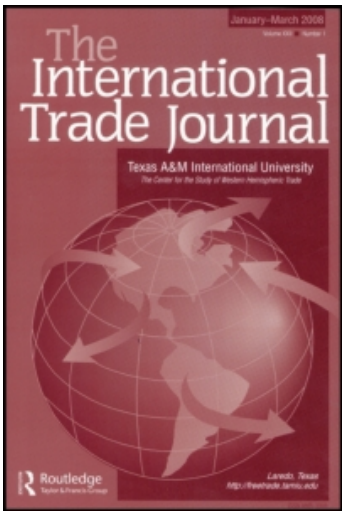

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Welfare Analysis of the Dominican Republic-Central America-United States Free Trade Agreement: The Cotton Textile and Apparel Industries

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> Economic health is one of the keys to a secure future for our Caribbean Basin and to the neighbors there. . . . we've labored long to develop an economic program that integrates trade, aid, and investment—a program that represents a long-term commitment to the countries of the Caribbean and Central America to make use of the magic of the marketplace, the market of the Americas, to earn their own way toward self-sustaining growth.
>
> –*President Ronald Reagan, February 24, 1982*

This article studies the effects of the Dominican Republic-Central America-United States Free Trade Agreement (US-CAFTA-DR) on the world fiber market using a partial equilibrium modeling approach. We find the effect of the agreement on the U.S. cotton yarn and Caribbean cotton apparel industries to be positive while the U.S. cotton apparel industry suffers significant losses. Cotton apparel producers in the Caribbean region gain approximately $*80 million under US-CAFTA-DR while gains by the U.S. yarn industry average about* $*120 million over current trade arrangements. The U.S. cotton apparel industry loses about* $*40 million per year under US-CAFTA-DR.*

* * * * *

I. INTRODUCTION

As outlined by President Reagan above, the United States has long been interested in promoting economic development in the Caribbean region. The above remarks preceded the introduction of the Caribbean Basin Initiative (CBI), a private sector initiative designed to expand foreign and domestic investment to diversify and solidify the economies of Central American and Caribbean countries. CBI has since become a general term to refer to the official title of legislation enacting this economic assistance package, the Caribbean Basin Economic Recovery Act of 1983 (CBERA), as well as the Caribbean Basin

Economic Recovery Expansion Act of 1990 (CBERA Expansion Act), and the U.S.-Caribbean Basin Trade Partnership Act of 2000 (CBTPA). The impetus of these legislative acts was unilateral development assistance by allowing certain exports from the Caribbean region to enter the U.S. quota and duty free.

In 2004, the Bush administration successfully negotiated an agreement with trade representatives of the governments of Costa Rica, the Dominican Republic, El Salvador, Honduras, Guatemala, and Nicaragua for a multilateral extension of CBI known as the Dominican Republic-Central America-United States Free Trade Agreement (US-CAFTA-DR).[1] This agreement not only makes permanent the preferential trade status afforded nations under CBI (CBTPA was set to expire in 2008), it offered reciprocal duty and quota free access for U.S. producers to the markets of CAFTA countries. US-CAFTA-DR basically transforms CBI from a unilateral trade agreement to a true Free Trade Agreement (FTA) between the United States and nations in the Caribbean region in the spirit of the North American Free Trade Agreement (NAFTA).

Part of U.S. motivation in seeking a reciprocal trade agreement with Central American and Caribbean trading partners was to craft a response to growing competition in the textile and apparel (T&A) industries.[2] In a quota-free world created by the Agreement on Textiles and Clothing (ATC),[3] the T&A industries of the United States and the Region face increasing competition from such industry giants as China. By building on competitive advantages in the area, US-CAFTA-DR may be seen as an attempt of members to enlarge and

[1]The terms "Region" (following Gelb, 2005) and "CAFTA countries" will be used to refer to the Central American countries and the Dominican Republic who have signed US-CAFTA-DR.

[2]For the purposes of this article, we follow Gelb (2005) by defining "textiles" as yarn or fabric and sometimes end products such as bed linens, towels, window curtains, tarpaulin, tents, etc. The term "apparel" refers to clothing, footwear excluded.

[3]On January 1, 2005, The Agreement on Textiles and Clothing phased out all quotas on imports of textiles and apparel from countries that are members of the World Trade Organization (WTO).

strengthen the textile and clothing industry in the Western Hemisphere. By strengthening the strategic partnership at the heart of CBI, US-CAFTA-DR combines

> . . . highly efficient U.S. cotton/yarn/textile manufacturing with U.S. design/financing/ marketing industries and with Caribbean Basin low-cost sewing/assembly operations. They are concerned that without such a partnership, substantial parts of all these sectors will move to low-cost and technically efficient Far East producers. (U.S. Department of Commerce, 2006)

