

## INTERNATIONAL TEXTILE PRODUCTION AND FOREIGN DIRECT INVESTMENT

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### Abstract

Textile production in developing countries has tended to replace imports as a source of inputs for their apparel industries. This domestic sourcing, and the largely domestic ownership of the textile industry, is due to a combination of industry characteristics and government intervention by developing countries. Foreign direct investment has been growing in importance, and could grow further. The presence of cotton production in a country also seems to support the development of a textile industry, but, again, government intervention plays a role.

### Introduction

The production of cotton textiles (yarn and fabric) has been observed to migrate to countries producing either cotton fiber or cotton apparel. Vertical coordination between the different stages in the transformation of cotton fiber into textiles, and then textiles into apparel, is enhanced by a common nationality, compounding the benefits of reduced transportation costs for inputs. The low intensity of intangible capital in textile production helps ensure a high degree of domestic ownership for the industry and a smaller role for foreign direct investment (FDI). Trade and investment policies of developing countries have also played a large role in determining the distribution and ownership of textile production.

Apparel manufacturing is likely to shift away from protected countries after 2005, with the termination of import quotas imposed through the Multi-fibre Arrangement (MFA). These new or expanded apparel industries will source inputs of textiles from 3 possible sources: 1) imports, 2) domestic textile plants owned by multinational enterprises (MNEs), 3) domestic textile plants owned by domestic investors. The production of cotton textiles could shift under these circumstances, which ultimately could influence the location of cotton fiber production. This paper will examine some of the factors affecting the international distribution of the production of intermediate textile products (yarn and fabric), with particular reference to the roles of domestic fiber production and FDI.

This paper will examine two questions relevant to the future prospects for marketing U.S. cotton at home and abroad:

Does the presence of a fiber industry encourage the development of an industry that produces textiles?

Does the presence of an apparel industry encourage the development of an industry that produces textiles?

A positive answer to the first question would suggest that U.S. export markets for cotton could disappear as fiber use migrates to countries that produce their own cotton. A positive answer to the second question would suggest that the domestic market for U.S. cotton could disappear as apparel production migrates to countries with lower labor costs. Neither question is answered definitively by this study, but the conclusions at this stage are that government policy seems to have a large role, and that recent trends may be misleading.

### Cotton Production and Consumption Within a Single Market

A downward trend in the share of raw cotton that crosses international borders before it is consumed to make textiles is readily observable over the last 30 years (Figure 1). The traded share of world cotton consumption has declined from over 45 percent in the in 1960's to about 30 percent in the 1990's. From this trend some observers have drawn the conclusion that countries that produce cotton fiber have a strong comparative advantage in producing textiles. The advantages of lower transportation costs and lower cost information about the crop size and quality mean cotton importers might expect to be marginalized in future years under this scenario. Rather than pursue a detailed discussion of whether the benefits of backward linkages from a textile industry to a domestic fiber industry might be offset by other factors, I will raise some reasonable doubts to the presumption that cotton fiber producers have a natural degree of competitiveness that has been driving importers out of business

Granted, the presence of a domestic cotton industry is associated with the development of a domestic textile industry in many important cases. In 1997, the world's 4 largest consumers of cotton were also its 4 largest producers. However, 3 of these top producing/consuming countries--China, India, and Pakistan--are developing countries that have long pursued infant-industry policies protecting their domestic textile industries. In particular, they have regulated the export of cotton fiber to support spinning. The remaining member of the top 4--the United States--has seen its spinning industry supported by the preferences of U.S. consumers following years of generic product promotion for cotton. While each of these policy efforts was pursued in part because of the presence of a domestic fiber industry, it is plausible that the industries would be smaller without this intervention. Also, such interventions--excluding promotion--could be increasingly difficult to pursue in future years. China's, India's, and

Pakistan's policies are under varying degrees of scrutiny for adherence to World Trade Organization norms, and it may be more difficult for other countries to impose similar policies in the future.

### **Global Trends**

During most of the 1990's world cotton consumption and trade--particularly trade--were depressed by the collapse of one the world's largest consumers. Russia ended the 1980's the fourth largest consumer of cotton in the world, and looks ready to end the 1990's at 14th. Eastern Europe changed similarly. The correlation between the total world share of the Newly Independent States (NIS) and Eastern European consumption and the traded share of world consumption is clear (Figure 2). Similarly, the correlation between mill use of cotton and GDP growth in these regions has been fairly strong. GDP growth of at least 3 percent annually is foreseen there after 1998, suggesting a resumption of consumption and imports. If consumption in the NIS and Eastern Europe exceeds the rate of world consumption growth, the traded share of world consumption could again rise.

