The Impacts of Eliminating the Step 2 Program on the U.S. and World Cotton Market

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Introduction

Brazil made a formal complaint to the World Trade Organization (WTO) Dispute Settlement Panel against U.S. cotton programs in 2003, alleging that these subsidies depressed world cotton price and were injurious to Brazilian farmers. The petition was supported by Australia and West and Central African cotton producing countries. After long deliberations, the WTO appellate body came out with their final ruling in March 2005 that upheld most of the initial decisions of the WTO Dispute Settlement Panel.

In addition to the finding of serious price suppressing effects of U.S. cotton programs during the period 1999/00-2002/03, the ruling also included a June 30, 2005 deadline to withdraw Step 2 and export credit guarantee programs. In an attempt to comply with the WTO findings, the United States Department of Agriculture (USDA) recently proposed legislative changes to modify credit guarantee fee structures for the GSM-102 and Supplier Credit Guarantee programs (SCGP) to a risk-based method and eliminate the Step 2 program.

The purpose of this study is to examine the effects of elimination of the Step 2 program on the U.S. and world cotton markets using a partial equilibrium structural econometric model of the world fiber market developed by the Cotton Economics Research Institute at Texas Tech University. This analysis compares likely outcomes under a scenario eliminating the Step 2 payments to both domestic users and exporters. See the appendix for a brief description of the Step 2 program.

Methods and Procedures

The model includes 24 major cotton importers and exporters: (1) Asia (Greater China, India, Pakistan, Taiwan, South Korea, Japan, and other Asia); (2) Africa (West Africa, Egypt, and Other Africa); (3) North America (Mexico, United States, and Canada); (4) Latin America (Brazil, Argentina, and Other Latin America); (5) Oceania (Australia); (6) Middle East (Turkey and Other Middle East); (6) Former Soviet Union (Uzbekistan, Russia, and Other FSU); and (7) Europe (European Union-25 and other Western Europe). As shown in figure 1, a representative country model includes supply, demand, and market equilibrium for cotton and man-made fibers. Area planted to cotton is modeled in a two-stage framework. The first stage determines gross cropping area. The second stage uses economic variables such as expected net returns to allocate area among cotton and competing crops. Similarly, the man-made fiber supply is estimated by modeling capacity and utilization separately. Cotton demand is estimated following a two-step process. In the first step, total textile consumption is estimated and in the second step, allocations among various fibers such as cotton, wool, and polyester (as a representative for man-made fibers) are estimated based on relative prices. The polyester price and cotton A-index price are endogenous and determined by equalizing world exports and imports.

The U.S. model, as shown in figure 2, includes supply, demand, and market equilibrium for raw fibers (cotton and man-made) and textile products (cotton and non-cotton). The inclusion of textile models enables the estimation of cotton and man-made fiber mill use with appropriate linkage between the cotton and textile sectors. On the supply side, cotton production is divided into four regions: Delta, Southeast, West, and Southwest (irrigated and dry land). Regional production is modeled using separate acreage and yield equations. Data used in this study are compiled from various sources, which include the Food and Agricultural Policy Institute (FAPRI) for the historical and projected macro variables (real GDP, exchange rate, population, and GDP deflator); Production, Supply & Demand (PS&D) database of the Foreign Agricultural Service (FAS) for cotton acreage, yield, production, mill use, ending stocks, and trade; and the FAO World Fiber Consumption Survey and Fiber Organon for fiber mill consumption and man-made fiber statistics.

Policy Shock and Assumptions

The approach used to incorporate changes into the model for simulating Step 2 program elimination is to develop a five-year baseline (2005/06-2009/10) assuming continuation of current farm programs. The United States has a number of programs to support domestic cotton production and mill use, which includes a target price, direct payments, counter-cyclical payments, marketing assistance loans and loan deficiency payments, and Step 2 payments. For the simulation, Step 2 payments to domestic users and exporters were eliminated starting from 2005/06, while the rest of the world was allowed to react to the resulting price signals. The effects are measured by comparing supply, demand, and trade indicators before and after elimination of this program.

Simulation Results

Simulation results are reported in Tables 1 and 2. Table 1 displays the effects of Step 2 elimination on U.S. supply, demand and price. Table 2 summarizes the effects of program elimination on the world market including A-index, competing exporters, world production and trade. Elimination of Step 2 payments lowers U.S. domestic cotton mill use and exports by 0.82% and 1.42%, respectively, in the first year of elimination, with an average decline of 0.76% and 0.86% over the five-year period. Weaker demand lowers the U.S. cotton farm price by around 1 cent per pound (2.6%) in the first year and the difference steadily increases throughout the simulation period, reaching 5 cents per pound (9.25%) by 2009/10. The rising impact of step 2 elimination on domestic cotton price may be explained by a non-responsive production system that is shielded by the remaining commodity program provisions. Under the current system of marketing loan payments and counter cyclical payments, producers are not likely to respond to any price changes below the loan rate level. Lower domestic and export demand coupled with virtually unchanged production levels results in rising carry over stock and lower prices. Carry over stock is estimated to rise by 3 percent in the first year to 9.2 percent by 2009/10 with an average increase of 6.6% compared to the baseline level.