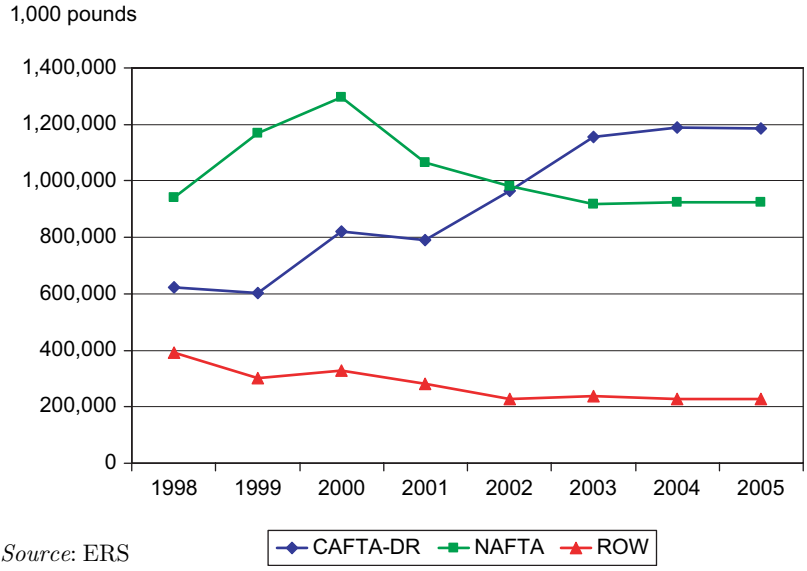
The viability of this industry may be based on the strong ties that bind the cotton and textile industries of the United States to the apparel industries of Central America and the Caribbean.

Dominican Republic-Central America-US Textile and Apparel Industries

The apparel industries of Central America and the Caribbean region are important customers for U.S. cotton and textile producers. In 2005, the Region imported 233,000 bales of cotton (NCC, 2006). But more important than a destination for cotton exports, CAFTA countries are the most important customer of the U.S. textile industry. Since 1998, cotton textile exports from the U.S. to the Region have almost doubled. The Region currently accounts for 51 percent of all cotton textile exports from the United States (see Figure I).

CAFTA countries continue to be significant suppliers of cotton textile and apparel products to the U.S. market. Since 1998, the Region has increased its cotton T&A exports to the United States by 65% (see Figure II). However, U.S. imports of cotton textile and apparel from China during the same time period have increased by over 400 percent. Most of that gain occurred in 2005 with the expiration of textile quotas. The CAFTA countries saw their market share drop from 30 percent in 2004 to 15 percent in 2005. China's market share increased from 11 percent in 2004 to 19 percent in 2005 (ERS, 2006). It appears China has been able to

Figure 1
U.S. Cotton Textile and Apparel (T&A) Exports,
Raw Fiber Equivalent

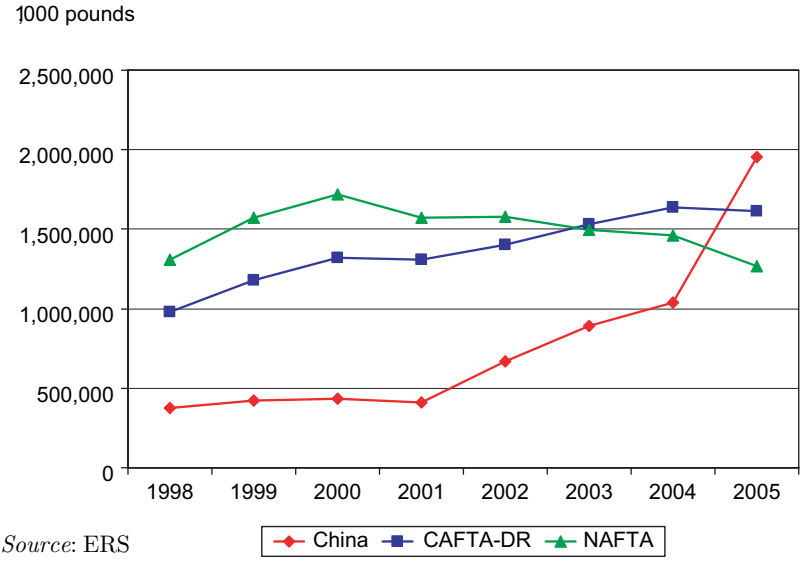


Source: ERS

capture a significant amount of market share in an environment of free trade while CAFTA countries have seen theirs erode.

The implications of lost market share by Central American and Caribbean T&A manufacturers have important consequences for both U.S. and Regional producers. As Figures I and II show, the U.S. and CAFTA textile industries are strongly interwoven. The Region is both an important export and import market for the U.S. cotton textile and apparel industries. The Trade Resource Center (2005) estimates that the share of U.S. content in fabric imported to the United States from CAFTA producers is 79 percent. This compares to 37 percent U.S. content in imports from Mexico and 1 percent from China. If successful in staving off Chinese competition in the cotton T&A industry, US-CAFTA-DR would strengthen the U.S. textile industry by increasing its role as the

Figure 2
U.S. Cotton Textile and Apparel (T&A) Imports,
Raw Fiber Equivalent



Source: ERS

major cotton yarn and fabric supplier for the CAFTA countries. Regional T&A producers would gain through increased shipments of cotton apparel and textile products to the United States Cotton producers in the United States would gain from increased mill demand in both markets.

