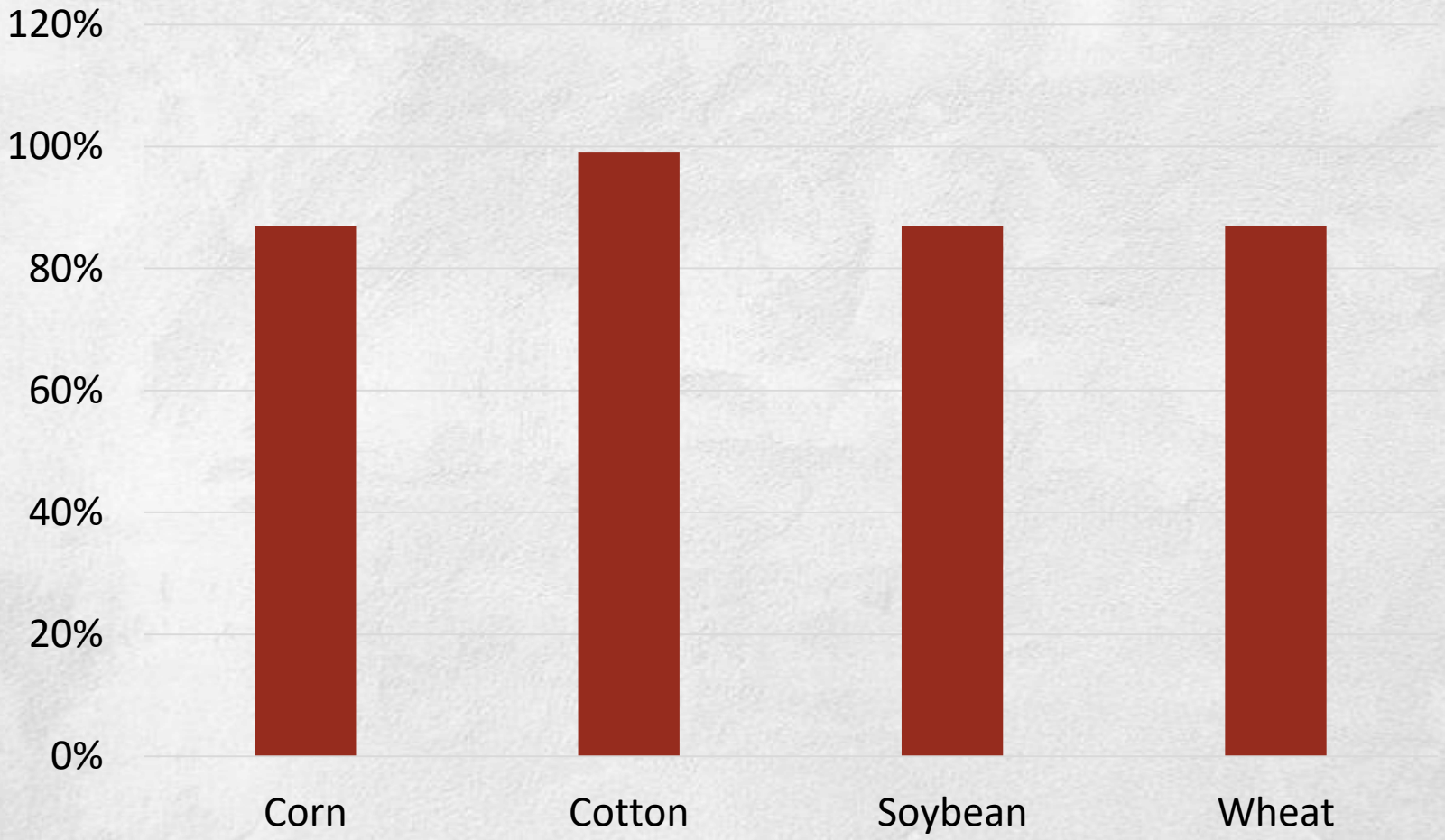
- For major crops, insurance participation is very high.

2016 Percentage of Planted Acres Insured



These 4 crops account for more than 70% of insured acres.

Today

- Since 1980 there has been a tremendous increase in crop insurance uptake.
- For major crops, insurance participation is very high.
- No federal ad hoc disaster assistance since early 2000s.
- Approximately $100 billion of sum insured (liability) annually. 85% of this is for revenue insurance. Some gross margin insurance products have also been introduced.
- Agricultural legislation adopted in 2014 made federal crop insurance the primary mechanism for delivering federal assistance to U.S. farmers.

