

## **THE UNCERTAIN FUTURE OF THE MEXICAN MARKET FOR U.S. COTTON: IMPACT OF THE ELIMINATION OF TEXTILE AND CLOTHING QUOTAS**

By  
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### **Abstract**

Accounting for about 20% of U.S. total cotton exports in recent years, the Mexican market has become a key destination for U.S. cotton production. Simultaneously, the U.S. market is critical for the Mexican textile/clothing sector absorbing almost 50% of its total output. This strong North American integration process, in part a result of NAFTA, might be jeopardized by the approaching implementation of the Agreement on Textiles and Clothing (ATC) in 2005. This paper presents the results of an econometric and simulation model that allows for the assessment of potential implications of the ATC's quota elimination on Mexico's cotton consumption and U.S. cotton exports to Mexico. It incorporates the growing interdependence between the U.S. and Mexico's cotton and textile industries and summarizes some plausible scenarios for the impact of the 2005 textile and clothing final quota elimination on U.S. markets.

### **Introduction**

During the past 40 years, world textile trade has been in large part governed by the Multi Fiber Agreement (MFA) and its predecessor agreements. However, starting in 2005, in accordance with World Trade Organization (WTO) obligations and the Agreement on Textile and Clothing (ATC), the restrictions imposed by these previous agreements must finally end. The new global trade rules that WTO members agreed to follow, specifically the elimination of quotas in the textile and clothing (T&C) industry, are certainly going to have important implications for world textile and cotton trade.

In order to have a comprehensive understanding of the far-reaching consequences and policy implications of this change in the T&C industry (i.e. at the aggregate level), individual structural relationships for the main market participants need to be examined and updated. In the late nineties Mexico became the number one supplier of T&C to the U.S. market. In fact, Mexico currently exports between 44% and 50% of its textile and apparel products, and about 95% of them are exported to the United States (INEGI). Furthermore, in recent years, Mexico ranked as the world's 4th largest exporter of clothing (Mexican Ministry of Economy).

As a member of NAFTA, Mexico is now a privileged supplier of clothing to the United States and Canada where most of Mexican shipments are already duty-free. However, with the forthcoming final elimination of the T&C quotas, other big exporters currently bounded by those quotas, such as China or Pakistan, could easily challenge Mexico's privileged position due to the NAFTA agreement. Accordingly, Mexico's competitiveness in the cotton T&C industry could be jeopardized by the lower costs of many Asian countries. For example, Chinese textile wage rates are reported to be one tenth of their Mexican counterparts.

Imposing quotas to textile imports creates price gaps between importing and exporting prices constraining the free market level of trade. Therefore, trade theory implies that if quotas were the only binding constraint, liberalization of trade, (i.e., elimination of quotas) would cause the importing country (e.g., the United States) to increase its imports of textiles while exporting countries, formerly limited by

quotas, would increase their exports. Another implication of the textile quota elimination would be that the import price of textile products will certainly decline. In fact, empirical evidence suggests that the average “tariff equivalent” (i.e., import-export price gap) of the U.S. quotas for Chinese T&C imports could be as high as 40%. Since the average U.S. tariff for T&C items is between 12% and 15% (and will remain in place after the quota elimination), it is likely that U.S. average prices for T&C imports from China will decline a 20% or 25% as consequence of the 2005 final ATC quota elimination (Malaga and Mohanty, 2003).

Conversely, Mexico, which currently has a free trade agreement with the United States, is taking advantage of not being subject to quotas or U.S. tariffs. However, as suggested above, the 2005 ATC final elimination of quotas will likely cause U.S. imports of textiles from China and other Asian countries to increase while imports from Mexico will likely decline. Therefore, this reorganization is expected to reduce not only Mexico’s exports of textiles and clothing but also the export-import price of textiles between Mexico and the United States.

Similarly, and mainly because of NAFTA, Mexico has recently become the largest market for U.S. cotton exports. For instance, during, 2000, 25.3% of U.S. total cotton exports went to Mexico (FATUS). Moreover, around 94% to 97% of cotton imports demanded by the Mexican textile industry come from the United States (INEGI). Consequently, it should not be difficult to argue that Mexico’s demand for U.S. cotton is highly dependent upon Mexico’s ability to export textiles and clothing. Understanding the impact of the ATC quota elimination on Mexico’s competitive position in the U.S. market becomes a critical component to forecast future U.S. cotton exports to that key cotton market.

### **Methods**

The Mexican model equations were estimated using time series data and Ordinary Least Squares. The regression period was 1964-2001 (Lopez, 2003). On the supply side, cotton production was isolated into separate behavioral equations for cotton area harvested and cotton yields. On the demand side, a two-stage procedure was implemented where the first stage consists of total fiber consumption, and the second stage was delineated by the cotton share of total fiber consumed. Subsequently, the estimation of an ending stock behavioral equation allowed for the computation of the change in cotton stocks. Finally, the closing of the model was achieved through the calculation of net cotton trade. Net cotton trade was determined by the difference between cotton production and cotton consumption plus or minus the change in cotton stocks.