From CBI to US-CAFTA-DR[4]

Besides changing from a unilateral trade agreement (designed to offer economic development assistance to Caribbean nations) to a multilateral free trade agreement (offering reciprocal duty-free

[4]For a more complete comparison of the provisions of US-CAFTA-DR to CBTPA that affect the apparel industry, see AAFA, 2005.

market access for U.S. producers), US-CAFTA-DR contains other changes significant to the T&A industries of all parties. Under CBTPA (the latest legislative action of CBI), duty free access to U.S. markets was allowed for textiles composed of yarn or fabrics that originated in the U.S. Under US-CAFTA-DR, components of a textile or apparel product can originate in the region, not only the United States. Regional origination not only applies to other CAFTA countries, but to NAFTA trading partners as well.

Additionally, a textile or apparel good that contains one or more fibers, yarns, or fabrics considered to be in short supply in the U.S. is treated as satisfying the origination criteria, regardless of source (Gelb, 2005). Cotton exports to Central America will become duty-free immediately; textile and apparel will be duty-free immediately if they meet the Agreement's rules of origin.

Other Studies

Several studies have evaluated US-CAFTA-DR and provided estimates of its impact. An investigation requested by the U.S. Trade Representative concluded that US-CAFTA-DR would likely result in moderate increases in U.S. imports of textiles, apparel, and footwear. Additionally, this report concluded that US-CAFTA-DR would result in a small increase in U.S. exports to the Caribbean region, so small that the impact on U.S. jobs or output would be negligible (USITC, 2004; Gelb, 2005).

Brown, Kiyota, and Stern (2004) use a multi-sector/multi-country general equilibrium model to estimate the effects of trade negotiations and changes to trade policies. Their results for the textile and apparel sectors show a greater impact than the USITC report. Brown, Kiyota, and Stern find that under US-CAFTA-DR, U.S. exports of textiles would increase 6 percent, textile imports would increase 3 percent, and U.S. textile employment decline 0.34 percent (a loss of about 3,000 jobs). U.S. apparel exports would increase by 12 percent, apparel imports increase by

7 percent, and apparel employment decrease by 1.6 percent (a loss of 12,000 jobs). The impacts on the Central American and Caribbean economies are much greater. US-CAFTA-DR would result in a regional increase in textile exports of 53 percent, an increase in textile imports of 26 percent, and an increase in textile employment of 27 percent (47,887 additional jobs). In the apparel sector, Regional exports increase by 70 percent, imports increase by 18 percent, and apparel employment increases by 43 percent (an increase of 225,091 jobs). The significance of these findings should be considered with caution; Brown, Kiyota, and Stern used a 1997 database and did not include the effects of CBTPA which was enacted in 2000. A portion of the growth in textiles and apparel must be accounted for by this legislation and not US-CAFTA-DR alone. Thus, these findings likely overestimate the effects of US-CAFTA-DR.

McMahon, Rosson, and Adcock (2005) estimate the effects of US-CAFTA-DR on agricultural exports from the U.S. to Central America and the Caribbean. For the U.S. cotton and related industries, they find that total business activity would increase by $77.5 million under US-CAFTA-DR compared to a scenario without the agreement. US-CAFTA-DR is shown to boost the value of raw cotton exports and labor income and employment by approximately 32 percent.

Our study of CAFTA-DR takes a more integrated approach than the studies cited above. We estimate the welfare changes of the agreement by considering the cotton textile complex from raw cotton trade to textiles to finished goods. By incorporating more industry sectors, a more complete estimate of economic consequences may be derived.

Objective of this Analysis

The purpose of this report is to assess the economic effects of the Dominican Republic-Central America-United States Free

Trade Agreement on world textile and cotton trade flows, prices, and market equilibria. The analysis considers scenarios that represent those components of the agreement that directly affect the cotton, textile, and apparel industries of the United States, the five Central American countries, and the Dominican Republic. We quantify the impact of textile and cotton markets on terms of trade, trade flows between US-CAFTA-DR economies, and other trading partners.

In this paper, we compare three scenarios for the cotton, yarn, and apparel trades. First, a baseline is developed assuming trade agreements and tariff schedules as they exist without US-CAFTA-DR and without the current provisions of CBTPA (since it is set for expiration in 2008). The second scenario is based on the indefinite continuation of CBTPA but without the provisions of US-CAFTA-DR. Finally, the third scenario is based on full implementation of US-CAFTA-DR.

US-CAFTA-DR calls for eventual duty-free, quota-free access on essentially all products (FAS, 2005). In the analysis presented here, we model the impact of the agreement via the elimination of tariffs that are recognized in publicized trading schedules. No attempt has been made to quantify the effects of non-tariff barriers to trade (NTBs). Fisher (2006) points out that NTBs such as quotas, technical barriers to trade, and a wide array of customs and administrative practices and procedures may substantially impair trade that is otherwise free of tariff restrictions. This is particularly true of the textile and textile article industries. However, the textile industries of the United States and the Region have a long history of cooperation and collaboration. Preferential trade agreements such as CBTPA have been successful in

> creating an environment in which businesses forge strategic partnerships in the increasingly complex regimen of textile and apparel manufacturing. In a paradigm of coordination, components are

> routinely produced in countries other than where the end product is assembled, end products are produced mainly for export, and all are in close touch with each other. (Gelb, 2005, p.2)

In addition, the US-CAFTA-DR accord contains special provisions committing trading partners to " . . . identify trade facilitating initiatives regarding standards, technical regulations, and conformity assessment procedures that are appropriate for particular issues or sectors" (USTR, 2007). While recognizing that NTBs may be significant barriers to trade in many cases, the circumstances surrounding the textile trade between the U.S. and the Region and the provisions of the agreement itself address many of these issues. Therefore, NTBs were not modeled separately in this analysis.[5]

The remainder of the article is organized as follows: the next section provides a basic theoretical background for economic welfare calculations; this is followed by a description of the data and analytical methods used; next are the results of this analysis; and finally a section of summary and conclusions.

