NAFTA AND THE INTEGRATION OF NORTH AMERICA'S COTTON TEXTILE AND APPAREL INDUSTRIES

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Abstract

Over the past decade, regional trade agreements have become an increasingly important part of the global trading system. And the United States has become an active participant with memberships in several trade agreements, including the North American Free Trade Agreement (NAFTA). This paper provides some insights about effects of integration on the textile and apparel industries in North America, and in particular the U.S. market, as a result of this regional trade agreement.

Introduction

Arguably, one of the sectors of the economy most deeply affected by the 1994 implementation of NAFTA has been textiles and apparel. The sector's tariff reductions imposed by the agreement were greater than those imposed on any other sector, and the changes in trade flows since the agreement came into force have been greater than any other sector (USTR).

But do regional trade agreements create trade or divert trade? Advocates of these regional agreements emphasize their trade-creating effects. By providing freer trade among members, these agreements can increase welfare by shifting regional production to the most efficient producers, enabling consumers to purchase goods at lower prices. On the other hand, opponents argue that these agreements introduce some trade discrimination because trade is likely diverted from more efficient producers in the rest of the world.

NAFTA has permitted Mexico and the United States to jointly behave as a vertically integrated firm, producing both intermediate goods (yarn and textiles) and final goods (apparel). Vertical integration at the firm level has not been the norm in textiles, but such integration at the national level has been observed frequently in the past: most countries have industries producing both intermediate and final-good textiles even given a comparative advantage that would favor one or the other.

This paper examines past trends in textile and apparel production and the effects of recent developments—like NAFTA—that have perhaps altered for good the historical pattern of locating textile production and apparel production in the same country. The trade partnership that has developed between the United States and Mexico is highlighted, concluding with a look at possible scenarios that may occur beginning in 2005 when protection from the Multi-Fiber Arrangement expires.

Stages of Textile Production

Broadly speaking, textile production is the process of converting raw fiber, such as cotton or polyester, into yarn, then fabric, and finally into finished goods such as apparel. While some segments of this process are significantly integrated within firms—for example, about 75 percent of cotton yarn production in the United States is accomplished by fabric producers (Dickerson)—vertical integration has not been the norm.

Integration between fiber production and downstream activities is uncommon, particularly for cotton. Manmade fiber (MMF) production is more concentrated than cotton production, and thus some upstream MMF producers with market power, by virtue of industry concentration, have integrated downstream into the otherwise competitive yarn-spinning industry to prevent dissipation of profits in fiber production (Perry). Cotton producers have little market power to protect through forward integration, and few spinners have integrated backwards into cotton fiber production. Integration between cotton fiber production and textiles is typically only found in developing countries where market institutions are less fully developed, rendering internalization of transactions to acquire fiber profitable. There is coordination between some U.S. cotton producers and textile firms—exemplified by direct-from-gin mill purchases (Glade)—but integration beyond the farmgate usually extends no further than the ginning process.

While more common than integration between fiber and yarn production, firm-level integration between the production of intermediate products, like yarn and fabric, and the production of final goods, like apparel, has traditionally not been the norm, particularly for European and American firms (National Research Council, 1983). There has traditionally been little opportunity for market power at either the intermediate or final stage, and foreign direct investment was also low given this lack of market power and significant intangible capital. In the United States, the exceptions to this rule have primarily been in knitwear, carpeting, and sheets—products with the least relative proportion of value-added by labor after the textile mill.

However, this paper does not focus on firm-level integration, but instead uses theories of firm behavior to examine behavior at the national level—in particular, the co-location of intermediate and final-good textile industries within a single country, or, like NAFTA, countries joined in a regional trade agreement.

Co-Location in Developing Countries

World trade has grown substantially faster than GDP in recent years as trade liberalization has facilitated the distribution of intermediate stages of production across nations. Using the analogy of firm behavior, one would say that there has been less vertical integration at the national level. For example, the assembly of computers might involve the production of chips in one country, circuit boards in another, and final assembly elsewhere. However, in clothing, much of the increase in world trade is a shifting of production away from the country of consumption—thus, developed countries like the United States increasingly import clothing rather than produce it.