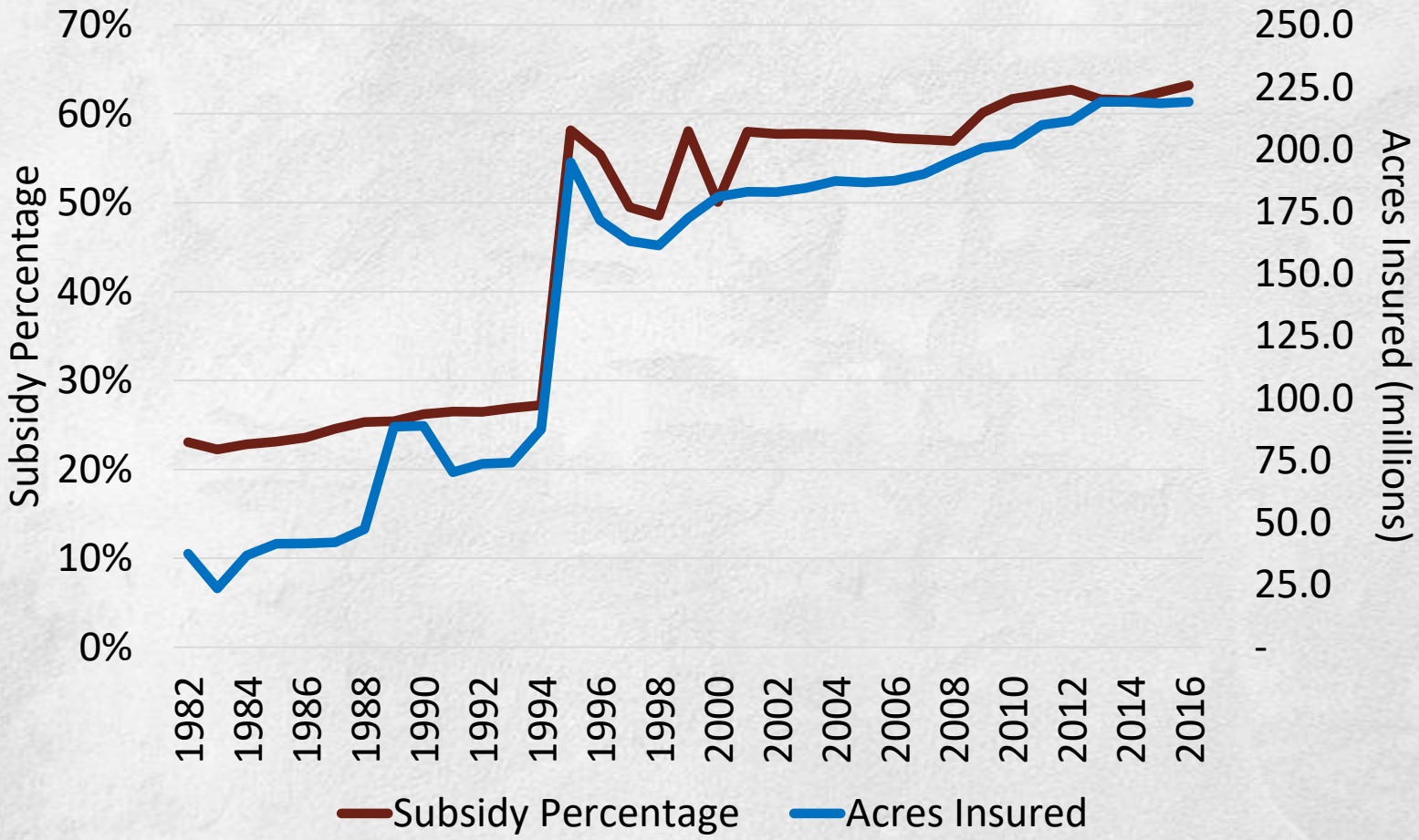
Shallow-loss Products

- The 2014 legislation also created two “shallow-loss” crop insurance products called Supplemental Coverage Option (SCO) and Stacked Income Protection Program (STAX).
- SCO and STAX are area index insurance products designed to cover losses in the deductible layer of an underlying farm-level yield or revenue insurance policy.
- SCO is for all major crops. STAX is only for cotton.
- SCO is yield or revenue insurance depending on whether the underlying policy is yield or revenue insurance. STAX is revenue insurance only and does not require an underlying policy.

Current Political Issues

- Cost.
  - Political pressures are building to reduce premium subsidies. What is the price elasticity of demand?

Subsidy Percentage and Acres Insured (6 largest crops)



Current Political Issues

- Cost.
  - Political pressures are building to reduce premium subsidies. What is the price elasticity of demand?
  - Proposals have been offered for limiting total premium subsidies for a farm or eliminating premium subsidies for high-income farmers.
  - Administrative and operating expense reimbursement. Why is it a percentage of premium?
  - For major crops, why subsidize price-risk component of revenue insurance?
  - Insurance is offered for well over 100 different commodities. For many of these commodities, the cost of developing and maintaining insurance coverage can be high relative to the total value of production.