II. THEORETICAL BASIS

Long standing economic theories of comparative advantage provide the rationale for US-CAFTA-DR: the overall economic welfare of a country can be improved by producing those goods at which they are relatively more efficient and trade for the rest (Hornbeck, 2006). It would then be expected that the welfare gains from free trade outweigh the overall welfare lost by an economy in which trade is restricted or distorted by tariffs or quotas. The purpose of this section is to theoretically demonstrate the net welfare gains and losses of two trading partners and two

[5]For more discussion on the modeling challenges and methodologies associated with NTBs, see Fugazza and Maur, 2006.

commodities (modeling one commodity at a time) with the removal of trade restricting tariffs.

The simplified economic model presented here is constructed to demonstrate changes in net social welfare. This is derived from changes in consumer and producer surplus in the face of changing product prices. The model also accounts for gains or losses in government revenue associated with the imposition or removal of tariffs that affect the general welfare of a society as well. We do not model the raw cotton market here, but note that the demand for cotton is derived from the demand for cotton yarn. Therefore, increased demand by the yarn production sector will increase the demand for cotton with the accordant welfare effects in this industry sector.

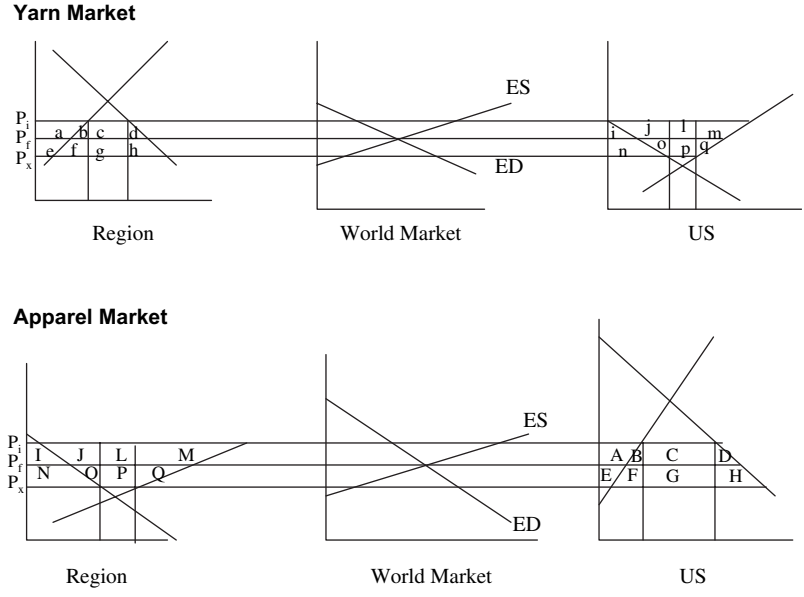
The theoretical model is based on several assumptions. The first assumption is that the trading policies of both nations affect world prices in the textile and apparel markets. This assumption is based on the relatively large market share that the CAFTA countries in toto represent for U.S. exports of cotton textiles (51 percent). As cotton apparel exporters, CAFTA countries have seen their market share decline, but still claim a 15 percent market share, enough to be considered large for the purposes of this analysis. Second, the United States is a net exporter of cotton yarn while the Region is a net importer of cotton yarn. Third, the United States has an excess demand for apparel that is in part supplied by the CAFTA countries. Fourth, the US-CAFTA-DR agreement would lower import prices relative to any applicable tariffs or, conversely, prices would be higher in the absence of US-CAFTA-DR due to the presence of import tariffs. Fifth, we treat imports and domestically produced goods as perfect substitutes. Sixth, we ignore distributional and political issues related to government receipts in order to focus on the economic welfare effects of changes in tariffs.

The results of the paper are derived using a standard partial equilibrium comparative analysis in the Marshallian economic

surplus framework (see Currie, Martin, and Schmitz, 1971; Bale and Greenshields, 1978; Bale and Lutz, 1981, for more detail). Figure III presents the basic framework for the welfare analysis under US-CAFTA-DR. The upper part of the figure represents the yarn market. The United States exports yarn to Central American and Caribbean markets that impose an import tariff. The lower part of the figure represents the apparel market in which the CAFTA countries export to the United States which is modeled with an import tariff.

P_f represents the free trade price under US-CAFTA-DR both for the yarn or apparel markets. P_i represents the domestic price facing importers of the commodity while P_x represents the prices faced by exporters in the domestic market. Therefore, in the yarn market P_i is the initial price position for yarn imports in the

Figure 3
Conceptual Framework of Welfare Analysis



CAFTA countries. P_x is the domestic yarn price in the United States with import tariffs imposed by the Central American and Caribbean countries. P_f is the resultant price in both the United States and the Region with free trade.

