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Impact of Efficient Refuge policies for Bt cotton in India on World Cotton Trade

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INTRODUCTION

India is a major cotton producing country in the world along with the U.S. and China.

Changes in the supply of and demand for cotton in the Indian market has the potential to have an impact on world cotton trade.

It can be hypothesized that increased refuge requirements for Bt cotton varieties in India could decrease the supply and raise the price of cotton in the world because of the lower yield potential of non-Bt cotton varieties planted in refuges.

Partial equilibrium analysis presenting expected directional change in world cotton markets due to change in refuge requirements in India is presented in Figure 1.

OBJECTIVES

To conceptualize the impact of change in refuge requirements in India on world cotton markets

To estimate the impact of change in refuge requirements in India on world cotton trade/prices

METHODS

The World Fiber model (WFM), developed and maintained by CERI (Cotton Economics Research Institute), Texas Tech was used for estimation.

The WFM includes supply, demand and market equilibrium for the cotton and man-made fibers, for the 24 countries including India. The model also includes behavioral equations for trade and ending stocks. The structural econometric Indian fiber model is schematically represented in Figure 2.

Baseline projections for the world fiber market were developed from the WFM under the status quo.

Scenario 1 projections were made by shocking the WFM by requiring optimal refuges in India examined in our companion study.

Scenario 2 projections were made by assuming 100% of cotton acreage under Bt varieties in India.

Figure 2. Indian Fiber Model

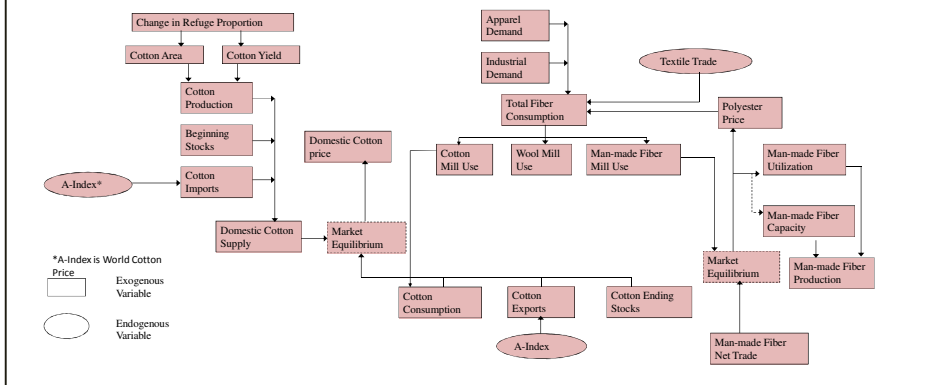


Figure 3. % Change in World Cotton Trade

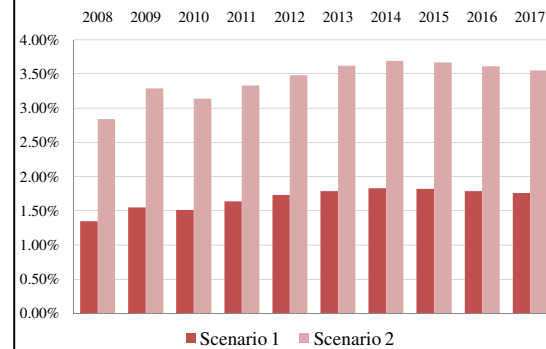


Figure 4. % Change in World Cotton Price

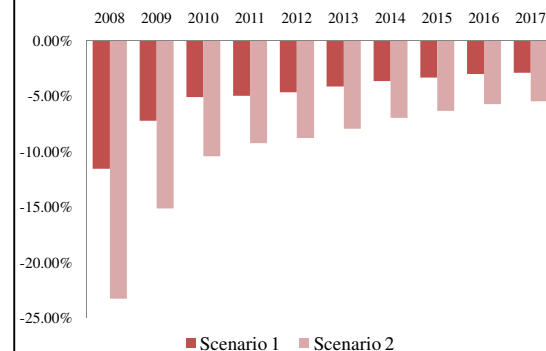
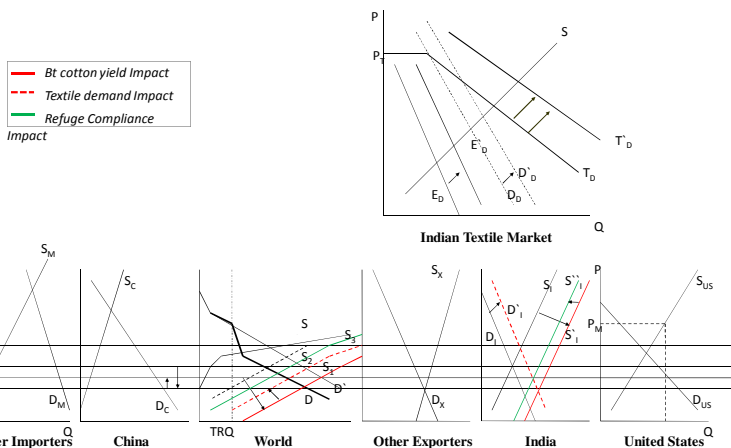


Figure 1. Partial Equilibrium Analysis



RESULTS

Figure 3. shows that the forecasted world cotton trade under Scenario 1 would be higher than under the baseline, but less than under Scenario 2.

Percentage increase in cotton trade on average were 1.68% under Scenario 1, and 3.42% under Scenario 2, respectively, for ten years forecast.

Figure 3. shows that the forecasted world cotton prices under Scenario 1 would be less than under the baseline, but higher than under Scenario 2.

Percentage decline in prices on average were 5.04% under Scenario 1, and 9.91% under Scenario 2, respectively, for ten years forecast.

CONCLUSIONS

The change in proportion of Bt cotton according to the refuge requirements has the potential to impact world cotton markets because India is a large cotton producing country having 25% of world cotton area.

The farmers' compliance with changed refuge requirement in India could increase world cotton prices and decrease the world net trade of cotton.