Price transmission relations were additionally built for farm cotton prices, mill cotton prices, and soybean prices in Mexico. These transmission relations are primarily used in the model to forecast domestic prices in Mexico, and to incorporate the international market effect into the model. Linkages between Mexico and the U.S. cotton industries were established based on their trade patterns. The effects of the ATC textile quota elimination were incorporated through the “total fiber consumption” behavioral equation and a textile and apparel price index in the United States. For a more comprehensive description of the model refer to Figure 1.

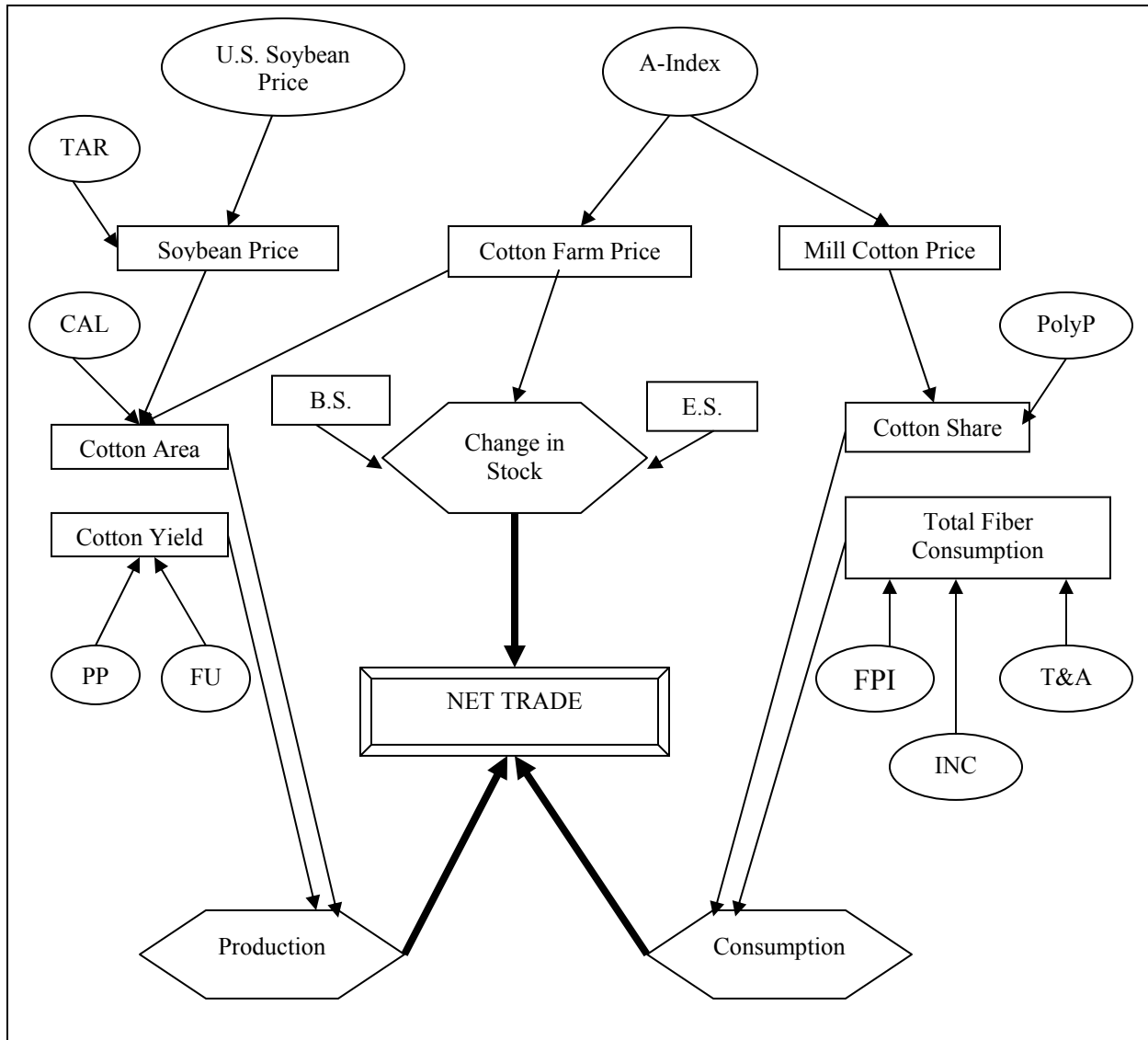
The projections on international commodity prices are taken from FAPRI. FAPRI’s compilation of variable projections such as income, price indexes, and exchange rates are also utilized. The historical patterns of the series are also considered to compute compound growth rates for the remaining exogenous variables.