The Yarn Market

The upper portion of Figure III shows the welfare effects of US-CAFTA-DR on the cotton yarn market. The gain in consumer surplus in Central America and the Dominican Republic with the free trade agreement is represented by area a + b + c + d. Producer surplus is reduced in the same region area a. Government revenue with the import tariff, area c + g, is lost in free trade. In the United States, the removal of the tariff increases the price level from P_x to P_f. Producer surplus increases by n + o + p + q. Consumer surplus in the United States is reduced by area n. Government revenue in the U.S. is unaffected.

The Apparel Market

The lower portion of Figure III shows the welfare effects of US-CAFTA-DR on the market for cotton apparel. The gain in consumer surplus in the U.S. with removal of import tariffs is given by area A + B + C + D. The loss of producer surplus with lower prices in the U.S. is area A. The U.S. government loses area C + G in revenue. In the Central American-Caribbean region, higher prices with free trade results in increased producer surplus of area N + O + P + Q and a loss of consumer surplus of area N.

Net Effects of Free Trade

In integrated markets such as the textile and apparel industries of the United States, Central America, and the Caribbean, estimates of welfare effects of free trade in each country must account for changes in both sectors. The net effect will be the summation of separate effects modeled in Figure III. The basic social welfare calculation is shown in Table I. We assume all

Table I
Welfare Effects of US-CAFTA-DR

	Central America and the Dominican Republic (the Region)	United States
Yarn Sector		
Consumer surplus (apparel producers in the Region)	a + b + c + d	−n
Producer surplus	−a	n + o + p + q
Govt revenue	−(c + g)	0
Apparel Sector		
Consumer surplus	−N	A + B + C + D
Producer surplus	N + O + P + Q	−A
Government revenue	0	−(C + G)
National Welfare	B_R = a + b + c + d + N + O + P + Q− (a + c + g + N)	B_U = n + o + p + q + A + B + C + D− (A + C + G)

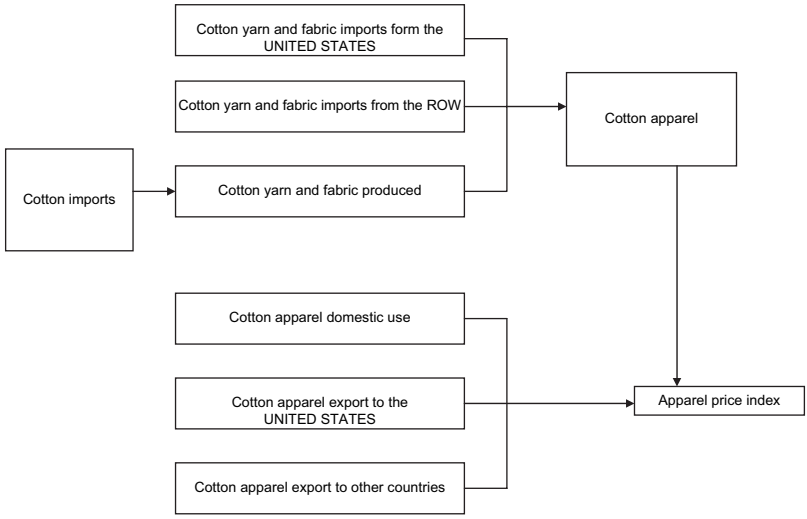
countries are only concerned with the welfare of their own citizens and the fate of industries in their own nations. As demonstrated here, the United States would be better off if US-CAFTA-DR would open markets for U.S.-produced cotton yarn; the CAFTA countries would be better off if the United States would open its apparel market to them. Whether any or all of the sovereign nations that negotiated this agreement sign or decline depends on whether the B_c or B_u of Table I is negative or positive. Estimates of welfare net effects may assist these nations in deciding whether to keep old structures of protection in place or abolish trade barriers and adopt US-CAFTA-DR. Each nation will compare the payoffs of these two trade strategies which can be measured by B's, the dollar measures of the real income changes associated with the movement between the equilibrium situations because of relative price changes. US-CAFTA-DR would be signed if the B's are positive.

III. METHODS AND DATA

To provide an estimate of the welfare gains and losses of US-CAFTA-DR, a partial equilibrium econometric model of the world fiber market, developed by the Cotton Economic Research Institute (CERI) at Texas Tech University, is used (Pan et al., 2004). Some of the advantages of using partial equilibrium as opposed to other methods include ease of model building, fewer demands of theoretical assumptions and data, and the allowance of more detail than general equilibrium models (Alvaro and Wailes, 2005). This model of the world fiber market has been used to analyze such cases as the Brazilian and West African complaints against U.S. farm policy in the dispute panels of the World Trade Organization (Pan et al., 2006), a comparison of U.S. farm policy and China's tariff rate quota system (Pan et al., 2005), the effect of revaluation of China's currency on world fiber markets (Pan et al., 2005), and the effect of complete trade liberalization in the world cotton market (Pan et al., 2006). Pan et al. (2004) provides complete model explication. The model is also the basis of CERI's annual Global Cotton Outlook.

The model incorporates 25 major trading blocs reflecting major participants in the world cotton trade (Pan et al., 2004). As each country and region sets their tariff policies, they can be expected to have some impact on the terms of trade which they face. An outline of the trade flows for the cotton, textile, and apparel industries of Central America and the Dominican Republic is given in the Figure IV and the major equations estimated are in Table II. Along with equations and parameter estimates (with standard errors in parentheses), Table II reports diagnostic statistics of the model. In addition to the Durbin-Watson statistics, tests were conducted to detect higher order correlation. No significant effects were found.