Current Political Issues

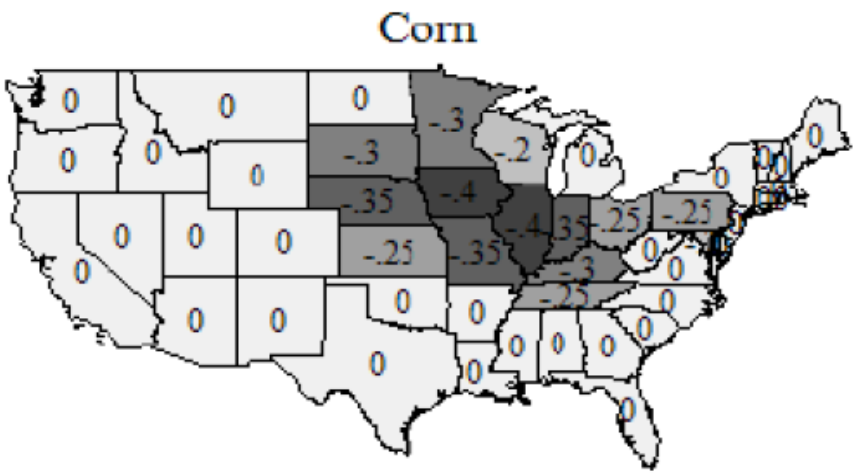
- Can a public-private partnership be the primary federal mechanism for delivering federal assistance to farmers?
  - Policy-makers (and interest groups) have multiple goals for agriculture (e.g., stable domestic food production, exports, soil health, water quality, improved irrigation efficiency, scenic amenities, food safety, etc.).
  - Incentivizing farmers to pursue these multiple goals becomes much more challenging when the primary federal agricultural program is a public-private partnership.
  - Not just “government money” involved.
  - Primary contact with farmers are insurance company representatives.

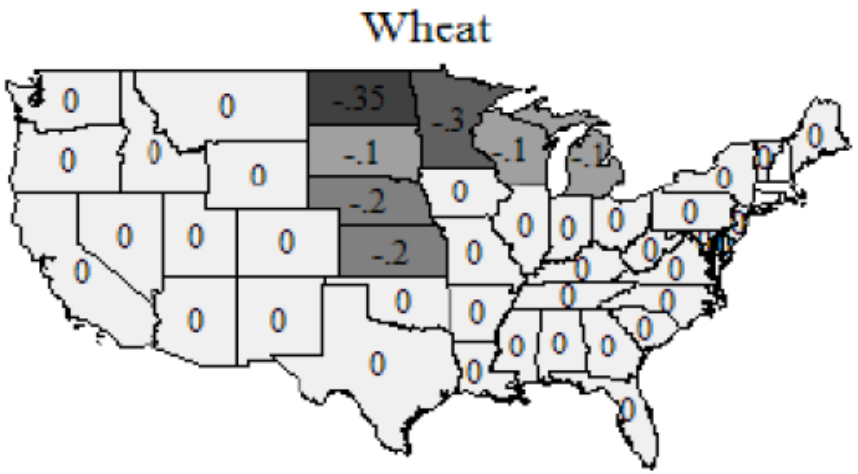
Current Political Issues

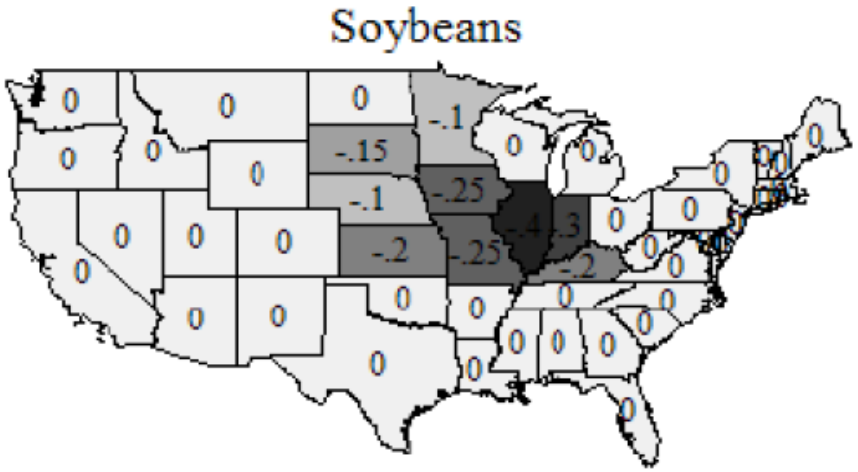
- Are higher risk areas also likely to be more environmentally sensitive? If so, current subsidy structure creates perverse environmental incentives.
- Example:
  - Non-irrigated corn, 65% yield insurance coverage (59% premium subsidy), $500,000 policy.
  - DeKalb County, IL, premium rate is 0.8%, subsidy is $2,360.
  - Fort Bend County, TX, premium rate is 8.0%, subsidy is $23,600.