### **Results and Discussions**

Estimated own and cross price elasticities of supply and demand variables are summarized in Table 1. On the supply side, cotton yield elasticity estimates with respect to fertilizer use and pesticide prices are provided. On the demand side, it is interesting to notice how income dominates fiber consumption over

the other explanatory variables. The textile and apparel price index was the second most important factor affecting total fiber consumption.

The estimated model was utilized to generate a baseline forecast for cotton production, total fiber consumption, cotton consumption, and net imports of cotton in Mexico. Forecasted values are shown in Table 2. Cotton production is forecasted to remain at low levels of around 100,000 million pounds. Fiber and cotton consumption are estimated to slowly increase from the year 2003 to the year 2005. Increases in fiber and cotton consumption were found to be primarily driven by increases in Mexican income. Furthermore, net imports under baseline conditions were forecasted to follow a slow-growth pattern to the year 2005.



**Figure 1. Simplified graphical representation of the implemented model.**

Note: TAR stands for NAFTA tariffs; CAL stands for cotton area lagged one period; PP stands for weighted average pesticide prices; FU stands for fertilizer use; B.S. and E.S. stand for beginning and ending cotton stocks, respectively; PolyP stands for polyester price; FPI stands for fiber price index; T&A stands for textile and apparel price index; and INC stands for income.

**Table 1. Relevant supply and demand elasticity estimates at mean level derived from the model.**

	<i>Area Harvested</i>	<i>Cotton Yields</i>	<i>Fiber Consumption</i>	<i>Cotton Share</i>
Farm Cotton Price	0.66			
Soybean Price	-0.42			
Pesticide Price index		-0.18		
Fertilizer Use		0.20		
Fiber Price Index			-0.0011	
U.S. Textile and Apparel Price Index			1.21	
Income in Mexico			1.48	
Mill Cotton Price				-0.10
Mill Polyester Price				0.12

**Table 2. Baseline model forecast for the variables of interest for the years 2003 to 2005.**

<i>Baseline Quantities in Million Pounds</i>			
<i>Variables of Interest</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
Cotton Production	85	100	117
Total Fiber Consumption	2638	2813	3005
Cotton Consumption	1214	1284	1358
Net Imports	1111	1186	1247

Furthermore, two plausible scenarios were simulated and compared to the baseline projections. The simulated scenarios assume 20% and 25% decline on U.S. prices for textile and apparel as a consequence of the elimination of the U.S. quotas in 2005 (Malaga and Mohanty, 2003). Given that U.S. textile and apparel prices were found to indirectly induce the amount of total fiber consumed in Mexico, the 2005 forecasted amounts of cotton consumption, and net cotton imports changed according to the two alternative scenarios as illustrated in Table 3.

**Table 3. Simulation results for the impacted variables by the 2005 ATC quota elimination.**

<i>Quantities for the Year 2005 in Million Pounds</i>				
<i>Variables of Interest</i>	<i>20% Impact</i>	<i>Percentage Decrease</i>	<i>25% Impact</i>	<i>Percentage Decrease</i>
Fiber Consumption	2765	8%	2683	11%
Cotton Consumption	1250	8%	1212	11%
Net Imports	1138	9%	1101	12%

Note: The percentage decrease is with respect to the 2005 baseline level.

Simulation outcomes show that a 20% decrease in textile and apparel prices in the United States result in an 8% reduction in Mexican total fiber and cotton consumption, leading to a 9% reduction on net imports of cotton. Similarly, the simulation of a 25% decrease in textile and apparel prices is estimated to cause an 11% reduction in total fiber and cotton consumption, respectively and a 12% reduction in net cotton imports from the United States with respect to the projected baseline. Using the 1999-2003 average Mexican share of U.S. cotton exports the magnitude of the simulated Mexican import decline would represent no more than a 3% of total U.S cotton exports.

Nevertheless, the elimination of the U.S. quotas will still leave the U.S. T&C tariffs (around 15% for countries other than Mexico) to be reduced within the framework of the current WTO negotiations implying future additional reductions on U.S. T&C import prices and a further decline of Mexican cotton imports. Moreover, although not holding T&C quotas, Mexico's domestic market may be also affected by the inflow of Asian imports if Mexican tariffs are to be reduced. With minor modifications the estimated model could serve to estimate the impact of those eventual scenarios on the future of the U.S. cotton exports to Mexico. Furthermore, the model could also be utilized to assess the effects on cotton supply and imports of eventual Mexican policy changes directed to encourage cotton production. (e.g., subsidies on fertilizer prices and pest control).

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