Until recently, intermediate textile production followed apparel production as it made this shift from developed to developing countries. Apparel exporting countries often produce their own textiles despite indications that comparative advantage suggests apparel exporters should be importing textiles. Apparel is perhaps the least capital-intensive industry in the world (Cline), whereas textile production is very capital-intensive. Thus, the countries most suited to exporting apparel would seem poorly situated to produce textiles, but typically do so nonetheless.

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Two possible, interacting, reasons for this phenomenon can be found in: 1) the import-substitution policies typically pursued by developing countries until relatively recently, and 2) the economic benefits of co-location. Generally speaking, governments of developing countries have pursued policies aimed at increasing the amount of physical capital within their countries. To this end, import-substitution policies were typical and capital investment was subsidized. More highly processed goods received higher tariff protection through tariff escalation, and effective rates of protection often exceeded 100 percent (Krueger, et al). Non-tariff barriers in textiles were common policy instruments as well.

The second reason, the benefits of having both textile and apparel production within a country, is analogous to the reason stages of production are integrated within a firm. The reasons are described as interacting since the effects of the first reason reinforce the impact of the second. The magnitude of the benefits of integration within a single country's borders is larger due to the impact on trade of the economic policies of developing countries. Instability of trade is a potential source of hold-up problems, and hold-up problems increase the benefits of integration; instability in trade is increased by the impact of import-substitution policies.

Hold-up problems could stem from the interaction of trade and industrial policies of countries that export cloth and yarn. This adds additional risk to import-dependent apparel industries in other countries, in addition to the more general risk of changing macro-economic and trade policies in either their own or trading-partner economies. Export markets for apparel also can be a source of instability for a developing country apparel exporter, imposing a disruption from downstream rather than from upstream markets.

Developing countries' efforts to subsidize capital and promote self-sufficiency have combined with the characteristics of textile and apparel production and with developed country trade policies to make the co-location of textile and apparel production within one country somewhat rational. Co-location can reduce the potential hold-up costs that domestic and foreign trade policy can impose on firms in developing nations, opening the way to specialization and improved welfare. In addition, co-location of the stages of production can enforce repeated dealings that could also facilitate information exchange. The benefits of co-location would be conferred by integration within a state, but do not necessarily support the costs of integration of these stages within firms.

Recent Global Developments

The problems described above have largely been confined to developing countries. Developed countries are generally not forced to undertake such rapid shifts in trade and macro-economic policy, and foreign-exchange availability is seldom a trade constraint. As noted earlier, there has traditionally been little opportunity for market power at either the intermediate or final stage in developed countries, particularly with the option of importing goods from increasingly sophisticated developing country producers.

However, the last 15 years have seen substantial changes in the world economy. While useful for capturing trade and investment behavior up to perhaps 1985 or 1990, the model sketched out above may be less applicable to a world that has seen significant economic liberalization and tremendous advances in computers and telecommunications. Following the painful debt crisis of the 1980's, import-substitution models of economic development fell out of favor. Outward-oriented countries clearly provided their citizens with greater opportunities, particularly in the context of an increasingly liberal global trade regime under the auspices of successive GATT rounds.

Another recent development has been the growing importance of regional trade agreements, such as NAFTA. From the perspective of textiles and apparel, these agreements have served to link clothing importers with selected exporters permitting "outward processing" of apparel, in part from textiles produced in the clothing importing country. While this phenomenon has a longer history in Asia and the initial steps by the United States and the EU reach back to the early 1980's, the reorientation of the economies of Mexico, Eastern Europe, and the Mediterranean countries during the mid-1980's to early 1990's permitted this form of off-shore sourcing to reach its current prominence.

Finally, the structure of developed country apparel markets has been changing due to increased concentration in retailing and advances in technology. Computers and communications enable retailers to analyze consumer behavior in a more thorough and timely manner than ever before. Retailers have begun integrating backwards into apparel production to capture the benefits of this information. This information has also enhanced the advantage of rapid response to shifts in consumer preferences, enhancing the benefits of producing apparel in locations closer to developed country markets rather than distant locations with less-expensive labor.