Another important trend concerns developments in producing countries. A decade ago, all of the 10 largest producers in the world were significant net exporters. However, in 1997, 3 of the top 10 producers are net importers, including some of the world's largest. Turkey, Brazil, and Mexico are all among the world's largest consumers of raw cotton in 1997, and all have shifted since the mid-1980's from being significant exporters of raw cotton, to being significant importers. Collectively, these 3 countries supplied about 2 million bales to the rest of the world on a consistent basis through the 1960's, 1970's, and early 1980's. As their domestic textile industries grew, they reduced their exports, and during the 1990's they collectively imported as much as 4.4 million bales from the rest of the world.

Previously their growing textile industries seemed to confirm the observation that fiber use gravitates to producing countries, but now their growing imports suggest a more complex basis for determining the location of fiber use. Also, assuming fiber use in these countries continues to outpace production, they will be driving the imported share of world fiber consumption higher in the future. Turkey's GAP project will help accelerate future cotton production there, but growing net imports by these 3 are expected nonetheless in USDA's baseline forecasts. Thus a careful examination of the steeply declining trade share of consumption since 1979 suggests it should not be projected into the future.

Finally, Japan has, like Russia, gone from major importer to a far less exalted status. Between 1987 and 1997 its imports fell more than 2 million bales. Future declines will by necessity be far smaller since Japan's use of raw cotton

totals little more than 1 million bales. Thus, continued declines in Japan's textile industry will have far less impact on world trade.

However, it is not clear that the decline of Japan's cotton consumption and imports necessarily resulted in lower world trade. Some of this decline may have represented a shift in consumption to Southeast Asian importers rather than a loss in world cotton trade. The remaining sections of this paper discuss the circumstances and prospects for FDI in developing textile industries, with particular attention paid to the special case of investment by Japan.

### **Industrial Organization Theory**

Japan appears to be an exceptional case once its behavior is examined in the context of what industrial organization theory and post-war economic development practices suggest should be the norms for trade-offs between FDI, domestically controlled investment, and trade.

Industries and countries differ in their productive characteristics, which result in particular industry structures. Developing countries have lower-cost labor than developed countries, which encourages relatively more rapid growth for labor-intensive industries like apparel in developing countries. The low capital intensity of apparel production is one of the characteristics of the industry that encourages its domestic ownership in developing countries rather than ownership by a multiplant foreign firm (a horizontal MNE).

Studies of firms' decisions to become horizontal MNEs have found a correlation that is widespread across countries and industries between FDI and the firms' intensity of research and development (R & D) and advertising expenditures (see surveys by Caves, 1982 and Markusen, 1995). R & D and advertising are examples of investment in intangible capital. Intangible capital can be transferred with little cost; using intangible capital in 2 locations costs little or no more than using it in one. Also, intangible capital is difficult to transfer to buyers. Markets in intellectual capital are far less efficient than markets for tangible, undifferentiated goods. Each transaction in intellectual capital involves the possibility for opportunism by either buyer or seller (See Williamson, 1995 for an extensive treatment of how economic agents respond to different circumstances surrounding contracting for goods and services.).

With reduced opportunities for arms-length transactions to earn compensation in foreign markets for their intellectual capital, firms must either export from their home countries, or invest in productive assets in foreign markets. The choice between exporting and investing is influenced by impediments to trade, like import tariffs in the foreign market. Also, industries with high advertising intensities tend to reach foreign markets through investment rather than exports (Morck and Yeung, 1991, and Handy and

MacDonald, 1989). This empirical relationship has been widely established, and it has been hypothesized that the high degree of responsiveness to consumer preferences implied by high advertising is too demanding to be met by production outside of the market in question.

In addition to horizontal MNEs, there are vertical MNEs (an MNE can be defined as a firm that engages in FDI). Vertical MNEs are characterized by FDI that rather than resulting in plants in several countries producing the same product, results in plants in one country that produce inputs for plants in another country. An example is an MNE's "plant" extracting oil in one country for shipment to the MNE's refinery in another country. This integration is common in extractive industries, and Caves discusses the process of such vertical FDI as backward integration to gain knowledge of international markets in inputs and to assure a continuous supply of inputs for a capital-intensive operation without the costs of extensive storage. This and other forms of vertical integration are driven by similar factors regardless of whether the integration is within one country or crosses borders.