Figure 4
Representation of US-CAFTA-DR model



Yarn and Fiber Supply Model

The domestic supply of yarn and fabric for the CAFTA textile industry is shown as the sum of imports from the U.S. and the rest of the world (ROW). We ignore the cotton sector in the model due to little production and mill use in the CAFTA countries. Cotton yarn and fabric imports from the U.S. increase as the U.S. cotton textile price index increases and U.S. yarn price decreases (Equation 1.1). Cotton yarn and fabric imports from other countries increase as the Chinese apparel price index increases, U.S. cotton apparel price decreases, and the U.S. yarn price increases (Equation 1.2).

Apparel Demand Model

A two-step procedure is used for estimating fiber demand that connects textile output to yarn and fiber inputs. The

Table II
Parameter Estimates of US-CAFTA-DR Fiber Model

Equations	Parameters and Std Errors	Adj. R^2	D-W Statistics	F-Statistics
(1.1) Cotton Yarn and Fabric Imports from United States	= −1083893 + 11991*US cotton Textile price index-2347.46 *US yarn price (581047) (6101.26) (1641.11) + 0.89*Lag(yarn and fabric import from US) (0.12)	0.98	2.52	284.29
(1.2) Cotton Yarn and Fabric Imports from ROW	= 907744 + 3315.03*Chinese apparel price index−197.86 *US cotton apparel (472228) (465.73) (58.03) price index + 119.95*US yarn price (146.45)	0.93	2.08	182.66
(1.3) Textile Domestic Consumption Per Capita	= 1.11 + 0.97*real GDP per capita – 0.05 *CAFTA-DR Cotton apparel price (0.43) (0.38) (0.02) + 0.70*Lag(Textile Consumption/capita) (0.16)	0.76	2.54	14.95
(1.4) Cotton Apparel Exports	= 86876 + 3645.67*US textile price index −20653 *CAFTA-DR apparel price (24714) (988.83) (6028) + 0.79*lag(Apparel Exports) (0.07)	0.96	2.30	355.96
(1.5) Cotton Yarn and Fabric Share in total Textile Fiber Consumption	= 1.48 −0.07*Textile output−0.003 *log(cotton apparel price) (0.42) (0.03) (0.0004) −0.007*log(wool apparel price) + 0.01 *log(polyester apparel price) (0.004) (0.004)			
(1.6) Man-made Fiber Yarn and Fabric Share in Total Textile Fiber Consumption	= −0.60 + 0.07* Textile output + 0.01 * log(cotton apparel price) (0.46) (0.03) (0.004) + 0.02* log(wool apparel price) −0.03 * log(polyester apparel price) (0.01) (0.01)			

first step involves the estimation of total domestic textile production. In the second step, total domestic textile production (total fiber demand) is allocated among the various fibers. Thus, demand for each major fiber type (cotton and man-made) can be estimated according to its utilization in the textile production process.

Step 1. Total domestic textile demand is given by the following formula:

$$\textit{Total Domestic Textile Demand} = \textit{Domestic Textile Consumption} + \textit{Apparel Exports}$$

The model calculates per capita domestic textile consumption in fiber equivalents as a function of per capita income and the CAFTA cotton apparel price (Equation 1.3). Apparel exports are estimated as a function of the U.S. textile price index and the CAFTA apparel price (Equation 1.4).

Step 2. In the second step, total domestic textile production is allocated among the various fibers (cotton and man-made). Cotton's share is shown to decrease as total textile output increases, decreases as cotton apparel prices increase, decreases as the price of wool apparel decreases, and increases as polyester apparel prices increase (Equation 1.5). The share of man-made fiber in total domestic consumption increases with total output, increases with cotton apparel prices, increases as wool apparel increases, and decreases as polyester apparel prices increase (Equation 1.6). The apparel price is solved endogenously by the balance in the cotton textile market.

The historic and predicted macroeconomic variables (real GDP, exchange rate, population, and GDP deflator) originate from Global Insight and are shared by the Food and Agricultural Policy Research Institute (FAPRI). Cotton production,

consumption, ending stocks, imports, and export data are from USDA Foreign Agriculture Service Production, Supply & Distribution (PSD). Fiber mill consumption and man-made fiber data are from FAO World Fiber Consumption Survey (before 1994) and Fiber Organon (after 1994). Yarn and apparel trade and the tariff rates are from World Integrated Trade Solution Database, FTAA-ALCA database and Office of Textiles and Apparel (OTEXA).

IV. SIMULATION RESULTS

Tables III through VII present the main findings of the analysis. The baseline projection assumes all US-CAFTA-DR countries impose the same tariff rates on cotton yarn imports and cotton apparel imports as the goods from other countries such as apparel imported from China. The perpetual extension of current CBI legislation is shown by the scenario CBI. The effects of reciprocal free trade between the United States, Central America, and the Dominican Republic are measured in the US-CAFTA-DR scenario. Policy effects (percentage change estimates) of both alternative scenarios are compared to the baseline.

