Cotton Research and Promotion Program: Economic Effectiveness Study

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Prior and Current Research on Effectiveness of Cotton Checkoff

Three previous evaluations:


(2) *Economic Analysis of the Cotton Research and Promotion Program* by Murray et al. ("2001 Report")

(3) *An Economic Evaluation of the Cotton Research and Promotion Program* by Capps and Williams ("2006 Report")
Annual cotton checkoff collections from $42.2 million in 1992/93 to $77.2 million in 2009/10.

Assessments used to finance various activities that CI groups into four categories:

(1) Marketing and Promotion (63.1%)
(2) Textile or Non-Agricultural Research (16.1%)
(3) Agricultural Research (14.9%)
(4) Administration (5.9%)

Figures in parentheses reflect current situation.
Annual Inflation Adjusted Cotton Incorporated Expenditures, 1979-2009

Million Constant 2009 $
KEY RESEARCH OBJECTIVES

- Estimate effects of cotton promotion programs on demand for raw cotton (mill level) and demand for cotton fiber textile products (retail level)
- Estimate spillover effects of cotton promotion programs on man-made fiber markets
- Estimate effects of the agricultural research programs
- Estimate potential reductions in government program costs for cotton attributed to checkoff
- Estimate the overall return on investment to US cotton producers and importers of cotton textile products
### MAJOR FINDINGS

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<th>1986/87 to 2009/10</th>
<th>2005/06 to 2009/10</th>
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<tbody>
<tr>
<td>Producer ROI</td>
<td>$4.20</td>
<td>$0.80</td>
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<tr>
<td>Producer + Govt. ROI</td>
<td>$8.80</td>
<td>$6.70</td>
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<tr>
<td>Importer ROI</td>
<td>$14.80</td>
<td>$10.80</td>
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Ag research expenditures significantly enhanced US cotton yields in all production regions and significantly enhanced acreage in the Delta and Southeast regions.
The Empirical Analysis

- Analysis used multi-equation, econometric simulation model of US and foreign fiber markets.
- Model originally developed by Cotton Economics Research Institute (CERI) at Texas Tech University (Dr. Darren Hudson and Dr. Suwen Pan).
- We modified model to account for programmatic activities of the Cotton Board (Modified World Fiber Model (MWFM)).
THE MODIFIED WORLD FIBER MODEL

- Model functions through simultaneous interactions of supply, demand, trade, and price components across various commodities and regions of the world.
- Includes both cotton and cotton fiber textile markets and their linkages within US and across broad range of cotton producing and textile exporting countries.
- Accounts for potential “spillover” effects
THE MODIFIED WORLD FIBER MODEL

- **SPILLOVER EFFECTS**
  - potential impacts of program on man-made fiber industry
    - synthetics, primarily polyester, and cellulosics, primarily rayon

- **US government farm policy**
  - loan rates, target prices, deficiency/countercyclical payments
Simulation analysis used to measure impacts of program and to measure return on investment to stakeholders.

The Baseline or “With expenditures” scenario:
Cotton checkoff expenditures (marketing and promotion and non-agricultural research) are set to their actual historical levels.

The Counterfactual or “Without expenditures” scenario:
Cotton checkoff expenditures are set to zero over the history of the program.
Differences in the solution values ("With" and "Without" checkoff expenditures) are direct measures of market effects of Cotton Board programmatic activities over time.

Effects separated into two distinct periods:

1. 2005/06 to 2009/10 (the most recent period since the last update); and

2. 1986/87 to 2009/10
Domestic Impacts of Program

Average Percent Change

-10%  0%  10%  20%  30%

U.S. Net Domestic Cons.
U.S. Mill Use
Net Imports
Raw Cotton Exports
U.S. Cotton Production
Cotton Textile Price
Farm Price

1986/87 to 2009/10
2005/06 to 2009/10
Global Impacts of Program

Average Percent Change

- World Cotton Price
- Foreign Production
- Foreign Cotton Exports
- Foreign Mill Use

1986/87 to 2009/10
2005/06 to 2009/10
Average Annual Bale Impacts of Program

000 480 lb. Bales

U.S. Net Domestic Cons.
U.S. Net Imports
Foreign Mill Use
U.S. Mill Use
Foreign Cotton Exports
U.S. Cotton Exports
Foreign Production
U.S. Cotton Production

1986/87 to 2009/10
2005/06 to 2009/10

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SPILLOVER EFFECTS

- Negligible impacts on Man-Made Fiber:
  - production
  - mill use
  - polyester price
  - net imports
  - consumption and price of textiles
Producer Benefit-Cost Analysis

- Added net revenues to cotton producers
  - $187.4 million on average over the period 1986/87 to 2009/10
- About a 4% increase in revenues to cotton producers on average
- Farm program cost savings of roughly 11% on average over the period 1986/87 to 2009/10
- Producer benefit-cost ratio of 4.2
Importer Benefit-Cost Analysis

- Added profits to importers
  - $933.1 million on average over the period 1992/93 to 2009/10
- Close to a 6% increase in revenues to importers on average
- Importer benefit-cost ratio of 14.8
IMPACT OF AGRICULTURAL RESEARCH EXPENDITURES ON THE US COTTON INDUSTRY

- 2006 Report by Capps and Williams was only previous study of cotton program to consider impacts attributed to ag research. That work is expanded in this report.

- Typically, ag research expenditures affect planted or harvested acreage as well as yields.

- Checkoff dollars represent a small portion of total investment in cotton production research. Most of the research investment is made by private firms and publicly funded organizations.
IMPACT OF AGRICULTURAL RESEARCH EXPENDITURES ON THE US COTTON INDUSTRY

- Cotton program significantly enhanced US cotton yields. Lag between investment in ag research activities and impact on yields was between ten and twelve years, depending on US production region.
- Program significantly raised acreage in Delta and Southeast regions.
CONCLUDING REMARKS

- Unequivocally, cotton producers, importers and the government benefit from the program.

- Benefit-Cost Ratio
  - Producer: 4.2
  - Producer + Government: 8.8
  - Importer: 14.8

- The cotton checkoff program affects the entire world fiber market.
CONCLUDING REMARKS

○ The checkoff program enhances cotton yields in all production regions and acreage in selected production regions, but there is a notable delay in time.

○ While execution of the checkoff program avoids any statistically significant direct stimulation of competing fiber demand, other fiber industries benefit nonetheless.

○ Our research supports the strategy to increase the share of checkoff funds invested in ag research.
QUESTIONS?