The effects of eliminating Step 2 payments in the U.S. results in about an average of less than ½¢ increase in the cotton A-index. World production, like U.S. production, remains virtually unchanged. The world cotton trade is reduced slightly, more so in the first years following Step 2 elimination (-0.13%), turning into a small positive change compared to the baseline by the end of the simulation period. The cotton trade benefits accrued to competing exporters including an average increase in exports of less than ½ percent for both Australia and Brazil.

Summary and Conclusions

As part of a ruling supporting the complaints of Brazil that U.S. cotton programs are depressing world prices and are injurious to its producers, the WTO has ruled that the U.S. must eliminate its Step 2 cotton price support program. This paper analyzes the effect of eliminating Step 2 cotton payments in compliance with this judgment. The estimated effects of Step 2 elimination are shown in both the U.S. cotton market and in the world cotton market.

In the U.S., Step 2 elimination will result in the loss of a price incentive for the exporters and mill users of U.S. cotton. The elimination of these payments represents an effective increase in the procurement price of raw U.S. cotton for both domestic mill users and exporters, which will likely decrease consumption of U.S. cotton domestically and lower the cotton farm price. However, this price decrease does not result in a substantial decrease in U.S. cotton plantings or production because of other producer price supporting mechanisms of current U.S. farm policy that remain. The cotton price received by U.S. producers is supported by such program benefits as marketing loans and counter cyclical payments. These are unaffected by Step 2 elimination. A lower U.S. cotton farm price would result in a program payment to producers which would offset any negative price impacts of Step 2 elimination at the farm level. Only if the average farm price were above the target price would the loss of Step 2 payments have an impact on prices received by farmers.

In cotton mill use, it appears that the elimination of Step 2 payments will not impact the continued decline in use in a substantial way. U.S. mill use is expected to decline by over 16 percent from current levels by 2010 with or without Step 2. The loss of Step 2 will effectively decrease the U.S. cotton price relative to the world market and, as expected, decrease exports by about 1%. With virtually unchanged production, slightly lower mill use, and decreased exports, the most dramatic impact of Step 2 elimination appears in the accumulating buildup of ending stocks.

In the world market, fewer exports from the U.S. will result in a very small increase in the cotton A-index. World cotton production is estimated to remain unchanged as well as world trade. It appears that a slight increase in exports is likely from Australia and Brazil which will help offset lower exports from the U.S.

Overall, this model projects that the effects of eliminating Step 2 payments, as a single action, are minimal except for the impacts on U.S. stocks. U.S. producers are protected by other program benefits and increases in the A-index price and exports by other major producers are less than 1 percent. It appears that the elimination of Step 2 will not dramatically impact the world cotton market.

