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EFFECTS OF MFA QUOTA ELIMINATION: DECLINING U.S. COTTON EXPORTS TO MEXICO?

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Abstract

Accounting for about 25% of U.S. total cotton exports, Mexico's importance for the U.S. cotton industry has reached a significant stage. At the same time, the US market is critical for the Mexican textile/clothing sector absorbing 95% of its exports This paper presents the results of an updated and comprehensive econometric and simulation model that allows for the assessment of potential implications of the Agreement on Textile and Clothing's quota elimination on Mexico's cotton consumption and U.S. cotton exports to Mexico. It is based on the growing interdependence between the U.S. and Mexico's cotton and textile industries and some plausible scenarios for the impact of the 2005 textile and clothing quota final 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, and specifically, the elimination of quotas in the textile/clothing industry are certainly going to have important implications for world textile and cotton trade.

In order to have a better understanding of the far-reaching consequences and policy implications of such a change in the textile and clothing 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 textiles and clothing (T&C) to the U.S. market. In fact, Mexico currently exports around 44% to 50% of its textile and apparel products, and about 95% of them are exported to the United States. Furthermore, in the year 2000, Mexico was ranked as the world's 4th largest exporter of clothing.

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 theT&C quotas, other big exporters currently bounded by those quotas, such as China or Pakistan, could easily challenge Mexico's privileged position due 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.

The imposition of quotas in the textile industry create price gaps between importing and exporting prices constraining the potential level of trade. Therefore, trade theory suggests that if quotas were the only binding constraint, liberalization of trade, (e.g. elimination of quotas) would cause the importing country (The United States for example) to increase its imports of textiles while the exporting countries formerly limited by those quotas would increase their exports. The other implication of the textile quota elimination would be that the import price of textile products would certainly decline. It has been previously estimated that the average "tariff equivalent" (or 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 would not be unlikely that US prices for textile and clothing imports from China decline a 20% or 25% as consequence of the 2005 final ATC quota elimination.

On the other hand, Mexico, which currently has a free trade agreement with the United States, is taking advantage of this privileged position of not being subject to quotas and not paying U.S. tariffs. However, as suggested above, the 2005 ATC final elimination of quotas by the United States would likely cause U.S. imports of textiles from China and other Asian countries to increase and imports from Mexico to decline. Therefore, this substitution is expected to bring down not only Mexico's exports of textiles and clothing but also the export-import price of textiles between Mexico and the United States.

At the same time, and mainly because of NAFTA, Mexico has become in recent years 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, between 94% to 97% of cotton imports used by the Mexican textile industry come from the United States (INEGI). It should not be difficult to argue then 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 equation. 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 eliminations 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 borrowed 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

The estimated model was utilized to generate the baseline forecast for cotton production, total fiber consumption, cotton consumption, and net imports of cotton in Mexico. Forecasted values for the years 2003 to 2005 are shown in Table 1. 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.

Estimated own and cross price elasticities of supply and demand variables are summarized in Table 2. On the supply side, cotton yield elasticity estimates with respect to fertilizer use and pesticide prices could be utilized to further assess eventual Mexican policy changes directed to encourage cotton production. (e.g., subsidies on fertilizer prices, and subsidies for pest control). 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.

Subsequently, two scenarios were simulated based on prior research regarding the effects of the ATC quota elimination on U.S. textile and apparel prices (Malaga and Mohanty, 2003). Specifically, 20% and 25% decreases in U.S. textile and apparel prices were addressed. Textile and apparel prices in the U.S. were found to influence Mexico's fiber consumption primarily because around 50% of fiber used by the Mexican industry is exported to the U.S. in the form of textile and apparel. Given that U.S. textile and apparel prices were found to induce the amount of total fiber consumed, the 2005 forecasted amounts of cotton consumption, and ultimately net cotton imports changed based on these two scenarios as illustrated in Table 3.

Table 3 indicates that the model predicts that the simulation of a 20% decrease in textile and apparel prices in the United States leads to an 8% reduction in total fiber and cotton consumption, respectively. Additionally, this 20% decline in total fiber and cotton consumption translates into a 9% reduction in net imports of cotton in Mexico. 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. Moreover, this 25% decline scenario is estimated to lead to a 12% reduction in net cotton imports. Consequently, considering the fact that 94% to 97% of Mexican cotton imports come from the United States, the former statistics indicate that the United States exports of cotton to Mexico are forecasted to decrease by a similar 9% to 12%, depending on the respective impacts of the textile quota elimination (i.e., 20%, 25%).

