

Competitiveness of the Domestic Textile and Apparel Industries

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Global competition from cheap imports, due largely to low wages and favorable exchange rates in exporting countries, has been a major factor in the U.S. textile and apparel industry. At the industry, sector and firm level, we are identifying ways to improve global competitiveness of the U.S. textile and apparel industries by examining

- new technology to find least cost production methods.
- effects of tariff removal under NAFTA, exchange rates and labor wages on the pattern of U.S. textile trade.
- the capital-structure of U.S. textile firms.

We are developing a model that will optimize labor/capital ratios and energy resources and measure the impact of trade agreements and foreign competition.

To achieve the above objectives, we collected detailed data on input costs and prices for the period 1949-2001.¹ Labor and material costs account for the highest share of textile production costs. Labor which was nearly 1/2 of costs in the early 1950s, gradually declined to about 1/3 of costs by the end of the 1990s, while the share of capital has remained between 10-15% of total costs. Nonetheless, the U.S. textile industry is still fairly labor intensive, so that low wages in developing countries and favorable foreign exchange rates vis-à-vis the U.S. dollar, especially in Asia, still pose a major threat. The key to increasing the competitiveness of the U.S. textile industry may lie in reducing labor intensity and moving towards a more capital and technology-intensive production.

Industry and Sector Cost Analysis

We used a *transcendental logarithmic* cost function at the overall industry level, to estimate substitution possibilities among inputs (i.e. capital, labor, energy and materials), to study the nature of technological change and its role in improving competitiveness, and to determine scale economies in the U.S. textile industry. We found that

- capital and materials are substitutes for labor in textile production; but, the extent of substitutability is small.
- In textiles, energy and materials were complements prior to the oil crisis of 1975, but substitutes thereafter.

¹ at the industry level (2-digit SIC code) and sector level (4-digit SIC code) from the Bureau of Labor Statistics (BLS) and the Annual Survey of Manufacturers. Imports as well as exports and foreign exchange rates data for 1989-2001, were collected from the US International Trade Commission (USITC), International Financial Statistics and Heston and Summers Penn World Tables. Financial data on textile firms for the period 1989-2001 was collected from Standard and Poor's Compustat.

- In apparel, labor and materials are complements i.e. an increase in material use entails an increase in labor.
- the textile industry favors large over small firm size.
- technical change reduced costs about 2.4%/yr in textiles and about 0.7%/yr in apparel.
- measures of technical change indicate a labor-saving and material-using bias in technology.

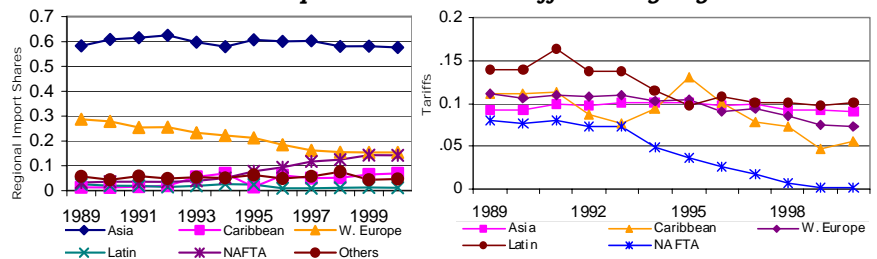
Sector Trends in Textiles

We found that SIC sectors¹ that were very labor and energy intensive (such as broadwovens) with low technological progress had high import growth; whereas, sectors with high shipping costs (such as carpets and rugs) and those in highly capital-intensive sectors with low employment and higher rates of technical progress (such as non-wovens & coated fabrics) had low import competition. We are surveying U.S. industry to verify how productivity measures are derived for the textile and apparel industries and to analyze their relevance.

Factors Impacting U.S. Textile Imports

The U.S. textile industry has become increasingly vulnerable to import competition with textile imports outstripping textile exports since the early 1980s. As protective trade barriers gradually phase out, global competition has intensified. The passage of the North American Free Trade Agreement (NAFTA) in 1994 and The Caribbean Basin Initiative (CBI) in 2000 has reconfigured the structure of production and trade in textiles and apparel. Since 1994 NAFTA and Caribbean countries have significantly increased their share of U.S. textile imports [see graph below left], U.S. textile firms are more competitive since partnerships with countries closer to home markets has reduced delivery time and transportation costs. In addition, much of the apparel imported from Mexico and the Caribbean contains U.S. yarn and fabric. Meanwhile, Asia has maintained its import share at around 58%, while the European Union (EU) share has dramatically declined. Lowering tariff rates between the U.S. and NAFTA and Caribbean countries has also played a significant role in increasing U.S. trade with the two regions [see graph below right].

U.S. Textile Import Shares and Tariff Rates by Region



Using a gravity model⁶ to estimate country *i*'s share of U.S. textile imports, we found that

- a 1% tariff rate increase reduces country *i*'s share of U.S. imports of textiles by 2.6%.
- if *i*'s currency rises against the dollar (i.e., a decline in the real exchange rate) *i*'s share of textiles imported into the U.S. decreases.
- countries with relatively cheap labor do not have higher shares of U.S. imports than do richer countries.

Optimal Capital Structure of U.S. Textile Firms

Companies are continuously attempting to maximize economic value of the firm through an optimal capital structure policy. We used a panel data regression approach to model the debt-to-equity ratio as a function of capital expenditure, profitability, tax rate, non-depreciation tax shield, firm asset size, sales growth and exchange rate. We found the determinants of capital structure in the U.S. textile industry to be

- Firms are financing capital expenditure more through equity offerings than through borrowings.
- Larger assets firms have higher levels of debt.
- Growing and profitable firms rely on internally generated funds.

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Industry Interactions: 5 [P/Kaufman, UNIFI Far East, Pacific Century Textiles (HK) Best Practices LLC]

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For Further Information:

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