Figure1. Representative Country Model

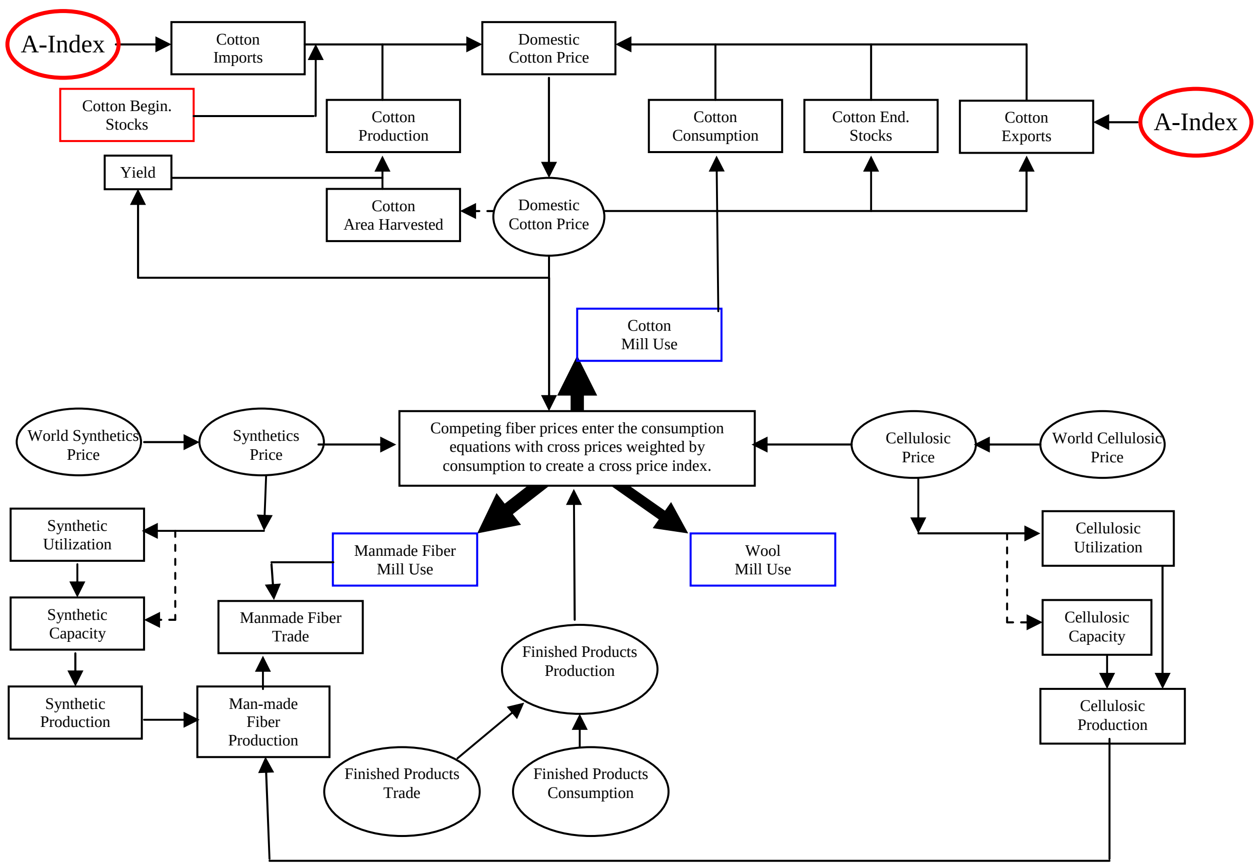

Figure 2. Schematic Representation of the US Fiber Model

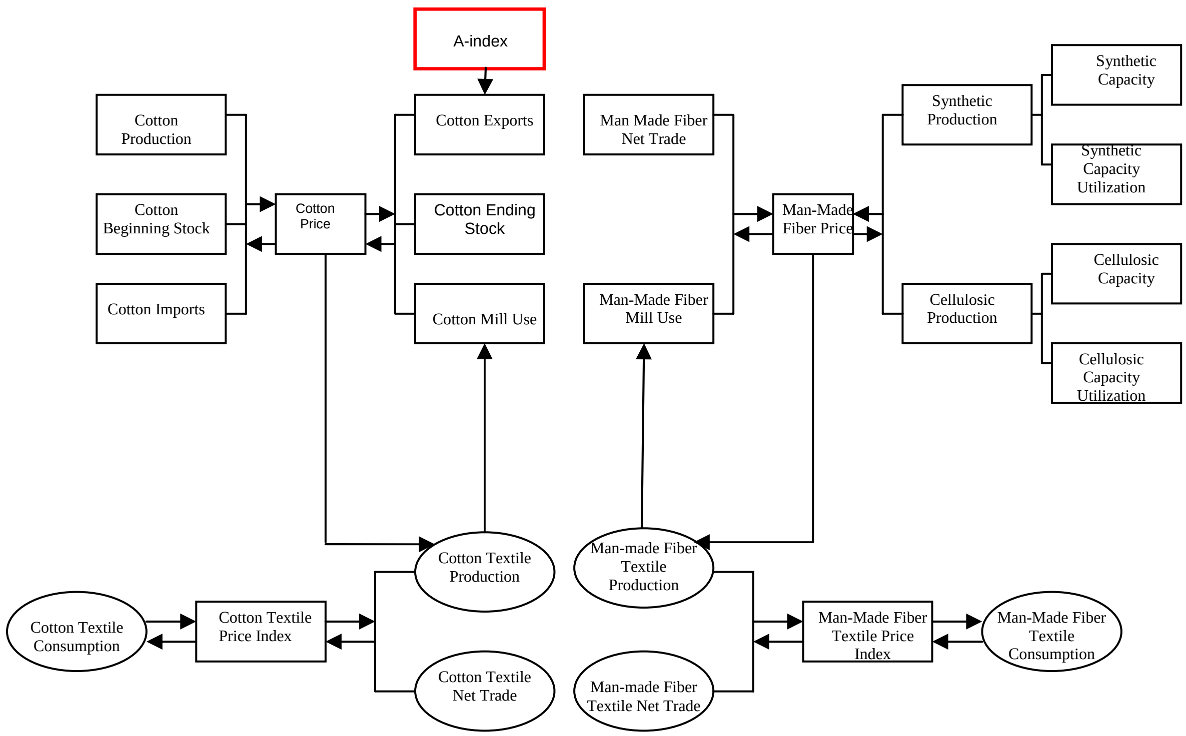

Table 1. Effects of Step-2 Program Elimination on U.S. Cotton Market

		2005/06	2006/07	2007/08	2008/09	2009/10	Average
				Cents Per Pound			
Farm Price	Base	42.79	45.41	48.09	51.14	52.41	47.97
	Scenario	41.67	43.45	45.10	47.04	47.56	44.97
	Change	-2.62%	-4.32%	-6.21%	-8.00%	-9.25%	-6.08%
				Thousand Acres			
Harvested Acreage	Base	11510.39	11167.79	11447.26	11277.60	11131.54	11306.92
	Scenario	11510.39	11167.79	11445.68	11274.05	11125.75	11304.73
	Change	0.00%	0.00%	-0.01%	-0.03%	-0.05%	-0.02%
				Thousand Bales			
Production	Base	19118.72	18519.54	18790.66	18752.77	18669.18	18770.17
	Scenario	19118.72	18516.90	18781.94	18724.28	18626.16	18753.60
	Change	0.00%	-0.01%	-0.05%	-0.15%	-0.23%	-0.09%
Mill Use	Base	6198.31	5913.23	5604.80	5260.36	5028.94	5601.13
	Scenario	6147.38	5865.70	5558.85	5222.19	4998.28	5558.48
	Change	-0.82%	-0.80%	-0.82%	-0.73%	-0.61%	-0.76%
Exports	Base	12962.66	13042.37	13309.47	13596.84	13695.55	13321.38
	Scenario	12778.33	12938.30	13199.63	13506.77	13616.81	13207.97
	Change	-1.42%	-0.80%	-0.83%	-0.66%	-0.57%	-0.86%
Ending Stock	Base	7692.36	7291.85	7208.14	7147.73	7139.55	7295.93
	Scenario	7923.29	7665.90	7721.40	7750.88	7797.65	7771.82
	Change	3.00%	5.13%	7.12%	8.44%	9.22%	6.58%

Table 2. Effects of Step-2 Program Elimination on World Cotton Market

		2005/06	2006/07	2007/08	2008/09	2009/10	Average
				Cents Per Pound			
A-index	Base	54.68	56.66	57.45	59.12	59.16	57.41
	Scenario	55.59	56.87	57.61	59.16	59.17	57.68