Removing tariff rates on cotton yarn imports in the Caribbean region shifts their yarn supply curve to the right. The same supply effect is seen in the U.S. apparel market when apparel import tariffs from the region are eliminated. As Table III shows, yarn imports from the United States to the Region would increase with US-CAFTA-DR by 0.42 percent and decline to the Region from the rest of the world by 0.04 percent. With the trade agreement, cotton apparel imports from the Region to the U.S. increase by an average 0.74 percent and domestic textile consumption in the Region declines by an average 3.36%. All of the effects of US-CAFTA-DR magnify those of CBI alone.

Table III
Effects on Regional Textile Markets

		2006/07	2007/08	2008/09	2009/10	2010/11	Average
		(1000 MT)					
Cotton yarn and fabric Import from US	Baseline	601.67	603.22	636.95	666.35	694.87	640.61
	CBI	0.11%	0.20%	0.27%	0.33%	0.38%	0.26%
	US-CAFTA-DR	0.17%	0.33%	0.44%	0.54%	0.62%	0.42%
Cotton yarn and fabric import from ROW	Baseline	177.82	148.18	139.37	128.08	116.40	141.97
	CBI	−0.02%	−0.02%	−0.02%	−0.03%	−0.03%	−0.02%
	US-CAFTA-DR	−0.03%	−0.04%	−0.04%	−0.04%	−0.05%	−0.04%
Cotton Apparel export to US	Baseline	743.99	708.97	673.46	652.86	611.28	678.11
	CBI	0.19%	0.37%	0.53%	0.68%	0.84%	0.52%
	US-CAFTA-DR	0.27%	0.52%	0.75%	0.96%	1.19%	0.74%
Textile price				Dollars per pound			
	Baseline	6.57	8.42	8.63	8.46	9.09	8.24
	CBI	6.84%	5.34%	5.21%	5.31%	4.94%	5.53%
	US-CAFTA-DR	8.41%	6.55%	6.39%	6.50%	6.04%	6.78%
Domestic textile consumption per capita				Kg per person			
	Baseline	2.91	3.19	3.55	3.91	3.91	3.49
	CBI	−1.69%	−2.63%	−3.09%	−3.21%	−3.19%	−2.76%
	US-CAFTA-DR	−2.07%	−3.23%	−3.79%	−3.93%	−3.78%	−3.36%

Welfare gains in the Region are reported in Table IV. Apparel producers gain an average $408 million annually with the tariff rate removed. However, Regional governments lose $291 million in tariff collection revenue. Consumers in the Region lose $27 million due to domestic cotton apparel price increases. The net gain of nations in the Region with the trade agreement would be approximately $90 million annually (compared to no trade agreement at all).

The effects of the agreement on the U.S. cotton sector are presented in Table V. With increased cotton yarn exports to the Region, U.S. cotton mill use increases by 0.16 percent and U.S. cotton exports decline by 0.06 percent. The U.S. raw cotton sector is not significantly affected by the trade agreement with production basically unchanged and prices influenced by less than ¼ cent per pound (0.04 percent). As for the U.S. textile and apparel sector (Table VI), T&A prices decrease an average 4.06 percent with the agreement due to the 0.17 percent increase in cotton T&A imports. Domestic cotton textile and apparel consumption in the U.S. increases 0.09 percent.

Welfare analysis of US-CAFTA-DR in the United States is presented in Table VII. Cotton producers gain around $2.7 million with small changes in the farm price and domestic cotton production increases. Cotton yarn spinners in the U.S. gain around $124 million over current CBI trade provisions with increased exports to an expanding textile industry in the Region. However, apparel producers lose around $40 million dollars with increased competition for cotton apparel from the Region. The U.S. government loses some import tariff revenue while increased competition in the U.S. textile market with more imports from the Region benefit U.S. consumers by about $6 million. The net welfare gain in the U.S. totals $54 million annually with US-CAFTA-DR over CBI and $135 million over no trade agreement at all.

Table IV
Welfare Effects on Region

		2006/07	2007/08	2008/09	2009/10	2010/11	Average
				(Million Dollars)			
Producers	CBI	342.75	337.90	329.47	324.99	313.89	329.80
	US-CAFTA-DR	422.16	417.36	407.95	403.05	390.73	408.25
Government	CBI	−164.07	−166.99	−179.03	−190.17	−201.38	−180.33
	US-CAFTA-DR	−265.24	−270.12	−289.72	−307.87	−326.12	−291.81
Consumers	CBI	−30.09	−21.86	−19.16	−21.06	−20.96	−22.62
	US-CAFTA-DR	−36.77	−26.46	−23.00	−25.21	−26.78	−27.64
Total	CBI	148.59	149.06	131.28	113.76	91.55	126.85
	US-CAFTA-DR	120.14	120.79	95.22	69.96	37.84	88.79