To summarize for the case of Mexico and the United States: explosive growth for Mexico's textile and apparel industries and a shift of apparel production out of the United States that has not been accompanied by a complete shift in textile production has been the culmination of 1) Mexico's unilateral liberalization of its economy in general, and its textile and apparel industries in particular, in the mid-1980's (Hanson); 2) the implementation of NAFTA during the 1990's; and 3) the growing concentration in retailing and technical advances in information technology.

Trends in Textiles and Apparel

Trade has become increasingly important to the U.S. textile and apparel industry. During the 1960's, about 10 percent of U.S. consumer products came from imports (Graph 1). The share increased steadily through the mid-1990's but has grown substantially in recent years. By 2000, about 75 percent of all cotton products purchased in the United States were imported. In addition, about half of all cotton products produced in the United States were exported. In each case, the leading U.S. trading partner was Mexico.

While growth in cotton textile and apparel trade has flourished recently, growth in other fibers has been less robust. Between 1989 and 1993, U.S. net cotton textile and apparel imports grew 42 percent by volume, while imports of fibers, excluding cotton, advanced only 16 percent (Graph 2). However, growth after this period has been substantial for all fibers. Between 1993 and 1999, net cotton imports expanded a remarkable 77 percent. Meanwhile, imports of other fibers during this 6-year period jumped 72 percent. While NAFTA accounts for some of the difference between the growth in net imports illustrated here, other developments, including strong U.S. economic growth and exchange rate movements favoring imports, were also factors.

While Mexico has definitely been the largest beneficiary of growing U.S. textile and apparel imports, the gains have not taken the form of smaller U.S. purchases from the rest of the world (Graph 3). U.S. import growth has been strong enough to leave room for gains from other exporters as well. In particular, imports have remained strong from Caribbean Basin Initiative (CBI) exporters, where production costs and ease of transportation are comparable to Mexico's, even with Mexico's NAFTA preference. During 2000, new legislation upgraded CBI exporters' access to the U.S. markets much closer to parity with Mexico. Examining Graph 3, U.S. cotton textile and apparel imports from NAFTA and CBI countries accounted for 300 million pounds or 11 percent of total imports in 1989, with the rest of the world (ROW) contributing 89 percent. While imports from the ROW have continued to rise, U.S. imports from NAFTA and CBI countries have risen substantially. As a result, the share has become more equally divided.

Mexico alone accounted for 36 percent of the increase in U.S. cotton textile and apparel import volume growth during 1993-99. Graph 4 illustrates how the evolution of U.S.-Mexican textile and apparel trade has at times suggested apparel production was becoming vertically integrated within North America and at other times, following the traditional model, integrating within Mexico alone. Before NAFTA, U.S. apparel imports from Mexico as a share of total value were rising as firms increasingly took advantage of reduced tariffs and quota relaxation under the "807" program and CBI, but on a net basis there was little growth. Mexico's growth in apparel exports to the United States was derived almost entirely from U.S.-produced fabric or semi-finished apparel. Production was being vertically integrated across the border under the "outward processing" model.

Later, with the implementation of NAFTA—and with Mexico's severe devaluation during the 1995 Peso Crisis—U.S. net imports from Mexico begin to rise sharply, indicating Mexico was in effect taking responsibility for a greater proportion of the intermediate products used to create apparel shipped to the United States. Co-location increased in Mexico, and many of the co-located plants were under some U.S. ownership. Mexico's cotton yarn production rose about 270 percent between 1993 and 1999, and Graph 4 illustrates that for a few years Mexico's net exports to the United States rose about as fast its apparel exports. More recently, net U.S.-Mexican trade has leveled off even as apparel shipments to the United States continue to soar—a return to the cross-border integration of U.S. textile production and Mexican apparel production.

Perhaps the clearest indication that NAFTA may have permitted a division of labor between the United States and Mexico can be seen in the relative changes in U.S. employment in the textile and apparel industries (Graph 5). During the preceding 30 years, the relative proportion of apparel employment to textile employment tended to rise in the United States as technical change reduced the amount of labor needed for textile production. Opportunities for technical change in apparel production have proven less forthcoming, so employment fell less rapidly than it did in the textile industry.