	Change	1.66%	0.37%	0.27%	0.07%	0.01%	0.48%
				Million Bales			
World Production	Base	103.494	106.1239	109.99799	112.2605	114.5364	109.28
	Scenario	103.4942	106.24	110.06707	112.3002	114.5435	109.33
	Change	0.00%	0.11%	0.06%	0.04%	0.01%	0.04%
World Trade	Base	33.19	32.86	33.38	33.68	33.72	33.37
	Scenario	33.15	32.86	33.30	33.70	33.74	33.35
	Change	-0.13%	0.01%	-0.25%	0.05%	0.07%	-0.05%
Exporters							
				Thousand Bales			
Australia	Base	2562.06	2804.61	3011.40	3238.69	3273.68	2978.09
	Scenario	2578.22	2816.44	3021.83	3251.28	3287.87	2991.13
	Change	0.63%	0.42%	0.35%	0.39%	0.43%	0.44%
Brazil	Base	1996.56	2176.69	2355.62	2525.72	2766.67	2364.25
	Scenario	2007.53	2185.44	2364.63	2534.76	2775.86	2373.65
	Change	0.55%	0.40%	0.38%	0.36%	0.33%	0.40%

Appendix

Step 2 payments are issued to exporters and domestic mill users of upland cotton in a week following a consecutive 4-week period when the lowest U.S.-Northern Europe price quotation exceeds the Northern Europe price quotation by more than 1.25 cents per pound, and the AWP does not exceed 134 percent of the U.S. loan rate. Payments are made in cash or certificates to domestic users on documented raw cotton consumption, and to exporters on documented export shipments, at a payment rate equal to the difference between the U.S.-Northern Europe price and the Northern Europe price during the fourth week of the period, minus 1.25 cents per pound (the threshold). The 2002 Farm Act delayed the 1.25-cent threshold until August 1, 2006. Consequently, Step 2 payment calculations for the 2002-05 marketing years are based on the difference between the U.S.-Northern Europe price and the Northern Europe price.