#### **Apparel Industry Structure and Shifts in World Production**

Apparel production is one of least capital intensive industries in the world, and both horizontal and vertical integration has traditionally been limited. Cline uses unpublished data to determine that, "among the 81 International Standard Industrial Classification (ISIC) divisions at the 4-digit level, in 1978 the apparel sector (3220) ranked last in capital intensity measured by physical capital per worker, and sixty-fifth in human capital intensity.." (Cline, 1987). Since every developing country has a domestic market for apparel as well as low wage labor to produce it, the industry is suitable both with respect to inputs and markets. However, during the last 30 years, developed country imports of apparel have risen significantly, further increasing the size of the markets available to developing country apparel producers. Institutions like the co-operative buying offices of U.S. department stores and Japanese trading firms facilitate access to export markets.

Foreign ownership of clothing production is relatively unusual compared with other industries. Even foreign financial capital and entrepreneurship play relatively small roles. The low physical and human capital requirements may place a premium on cultural affinities between management and labor. As noted above, the industries with the greatest horizontal FDI are those with the highest intangible capital, particularly advertising. The production of high-quality, time-sensitive fashion garments that embody significant advertising and intellectual capital is not amenable to distant, low wage countries, and remains in developed countries. Thus, the nature of apparel amenable to offshore production does not match the characteristics of

products which firms seek to control through FDI. Furthermore, the low capital intensity of apparel production reduces the need for developing country entrepreneurs to share investment risk with foreign participants.

#### **Textile Industry Structure and Shifts in World Production**

Once apparel industries are established in developing countries, the source of their inputs (yarn & fabric) becomes an issue. Initially, these intermediate textile products are imported, but, as with apparel, industry and economy characteristics has resulted in the growth of domestic production of textiles, generally with domestic ownership.

While it is not predominant, foreign ownership is more common for textiles than it is for apparel. The industry characteristics of textile production are more conducive to FDI. Multiplant enterprises have a larger role in developed country industries for textiles than for apparel, and an MNE is just a multiplant enterprise that crosses international borders. Also, the capital requirements are higher, and fabric finishing involves proprietary processes and intangible capital. Finally, while retailers in developed countries have only infrequently vertically integrated backwards into goods production (or vice-versa), some apparel producers have integrated backwards into textile production (or vice-versa). The same concerns with asset specificity and switching costs that drive this vertical integration domestically (Williamson, 1985) could result in outward vertical FDI leading to cross-border ownership of textile plants.

However, the amount of intangible capital concerned with production technology internalized by textile firms is relatively low compared with other industries. This mitigates against cross-border ownership of plants through horizontal FDI. Since the textile industry is one of the world's oldest modern industries, its technology is relatively mature and widely available. This is particularly true at the more labor-intensive levels appropriate for developing countries. Technology is developed and manufactured not by textile firms, but by a separate textile machinery industry. Thus innovations can spread quickly and widely across firms and countries. Indicatively, the United States imports something on the order of half of its consumption of textile machinery annually. Advertising--another factor associated with horizontal FDI--is not a significant issue for an industrial input like textiles.

Vertical FDI by developed country apparel firms to own textile plants in developing countries is infrequent. U.S. vertically integrated firms selling directly to retailers largely produce products that require smaller amounts of labor after the textile mill (knitwear, carpeting, and sheets) (USITC), increasing the importance of the economies of scale possible at the intermediate stage. Therefore, there are reduced incentives for these firms to shift either the final or

intermediate stages of production. Generally, vertical integration within developed countries is relatively limited, suggesting limited incentives to vertically integrate across borders.

### **Imports Versus Domestic Textile Production**

Since intangible capital does not suggest an important role for FDI, the capital intensity and physical economies of scale inherent in developed countries' textile industries suggest they might supply developing countries with fabric imports. The circumstances that result in local production by developing countries replacing imports are worth examining. Since developing countries may accumulate a significant share of their industrial financial and human capital through foreign trade in apparel, a logical application of these resources is toward producing a familiar product with an assured market, textiles. Since domestic textile production means that the two industries share a common currency and macro-economic regime, they are less likely to force switching costs onto each other during periods of economic disruption. This, and cultural affinity, can encourage some industry-level asset specificity with less risk that foreign producers--or their governments--will later appropriate inordinate shares of the potential rents. Future research will be directed towards testing these hypothesis, and weighting their relative roles with respect to the other factors mentioned in this report. The assumption is that some of the benefits that theorists like Williamson have hypothesized for firm level benefits to vertical integration are also applicable to economy-wide developments.