During the 1990's, the combined employment in the U.S. textile and apparel industries fell by about 500,000 to 1.2 million employees in 1999. While there has been productivity growth in both industries, the employment decline in the apparel industry has been driven by trade. More than four-fifths of this decline occurred after 1994, and the decrease took place disproportionately in the apparel industry as plants closed or relocated. Since NAFTA, U.S. apparel employment has declined three-to-one versus textile employment. By 1997, the ratio of apparel employment to textile employment had fallen to its 1960 level, and continued to fall in 1998 and 1999.

Data from the U.S. Department of Labor on workers displaced due to NAFTA provides additional support for the connection between NAFTA and structural adjustment in the U.S. apparel industry. U.S. Department of Labor programs exist to assist workers who have lost their jobs due to trade. Since 1994, about one-third of worker groups receiving certification for transition benefits were workers laid off from apparel plants (Hamrick, et al). The main reason for certification under the NAFTA-Transitional Adjustment Assistance Program was that production at the affected companies shifted to Mexico.

Finally, to attempt to quantify the role NAFTA integration has played in the United States, U.S. textiles and apparel processed in Mexico before and after NAFTA were examined. Anecdotal evidence suggests that most of the U.S. exports to Mexico recorded as apparel are cut apparel pieces destined for re-export to the United States (Meyer). This would suggest that while NAFTA's liberalization would permit increased opportunities for U.S. manufacturers to produce apparel for Mexican consumers, and intermediate textiles for conversion into apparel for Mexican consumers, the opportunities presented by outward processing for reshipment back to the United States were far greater. Graph 6 illustrates this point as Mexico's share of total U.S. consumer end-use continues to expand. Prior to NAFTA, the share processed in Mexico ranged from 1-2 percent for both cotton and manmade products. However, these shares have risen significantly and by 1999, Mexico provided 6 percent of the manmade products and nearly 14 percent of the cotton products used in the United States. As a result, a growing share of all U.S. product consumption is comprised of goods partially processed in the United States from U.S. fiber and shipped to Mexico for final processing and re-export.

Conclusions

Integration of North America's textile and apparel industries has taken many forms. Mexico is now the world's largest importer of raw cotton, purchasing almost exclusively from the United States. Further downstream, the cotton textile trade flows between Mexico and the United States are also likely to be the largest in the world, although comparison is more difficult. U.S. mill consumption of cotton has been sustained to a far greater extent than in countries with similar income levels—Canada, is an exception, again likely due to the opportunities provided by NAFTA.

An important question remains—has the division of labor between Mexico and the United States supporting U.S. textile production proven so successful by bringing Mexico's apparel industry behind U.S. tariff walls and quota protection against Asian exporters? Or has NAFTA succeeded by removing barriers to realizing gains from trade that geographic proximity offers in a world where the cost of rapidly processing data on consumer preferences has fallen much faster than the cost of quickly moving apparel to take advantage of this information? In 2005, an experiment will begin as quota protection is removed per the terms of the Uruguay Round Agreement on Textiles and Clothing. If the former reason holds, apparel production would migrate out of Mexico and the Caribbean Basin, possibly reducing the ability of the U.S. intermediate textile industry to continue exporting.

It is possible that with the widespread re-orientation of the developing world away from import-substitution policies, and a general trend

towards global trade liberalization, that the migration of apparel production to distant countries might not lead to a parallel migration of textile production. The co-location of these stages of production may no longer be either pursued by government intervention, or optimal in the absence of this intervention. If so, then the location of capital-intensive and labor-intensive stages may more closely correspond to comparative advantage, and the U.S. textile industry could continue exporting, supplying the distant apparel exporters that might replace Mexico as the source of U.S. apparel.