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Table 1. Baseline model forecast for the variables of interest for the years 2003 to 2005.

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

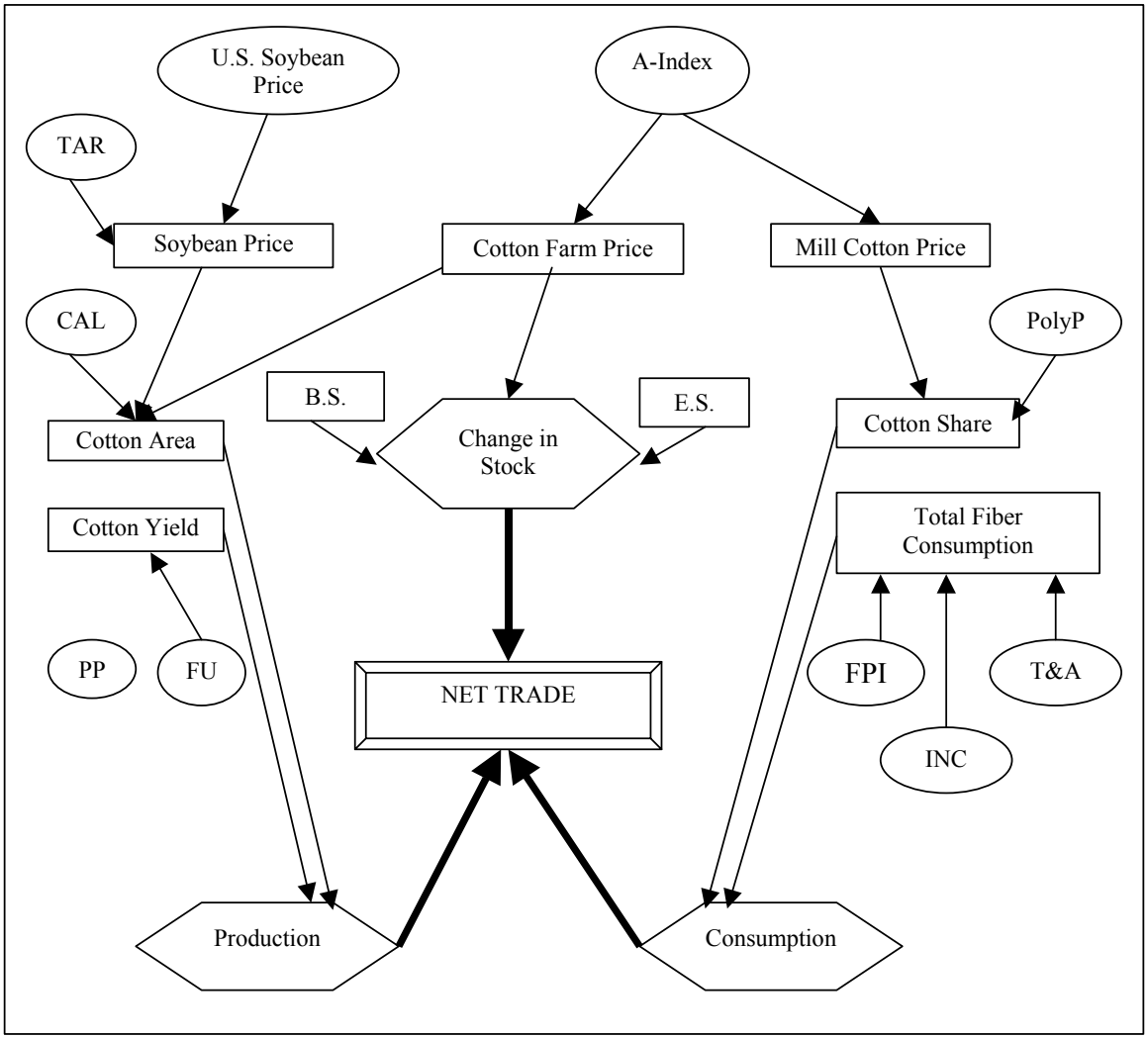
Table 2. Relevant supply and demand elasticity estimates at mean level derived from the model.

	Area Harvested	**Cotton Yields**	**Fiber Consumption**	**Cotton Share**
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 3. Simulation results for the impacted variables by the 2005 ATC quota elimination.

	Quantities for the Year 2005 in Million Pounds			
Variables of Interest	**20% Impact**	**Percentage Decrease**	**25% Impact**	**Percentage Decrease**
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.



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.

Figure 1. Simplified graphical representation of the utilized model.