The economic policies of major developing textile producers have also been important in assuring a large role for domestically owned textile industries in developing countries. While Japan was developing, it was notorious for seeking to prevent the foreign ownership of domestic productive assets, and Korea and Taiwan to some extent followed with similar policies either due to emulation or cultural similarities. For example, through 1976, Korea's inward FDI was one-tenth the size of its substantial foreign borrowing. For ideological reasons, China was inhospitable to a broad spectrum of foreign interaction, and developed its own industry for textile machinery as well as textiles. Finally, India has traditionally pursued a more inward oriented and self-reliant development strategy than East and Southeast Asia, and foreign investment has until recently been far more difficult there than in many of the Asian countries that received investment from Japanese textile firms. Consistent with this inward orientation has been limits on yarn exports to assure supplies to India's textile industry.

Furthermore, as mentioned earlier, the development goals of developing countries have often been expressed in policies that provided additional inducements to the growth of their domestic textile industries. Developing countries have tended to subsidize capital, lowering the cost of developing

a capital-intensive textile industry to supply local apparel firms. Also, tariff protection for textile products has been high, with effective rates of protection in excess of 100 percent. (Krueger, et al, 1981). While firms exporting apparel products have had widespread access to duty-free textile imports, this access has not always been consistent. Quantitative restrictions, credit restrictions, and duty prepayments are examples of instruments used to restrict imports. Sudden policy changes were also possible: for example, Indonesia assessed import duties on the basis of assumed prices rather than invoices, to avoid under invoicing. In 1975 these assumed prices on textiles were raised 75 percent. Alternatively, Indonesia operated concessionary exchange rates for raw cotton and cotton yarn when its exchange rate was overvalued.

Analogous to Pakistan's and India's export controls on raw fiber to assure domestic supplies, developing countries have not infrequently restricted exports of textile products to assure supplies for their own apparel industries. This adds additional risk to import-dependent apparel industries in other countries, in addition to the risk of changing macro-economic and trade policies in either their own or trading-partner economies.

### **Differences Between Japan and Other Developed Countries**

The net effect of the characteristics of the textile industries and the developing countries hosting them has been local production in developing countries by domestically owned firms. Traditionally, there has not been much foreign investment by American and European firms (National Research Council, 1983). "In addition," the NRC notes, "the largest amount of foreign investments made by American and European firms was in man-made fiber segments in each others' countries, rather than in fabric or apparel in developing countries." Also note that while West Germany's relatively laissez-faire approach to its apparel industry's decline during the 1970's was associated with relatively widespread use of outward processing in East Germany and other nearby lower wage countries, this practice was significantly curtailed in 1982 to harmonize with the practices of other Community members.

"On the other hand, Japanese companies made major foreign investments in all segments of the textile complex....Firms based in Hong Kong, Korea, and Taiwan also made major foreign investments in East Asia and the PRC, although to a lesser extent than Japanese firms and sometimes in conjunction with Japanese firms (NRC, 1983)."

While Hong Kong's use of vertical integration and FDI in Southeast Asia might suggest that the relative dearth of such practices by American and European firms is the exception, Japan's particularly extensive use of FDI probably represents a special case.

During the 1960's and 1970's several trends resulted in a shift in Japan's policy of discouraging outward investment toward actively encouraging it. These trends were,

- 1) labor shortages and wage increases in industry,
- 2) growing import constraints specific to Japan under the MFA, and
- 3) rapidly accumulating foreign exchange reserves, raising the value of the yen.

Government policy was particularly active towards encouraging shifts in textile and apparel (Ozawa, 1979). By 1975, 34 percent of Japanese firms' overseas investment was financed by government affiliated financial institution, and textiles accounted for more of this investment than any other industry.

Japan's textile industry is also much more vertically integrated than that of other developed countries. Japanese firms producing synthetic fibers also derive a larger share of their sales from fiber sales than such firms in other developed countries. This industrial structure has been more conducive to FDI by Japanese textile firms. The combination of Japanese industry characteristics and government policy has led to a significant increase for the role of FDI in developing country textile industries than has historically been the case. Assessing the relative weights and permanence of these and other factors behind the growth of textile industries in non-cotton producing developing countries will be necessary in order to determine if similar trends can be expected in the future.