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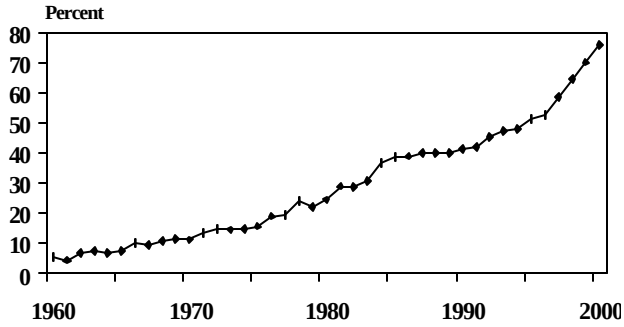
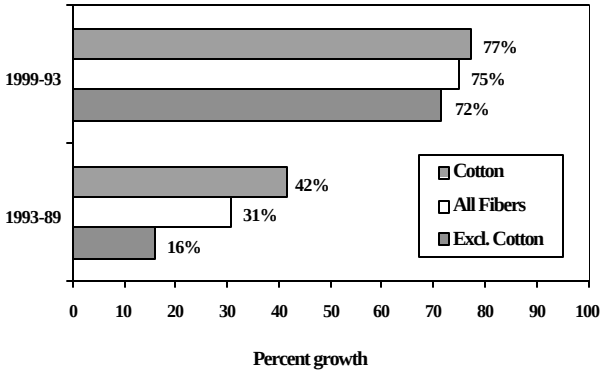
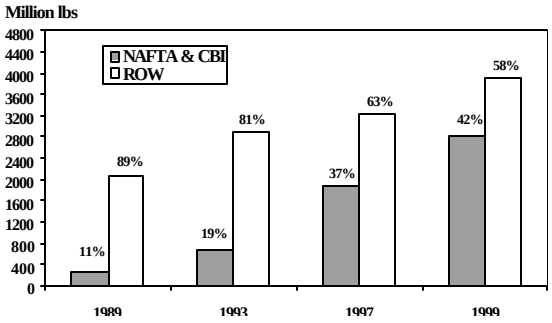


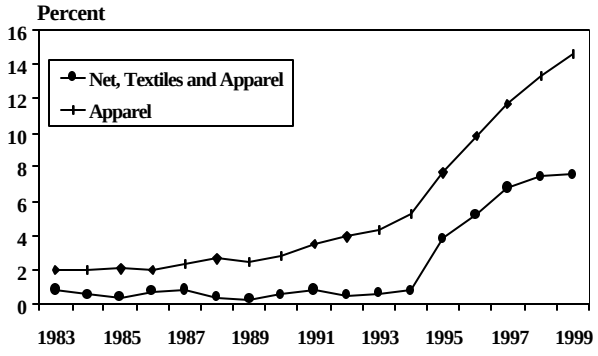
Graph 1. U.S. Import Share of End-Use: Cotton Textiles and Apparel.



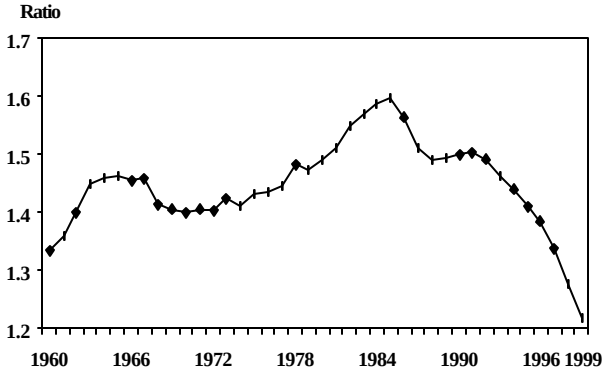
Graph 2. U.S. Net Import Growth: Textiles and Apparel.



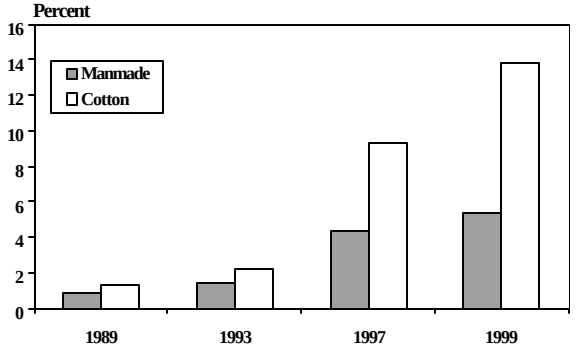
Graph 3: U.S. Cotton Textile and Apparel Imports.



Graph 4. U.S Textile and Apparel Imports: Mexico's Share of Value.



Graph 5. U.S. Apparel/Textile Employment Ratio.



Graph 6. U.S. Processed Textiles and Apparel: Mexico's share of U.S. Consumer End-Use.