Table V
Effects on U.S. Cotton Market

		2006/07	2007/08	2008/09	2009/2010	2010/11	Average
				Cents per pound			
Farm Price	Baseline	48.40	49.84	50.66	53.28	55.17	51.47
	CBI	0.04%	0.05%	0.03%	0.01%	0.01%	0.03%
	US-CAFTA-DR	0.06%	0.09%	0.05%	0.02%	0.01%	0.04%
				000 bales			
Production	Baseline	21914.60	21600.83	21721.37	21881.86	21964.98	21816.73
	CBI	0.00%	0.00%	0.01%	0.01%	0.00%	0.00%
	US-CAFTA-DR	0.00%	0.01%	0.02%	0.01%	0.00%	0.01%
Mill use	Baseline	6000.67	5917.69	5869.23	5447.44	5276.51	5702.31
	CBI	0.02%	0.06%	0.09%	0.14%	0.18%	0.10%
	US-CAFTA-DR	0.04%	0.09%	0.15%	0.22%	0.29%	0.16%
Export	Baseline	15849.16	16026.80	16612.26	17081.84	17207.92	16555.60
	CBI	−0.01%	−0.03%	−0.04%	−0.05%	−0.05%	−0.04%
	US-CAFTA-DR	−0.02%	−0.05%	−0.07%	−0.08%	−0.08%	−0.06%

Table VI
Effects on U.S. Cotton Textile Market

	2006/07	2007/08	2008/09	2009/10	2010/11	Average
Cotton Textile Price			Dollars per Pound			
Baseline	12.97	12.94	13.48	13.76	13.80	13.39
CBI	−1.12%	−2.03%	−2.67%	−3.16%	−3.57%	−2.51%
US-CAFTA-DR	−1.82%	−3.27%	−4.32%	−5.11%	−5.76%	−4.06%
Cotton Textile Import			Million pounds			
Baseline	8201.71	8272.79	8329.63	8554.43	8664.48	8404.61
CBI	0.04%	0.08%	0.11%	0.13%	0.15%	0.10%
US-CAFTA-DR	0.07%	0.13%	0.18%	0.22%	0.25%	0.17%
Cotton Textile Consumption						
Baseline	11082.03	11113.28	11146.86	11169.20	11197.20	11141.72
CBI	0.03%	0.05%	0.06%	0.07%	0.08%	0.06%
US-CAFTA-DR	0.04%	0.07%	0.10%	0.11%	0.13%	0.09%

Table VII
Welfare Effects on U.S. Cotton and Textile Sectors

		2006/07	2007/08	2008/09	2009/10	2010/11	Average
Producers				Million Dollars			
Cotton producers	CBI	1.87	3.00	1.97	1.07	0.70	1.72
	US-CAFTA-DR	3.03	4.86	3.21	1.65	0.81	2.71
Yarn Producers	CBI	267.39	242.91	259.48	279.70	288.24	267.55
	US-CAFTA-DR	383.88	355.62	380.80	410.10	425.04	391.09
Apparel Producers	CBI	−60.95	−61.58	−70.63	−77.31	−86.89	−71.47
	US-CAFTA-DR	−98.18	−103.04	−112.31	−115.18	−119.38	−109.62
Government							
Cotton support saved	CBI	0.11	0.22	0.29	0.30	0.29	0.24
	US-CAFTA-DR	0.17	0.36	0.46	0.49	0.46	0.39
Textile tariff	CBI	−133.65	−127.21	−120.29	−116.00	−108.16	−121.06
	US-CAFTA-DR	−171.13	−163.08	−154.91	−150.17	−140.61	−155.98
Consumers	CBI	1.58	2.85	3.93	4.76	5.39	3.70
	US-CAFTA-DR	2.55	4.60	6.36	7.69	8.72	5.99
Total	CBI	76.35	60.19	74.76	92.52	99.56	80.68
	US-CAFTA-DR	120.32	99.32	123.61	154.57	175.06	134.58

V. CONCLUSION

Most U.S. cotton producers, textile manufacturers, apparel importers, and retailers support US-CAFTA-DR (Gelb, 2005). Our findings provide validation for the economic benefits these industry sectors would receive. However, US-CAFTA-DR faced strong opposition in the United States from the American Manufacturing Trade Action Coalition and the National Textile Association. They feared that US-CAFTA-DR would destroy tens of thousands of U.S. textile and apparel manufacturing jobs (AMTAC, 2004). Our findings again concur: the economic loss this industry has felt under CBI would expand with US-CAFTA-DR.

Accounting for the gains and losses by different industry groups cited above, US-CAFTA-DR is shown here to increase the national economic welfare of both the United States and the Central American/Caribbean region nations who have signed. The total welfare gains of the cotton T&A sectors in these countries would reach around $165 million, with the United States receiving a positive economic impact of $135 million and the Region realizing a gain of $89 million.

Studies such as this can make an important contribution to the ongoing debate in many political circles concerning the benefits of free trade agreements. The official trade position of the United States is one of open markets (USTR, 2006). Passage of US-CAFTA-DR in the U.S. was seen as a signal of U.S. commitment and leadership in the free trade agenda. Even so, the U.S. House of Representatives approved US-CAFTA-DR by a single vote. Clearly, there remains serious debate in the United States, a champion of free trade agreements, over the net gains and losses such agreements produce. While economic theory is clear in establishing the benefits of free trade, who wins and who loses have important policy implications. "The essence of a free trade agreement is to open up markets to greater access from partner

countries" (Paggi et al., 2005, p. 138). But the closeness of the vote approving CAFTA indicates that considerable doubt remains over the benefits of free trade, especially important in continuing negotiations of the WTO (Outlaw, 2005).

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