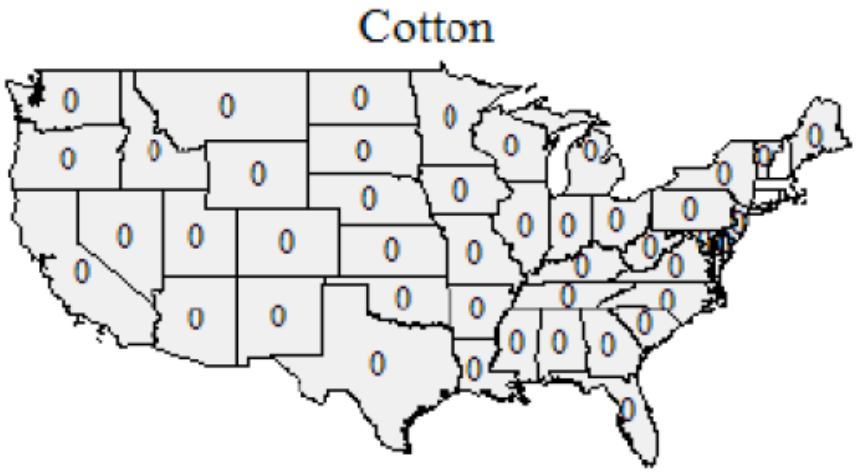
Modeling Dependency

- Current procedures assume constant correlation/linear dependence between yield and price.


Corn


Wheat


Soybeans

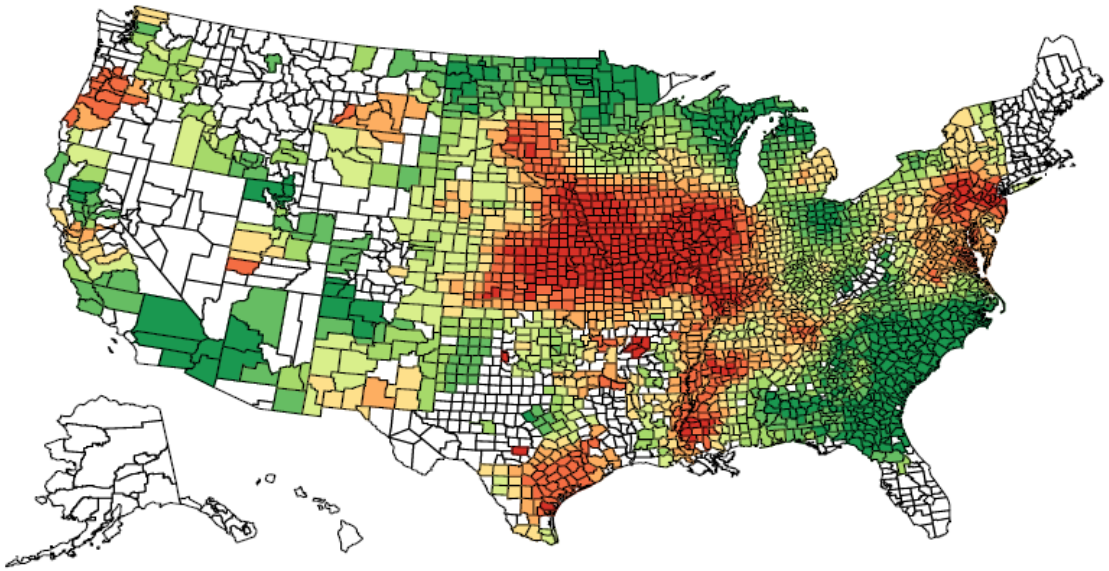

Cotton

Modeling Dependency

- Current procedures assume constant correlation/linear dependence between yield and price.
- Current procedures impose dependency at state level.

Pearson Linear Correlation: Yields vs. Price Changes

Robust Regression Detrended Yields
Double Concentric Circle Smoothing
crop=Corn practice=All



Rho
- -0.4026901 - -0.2117155
- -0.2116428 - -0.1545725
- -0.1544609 - -0.1120931
- -0.1119989 - -0.0724796
- -0.0724615 - -0.0299753
- -0.0299184 - 0.0190530
- 0.0196435 - 0.0854947
- 0.0858162 - 0.3213599

NASS Harvested Acre Yields

Modeling Dependency

- Current procedures assume constant correlation/linear dependence between yield and price.
- Current procedures impose dependency at state level.
- More than $80 billion of sum insured each year is priced based on these dependency assumptions.
- Empirical work has demonstrated that premium rates are sensitive to dependence assumptions (Goodwin and Hungerford, 2015).
- Differences are especially acute in the tails of the joint revenue distribution.

Thank You