

# Cotton Acreage Response to Price Signals Due to Agricultural Policy and Market Conditions

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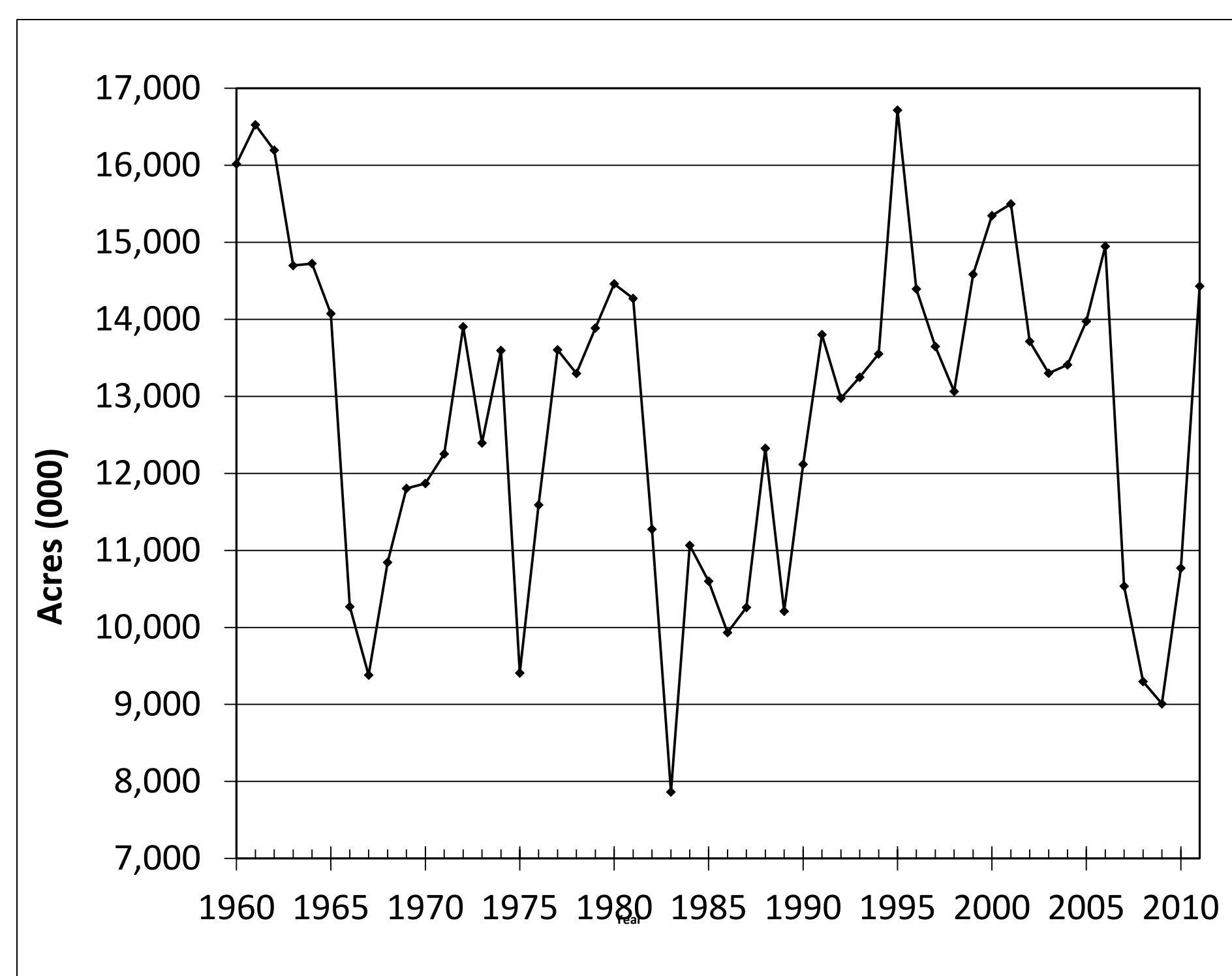
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## Situation

Commodity programs for agriculture have a dual challenge of addressing public policy objectives of farm income stability and maintaining desirable efficiencies that derive from market based outcomes. Agricultural policy for cotton supports production revenue. Even with government programs, U.S. cotton acreage has shifted to other field crops.

## U.S. Cotton Acreage, 1960-2011



- 1) Since 2002, a common agricultural policy for all field crops has included LDP, DP, and CCP.
- 2) DP and CCP do not provide incentives for increasing production .  
( $dDP/dY = dCCP/dY = 0$ )

## Focus of Empirical Analysis

- 1) The objective is to quantify response of cotton acreage to market prices and LDP for cotton and competing crops.
- 2) Panel data for a short time period leads to results that encompass a common program of agricultural commodity policy.

## Econometric Model

Acreage = f(Cotton Price, Cotton Costs, Competing Crop Price, Competing Crop Costs, Production Technology)

## Explanatory Variable Notes

- 1) Corn represents prices and costs for competing crops. Corn is the only field crop produced in all upland cotton states. Corn prices are highly correlated with prices for soybeans and grain sorghum.
- 2) Prices and costs are lagged.
- 3) Technology is represented by a trend variable.
- 4) All variables except technology are applied as logarithms.

## Data

- 1) State data for 17 upland cotton producing states during 2002-2010 (NASS)
- 2) Regional costs of production data attributed to each respective state (ERS)
- 3) Fixed one way panel data analysis with HAC standard errors

## Estimation Results

Variable	Estimate	t-Value	PR >  t
Intercept	9.783	38.86	<0.0001
Cotton Price	0.475	2.06	0.0417
Corn Price	-0.855	-6.51	<0.0001
Cotton Costs	-0.147	-1.42	0.1579
Corn Costs	0.108	0.71	0.4770
Technology	-0.026	-2.06	0.0482
R-square =	0.9699		

## Summary of Results

- 1) Results for cotton acreage allocations with own-price and cross-price elasticities demonstrate it is possible to alter markets without creating distortions that cause producers to ignore price signals.
- 2) Relatively high prices for competing crops has impacted cotton acreage.