The textile industries of Southeast Asia--and the volume of world cotton imports--may have benefited from the combination of an unusual investment orientation by Japanese firms coinciding with a dearth of investment opportunities in other apparel producing countries. Possibly, more of Southeast Asia's textile production would have instead been located in fiber-producing countries, and world trade in cotton would be lower, had Japanese firms not sought control of overseas textile production when India and (initially) China were resisting FDI. Since apparel industries are likely to continue to develop in low-income Asian and African countries that do not produce fiber, the question of whether they will import textiles or readily shift to producing their own does not seem readily answered by the example of Southeast Asia's experience.

### **Future Prospects**

Under competition from imports, and in response to the opportunities provided by NAFTA and the Caribbean Basin Initiative, U.S. industry has become more amenable to foreign investment and exporting. Attrition in the US apparel industry has fallen more heavily on smaller firms (Redman and Amt, 1995). As capital and knowledge-intensity of the average firm increases, the average firm is more likely to engage in FDI or outward processing.

Vertical integration of the U.S. industry since the mid-1980's has proceeded "to a greater extent than elsewhere." (Heijbrok and Husken, 1996) More recently, outward processing trade between Europe and Eastern Europe has again increased. Poland has become the second largest market for EU fabric (after the U.S.) and has helped reduce the EU's cotton fabric trade deficit. Tunisia and Morocco are other important EU outward processing points.

Design and branding in apparel are increasingly done by retailers rather than manufacturers, and global distribution is increasingly centralized. Retailers are able to communicate exact specifications, production schedules, and shipping instructions to overseas apparel producers. With growing international communication opportunities, the ability to effectively coordinate could provide an edge to more economically advanced apparel-producing nations outside the developed countries. Closer contact with rapidly changing fashions is expected to help maintain apparel industries in developed countries, and higher-income developing countries may benefit from a second-tier ability to respond.

Trade liberalization may reduce the likelihood of export restrictions on intermediate products and reduce the ability of developing countries to exclude imports from developed countries. A reduction of active or potential export restrictions on intermediate textile products would reduce some of the benefits to an apparel producing country of internalizing textile production, as would reduced import protection. Under conditions of general global liberalization of trade and investment new patterns are already emerging. Forecasting future developments in the location of textile production will require careful examination of domestic investment, changing industry structure, and changing international trade policies. With potentially large shifts in apparel production after 2005 this examination will be crucial in foreseeing the future international distribution of textile production.

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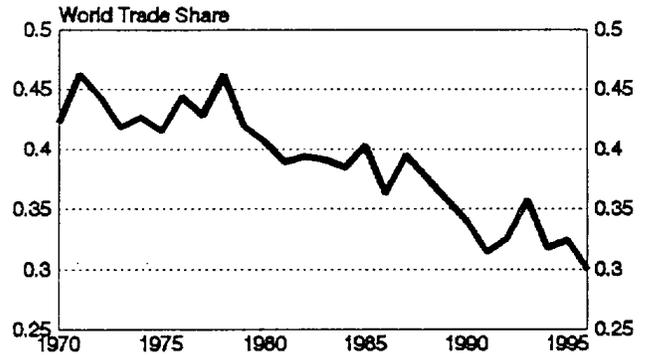


Figure 1. World Cotton Trade as Share of World Consumption.

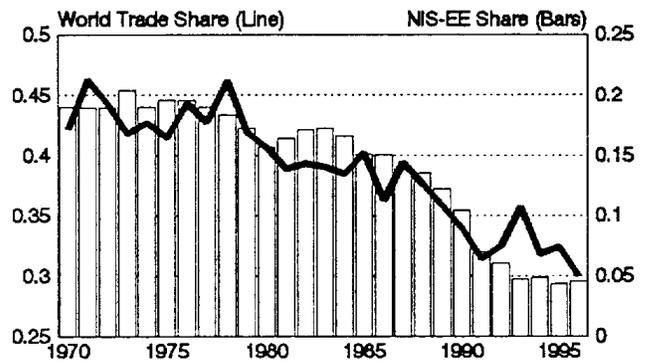


Figure 2. World Trade and NIS-EE Consumption as Share of World Consumption.